Bureau Veritas Certification Holding SAS

BUREAU VERITAS
CERTIFICATION
Reviewed
Init
Date: 17/11/2011

DETERMINATION REPORT

JSC TERRITORIAL GENERATION COMPANY # 2

DETERMINATION OF THE THE IMPLEMENTATION OF THE COMBINED-CYCLE PLANT AT NOVGOROD HEAT AND POWER STATION OJSC "TGC-2", RUSSIA

REPORT NO. RUSSIA-DET/0152/2011
REVISION NO. 01

BUREAU VERITAS CERTIFICATION

Determination Protocol on JI project

The implementation of the combined-cycle plant at Novgorod heat and power station OJSC "TGC-2", Russia

Date of first issue:	Organizational unit:
10/11/2011	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
JSC "TGC-2"	L. Musatova.

Summary:

Bureau Veritas Certification has made the "The implementation of the combined-cycle plant at Novgorod heat and power station OJSC "TGC-2", Russia " project of the JSC Territorial Generation Company # 2 located in city of Novgorod, Novgorod oblast, Russian Federation 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 on-site 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 Corrective Actions Requests (CAR) , Clarification Request (CL) and Forward Action Request (FAR), 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 correctly applies Guidance on criteria for baseline setting and monitoring and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Report No.:	Subject Group:
RUSSIA-det/0152/2011	JI
Project title: The implementation of the combined-cycle plant at Novgorod heat and power station OJSC "TGC-2", Russia	
Work carried out by: Leonid Yaskin – Team Leader, Lead Verifier	
Work verified by: Daniil Ukhanov – Internal Technical Reviewer	
Work approved by: Leonid Yaskin – Operational Manager	

Date of this revision:	Rev. No.:	Number of pages
10/11/2011	01	46

Abbreviations

AIE	Accredited Independent Entity
BVC	Bureau Veritas Certification
CAR	Corrective Action Request
CCP	Combined Cycle Plant
CL	Clarification Request
CO_2	Carbon Dioxide
DDR	Draft Determination Report
EIA	Environmental Impact Assessment
ERU	Emission Reduction Unit
GHG	Greenhouse House Gas(es)
HPS	Heat and Power Station
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
NCSF	National Carbon Sequestration Foundation JSC
PDD	Project Design Document
RAO EES	Russian Joint Stock Company "United Energy System of Russia"
JSC	Joint Stock Company
PP	Project Participant
RF	Russian Federation
TGC-2	Territorial Generation Company #2
tCO2e	Tonnes CO2 equivalent
UNFCCC	United Nations Framework Convention for Climate Change
UPG	United Power Grid

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1 INTRODUCTION

JSC "Territorial Generation Company #2 (hereafter referred 'TGC-2') has commissioned Bureau Veritas Certification to determine JSC "The implementation of the combined-cycle plant at Novgorod heat and power station OJSC "TGC-2", Russia" project of the JSC Territorial Generation Company # 2 (hereafter referred 'the project') located in city of Novgorod, Novgorod oblast, 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 meet 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:

Leonid Yaskin
Bureau Veritas Certification Team Leader, Climate Change Lead Verifier

This determination report was reviewed by:

Daniil Ukhanov
Bureau Veritas Certification, Internal Technical 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 original Project Design Document (PDD) v. 01 dated February 2011 submitted by the Consultant JSC "National Carbon Sequestration Foundation" (hereafter referred 'NCSF') on 11/07/2011 for determination as well as 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 and corrective action requests were reported.

To address Bureau Veritas Certification corrective action requests, NCSF revised the original PDD and resubmitted it as v.02 dated 03/10/2011.

The determination findings presented in this report relate to the project as described in the above mentioned versions of the PDD.

2.2 Follow-up Interviews

On 09/10/2011 Bureau Veritas Certification conducted interviews with the project participant TGC-2 and the consultant NCSF to confirm selected information about the technical and economic characteristics and parameters of the project and to clarify issues identified in the review of the PDD v.01 and v.02. Interviewees are listed in References. The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Project participant JSC «TGC-2»	• The project history. • Current status of the project. • Confirmation of the starting date of the crediting period. • Equipment for measuring gas consumption. • Monitoring plan. • EIA, Conclusion of Glavgosexpertiza. • Operational and managerial structure of monitoring.
Consultant NCSF	• Justification of the selected baseline • Investments analysis. • Grid emission factor • Calculations of Emission Reduction in the PDD.

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.

If Bureau Veritas Certification, in assessing the PDD and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to JI project requirements, it should raise these issues and inform the project participants of these issues in the form of:

(a) Corrective action request (CAR), requesting the project participants to correct a mistake in the published PDD that is not in accordance with the (technical) process used for the project or relevant JI project requirement or that shows any other logical flaw;

(b) Clarification request (CL), requesting the project participants to provide additional information for Bureau Veritas Certification to assess compliance with the JI project requirement in question;

(c) Forward action request (FAR), informing the project participants of an issue, relating to project implementation but not project design, that needs to be reviewed during the first verification of the project.

Bureau Veritas Certification should make an objective assessment as to whether the actions taken by the project participants, if any, satisfactorily resolve the issues raised, if any, and should conclude its findings of the determination.

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 (quoted by PDD v.02)

The goals and objectives of this project are to increase the utilization efficiency of the existing (factual) volume of natural gas burned at the HPS (389 ths per year), to improve the performance indicators and increase the competitiveness of the HPS in the power market through the application of modern technologies which produce heat and electric power.

In the course of the implementation of the project the proposal is to install in the main building of the heat and power station (HPS) a gas turbine unit GTE-160 (LMZ), with a waste-heat boiler which has steam parameters equal to 9 MPa (90 atm) and 500-520°C. Steam released by the waste-heat boiler is sent to the existing turbine PT-60-130/13 st.#1 transferable to lower parameters.

As a result of the proposed technical solution a combined cycle plant CCP-210 with a capacity of 210 MW will be laid out.

The CCP-210 MW operates in the base mode with an annual installed capacity of 5400 hours per year. The supply of heat from the steam turbine selection PT-60-130/13 covers the heat consumption from bleed steam and the warming of system water. All electric power delivered from the CCP-210 unit, will be sold on the open market (DAM).

The operation of the steam turbine T-28 according to the heat schedule covers the existing heat consumption from bleed steam and the warming of system water. The maximum load during the winter period is covered by the existing gas turbine facilities and hot-water boilers. All the electric power from the CCCP-210 unit will be sold on the open market.

Before the project began the Novgorod region was supplied with electric power by the plants of Novgorod region; 70% of the electric power was imported from the Russian power network.

Baseline scenario
The continuation of the existing situation is regarded as the baseline scenario. Electric power for the Novgorod region is supplied by the Novgorod HPS in the volume that can be generated at the existing facilities. The remaining volume required will be covered by the production of electric power by other electric power supply sources in the Novgorod region – from the Russian power network plants (the grid).

Project
The Project scenario involves the installation of a GTE-160 gas turbine unit (LMZ) with a steam waste-heat boiler at the Novgorod HPS.

As a result of the project the new units at the Novgorod HPS built with more efficient technology will generate electric power which will replace the electric power generated by the power plants of the Russian power network, which uses less effective technologies.

The specific fuel consumption for the electricity at the CCP-210 of the Novgorod HPS will be 282.4 g / kWh. The average specific fuel consumption in the Russian power network is about 330 g /kWh. The implementation of the Project will result in a fuel saving at the electric power plants of the Russian power network, which will lead to a correspondent reduction in the emission of greenhouse gases and pollutants due to the reduction in the fuel burned at the HPSs and thermal power plants (HPSs).

Project development
The implementation of the provisions of the Kyoto Protocol within the subdivisions of the company began before the establishment of the OJSC "TGC-2" and during the period of existence of the RAO "UES of Russia".
In 2003-2004 an inventory of greenhouse gas emissions for the subdivisions of the Company for 1990-2002 was carried out by the NIEO "Energy Carbon Fund".

In the beginning of 2007 NIEO "Energy Carbon Fund" upon an agreement with the OJSC "TGC-2" which was established in February 2005, carried out an inventory of greenhouse gas emissions and potential assessment of the reduction of greenhouse gas emissions for the OJSC "TGC-2". On the basis of the results of this work recommendations were made on 5 potential joint projects, including the reconstruction of the Novgorod HPS. On the basis of these recommendations a Project Business Plan was developed which considered the Kyoto Protocol requirements. On June 6, 2007 the project was

submitted for consideration by the Investment Commission of the RAO "UES of Russia" and was included in the Investment program of the holding. On June 16, 2007 at the meeting of the Board of Directors of the RAO "EES of Russia," a decision was made to enter into agreements to prepare project design documents within the bounds of Kyoto Protocol was made. On August 14, 2007 the project was approved by the Board of Directors of the OJSC "TGC-2" and the company began to implement the project.

The new facilities are planned to be brought into service in 2011. Thus, the implementation of the project will lead to a reduction of greenhouse gas emissions of 171,095 tCO2e from 2011- 2012.

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 communications are described in the Determination Protocol in Appendix A.

The Corrective Action Requests are stated, where appropriate, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 10 Corrective Action Requests, 1 Clarification Request and 1 Forward Action Request.

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 parties involved. This was reported in CAR 01 which remains pending.

4.2 Authorization of project participants by Parties involved (21)

The participation of JSC "TGC-2" listed as project participant in the PDD is not authorized by the Parties involved.

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

4.3 Baseline setting (22-26)

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 baseline is established basically:

(a) By listing and describing future scenarios available for the project owner TGC-2 and selecting the scenario least influenced by the key factors. Three alternative scenarios (AS) were listed and assessed as follows:
AS1. Continuation of the current situation. Electric power at the Novgorod HPS is produced with the PT-turbine at the same level. The remaining amount of electricity (required to maintain the balance with the electric energy produced by the project activity - AIE) will be generated by the Russian power network.
AS2. Realisation of the project without JI registration.
AS3. Implementation of project using equipment other than CCP-210. Three Options of CPP of a higher capacity are considered.

Based on alternatives analysis with taking into account the key factors in (b) below a conclusion is made in Section B.1 that AS1 is the baseline scenario.

(b) By taking into account the key factors that affect a baseline:
- Sectoral reform policies and legislation with reference to the Concept of RAO UES of Russia strategy for 2003-2008 "5+5" "Generating companies of the wholesale electricity market";
- demand for additional amount of gas for CCP 210 presents an organization problem of agreeing the increase of gas limit for Novgorod HPS.
- Availability of the necessary network infrastructure to transfer electricity in the full volume produced;
- Economic situation and availability of funds (including Economic attractiveness of the alternative case), price of fuel;
- Local availability of technologies, equipment, experience and know-how;
- Industrial steam bleeding parameters.

(c) Basically in a transparent manner with regard to the choice of approaches, methodologies, parameters, data sources and key factors. Assumptions are not identified.

(d) Taking account of uncertainties and using conservative assumptions is not evident.

(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 of the list of standard variables contained in appendix B to Guidance on criteria for baseline and monitoring.

The key information and data used to establish the baseline are provided in the required tabular forms.

Outstanding issues related to Baseline setting (22-26), PP's response and the AIE conclusion are summarized in Appendix A (refer to CAR 02–CAR 05, CL 01).

The issued CARs concern:
- The missing theoretical description of the baseline (CAR 02);
- The need to take into account other key factors that affect a baseline as specified in Guidance Paragraph 25 (CAR 03);
- Lack of transparency as to accounting uncertainties and the used assumptions, including conservative ones (CAR 04);
- Omission of key parameters and variables used to determine the baseline (CAR 05).

The issued CL 01concerns calculation of the specific gas consumption per heat supplied.

4.4 Additionality (27-31)

It is explicitly indicated that the approach envisaged in Annex 1, paragraph 2a of Guidance on criteria for baseline setting and monitoring Version 02 was used.

According to the applied approach, additionality is proven by investment analysis and common practice analysis.

Investment analysis made by TGC-2 with the use of company's input data is presented on the excel spreadsheet (Annex 4). It covers the 20 years period from start of construction. The growth rate of the tariffs, fuel prices and inflationary expectations are considered in accordance with the scenario conditions of development of the electric power industry. The benchmark for making a decision on the project implementation is the discounted payback period. It should not exceed 5 years. The calculations of the basic variant supplemented by the sensitivity analysis show that the discounted pay-back period is higher than the benchmark, hence the project is not economically attractive for TGC-2.

The AIE observes that the investment analysis possesses conservativeness: commissioning year moved from 2009 (calculation in Annex 4) to 2011; gas tariffs in 2012-2015 are understated and electricity tariffs overall overstated

as compared with the official RF Forecast 2008. Discount rate (WACC) was justified in PDD Annex 4 to be 16,72%.

Common practice analysis has shown that projects to install CCP are not widely observed and commonly carried out in Russia. The AIE observes that implementation of CCP has become the trend in Russia during the last decade; most of such projects are implemented as JI. However, in Novgorod region, a similar gas turbine technology of the same scale is definitely not the common practice.

No outstanding issues related to Additionality (27-31) were reported.

4.5 Project boundary (32-33)

JI specific approach
The project boundary encompasses all anthropogenic emissions by sources of greenhouse gases as listed in Table B.3-1 which are:(i) under the control of the project participants; (ii) reasonably attributable to the project; and (iii) significant.

The project boundary is defined on the basis of case-by-case assessment of different emission sources.

The identified sources of the accountable emissions are fuel combustion at Novgorod HPS and at power plants in the United Power Grid "North West".

Delineation of the project boundary and the sources is described and justified in the PDD by using the Diagrams B.3.1 and B.3.2 and Table B.3.1.

All exclusions made are appropriate as a conservative or logic assumption based on data from IPCC V.2.Ch2.

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

Outstanding issue related to Project boundary (32-33), PP's response and the AIE conclusion are summarized in Appendix A (refer to CAR 06).

The issued CAR 06 concerns the quality of information on the diagrams.

4.6 Crediting period (34)

The project's starting date is indicated in the PDD and determined by the AIE as July 10, 2008 being the beginning of work to install CCP-210.

The PDD states the expected operational lifetime of the project in years and months, which is 15 years or 180 months: 01/07/2011 – 30/06/2026.

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The PDD defines the length of the crediting period as 1 year and 6 months. as from as from 01.07.2011 to 31.12.2012 and the starting date 01/07/2011 is the date the first emission reductions are generated by the project.

Outstanding issue related to Crediting period (34), PP's response and the AIE conclusion are summarized in Appendix A (refer to CAR 07).

The issued CAR 07 concerns the conformity of the operational life time 15 years with provisions of TGK-2 regulation on investment analysis.

4.7 Monitoring plan (35-39)

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

JI specific approach

The monitoring plan adequately specifies the indicators, constants and variables used that are reliable, valid and provide transparent picture of the emission reductions to be monitored.

The monitoring plan describes:
- data to be monitored: M1 - Gas consumption by CCP unit for production of electric energy; M2 - Gas caloric value; M3 - Production of electric energy by the CCP; M4 – Electric energy consumption by the CCP for own needs;
- the period in which these parameters will be monitored - monthly (M1, M2) or regularly (M3 – M4);
- formulae for estimation of project and baseline emissions;
- all decisive factors for the control and reporting of project performance: 2tp statistics forms.

Constants used are the default values of the parameters as follows:
- emission factor of natural gas (2006 IPCC);
- specific fuel consumption for generation of electric energy at the Novgorod HPS (TGC-2 data);
- grid power network emission factor (taken from PDD JI-0197).

The default values originate from recognized sources and are presented in a transparent manner.

The monitoring plan explicitly and clearly distinguishes:
(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 grid emission factor and specific fuel consumption;
(ii) N/A (refer to para 36 (d));
(iii) Data and parameters that are monitored throughout the crediting period (please see above).

The monitoring plan draws on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring" developed by the JISC, as appropriate (project and baseline emissions and their components, and relevant emission factors).

The monitoring plan outlines the quality assurance and control procedures for the monitoring process.

The monitoring plan clearly identifies the responsibilities and the authority regarding the monitoring activities. Responsibilities concern inter alia data collection, data storing and archiving estimation of emission reduction, and monitoring report preparation and approval.

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

Outstanding issues related to Monitoring plan (35-39), PP's response and the AIE conclusion are summarized in Appendix A (refer to CAR 08, CAR 09).

The issued CARs concern:
- The inclusion of the natural gas density and the specific fuel consumption for electricity generation in the parameters to be monitored (CAR 08);
- The correction of Formulae D.1-4 to include density of natural gas (CAR 09);

FAR 01 is left pending till the 1st verification. It concerns the monitoring procedures to be followed if expected data are unavailable.

4.8 Leakage (40-41)

JI specific approach
Leakage is conservatively neglected.

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

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

The PDD provides the ex ante estimates of emission reduction from the project (within the project boundary), which is 171,095 tCO2e for the crediting period;

The estimates referred to above are given:
(a) On an annual basis;
(b) From 01/07/2011 to 31/12/2012;
(c) On a source-by-source basis;
(d) For CO2 as GHG emitted.
(e) In tonnes of CO2 equivalent.

The formulae used for calculating the estimates referred above, which are Formulae in Sections D.1.1.2 and D.1.1.4 are consistent throughout the PDD.

For calculating the estimates referred to above, key factors defined in the monitoring plain 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 PDD Section E includes an illustrative ex ante emissions calculation.

No outstanding issues related to Estimation of emission reduction (42-47), were reported.

4.10 Environmental impacts (48)

Environmental impact assessment (EIA) is made as a part of the designed documentation of the project Expansion of the Novgorod HPS with a gas turbine unit GTE-160 with a steam waste-heat boiler". Information about impact on environment from air pollution, waste generation and noise is summarized in Section F.1.

The project received a positive Conclusion of Glavgosexpertiza of Russia and a Permit for Air Emission from Rostekhnadzor.

No outstanding issues related to Environmental impacts (48) were reported.

4.11 Stakeholder consultation (49)

No stakeholder comments were received during public hearing.

Outstanding issue related to Monitoring plan (35-39), PP's response and the AIE conclusion are summarized in Appendix A (refer to CAR 10).

The issued CAR 10 concerns provision of information about stakeholders' comments during the public hearing.

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 « The implementation of the combined-cycle plant at Novgorod heat and power station OJSC "TGC-2", Russia» project. The determination was performed on the basis of UNFCCC criteria and host country criteria and also on the crite-

ria 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 participants; iii) the resolution of outstanding issues and the issuance of the final determination report and opinion.

Using investment analysis and common practice analysis the project participants proved that the project activity itself is not the baseline scenario.

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 fulfillment 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 02 dated 03/10/2011 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 GM&T that relate directly to the GHG components of the project.

/1/ PDD "The implementation of the combined-cycle plant at Novgorod heat and power station OJSC "TGC-2", Russia, Versions 01 – 02.
Supporting documentation:
– Excel sheet Novgorod CCP-210 economics
– Calculation of emission reduction Novgorod CCP-210

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

/1/ JI Guidelines;
/2/ Guidelines for Users of the JI PDD Form (Version 04), JISC;
/3/ Guidance on criteria for baseline setting and monitoring (Version 03), JISC;
/4/ Minutes of meeting of RAO EES Commission on Investments dated 14/08/2007, decisions under Issue 4 "Approve extension of Novgorod HPS".
/5/ Minutes of meeting of RAO EES #1702пр dated 16/07/2007 On attraction of carbon financing of RAO EES investment projects. Includes decision on Novgorod HPS.
/6/ Regulation on Investment Activity with Appendixes, TGC- 2, 2005
/7/ Statistics forms 6-tp for Novgorod HPS, years 2008, 2009, 2010.
/8/ Novgorod CCP Working Design, Explanatory Note, ЗАО "СибКОТЭС", 2008.
/9/ Novgorod CCP Working Design v.7 Measures on environment protection, ЗАО "СибКОТЭС", 2008.
/10/ Informational letter of TGC-2 about definition of pay-back period dated 30/09/2011.

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/ L. Musatova - TGC-2 Head of Business Development Department.
/2/ E. Baidakova – NCSF Lead expert of Project Development department

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APPENDIX A

DETERMINATION PROTOCOL

Table 1

Check list for determination, according JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (REVISION 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 presented. It is "The implementation of the combined-cycle plant at Novgorod heat and power station OJSC "TGC-2", Russia". .		OK
-	Is the sectoral scope to which the project pertains presented?	The indicated sectoral scope of the project is: (1) Energy industries (renewable/non-renewable sources),		OK
-	Is the current version number of the document presented?	PDD Version 01.		OK
-	Is the date when the document was completed presented?	PDD Version 01 dated February 2010. PDD Version 02 dated 03/10/2011		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 project goals and objectives are stated in Section A.2 as follows: "To increase the utilization efficiency of the existing (factual) volume of natural gas burned at the HPS to improve the performance indicators and increase the competitiveness		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description)?	of the HPS in the power market through the application of modern technologies which produce heat and electric power". In the course of the implementation of the project, a combine cycle plant with capacity of 210 MW (CCP-210) will be installed in the main building based of OJSC Power Machines gas turbine unit GTE-160 with capacity 157 MW, waste-heat boiler P-137 of two pressures 9.48/0.61 MPa and temperatures 545/227°C produced by OJSC IK ZIOMAR, and steam turbine PT-50-9,0/1,28 with capacity 50 MW reconstructed by OJSC Uralenergoremont. Requirements a), b), c) to the content of Section A.2 are basically met.		
-	Is the history of the project (incl. its JI component) briefly summarized?	The history of the project (incl. its JI component) is briefly summarized on page 3. TGC-2 was established in February 2005. In the beginning of 2007 Energy Carbon Fund carried out for TGC-2 an inventory of GHG emissions and assessment of potential for the reduction thereof. On the basis of the results of this work recommendations were made on 5 potential JI projects, including the reconstruction of the Novgorod HPS. On the basis of these recommendations a Project Business Plan was developed which considered the Kyoto Protocol requirements. On June 6, 2007 the project was submitted for consideration by the Investment Commission of the RAO "UES of Russia" and was included in the Investment program of the holding. On June 16, 2007 at the	Pending	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		meeting of the Board of Directors of the RAO "EES of Russia," a decision was made to enter into agreements to prepare PDD. On August 14, 2007 the project was approved by the Board of Directors of TGC-2 and the company began to implement the project. **RFI 01.** Please provide the AIE a documented evidence of the above mentioned facts.		
Project participants				
-	Are project participants and Party(ies) involved in the project listed?	The Party and project participant involved in the project are listed as follows: - Party A the Russian Federation and its legal entity OJSC Territorial Generation Company # 2 (OJSC "TGC-2"). - Party B is not defined.		OK
-	Is the data of the project participants presented in tabular format?	The data of the project participant are presented in due 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?	Russian Federation is indicated as Host Party.		OK
Technical description of the project **Location of the project**				
-	Host Party	Russian Federation.		OK
-	Region/State/Province etc.	Novgorod region.		OK
-	City/Town/Community etc.	The city of Veliky Novgorod.		OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one	Geographical coordinates of Novgorod HPS are indicated on Picture A.4.1.4.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	page)			
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?	Section A.4.2 outlines main technologies to be employed including all relevant technical data and the implementation schedule. **CL 01.** Specific gas consumption per heat delivered in Table A-2 is indicated to be 134,8 kgfe/Gcal what implies efficiency >100% (=142,9 kgfe/Gcal).Please clarify the method of calculating the value in question.	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)	According to the PDD, the implementation of the project will lead to the generation of additional electric energy at the Novgorod HPS owing to the installation of CPP-210, as well as the replacement of the electric energy output of the turbine PT-60. The CCP 210 will deliver electric energy with a specific fuel consumption of 282 gfe/kWh, which corresponds to a GHG emission factor of 0.464 tCO_2/MWh. Electricity generation by CCP-210 will replace the electric energy that would be generated by the PT-60 and also by less efficient electric power plants of the local grid. The specific fuel consumption at the existing Novgorod HPS is 391 gfe/kWh (643 tCO2/MWh - AIE). The GHG emission factor of the United Power Grid "North West" is assessed to be 0,548 tCO2/MWh. Thus, due to the lower thermal efficiency, the existing turbine PT-60 and grid power plants will generate more GHG emissions than CCP-210.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
-	Is it provided the estimation of emission reductions over the crediting period?	The estimation of emission reductions over the crediting period is provided.		OK
-	Is it provided the estimated annual reduction for the chosen credit period in tCO2e?	The estimated annual reduction for the chosen credit period is provided in tCO2e.		OK
-	Are the data from questions above presented in tabular format?	The data from questions above are presented in tabular format. Refer to Table A.4.3.1.		OK
-	Is the length of the crediting period Indicated?	The length of the crediting period is indicated as 1,5 years.		OK
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO2 equivalent provided?	Total as well as annual and average annual emission reductions in tonnes of CO2 equivalent are provided.		OK
Project approvals by Parties				
19	Have the DFPs of all Parties listed as "Parties involved" in the PDD provided written project approvals?	**CAR 01.** The project has no written approvals by the Parties involved. Information of the project approval by a party involved other than the host Party is not provided. The project approval by the Host Party will be provided after the determination statement is issued by the AIE.	CAR 01	Pending
19	Does the PDD identify at least the host Party as a "Party involved"?	Host Party involved is the Russian Federation.		OK
19	Has the DFP of the host Party issued a written project approval?	Conclusion is pending a response to CAR 01.	Pending	Pending
20	Are all the written project approvals by Parties involved unconditional?	Yes, the written project 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:	The project participant TGC-2 will likely be authorized with the issue of the project approval by the Host Party. Conclusion is pending a response to CAR 01.	Pending	Pending

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	– 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?			
Baseline setting				
22	Does the PDD explicitly indicate which of the following approaches is used for identifying the baseline? – JI specific approach – Approved CDM methodology approach	It is explicitly indicated in the PDD Section B.1 that a JI specific approach is applied according to the Guidance on criteria for baseline setting and monitoring, version 02 (hereafter referred Guidance). *Most plausible scenario* to be selected per Guidance is replaced in the PDD by the *scenario on which the key factors have the least negative impact.* The AIE considers this acceptable.		OK
JI specific approach only				
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	**CAR 02**. Section B.1 does not provide a detailed theoretical description of the baseline in complete and transparent manner as required by Guidelines for users of JI PDD Form Version 04.	CAR 02	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?	The baseline is established basically: (c) By listing and describing future scenarios available for the project owner TGC-2 and selecting the scenario least influenced by the key factors. Three alternative scenarios (AS) were listed and assessed as follows: AS1. Continuation of the current situation. Electric power at the Novgorod HPS is produced with the PT-turbine at the	CAR 03 CAR 04 CAR 05	OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	– 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, date 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?	same level. The remaining amount of electricity (required to maintain the balance with the electric energy produced by the project activity - AIE) will be generated by the Russian power network. AS2. Realisation of the project without JI registration. AS3. Implementation of project using equipment other than CCP-210. Three Options of CPP of a higher capacity are considered. Based on alternatives analysis with taking into account the key factors in (b) below a conclusion is made in Section B.1 that AS1 is the baseline scenario. (b) By taking into account the key factors that affect a baseline (refer to CAR 03): - Generation of industrial steam with parameters 12 kg/cm2, 250°C; - Economic attractiveness of the alternatives; (c) Basically in a transparent manner with regard to the choice of approaches, methodologies, parameters, data sources and key factors. Assumptions are not identified. (d) Taking account of uncertainties and using conservative assumptions is not evident. (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 of the list of standard variables contained in appendix B to Guidance on criteria for baseline and monitor-		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		ing. The key information and data used to establish the baseline are provided in the required tabular forms. **CAR 03.** Other key factors that affect a baseline shall be taken into account as per the Guidance Paragraph 25, e.g.: (i) Sectoral reform policies and legislation; (ii) Economic situation/growth in the relevant sector as well as resulting predicted demand; (iii) Local availability of technologies/techniques, skills and know-how and availability of best available technologies / techniques in the future; (iv) Fuel availability; (v) National and/or sub-national expansion plans for the energy sector, as appropriate. **CAR 04.** Please provide transparency as to accounting uncertainties and the used assumptions, including conservative ones. In particular, please assess the conservativeness of not accounting different fuel consumption per heat delivery under the project and the baseline. **CAR 05.** Please include in the tabular forms in Section B.1 the parameters of natural gas emission factor and specific gas consumption for generation of electric energy on Novgorod HPS. **RFI 02.** Please provide the AIE the 6-TP statistics forms for		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		2008-2010 to verify the values of electric energy production and specific gas consumption per electric energy production.		
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		OK
25	If a multi-project emission factor is used, does the PDD provide appropriate justification?	The grid emission factor for United Power Grid "North West" is taken equal 0,548 tCO2/MWh from JI-0197 (PDD for Yuznaya CHP-22) as published on UNFCCC JI website. The AIE determined the referred project and confirms the conservativeness of this value.		OK
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	The PDD indicates that approach (a) is used.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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".			
29 (a)	Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?	The PDD provides a description of the 3-step scope of the approach. The justification of the applicability of the approach clearly follows from its application in the PDD.		OK
29 (b)	Are additionality proofs provided?	According to the applied approach, additionality is proven by investment analysis and common practice analysis. Investment analysis made by TGC-2 with the use of company's input data is presented on the excel spreadsheet (Annex 4). It covers the 20 years period from start of construction. The growth rate of the tariffs, fuel prices and inflationary expectations are considered in accordance with the scenario conditions of development of the electric power industry. The benchmark for making a decision on the project implementation is the discounted payback period. It should not exceed 5 years. The calculations of the basic variant supplemented by the sensitivity analysis show that the discounted pay-back period is higher than the benchmark, hence the project is not economically attractive for TGC-2.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		The AIE observes that the investment analysis possesses conservativeness: commissioning year moved from 2009 (calculation in Annex 4) to 2011; gas tariffs in 2012-2015 are understated and electricity tariffs overall overstated as compared with the official RF Forecast 2008. Discount rate (WACC) was justified in PDD Annex 4 to be 16,72%. Common practice analysis has shown that projects to install CCP are not widely observed and commonly carried out in Russia. The AIE observes that implementation of CCP has become the trend in Russia during the last decade; most of such projects are implemented as JI. However, in Novgorod region, a similar gas turbine technology of the same scale is definitely not the common practice.		
29 (c)	Is the additionality demonstrated appropriately as a result?	Yes.		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		OK
Approved CDM methodology approach only_ Paragraphs 31(a) – 31(e)_Not applicable				
Project boundary (applicable except for JI LULUCF projects)				
JI specific approach only				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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 main anthropogenic emissions by sources of GHGs that are (i) under the control of the project participants, (ii) reasonably attributable to the project, and (iii) significant. The identified sources of the accountable emissions are fuel combustion at Novgorod HPS and at power plants in the United Power Grid "North West".		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.		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?	Delineation of the project boundary and the sources is described and justified in the PDD by using the Diagrams B.3.1 and B.3.2 and Table B.3.1. **CAR 06.** Please indicate on the diagrams the included gases and remove the network power plants from Diagram D.3.2.	CAR 06	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 gases and sources included are explicitly stated; refer to 32 (a) above. All exclusions made are appropriate as a conservative or logic assumption based on data from IPCC V.2.Ch2.		OK
Approved CDM methodology approach only_Paragraph 33_ Not applicable Crediting period				
34 (a)	Does the PDD state the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began?	The project's starting date is indicated as July 10, 2008 being the beginning of work to install CCP-210. **RFI 03.** Please provide the AIE a documented evidence of	Pending	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		the date.		
34 (a)	Is the starting date after the beginning of 2000?	Yes.		OK
34 (b)	Does the PDD state the expected operational lifetime of the project in years and months?	Operational lifetime is defined as 15 yeas or 180 months: 01/07/2011 – 30/06/2026. According to the provisions of TGC-2 Regulation on Investment Activities: the time horizon of the project is calculated as the life of the equipment plus the period of investment - 20 years (PDD page 19). **CAR 07.** Operational life time 15 years plus investment period 3 years gives 18 years what does not meet the provisions of TGC-2 Regulation on Investment Activities (20 yeas). The fair value of the project activity assets at the end of the assessment period (2026) is not included as a cash inflow in the final year.	CAR 07	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 1 year and 6 months.		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 day is 01/07/2011 being the date of the first emission reductions 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 crediting period is defined as from 01.07.2011 to 31.12.2012.		OK
34 (d)	If the crediting period extends beyond 2012, does the PDD state that the extension is sub-	N/A		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	ject 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?			
Monitoring plan				
35	Does the PDD explicitly indicate which of the following approaches is used? - JI specific approach - Approved CDM methodology approach	It is explicitly indicated that a JI specific approach is chosen.		OK
JI specific approach only				
36 (a)	Does the monitoring plan describe: - 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: - data to be monitored: M1 - Gas consumption by CCP unit for production of electric energy; M2 - Gas caloric value; M3 - Production of electric energy by the CCP. M4 – Electric energy consumption by the CCP for own needs; - the period in which these parameters will be monitored - monthly (M1, M2) or regularly (M3 – M4). - all decisive factors for the control and reporting of project performance: 2tp statistics forms; 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,	The monitoring plan generally specifies indicators, constants and variables used that are basically reliable, valid and pro-		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	valid and provide transparent picture of the emission reductions or enhancements of net removals to be monitored?	vide transparent picture of the emission reductions to be monitored. For data to be monitored, please refer to 36(a) above. For constants please refer to the next paragraph.		
36 (b)	If default values are used: – Are accuracy and reasonableness carefully balanced in their selection? – Do the default values originate from recognized sources? – Are the default values supported by statistical analyses providing reasonable confidence levels? – Are the default values presented in a transparent manner?	Constants used are the default values of the parameters as follows: - emission factor of natural gas (2006 IPCC); - specific fuel consumption for generation of electric energy at the Novgorod HPS (TGC-2 data); - grid power network emission factor (taken from PDD JI-0197). The default values originate from recognized sources and are presented in a transparent manner. **CAR 08**. Please include the density of natural gas in Section D.1.1.1 and the specific fuel consumption for generation of electric energy at the Novgorod HPS in Section D.1.1.3.	CAR 08	OK
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?	Project participants provide values of electric energy production in 2008-2011 and specific gas consumption in 2012. These values are included in 6-TP statistics forms.		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 provid-	The monitoring plan clearly indicates the precise references from which these default values are taken. Please refer to 36 (b) above.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	ed justified?			
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	N/A for default data. **FAR 01.** Please specify in the monitoring plan the procedures to be followed if expected data are unavailable.	FAR 01	Pending
36 (b) (iv)	Are International System Unit (SI units) used?	International System Units (SI units) are used together with kcal/kg for gas caloric value.		OK
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?	Section D.1.3 notes the parameters to be obtained through monitoring		OK
36 (b) (v)	Is the use of parameters, coefficients, variables, etc. consistent between the baseline and monitoring plan?	There is consistency between parameters, coefficients, variables, etc. used in baseline and monitoring plan.		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"?	The monitoring plan draws on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring".		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	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).		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?			
36 (e)	Does the monitoring plan describe the methods employed for data monitoring (including its frequency) and recording?	Most of methods employed for data monitoring are described appropriately in the monitoring plan. Conclusion is pending a response to CAR 08.	Pending	OK
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?	The monitoring plan elaborates all algorithms and formulae used for the estimation/calculation of baseline emissions and project emissions. Please refer to Sections D.1.1.4 and D.1.1.2 respectively and to Section D.1. **CAR 09.** Formulae D.1-4 should include density of natural gas.	CAR 09	OK
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	The underlying rationale for the algorithms/formulae does not need explanation for the AIE.		OK
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	Consistent variables, equation formats, subscripts etc. are used.		OK
36 (f) (iii)	Are all equations numbered?	Yes.		OK
36 (f) (iv)	Are all variables, with units indicated defined?	Yes.		OK
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	N/A. The algorithm is transparent.		OK
36 (f) (v)	To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	N/A		OK
36 (f) (vi)	Is consistency between the elaboration of the	There is basic consistency between the elaboration of the	Pending	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	baseline scenario and the procedure for calculating the emissions or net removals of the baseline ensured?	baseline scenario and the procedure for calculating the baseline emissions. Conclusion is pending a response to CAR 09.		
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	N/A.		OK
36 (f) (vii)	Is it justified that the procedure is consistent with standard technical procedures in the relevant sector?	Yes, the monitoring is in line with current operational routines.		OK
36 (f) (vii)	Are references provided as necessary?	Yes.		OK
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	Conclusion is pending a response to CAR 04.	Pending	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?	Conclusion is pending a response to CAR 04.	Pending	OK
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?	Uncertainty level of data is defined in Section D.2 as low.		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?	Monitoring plan refers to state statistic forms 2-tp listed in the Section D.1.5.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	Please refer to 36 (g).		OK
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 outlined in PDD Section D.2. These are routine enterprise procedures.		OK
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	The "operational-administrative scheme of the project" is outlined in Section D.3. Responsibilities and authorities are assigned to operations group at the MD OJSC TGC-2 and the Executive Office of OJSC TGC-2.		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 at Russian power sector.		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?	Sections D.1.1.1 and D.1.1.3 provide compilation of all data needed to monitor project and baseline emissions except those indicated in CAR 08. Conclusion is pending a response to CAR 08.	Pending	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	It is indicated in the Section D.3 that data will be stored for two years after the last ERU transfer under the project.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	ERUs for the project?			
37	If selected elements or combinations of approved CDM methodologies or methodological tools are 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?	N/A		OK
Approved CDM methodology approach only_Paragraphs 38(a) – 38(d)_Not applicable Applicable to both JI specific approach and approved CDM methodology approach_Paragraph 39_Not applicable Leakage JI specific approach only				
40 (a)	Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected?	Leakage is conservatively neglected (refer to Section D.1.3.2).		OK
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	N/A.		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	Approach (a) is clearly indicated by the scope of Section 6.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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?	Yes, ex ante estimates of project emissions, baseline emissions and emission reduction are provided.		OK
44	If the approach (b) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emission reductions or enhancements of net removals (within the project boundary)? (b) Leakage, as applicable? (c) Emission reductions or enhancements of net removals adjusted by leakage?	N/A		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
45	For both approaches in 42 (a) Are the estimates in 43 or 44 given: (i) On a periodic basis? (ii) At least from the beginning until the end of the crediting period? (iii) On a source-by-source/sink-by-sink basis? (iv) For each GHG? (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? (b) Are the formula used for calculating the estimates in 43 or 44 consistent throughout the PDD? (c) For calculating estimates in 43 or 44, are key factors influencing the baseline emissions or 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? (d) Are data sources used for calculating the estimates in 43 or 44 clearly identified, reliable and transparent? (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 ap-	(a) Estimates in 42 are given: (i) for H2 2011 and 2012 only; (ii) Yes; (iii) On a source-by-source basis; (iv) For the only GHG CO2; (v) In tCO2e; (b) The formulae used for calculating the estimates in 43 are consistent throughout the PDD; **refer to CAR 09**. (c) For calculating estimates in 43, key factors influencing the baseline emissions and the activity level of the project and the emissions associated with the project are taken into account, as appropriate; (d) Data sources used for calculating the estimates in 43 are clearly identified, reliable and transparent; (e) Yes as regards natural gas emission factor and grid emission factor. (f) Yes; **(g)** The estimates in 43 are consistent throughout the PDD; **refer to CAR 09;** **(h)** Compliant.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	propriately justified of the choice? (f) Is the estimation in 43 or 44 based on conservative assumptions and the most plausible scenarios in a transparent manner? (g) Are the estimates in 43 or 44 consistent throughout the PDD? (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?			
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?	Illustrative ex-ante estimation of emission reduction is made on the excel spreadsheet in PDD Annex 5.		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 analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party?	Environmental impact assessment (EIA) is made as a part of the designed documentation of the project "Expansion of the Novgorod HPS with a gas turbine unit with a waste heat boiler" referred to in PDD Section F.1. Impact upon surface waters, atmospheric air and waste generation as well as environmental consequences of the project implementation are summarised in Section F.1. It is concluded that the project will not produce significant hazardous impact on the envi-	Pending	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		ronment. **RFI 04.** Please provide AIE the EIA.		
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?	The project received a positive Conclusion of Glavgosexpertiza of Russia and a Permit for Air Emission from Rostekhnadzor. **RFI 05.** Please provide AIE the evidence of the above mentioned conclusion and permit.	Pending	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? (b) The nature of the comments? (c) A description on whether and how the comments have been addressed?	According to the PDD, the public hearings for the project "Expansion of the main building and P-50 turbine reconstruction on the territory of the NTP were held on 28 March 2008. Representatives of the Administration of Veliky Novgorod, mass media and society, including inhabitants of Veliky Novgorod were present at the hearings. The positive result of the public hearings was published in the newspaper "Novgorod". **CAR 10**. Please include in PDD a list of stakeholders from whom comments on the projects have been received including positive ones. Please describe the nature of the comments. Please describe whether and how the comments were addressed if need be.	CAR 10	OK
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**				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Determination regarding programmes of activities_Paragraphs 66 – 73_Not applicable				

Table 2 Resolution of Corrective Action, Clarification and Information 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 project has no written approvals by the Parties involved. Information of the project approval by a party involved other than the host Party is not provided.	19	Response 1 Corrected, see PDD, p.12 The project approval by a Party involved other than the host Party is absent at the time of the determination. The party involved other than the host Party will be determined after the approved by the Ministry of Economic Development and Trade of the Russian Federation.	Pending as regards missing project approvals.
CAR 02. Section B.1 does not provide a detailed theoretical description of the baseline in complete and transparent manner as required by Guidelines for users of JI PDD Form Version 04.	23	Response 1 Done	Conclusion on Response 1 CAR is closed based on due amendment made to the PDD.
CAR 03. Other key factors that affect a baseline shall be taken into account as per the Guidance Paragraph 25, e.g.: (i) Sectoral reform policies and legislation; (ii) Economic situation/growth in the relevant sector as well	23	Response 1 Done	Conclusion on Response 1 CAR is closed

as resulting predicted demand; (iii) Local availability of technologies/techniques, skills and know-how and availability of best available technologies / techniques in the future; (iv) Fuel availability; (v) National and/or sub-national expansion plans for the energy sector, as appropriate.			based on due amendment made to the PDD.
CAR 04. Please provide transparency as to accounting uncertainties and the used assumptions, including conservative ones. In particular, please assess the conservativeness of not accounting different fuel consumption per heat delivery under the project and the baseline.	23	Response 1 Baseline is determined with the use of joint emission factor from the united power grid of the North West. This parameter was established on consistency with the UNFCCC "Tool to calculate the emission factor for an electricity system" (version 02) in conservative way and taking into account uncertainties. Now different fuel consumption per heat delivery under the project and the baseline is taken into account.	Conclusion on Response 1 CAR is closed based on due amendment made to the PDD.
CAR 05. Please include in the tabular forms in Section B.1 the parameters of natural gas emission factor and specific gas consumption for generation of electric energy on Novgorod HPS.	23	Response 1 Done	Conclusion on Response 1 CAR is closed based on due amendment made to the PDD.
CAR 06. Please indicate on the diagrams the included gases and remove the network power plants from Diagram D.3.2.	32 (c)	Response 1 Done	Conclusion on Response 1 CAR is closed based on due amendment made

			to the PDD.
CAR 07. Operational life time 15 years plus investment period 3 years gives 18 years what does not meet the provisions of TGC-2 Regulation on Investment Activities (20 yeas). The fair value of the project activity assets at the end of the assessment period (2026) is not included as a cash inflow in the final year.	34 (b)	Response 1 Corrected in PDD (p.22). The fair value has been included as a cash inflow in the final year (see excel financial model).	Conclusion on Response 1 CAR is closed based on due amendment made to the PDD.
CAR 08. Please include the density of natural gas in Section D.1.1.1 and the specific fuel consumption for generation of electric energy at the Novgorod HPS in Section D.1.1.3.	36 (b)	Response 1: (i) Formula has been changed. (ii) Done	Conclusion on Response 1 CAR is closed based on due amendment made to the PDD.
CAR 09. Formulae D.1-4 should include density of natural gas.	36 (f)	Response 1: Formula has been changed.	Conclusion on Response 1 CAR is closed based on due amendment made to the PDD.

CAR 10. Please include in PDD a list of stakeholders from whom comments on the projects have been received including positive ones. Please describe the nature of the comments. Please describe whether and how the comments were addressed if need be.	49	Public hearings were held for the following projects : Heating main pipeline construction from Novgorod HPS, expansion of the main building and P 50 turbine reconstruction on the territory of the Novgorod HPS (CCP 210 implementation). Comments were got only for the project "Heating main pipeline construction from Novgorod HPS" from residents of the village Sirkovo. Comments for the project "Expansion of the main building and P 50 turbine reconstruction on the territory of the Novgorod HPS" weren't gotten. See file "Public hearings"	Conclusion on Response 1 CAR is closed based on the clarification in the response.
CL 01. Specific gas consumption per heat delivered in Table A-2 is indicated to be 134,8 kgfe/Gcal what implies efficiency >100% (=142,9 kgfe/Gcal).Please clarify the method of calculating the value in question.	-	For calculation of technical-economic indicators of CCP 210 the following materials were used: - Report of JSC "All-Russian Thermal Engineering institute" about research scientific work " CCP 210 starting circuit development at Novgorod HPS" - Diagram of regimes of turbine plant PT-50-9,0/1,28 – which is got from reconstruction of turbine PT -60-130/13, when operated as CCP 210 component. Specific fuel consumption for heat output from CCP 210 is accepted 134,8 kgfe/Gkal. Calculation was made at the basis of current normative and technical documentation for use of fuel when turbine PT60-130/13 operated with heat selection.	Conclusion on Response 1 CAR is closed based on the clarification in the response.
FAR 01. Please specify in the monitoring plan the procedures to be followed if expected data are unavailable.	36 (b) (iii)		Pending. To be checked at the verification stage.