DETERMINATION REPORT

CLIMATE CHANGE GLOBAL SERVICES (CCGS LLC)

DETERMINATION OF THE

"Wood waste to energy in Severoonezhsk, the Arkhangelsk Region, the Russian Federation"

BUREAU VERITAS CERTIFICATION

REPORT NO. RUSSIA/0055-2/2009, V.2

BUREAU VERITAS CERTIFICATION

Report No: RUSSIA/0055-2/2009 v.2

Determination Report on JI project

"WOOD WASTE TO ENERGY IN SEVEROONEZHSK, THE ARKHANGELSK REGION, RUSSIAN FEDERATION"

Date of first issue: 12/02/2010	Organizational unit: Bureau Veritas Certification Holding SAS
Client: CCGS LLC	Client ref.: Mr. Ilya Goryashin

Summary:

Bureau Veritas Certification has made the determination of the project "Wood waste to energy in Severoonezhsk, the Arkhangelsk region, 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 guidelines and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria. The determination is carried out under Track 1 as per Glossary of JI terms, in line with paragraph 23 of the JI guidelines.

The determination scope is defined as an independent and objective review of the project design document, the project's baseline, monitoring plan and other relevant documents, and consists of the following three phases: i) desk review of the project design document and particularly 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, Table 5. Taking into account this output, the project proponent has revised its project design document.

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

Report No.: RUSSIA/0055-2/2010	Subject Group: JI
Project title: Wood waste to energy in Severoonezhsk, the Arhangelsk region, Russian Federation	
Work carried out by: George Klenov – Team Leader, Lead verifier Grigory Berdin – Team member, verifier	
Work verified by: Leonid Yaskin - Internal technical reviewer	

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Indexing terms:

Climate Change, Kyoto Protocol, JI, Emission Reductions, Verification,

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Abbreviations

AIE	Accredited Independent Entity
BL(S)	Baseline (Study)
BV	Bureau Veritas
CAR	Corrective Action Request
CCGS	Climate Change Global Services (LLC)
CL	Clarification Request
CO_2	Carbon Dioxide
DDR	Draft Determination Report
DR	Document Review
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ERU	Emission Reduction Unit
GHG	Green House Gas(es)
I	Interview
IE	Independent Entity
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate Return
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
MoV	Means of Verification
NGO	Non Governmental Organization
NPV	Net Present Value
PDD	Project Design Document
PP	Project Participant
SSC Project	Small-scale Project
UNFCCC	United Nations Framework Convention for Climate Change

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1 Introduction

Climate Change Global Services, LLC has commissioned Bureau Veritas Certification to determine its JI project "Wood waste to energy in Severoonezhsk, the Arkhangelsk region, Russian Federation" (hereafter called "the project"). Climate Change Global Services, LLC (CCGS) coordinates the project and the determination process on behalf of the project participants OJSC "Mezhregionenergogas" and CJSC "Teplo-Invest" in the Severoonezhsk settlement, the Plesetsk District, the Arkhangelsk Region.

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 purpose of the determination is to provide an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan, 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 emission reduction 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 small-scale (SSC) project design document (PDD), the project's baseline study (BLS) and monitoring plan (MP) and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements for Joint Implementation (JI) projects, the guidelines for the implementation of Article 6 of the Kyoto Protocol (Decision 16/CP.7) as agreed in the Marrakech Accords, in particular the verification procedure under the JI Supervisory Committee, and associated interpretations. Bureau Veritas Certification has, based on the recommendations in the Validation and Verification Manual (IETA/PCF), employed a risk based approach in the determination process, focusing on the identification of significant risks for project implementation and generation of ERUs.

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

1.3 GHG Project Description

The project is implemented in the settlement of Severoonezhsk, the Plesetsk District, the Arkhangelsk Region.

The project is aimed the construction of a biofuel boiler house with the installed capacity of 20 Gcal/h (23.26 MW). The boiler house is designed for district heating of housing and public utilities sector and industrial facilities of the settlement.The main fuel of the boiler house is wood waste (chips, sawdust and long sawmill residues). Wood waste is supplied from the local sawmills. The heat supplied from the boiler house is delivered to end-users via the existing district heating network that is connected to the boiler house by a new section of heat pipeline, around 513 m long.

Prior to the project the settlement had been supplied with heat by a boiler house located in the territory of OJSC "Severoonezhsk Bauxite Mine" (OJSC "SBM") quite some distance away (around 6.8 km) from Severoonezhsk heat consumers. The main fuel of the boiler house was residual fuel oil. Wood waste from the local sawmills was stockpiled at the dumps because there were no utilisation capacities available.

Construction and installation works under the project started in December 2006 (the actual starting date of the project) and were completed in January 2009. On the 1st of August 2008 the boiler house was put into operation after completion of the major portion of construction and installation works. The required investments into the project amount to around EUR 12.8 million.

The project is associated with a number of technological and operational barriers that have to be overcome. The economic parameters of the project without the joint implementation mechanism are unacceptably low. The decision to implement the project was taken by the company's management in view of the possibility to cover some of the costs and to offset project risks by selling GHG emission reductions in the international market. This issue was discussed with the Environmental Investment Center as early as 2006 and in 2009 – with CCGS LLC, the company that was chosen from among others as a partner for developing all necessary documentation and selling GHG emission reductions in the international market.

In the absence of the project the usual practice of heat supply of the settlement would be continued and the local sawmills would go on with their practice of wood waste management.

As a result of the project:

- considerable quantity of wood waste from the local sawmills will be utilised;
- less wood waste will be disposed to the dumps;
- residual fuel oil consumption in the old boiler house owned by OJSC "SBM" will reduce;
- heat losses will be eliminated in the heat pipeline section from the old boiler house to the point where the new pipeline from the new boiler house connects with the district heating system;
- quality and reliability of heat supply of Severoonezhsk will improve;
- local employment rate will increase;

- negative environmental impact will be mitigated; and
- greenhouse gas (GHG) emissions will be cut down by an average of 26 thousand tonnes of CO_2e/year.

It should be noted that the project is clearly environment-oriented. Implementation of the project faces a number of serious technological, operational and financial barriers. The decision to go forward with the project was taken by the company management in view of the existing opportunity to cover some of its costs and to offset project risks by selling GHG emission reductions.

Project implementation became possible due to Joint Implementation (JI) mechanism under the Kyoto Protocol. The revenue from sales of the emission reduction units (ERU) increases the investment attractiveness of this project.

1.4 Determination team

The determination team consists of the following personnel:

George Klenov
Bureau Veritas Certification - Lead Verifier

Grigory Berdin
Bureau Veritas Certification – Team member, Verifier

Leonid Yaskin
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.

The determination consisted of the following three phases:

i) desk review of the project design document and the baseline and monitoring plan;
ii) interviews with management and specialists of OJSC "Mezhregionenergogas" and CJSC "Teplo-Invest" as the project representatives (February 10th and 11th 2010) and CCGS LLC as the PDD developer;
iii) resolution of outstanding issues (ref. to Appendix A Table 5 with CAR's and CL's) and the issuance of the final determination report and opinion.

In order to ensure transparency, a determination protocol was customized for the project, according to the Determination and Verification Manual (IETA/PCF).

The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating 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 independent entity will document how a particular requirement has been validated and the result of the determination.

The original determination protocol consists of five tables. The different columns in these tables are described in Figure 1.

The completed determination protocol is enclosed in Appendix A to this report. It consists of four tables. Table 3 for "Baseline and Monitoring Methodologies" is omitted because the project participants established their own baseline and monitoring approach that is in accordance with appendix B of the JI Guidelines and the questions regarding the used methodology are present in Table 2.

Determination Protocol Table 1: Mandatory Requirements			
Requirement	**Reference**	**Conclusion**	**Cross reference**
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (**OK**)**,** a **Corrective Action Request (CAR)** or a **Clarification Request (CL)** of risk or non-compliance with stated requirements. The CAR's and CL's are numbered and presented to the client in the Determination Report.	Used to refer to the relevant protocol questions in Tables 2, 3 and 4 to show how the specific requirement is validated. This is to ensure a transparent determination process.

Determination Protocol Table 2: Requirements checklist				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**)**,** or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the determination team has identified a need for further clarification.

Determination Protocol Table 3: Baseline and Monitoring Methodologies				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements of baseline and monitoring methodologies should be met. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the determination team has identified a need for further clarification.

Determination Protocol Table 4: Legal requirements				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The national legal requirements the project must meet.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the determination team has identified a need for further clarification.

Determination Protocol Table 5: Resolution of Corrective Action and Clarification Requests			
Report corrective action and clarifications requests	**Ref. to checklist question in tables 1/2/3/4**	**Summary of project owner response**	**Determination conclusion**
If the conclusions from the Determination are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Tables 1-4 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the determination team should be summarized in this section.	This section should summarize the determination team's responses and final conclusions. The conclusions should also be included in Tables 1-4 under "Final Conclusion".

Figure 1 Determination protocol tables

2.1 Review of Documents

CCGS has submitted to Bureau Veritas Certification on 21/12/2009 the Project Design Document (PDD) version 1.0 dated 28/08/2009. The PDD and additional background

documents related to the project design, baseline, and monitoring plan, i.e. Kyoto Protocol, Host Country Laws, JI guidelines, Guidelines for Users of the Joint Implementation Project Design Document Form for Small-scale Projects and the Form for Submission of Bundled Joint Implementation Small-scale Projects, Provisions for Joint Implementation Small-scale Projects, JISC Guidance on Criteria for Baseline Setting and Monitoring and others were reviewed.

The first deliverable of the document review was the Draft Determination Report (DDR) version 1 with CAR's and CL's which was submitted to CCGS on 18 January 2010.

On 28/01/2010, CCGS submitted the amended version of PDD, version 1.1 together with summaries of responses to the verifiers' requests. Having reviewed this feedback, Bureau Veritas Certification issued DDR version 2 dated 04/02/2010 with clarifications as to why some of CCGS responses can not be accepted.

0n 10/02/2010 CCGS has submitted their final responses and the completed version 1.2 of PDD dated 09/02/2010 which was accepted by Bureau Veritas Certification.

The determination findings presented in this DDR versions relate to the project as described in the original PDD version 1.0 dated 28/08/2009. The amendments done in the PDD version 1.1 dated 28/01/2010 and version 1.2 dated 09/02/2010 have been taken into account in this Determination Report.

2.2 Follow-up Interviews

Bureau Veritas Certification Lead verifier George Klenov conducted interviews with project participants (OJSC "Mezhregionenergogas" and CJSC "Teplo-Invest" project representatives) on 10-11 February 2010. Series of interviews with PDD developer were conducted as well to confirm selected information and to resolve the issues of concern identified in the document review. Representatives of OJSC "Mezhregionenergogas" and CJSC "Teplo-Invest" and CCGS LLC, which were interviewed, are listed in References, Section 6. The main topics of the interviews held are summarized in Table 6.

Table 6 Interview topics

Interviewed organization	Interview topics
OJSC "Mezhregionenergogas", CJSC "Teplo-Invest"	➢ Technical project documentation ➢ Project management organisation ➢ Operational lifetime of the project ➢ Distinctions of the project activity from similar activities ➢ Operational and management structure ➢ Environmental Impact Assessment Documentation ➢ Stakeholders' comments ➢ Training programmes for boiler house operators ➢ Project monitoring responsibilities ➢ Monitoring equipments ➢ Quality control and quality assurance procedures
CCGS LLC	➢ History of the project ➢ Implementation schedule ➢ Starting date of the project (the date on which the implementation or construction or real action of the project has begun) ➢ Technical design document ➢ Investment barrier. IRR of the project as per the feasibility study and technical design ➢ Pending issues ➢ Evidence and records on the boiler house construction and its operation ➢ Baseline and Project scenarios ➢ Monitoring plan ➢ Barrier (technological and financial) analysis ➢ Additionality justification ➢ Common practice analysis ➢ Estimation of the emissions reductions ➢ Estimation of the leakage ➢ Conformity of PDD to JI requirements

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 followed on by the project participants for Bureau Veritas Certification positive conclusion on the project design.

Corrective Actions Requests (CAR) are issued, where:

i) there is a clear deviation concerning the implementation of the project as defined the PDD;
ii) requirements set by the Methodological Procedure or qualifications in a verification opinion have not been met; or
iii) there is a risk that the project would not be able to deliver high quality ERUs.

Clarification Requests (CL) are issued where

iv) additional information is needed to fully clarify an issue.

A DDR, version 1, summarising Bureau Veritas Certification's findings, was submitted to the project participants on 18/01/2010. The findings identified have been twenty one Corrective Action Requests and four Clarification Requests. Based on the findings of the Draft Determination Report, CCGS made necessary amendments and corrections to the PDD version 1.1 and, eventually, the version 1.2 dated 09/02/2010 was issued and submitted to Bureau Veritas Certification for review.

The amendments and corrections made by the project participants to the PDD and the additional information and clarifications provided by them satisfactorily addressed BV Certifications' items of concern and, as a result, the Determination Report version 01 was issued on 15/02/2010. On the same day the Determination Report version 01 and PDD version 1.2 were conveyed to Bureau Veritas Certification Internal Technical Reviewer (ITR) for review.

To guarantee the transparency of the determination process, the CAR's and CL's raised are summarized in Appendix A, Table 5.

3 Determination Findings

In the following sections, the findings of the determination are presented for each determination subject as follows:

i) the findings from the desk review of the original project design document and the findings from interviews during the on-line interviews are summarized. A more detailed record of these findings can be found in the Appendix A Determination Protocol.
ii) where Bureau Veritas Certification had identified issues that needed clarification or that represented a risk to the fulfillment of the determination protocol criteria or the project objectives, a Clarification or Corrective Action Request, respectively, has been issued. The Clarification and Corrective Action Requests are stated in the in Appendix A Determination Protocol.
iii) where Clarification and Corrective Action Requests have been issued, the response by the project participants to resolve these requests is summarized in Appendix A, Table 5.
iv) the conclusions of the determination are presented consecutively.

3.1 Project Design

It is demonstrated in PDD that the project falls under the criteria for small-scale (SSC) Projects [3]. The project is eligible as an individual SSC project.

The Sectoral Scopes are identified in the PDD as: (1) Energy industries (renewable/non-renewable sources) and (13) Waste handling and disposal. The project activity is referred in PDD to the following two types*:

Type I – Renewable energy projects. Category C – Thermal energy production with or without electricity;

Type III – Other project activities. Category E – Avoidance of methane production from decay of biomass through controlled combustion, gasification or mechanical/thermal treatment.

The project activity meets the small-scale activity criteria, because:

1. As of today the installed thermal capacity of the new biofuel boiler house is 23.26 MW and will not exceed 29.08 MW in future, which is less than the limit of 45 MW set for small-scale projects;
2. GHG emission reductions generated by the project are estimated at an average of 26 thousand tonnes of CO_2e per year, which is within the limit of 60 thousand tonnes of CO_2e per year set for small-scale projects.

The project provides reduction of GHG emissions by reducing of:

- residual fuel oil consumption in the old boiler house owned by OJSC "SBM" as a result of construction of a new biofuel boiler house and reduction of heat losses in the heat pipeline; and
- wood waste disposal to the dumps.

The project uses the state-of-art technology. The boiler house has four hot water boilers of Global/G/M-500 model manufactured by an Italian company "Uniconfort" with the thermal capacity of 5 Gcal/h (5.8 MW) each. The boiler house also has spare area for installation of an additional boiler with the same capacity.

Global/G/M-500 boilers are fitted with a furnace with a reciprocating grate for wood waste firing. The main fuel of the boiler house is wood waste with moisture content between 30% and 50%. Biofuel is delivered to the boiler house from the local sawmills by the fuel supplier's motor transport.

In Russian boiler units biomass, as a general rule, is fired using fossil fuel for flame stabilization and the combustion efficiency is low, especially when high-moisture biomass is fired. In foreign boilers (manufactured in Europe and USA) flame stabilization is not used at all even if the moisture content of biomass is high and the efficiency is up to 90%. Also reliability of domestic biomass boilers often is much lower than foreign ones.

* In accordance with the project types and categories adopted by the CDM Executive Board, see http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html.

The outcomes of project activity will be the following effects:

- mitigation of adverse environmental impacts; and
- average reduction of GHG emissions by 26 055 tCO2e/year over the period 2008-2012. Total estimated emission reductions will equal 130 277 tCO2e over 5 year crediting period starting in 2008.

The project design is sound. The geographical and spatial boundary is clearly defined.

Identified areas of concern as to Project Design, PP's responses and BV Certification's conclusions are described in Appendix A Table 5 (refer to CAR 02, CAR 03, CAR 04, CAR 05, CAR 06, CAR 07, CL 01).

The project has no approvals by the Parties involved, therefore CAR 01 remains pending.

3.2 Baseline and Additionality

The PDD developer has chosen JI specific approach for baseline setting in accordance with paragraph 9 (a) of the Guidance on criteria for baseline setting and monitoring. The baseline has been established in accordance with appendix B of the JI guidelines[*].

The baseline scenario has been identified based on the analysis of several alternatives which allow to ensure the required heat supply to end-users of the settlement, and alternative ways of handling wood waste that is fired under the project. Key factors and relevant national and/or sectoral policies that affect a baseline have been taken into account.

The Alternatives were identified separately for the two components of the JI project activity: heat supply of the settlement (HS1 – Continuation of the current situation; HS2 – Construction of a gas-fired boiler house; HS3 - Construction of a coal-fired boiler house, and HS4 – The project activity without the JI mechanism) and use of wood waste (WW1 - Continuation of the current situation; WW2 – Use of wood waste for fuel pellet production, and WW3 - The project activity without the JI mechanism).

All Alternatives are in compliance with all mandatory applicable legal and regulatory requirements of the Russian Federation.

The baseline scenario assumes continuation of the existing practice of heat supply of the settlement from the old residual fuel oil boiler house owned by OJSC "SBM". The unused wood waste generated at the local sawmills will be stockpiled at the dumps.

The baseline scenario is "business as usual" within the existing regulatory framework that does not prohibit OJSC "SBM" from supplying heat to the settlement, firing residual fuel oil in the existing boilers nor imposes any constraints on stockpiling of wood waste at the dumps by the local sawmills.

[*] The annex to decision 9/CMP.1 (referred to as JI guidelines) includes an appendix B that lists criteria for baseline setting and monitoring.

The proposed approach to additionality demonstration and assessment applies the investment and sensitivity analyses of the project investment activity. The calculations on the spreadsheet annexed to PDD show that the project is not economically attractive without ERU sale.

Summarizing the alternatives analysis and taking into account the results of the investment, sensitivity and barrier (technological and operational) analyses, the continuation of the current situation was chosen as most plausible baseline scenario.

Common practice analysis showed that at the starting date of the project not a single project that involved switching of settlement's heat supply to local biofuel had been implemented in the Arkhangelsk Region. Now there are just a few JI projects realized therein. Therefore this project is not common practice.

Based on the above, GHG emission reductions generated by this project are additional to those that might have otherwise occurred.

Identified areas of concern as to Baseline and Additionality, PP's responses and BV Certification's conclusions are described in Appendix A Table 5 (refer to CAR 08, CAR 09, CAR 10, CAR 11, CAR 12, CAR 13, CAR 14, CAR 15, CL 02, CL 03).

Identified areas of concern as to Project Duration / Crediting Period, PP's responses and BV Certification's conclusions are described in Appendix A Table 5 (refer to CAR 16, CL 04).

3.3 Monitoring Plan

The PDD developer has chosen JI specific approach for monitoring in accordance with requirements of paragraph 9 (a) of the Guidance on criteria for baseline setting and monitoring [6] without using any approved methodologies.

Collection of data required for estimation of GHG emission reductions is performed to high industry standard and the best practice of fuel and energy monitoring and environmental impact assessment.

An operational and management structure that the project participant will implement in order to monitor emission reduction is clearly described in the PDD. The on-line interviews with PDD developer confirmed the availability and operationability of this structure.

Identified area of concern as to Monitoring Plan, PP's response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CAR 17, CAR 18, CAR 19).

3.4 Calculation of GHG Emissions

The formulas used for calculation of baseline and project emissions are presented in PDD Section D. The initial data for calculations and the calculated values are presented in Section D.2 and Section E. The verifiers checked the calculations completed in the PDD version 1.0 and amended PDD version 1.2 and found them accurate.

Implementation of the project will lead to reduction of GHG emissions from combustion of fossil fuel at the old boiler house and anaerobic decomposition of wood waste at the dumps.

The principal GHG released during combustion of fossil fuel is CO_2. Emissions of CH_4 and N_2O from combustion of fossil fuel are negligibly small as compared with CO_2 emissions and were neglected in development of this project.

CO_2 emissions from combustion of biomass are considered to be climatically neutral. The emissions of GHG under the project are assumed equal to zero.

The calculated value of project emission reduction over the crediting period 2008 – 2012 is 130 277 tCO2e. Annual average emission reduction is 26 055 tCO2e/year.

Identified area of concern as to Calculation of GHG Emissions, PP's response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CAR 20, CAR 21).

3.5 Environmental Impacts

There are no significant adverse environmental impacts resulting from implementation of activities within the frameworks of this project.

The project envisages switching the heat supply system of the settlement to a more ecofriendly fuel. The project implementation leads to reduction of residual fuel oil combustion in the boiler house owned by OJSC "SBM", and hence to reduction of pollutants and GHG emissions into the atmosphere.

CO_2 emissions from combustion of biomass are considered to be climatically neutral. The emissions of GHG under the project are assumed negligible.

The project has the following permits and positive expert opinions:

- Positive opinion of the state expertise No.29-1-4-0356-07 issued on 4.04.2008;
- Permit issued by Rostekhnadzor for operation of the energy generating unit No.01-07-T/024 dated 09.02.2009.

In general, the project implementation will lead to mitigation of negative environmental impacts. Thereby the project has met the key requirements of Russian environmental legislation.

No areas of concern as to Environmental Impacts are identified.

3.6 Comments by Local Stakeholders

The project does not have any significant environmental impacts and has all required by host Party permits.

Comments on behalf of local and federal authorities were received in the form of positive opinions regarding the project activity from the state expert examinations and permits for the project implementation.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

Similar to the Verification procedure under the Article 6 Supervisory Committee, Bureau Veritas Certification published the PDD Version 1.0 on BVC site *www.bureau-veritas.ru* on 23.12.2009 and invited comments within 21.01.2010 by Parties, stakeholders and non-governmental organizations.

No comments from third parties have been received.

5 DETERMINATION OPINION

Bureau Veritas Certification has been engaged by Climate Change Global Services (CCGS) to perform a determination of the JI project "Wood waste to energy in Severoonezhsk, the Arkhangelsk region, the Russian Federation". The determination was performed on the basis of UNFCCC criteria for SSC JI projects, in particular the verification procedures under the JI Supervisory Committee, as well as host country criteria and the criteria given to provide for consistent project operations, monitoring and reporting.

The determination was carried out under Track 1 as per Glossary of JI terms, in line with paragraph 23 of the JI guidelines.

The determination is based on the information made available to us and on the engagement conditions detailed in this report. The determination has been performed using a risk-based approach as described above. The only purpose of the report is its use for the formal approval of the project under JI mechanism. Hence, Bureau Veritas Certification cannot be held liable by any party for decisions made or not made based on the determination opinion, which will go beyond that purpose.

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 on-line interviews with project stakeholders and PDD developer; iii) the issuance of the determination report, and iv) opinion.

The review of the project design documentation, the subsequent follow-up interviews, and the resolution of the Corrective Action Requests and Clarification Request have provided Bureau Veritas Certification with the sufficient evidences to determine the fulfilment of the above stated criteria and to demonstrate that the project is additional.

An analysis of the investment and barriers demonstrates that the proposed project activity is not a likely 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 it is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

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 (Russian Federation). 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 1.2 dated

09/02/2010 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

Bureau Veritas Certification thus recommends this project for the formal approval by the Russian Federation as the JI project in accordance with the RF Government Decree N 843 dated 28/10/2009.

George Klenov – Team leader, Lead verifier

Grigory Berdin – Team member, verifier

Bureau Veritas Certification Holding SAS

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CERTIFICATION
Reviewed
Init
Date: 15/02/2010

6 REFERENCES

Reviewed document or Type of Information referred to in Appendix A

1	PDD "Wood waste to energy in Severoonezhsk, the Arkhangelsk Region, the Russian Federation", version 1.0, dated 28 August 2009.
2	Guidelines for Users of the Joint Implementation SSC Project Design Document Form and F-JI-SSC-Bundle/Version 04, JISC.
3	Provisions for Joint Implementation Small-Scale Projects, Version 03, JISC.
4	Detailed Design "Biofuel Hot Water Boiler House with the Thermal Capacity of 18 MW", Severodvinsk, 2007.
5	Decision 9/CMP.1. Guidelines for the implementation of Article 6 of the Kyoto Protocol. FCCC/KP/CMP/2005/8/Add.2. March 30, 2006.
6	JISC Guidance on criteria for baseline setting and monitoring. Version 02.
7	Operational Guidelines for Project Design Documents of Joint Implementation Projects. Vol.1. General Guidelines./ Version 2.3. Ministry of Economic Affair of the Netherlands. May, 2004
8	2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2, Chapter 4. Page 4.60.
9	Methane and Nitrogen Oxide Emissions from Biomass Waste Stockpiles, World Bank - PCFplus Research, August 2002.
10	"Regulation of realization of Article 6 of Kyoto Protocol to United Nation Framework Convention on Climate Change". Approved by the RF Government Decree # 843 of 28/10/2009 "About measures on realization of Article 6 of Kyoto Protocol to United Nation Framework Convention on Climate Change".

Additional Document or Type of Information provided to the verifier

References in Appendix A are underlined

1	Project "Biofuel Boiler House with installed thermal capacity of 18 Mwt, JSC "НПФ РОСС МТК", Severodvinsk, 2007, 210-01К.ОПЗ, "General Explanatory Note" and "Environmental Protection".
2	Annex to Contract No.15/2008 dated 07.07.2008 "The calculation of insulation losses in the supply and return heat pipelines from the point where the sensors of the heat metering unit are located and to the border dividing ownership and operational responsibilities".
3	Investment Contract No.2/06 dated 13/12/06 (CJSC "Teplo-Invest" and OJSC "Mosoblenergogas").
4	Protocol of Intention between local non-profit organization "Environmental Investment Center" and CJSC "Teplo-invest" regarding implementation of project aimed, dated 01/11/2006.
5	Guidelines for calculation and justification of standard process losses for heat delivery in the Russian Ministry of Energy. Approved by the order of the Ministry of Energy of the Russia Federation dated December 30, 2008 No.325.
6	The methodology for determination of fuel, electricity and water demand for production

	and delivery of heat and heat carriers in the public heating systems. MDK 4-05.2004. Moscow, 2004.
7	E.F.Buznikov, Industrial and Heat Supply Boiler Houses. – M.: Energoatomizdat, 1984
8	Reference Book on Wood Drying/Edited by E.S.Bogdanov. – 4th Edition, revised and supplemented. – M.: Forest Industry, 1990.
9	Methane and Nitrogen Oxide Emissions from Biomass Waste Stockpiles, PCFplus Research, World Bank, August 2002.
10	"The Record of Measurement of the Scoop of XCMG ZL 50 G Front Loader", Act dated 26 May 2009.
11	Interim permit issued by Rostekhnadzor for operation of the energy generating unit No.01-07-T/012 dated 15.07.2008.
12	State expertise No.29-1-4-0356-07 issued on 4.04.2008.
13	Permit issued by Rostekhnadzor for operation of the energy generating unit No.01-07-T/024 dated 09.02.2009.

All these documents have been available for auditors.

Persons interviewed:

1	Andrey E. Dyadjura, OJSC "Mezhregionenergogas", Project Leader; CJSC "Teplo-Invest", Representative.
2	Michail V. Gudkov, OJSC "Mezhregionenergogas", Head of Subsidiary in Severoonezhsk.
3	Alexander V. Samorodov, CCGS, Director.
4	Ilya Goryashin, CCGS, specialist, PDD-writer.

7 DISCLAIMER

This report contains the results of the determination of whether the project under consideration meets the relevant requirements of Article 6 of the Kyoto Protocol and the JI guidelines. The used determination procedure does not fall under the verification procedure under the JISC, as defined in the JI guidelines, paragraphs 30–45. Instead, paragraph 23 of the JI guidelines apples to the determination based on which Bureau Veritas Certification Holding SAS issues, under the contractual arrangements with CCGS, an expert opinion on the project as per the RF Government Decree No. 843, dated 28 October 2009, "Procedure for approval and verification of status of projects carried out in accordance with Article 6 of the Kyoto Protocol to the United Nations Framework Convention on Climate Change".

APPENDIX A: COMPANY JI PROJECT DETERMINATION PROTOCOL

Table 1 Mandatory Requirements for Joint Implementation (JI) Project Activities

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
1. The project shall have the approval of the Parties involved.	Kyoto Protocol Article 6.1 (a)	**CAR 01**. The project has no approval of the host Party. Verifiers' Note: JISC Glossary of JI terms/Version 01 defines the following: a) At least the written project approval(s) by the host Party(ies) should be provided to the AIE and made available to the secretariat by the AIE when submitting the determination report regarding the PDD for publication in accordance with paragraph 34 of the JI guidelines; (b) At least one written project approval by a Party involved in the JI project, other than the host Party(ies), should be provided to the AIE and made available to the secretariat by the AIE when submitting the	Table 2 Section A.5.

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		first verification report for publication in accordance with paragraph 38 of the JI guidelines, at the latest.	
2. Emission reductions, or an enhancement of removal by sinks, shall be additional to any that would otherwise occur.	Kyoto Protocol Article 6.1 (b)	OK	N/A
3. The sponsor Party shall not acquire emission reduction units if it is not in compliance with its obligations under Articles 5 & 7.	Kyoto Protocol Article 6.1 (c)	OK	N/A
4. The acquisition of emission reduction units shall be supplemental to domestic actions for the purpose of meeting commitments under Article 3.	Kyoto Protocol Article 6.1 (d)	OK	N/A
5. Parties participating in JI shall designate national focal points for approving JI projects and have in place national guidelines and procedures for the approval of JI projects.	Marrakech Accords, JI Modalities, §20	OK	The Russian national focal point is the Ministry of Economic Development. The Russian national guidelines and procedures are established by the "Regulation of realization of Article 6 of Kyoto Protocol to United Nation Framework Convention on Climate Change".

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
			Approved by the RF Government Decree # 843 of 28/10/2009 "About measures on realization of Article 6 of Kyoto Protocol to United Nation Framework Convention on Climate Change".
6. The host Party shall be a Party to the Kyoto Protocol.	Marrakech Accords, JI Modalities, §21(a)/24	OK	Russia has ratified the Kyoto Protocol by Federal Law N 128-ФЗ dd. 04/11/04
7. The host Party's assigned amount shall have been calculated and recorded in accordance with the modalities for the accounting of assigned amounts.	Marrakech Accords, JI Modalities, §21(b)/24	OK	The Russian Federation's assigned amount has been calculated and recorded In the 4th National Communication dated 12/10/06.
8. The host Party shall have in place a national registry in accordance with Article 7, paragraph 4.	Marrakech Accords, JI Modalities, §21(d)/24	OK	Russian Federation has established the GHG Registry by the RF Government Decree N 215-p dated 20/02/06.

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
9. Project participants shall submit to the independent entity a project design document that contains all information needed for the determination.	Marrakech Accords, JI Modalities, §31	OK	LLC "CCGS" has submitted the PDD to Bureau Veritas Certification, which contains all information needed for determination.
10. The project design document shall be made publicly available and Parties, stakeholders and UNFCCC accredited observers shall be invited to, within 30 days, provide comments.	Marrakech Accords, JI Modalities, §32	OK	PDD Version 1.0 dated 28/08/2009 was made publicly available for comments on BVC website from 23 December 2009 till 21 January 2010.
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures as determined by the host Party shall be submitted, and, if those impacts are considered significant by the project participants or the host Party, an environmental impact assessment in accordance with procedures as required by the host Party shall be carried out.	Marrakech Accords, JI Modalities, §33(d)	OK	Table 2, Section F
12. The baseline for a JI project shall be the scenario that reasonably represents the GHG emissions or removal by sources that would occur in absence of the proposed project.	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
13. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B.1
14. The baseline methodology shall exclude to earn ERUs for decreases in activity levels outside the project activity or due to force majeure.	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B.2
15. The project shall have an appropriate monitoring plan.	Marrakech Accords, JI Modalities, §33(c)	OK	Table 2, Section D
16. A project participant is a legal entity authorized by a Party involved to participate in the JI project.	"Glossary of Joint Implementation Terms", Version 01.	The Russian project participant will be authorised by the Host Party through the issuance of the approval for the project. Conclusion is pending a follow-up on CAR 01. Refer to Verifiers' Note in 1 above.	Table 2, Section A

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of the project					
A.1 Title of the small-scale project					
A.1.1. Is the title of the project presented?	1,2	DR	The title of the project is: "Wood waste to energy in Severoonezhsk, the Arkhangelsk Region, the Russian Federation". The Sectoral Scopes are identified in the PDD as: (1) Energy industries (renewable/non-renewable sources) and (13) Waste handling and disposal.		OK
A.1.2. Is the current version number of the document presented?	1,2	DR	PDD Version 1.0.		OK
A.1.3. Is the date when the document was completed presented?	1,2	DR	PDD Version 1.0 is dated 28/08/2009.		OK

A.2. Description of the small-scale project					
A.2.1. Is the purpose of the project included?	1,2, 1	DR	The project is implemented on the site of Severoonezhsk settlement, the Plesetsk District, the Arkhangelsk Region. The purpose of the project is wood waste utilization for heat supply. The project is aimed at construction of a biofuel boiler house with the installed capacity of 20 Gcal/h (23.26 MW). The main fuel of the boiler house is wood waste (chips, sawdust and long sawmill residues). Wood waste is supplied from the local sawmills. The standby fuel of the boiler house is diesel oil. The heat supplied from the boiler house is delivered to end-users via the existing district heating network that is connected to the boiler house by a new section of heat pipeline, around 513 m long. Prior to the project the settlement had been supplied with heat by a boiler house located in the territory of OJSC "Severoonezhsk Bauxite Mine" (OJSC "SBM") quite some distance away (around 6.8 km) from Severoonezhsk heat consumers. The main fuel of the boiler house was residual fuel oil. Wood waste from the local sawmills was stockpiled at the dumps because there were no utilization capacities available. In the absence of the project the usual practice of heat supply of the settlement		OK

			would be continued and the local sawmills would go on with their practice of wood waste management. Construction and installation works under the project started in December 2006 (the actual starting data of the project) and were completed in January 2009. The required investments into the project amount to around EUR 12.8 million.		
A.2.2. Is it explained how the proposed project reduces greenhouse gas emissions?	1,2, 2,3,4	DR	It is explained in PDD Section A.4.4. Refer to A.4.4.1 below. The history of the project is generally summarized as required by [2]. **CAR 02.** The assertion that the decision to implement the project was taken by company's management in view of possibility to cover some cost by selling GHG emission reduction in the international market (PDD, p.3) is not supported with appropriate documents or references. In this respect, the history of the project lacks transparency.	CAR 02	OK

A.3. Project participants					
A.3.1. Are project participants and Party(ies) involved in the project listed?	1,2	DR	Party A is the Russian Federation. Legal entities of Party A are OJSC "Mezhregionenergogas" and CJSC "Teplo-Invest". Legal entity of Party B is not yet determined. Please confer the JISC requirements to getting the Party B approval in Verifiers' Note para (b) in Table 1. In this respect the statement in PDD Section A.3 'Legal entity B1: to be determined within 12 months upon approval of the project by the Russian Government" lacks any rationale. Conclusion is pending a follow-up on CAR 01.	Pending	
A.3.2. The data of the project participants is presented in tabular format?	1,2	DR	The data of the project participants is presented in the tabular format. **CAR 03.** Please provide Table A.3 in the format as prescribed in [2].	CAR 03	OK
A.3.3. Is contact information provided in Annex 1 of the PDD?	1,2	DR	The contact information is provided in PDD Annex 1.		OK
A.3.4. Is it indicated, if it is the case, if the Party involved is a host Party?	1,2	DR	Russian Federation is indicated as a host Party in PDD Section A.4.1.1.		OK
A.4. Technical description of the small-scale project					
A.4.1. Location of the small-scale project activity					

A.4.1.1. Host Party(ies)	1,2	DR	The Russian Federation is indicated as the Host Party in the PDD Section A.4.1.1. **CAR 04.** Section A.4.1 is left blank. According to [2] para. 13, p.4 it shall be explicitly stated in PDD that the section is left blank on purpose.	CAR 04	OK
A.4.1.2. Region/State/Province etc.	1,2	DR	The Arkhangelsk Region, the Plesetsk District.		OK
A.4.1.3. City/Town/Community etc.	1,2	DR	The Settlement of Severoonezhsk.		OK
A.4.1.4. Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	1,2	DR	PDD Section A.4.1 defines in detail the physical location, including information allowing the unique identification of the project. The Settlement of Severoonezhsk is located on the left bank of the Onega river 30 km from the settlement of Plesetsk. Location has geographical coordinates of 59°52′21″ north latitude and 30°14′47″ east longitude. Time zone : GMT +3"00.		OK
A.4.2. Small-scale project type(s) and category(ies)					
A.4.2.1. Is the project specified and justified as SSC project?	1,2,3	DR	The project activity is referred in PDD Section A.4.2 to the following two types: Type I – Renewable energy projects. Category C – Thermal energy production with or without electricity;	CAR 05	OK

			Type III – Other project activities. Category E – Avoidance of methane production from decay of biomass through controlled combustion, gasification or mechanical/thermal treatment. **CAR 05.** Project categories indicated in section A.4.2 are not in compliance with those listed in appendix B of annex II to decision 4/CMP.1. The project cannot be referred to Type III since there is no appropriate category for the project.		
A.4.2.1. Does the SSC project meet the relevant JI SSC threshold(s) during the whole crediting period?	1,2,3	DR	The project activity meets the criterion for Type I SSC projects, because the installed thermal capacity of the new biofuel boiler house - 23.26 MW (th) - does not exceed the limit of 45 MW (th) set for renewable small-scale projects [3]. Indication in PDD Section A.4.2 that the project meets also the criterion for Type III SSC projects, namely the annual emission reductions are less than 60 ktCO2e, has no relevancy as no appropriate Type III categories can be identified for this project (refer to CAR 05).		OK
A.4.3. Technology(ies) to be employed, or measures, operations or actions to be implemented by the small-scale project					

A.4.3.1. Does the project design engineering reflect current good practices?	1,2,4	DR	The boiler house is designed for district heating of housing and public utilities sector and industrial facilities of the settlement. The project design engineering represents current good practices. The technology and operation implemented by the project as well as relevant technical data and implementation schedule are described. **CL 01.** Please clarify the discrepancies as follows: - according to PDD (Section A.4.3 p.6) wood wastes consist of chips 2,7%; bark 5,5%; sawdust 52%; long sawmill residues 39,8% - according to the Detailed Design [4] wood wastes consist of: chips 2,6%; bark 5,4%; sawdust 40,2%; long sawmill residues 51,8%.	CL 01	OK
A.4.3.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	1,2, 1	DR	The project technology is the-state-of-art. The boiler house has four hot water boilers of Global/G/M-500 model manufactured by the Italian company "Uniconfort" with the thermal capacity of 5 Gcal/h (5.8 MW) each. The boiler house also has spare area for installation of an additional boiler with the same capacity. Global/G/M-500 boilers are fitted with a furnace with a reciprocating grate for wood waste firing. The outlet temperature of hot water is 115℃ and the pressure is 0.78 MPa.		OK

			The main fuel of the boiler house is wood waste with moisture content between 30% and 50%, consisting of chips, bark, sawdust and long sawmill residues (for content of wood waste refer to CL 01). Biofuel is delivered to the boiler house from the local sawmills by the fuel supplier's motor transport. Long sawmill residues are chipped in situ before being fed for combustion. The standby fuel of the boiler house is diesel oil. This technology is not widespread in the Russian Federation.		
A.4.3.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1, 2	DR	The project technology is unlikely to be substituted by other or more efficient technologies within the project period.		OK
A.4.3.4. Does the project extensive initial training and maintenance efforts in order to work as presumed during the project period?	1,2	DR I	Refer to PDD Sections B.2 (p.27) and D.4 (p.55).		OK
A.4.3.5. Does the project make provisions for meeting training and maintenance needs?	1,2	DR I	The personnel of the boiler house underwent necessary training in certified educational institutions.		OK
A.4.4. Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed small-scale project, including why the emission reductions would not occur in the absence of the proposed small-scale project, taking into account national and/or sectoral					

policies and circumstances					
A.4.4.1. Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	1,2	DR	It is stated in PDD Section A.4.4 that greenhouse gas emissions will be reduced due to reduction of: - residual fuel oil consumption in the old boiler house owned by OJSC "SBM" as a result of construction of a new biofuel boiler house and reduction of heat losses in the heat pipeline; and - wood waste disposal to the dumps.		OK
A.4.4.2. Is it provided the estimation of emission reductions over the crediting period?	1,2	DR	The estimated total emission reductions equal 130 277 tCO_2e over the crediting period 2008-2012.		OK
A.4.4.3. Is it provided the estimated annual reduction for the chosen credit period in tCO_2e?	1,2	DR	The estimated annual emission reduction over the crediting period equals 26 055 tCO_2e.		OK
A.4.4.4. Is the data from questions A.4.4.2 and A.4.4.3 above presented in tabular format?	1,2	DR	**CAR 06.** Please provide the Table A.4.4.1 in format as prescribed in [2].	CAR 06	OK
A.4.5. Confirmation that the proposed small-scale project is not a debundled component of a larger project					
A.4.5.1. Is the proposed JI SSC project not a debundled component of a larger project?	1,2,3	DR	It is shown in PDD Section A.4.5 that the proposed SSC project is not a debundled component of a larger project. **CAR 07.** Please refer to the current version of Provisions for Joint Implementation Small-Scale Projects [3]. Current version is 03.	CAR 07	OK

A.5. Project approval by the Parties involved					
A.5.1.1. Are written project approvals by the Parties involved attached?	1,2	DR	The project approval by the Host Party will be provided later. Please refer to the Verifiers' Note in Table 1 item 1. Conclusion is pending a response to CAR 01.	Pending	
B. Baseline					
B.1. Description and justification of the baseline chosen					
B.1.1. Is the chosen baseline described?	1,2,5 1,5-9	DR	It is stated in Section B.1 that PDD developers propose own approach regarding baseline setting in consistency with the requirements of Decision 9/CMP.1, Appendix B [5]. Theoretical description of the baseline in Section B.1 concerns basic input data which determine GHG emissions in the baseline scenario, such as heat supply, fossil fuel combustion, electricity consumption, and disposal of wood waste in dumps. Relevant assumptions, formulae, parameters are included in this description. **CAR 08.** It is not explicitly indicated which of the approaches regarding baseline setting and monitoring, defined in the paragraph 2 of the annex I to the "Guidance on criteria for baseline setting and monitoring" has been	CAR 08 CAR 09 CL 02	OK

			chosen [2,4]. The same issue of concern pertains to Sections B.2 and D.1. The used term "own approach" is not applied in JI. **CAR 09.** Please include in the tabular form the missing information and data used to establish the baseline, in particular, values of emission factors for residual fuel oil combustion and electricity production as well as parameters of the model used for estimation of avoided methane emissions from anaerobic decomposition of wood waste (refer to Annex 2-2). **CL 02.** Please clarify why the annual outside air temperature 5^{o}C is used if formulae (B.1-9) and (B.1-10) whereas this temperature equals 0,9 ^{o}C (Annex 2 p. 66).		
B.1.2. Is it justified the choice of the applicable baseline for the project category?	1,2,6	DR I	**CAR 10.** Section B.1 does not provide the justification of the baseline in accordance with paragraph 23 through 29 of the Guidance on criteria for baseline setting and monitoring [6] as prescribed in [2]. The selected baseline scenario envisages continuation of the existing practice of heat supply of the settlement from the old residual fuel oil boiler house owned by OJSC "SBM". The unused wood waste generated at the local sawmills will be stockpiled at the dumps.	CAR 10	OK

			The baseline scenario is "business as usual" within the existing regulatory framework that does not prohibit OJSC "SBM" from supplying heat to the settlement, firing residual fuel oil in the existing boilers nor imposes any constraints on stockpiling of wood waste at the dumps by the local sawmills.		
B.1.3. Is it described how the methodology is applied in the context of the project?	1,2	DR	Conclusion is pending a response to CAR 09.	Pending	OK
B.1.4. Are the basic assumptions of the baseline methodology in the context of the project activity presented (See Annex 2)?	1,2, 5-9	DR	The basic assumptions are presented in PDD Sections B.1, B.3 and Annex 2. Apart from assumptions taken for values of parameters, it is assumed that: - the quantity of wood waste disposed to the sumps under the baseline equals to the quantity of sawdust fired under the project, whereas the remaining portion of wood waste is conservatively excluded from consideration (p.17); increase of GHG emissions from additional generation of grid electricity and from wood waste supply is fully offset by reduction of fugitive methane emissions related to consumption of residual oil in the oil boiler house (p.31).		OK
B.1.5. Is all literature and sources clearly referenced?	1,2	DR	Relevant literature and sources are clearly	CAR 11	OK

			referenced through the text of PDD with some exceptions. **CAR 11.** Please clearly reference the sources of data as follows: - the factor of heat supply from the new boiler house during the year *y* (p.11); - heat losses in the heat pipeline section running from the new boiler house to the point of connection with existing district network in 2008 and for 2009-2012 (reference [5] to the Contract N15/2008 is unclear); - footnote 4 (p.9) doesn't work; - R [11] on p.30 (indicate Chapter and Table); - values of parameters in Annex 2-1; - values of parameters from Ministry of Energy guidelines (indicate page or table); - average temperature of the outside air; - density and NCV of residual fuel oil (p.30); - emission factor for diesel oil (p.43); - emission factor for residual fuel oil (p. 49); - methane density 0,714 kg/m3; - increased value of electricity consumption from the external power grid.		
B.2. Description of how the anthropogenic emissions of greenhouse gases by sources are reduced below					

those that would have occurred in the absence of the JI project					
B.2.1. Is the proposed project activity additional?	1,2,5	DR	For identification of the baseline and assessment of additionality, analysis of alternatives, investment and sensitivity analysis, barriers and common practice analysis are carried out. The Alternatives were identified separately for the two components of the JI project activity: heat supply of the settlement and use of wood waste. The following Alternatives for heat supply of the settlement were identified: HS1 – Continuation of the current situation; HS2 – Construction of a gas-fired boiler house; HS3 - Construction of a coal-fired boiler house; HS4 – The project activity without the JI mechanism. The following Alternatives for use of wood waste were identified: WW1 - Continuation of the current situation; WW2 – Use of wood waste for fuel pellet production, and WW3 - The project activity without the JI mechanism. All Alternatives are in compliance with all	CAR 12	OK

			mandatory applicable legal and regulatory requirements of the Russian Federation. Summarizing the alternatives analysis and taking into account the results of the investment, sensitivity and barrier (technological and operational) analyses, the continuation of the current situation was chosen as most plausible baseline scenario. Common practice analysis showed that at the starting date of the project not a single project that involved switching of settlement's heat supply to local biofuel had been implemented in the Arkhangelsk Region. Now there are just a few JI projects realized therein. Therefore this project is not common practice. The verifiers observe the proofs of project additionality as reasonable. **CAR 12.** The general conclusion in Section B.2 (p.27) that "Russian industry does not manufacture boiler units which can ensure efficient combustion of wood waste" is proofless. There are a few Russian manufacturers producing such boilers (e.g. Kovrov, Biysk, Lesenergo).		
B.2.2. Is the baseline scenario described?	1,2	DR	The baseline scenario is described in sufficient detail in PDD Section B.1.		OK
B.2.3. Is the project scenario described?	1,2	DR	The project scenario is described in sufficient		OK

			detail in PDD Sections A.2, A.4.3 and B.1. **CL 03.** The specific volumetric wood waste consumption for generation of 1 GJ of heat in the new boiler house during the year y is assumed equal to 1.035 bulk m3/GJ according to the design data. Please compare this factor with data obtained in 2008.		
B.2.4. Is an analysis showing why the emissions in the baseline scenario would likely exceed the emissions in the project scenario included?	1,2	DR	The analysis presented in PDD Section A.4.4 showed that the emissions in the baseline scenario would likely exceed the emissions in the project scenario (Refer to A.4.4.1 above). The project implementation leads to reduction of GHG emissions from combustion of fossil fuel and anaerobic decomposition of wood waste at the dumps. The principal GHG emitted from combustion of fossil fuel is CO_2. Emissions of CH_4 and N_2O from combustion of fossil fuel are negligibly small compared with emissions of CO_2. Emissions of CO_2 from combustion of wood waste are climatically neutral and are, therefore, assumed equal to zero. Anaerobic decomposition of wood waste at dumps is accompanied by release of CH_4.		OK
B.2.5. Is it demonstrated that the project activity itself is not a likely baseline scenario?	1,2	DR	Refer to PDD Sections B.2. The project activity without registration under JI mechanism is not a likely baseline scenario		OK

			due to existing investment, barriers to the project implementation. It is shown by the investment analysis that the project activity is not economically and financially feasible without the revenue from the sale of emission reduction units (ERUs).		
B.2.6. Are national policies and circumstances relevant to the baseline of the proposed project activity summarized?	1,2	DR	The national policies and circumstances relevant to the baseline of the proposed project activity are summarized in the PDD Sections B.1 and B.2.		OK
B.3. Description of how the definition of the project boundary is applied to the small-scale project					
B.3.1. Are the project's spatial (geographical) boundaries clearly defined?	1,2, 4,7	DR	The project's spatial (geographical) boundaries are defined. Refer to PDD Section B.3 Figures B.3-1. **CAR 13.** Please include "combustion of wood waste" in the column 'Source" of Table B.3-1 and assess emissions of CH4 and N2O from wood waste combustion. Please assess implications of these project emissions. **CAR 14.** Please justify the applicability of the electricity grid emission factor 0,557 tCO_2e/MWh (p.31) [7] for Arkhangelsk energy system with power plants working on residual fuel oil (Severodvinskaya TEZ-2 and Arkhangelskaya TEZ). **CAR 15.** Please correct the value of GHG	CAR 13 CAR 14 CAR 15	OK

			emissions due to consumption of diesel oil by trucks (p. 31). The right value of diesel oil consumption is 613 333 rather than 460 000 l/year. Please assess implications of this correction.		
B.4. Further baseline information, including the date of baseline setting and the name(s) of the person(s)/entity(ies) setting the baseline					
B.4.1. Is the date of the baseline setting presented (in DD/MM/YYYY)?	1,2	DR	The date of the baseline setting is presented as 10/07/2009.		OK
B.4.2. Is the contact information provided?	1,2	DR	LLC "CCGS". Contact person: Ilya Goryashin E-mail: i.goryashin@ccgs.ru		OK
B.4.3. Is the person/entity also a project participant listed in Annex 1 of PDD?	1,2	DR	It is indicated that LLC "CCGS" is not the project participant listed in Annex 1 of PDD.		OK
C. Duration of the small-scale project / crediting period					
C.1. Starting date of the small-scale project					
C.1.1. Is the project's starting date clearly defined?	1,2, 3,4, 12	DR	December 13, 2006 (the date of the investment contract for the boiler house construction) is indicated as the project's starting date in PDD Section C1. On the other hand, it is stated in PDD on p. 2 that construction and installation works under the project started in December 2006. **CL 04.** Please make clear in PDD what	CL 04	OK

			activities were implemented in December 2006.		
C.2. Expected operational lifetime of the small-scale project					
C.2.1. Is the project's operational lifetime clearly defined in years and months?	1,2	DR	It is defined as 15 years/180 months (the service life of the main equipment).		OK
C.3. Length of the crediting period					
C.3.1. Is the length of the crediting period specified in years and months?	1,2, 12	DR	Length of the crediting period is specified in the PDD Section C.3.1 as 5 years/60 months (from the 1 of January 2008 till the 31 of December 2012). **CAR 16.** The starting date of the crediting period cannot be earlier than 01/08/2009 (PDD p. 6).	CAR 16	OK
D. Monitoring Plan					
D.1. Description of monitoring plan chosen					
D.1.1. Is the monitoring plan defined?	1,2,5	DR	The monitoring plan is defined on the basis of PDD developer's own approach in accordance with the specific of the project and requirements of Decision 9/CMP.1, Appendix B [5] without using any approved methodologies. PDD Section D.1 provides a detailed theoretical description of the monitoring plan in a complete and transparent manner. It contains formulae (mostly the same as in the		OK

			Section B.1) used to estimate baseline and project emissions from each source.		
D.1.2. Option 1 – Monitoring of the emissions in the project scenario and the baseline scenario.	1,2	DR	Option 1 is applied.		OK
D.1.3. Data to be collected in order to monitor emissions from the project, and how these data will be archived.	1,2	DR	Refer to D.2.		OK
D.1.4. Description of the formulae used to estimate project emissions (for each gas, source etc.; emissions in units of CO2 equivalent).	1,2	DR	Refer to D.1.		OK
D.1.5. Relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary, and how such data will be collected and archived.	1,2	DR	Refer to D.2.		OK
D.1.6. Description of the formulae used to estimate baseline emissions (for each gas, source etc, emissions in units of CO2 equivalent).	1,2	DR	Refer to D.1.		OK
D.1.7. Option 2 – Direct monitoring of emissions reductions from the project (values should be consistent with those in section E)	1,2	DR	Not applicable.		OK
D.1.8. Data to be collected in order to monitor emission reductions from the project, and how these data will be archived.	1,2	DR	Not applicable.		OK

D.1.9. Description of the formulae used to calculate emission reductions from the project (for each gas, source etc; emissions/emission reductions in units of CO2 equivalent).	1,2	DR	Not applicable.		OK
D.1.10. If applicable, please describe the data and information that will be collected in order to monitor leakage effects of the project.	1,2	DR	Not applicable.		OK
D.1.11. Description of the formulae used to estimate leakage (for each gas, source etc.; emissions in units of CO2 equivalent).	1,2	DR	Not applicable.		OK
D.1.12. Description of the formulae used to estimate emission reductions for the project (for each gas, source etc.; emissions in units of CO2 equivalent).	1,2	DR	Refer to D.1.		OK
D.1.13. Is information on the collection and archiving of information on the environmental impacts of the project provided?	1,2	DR	Refer to D.2.		OK
D.1.14. Is reference to the relevant host Party regulation(s) provided?	1,2	DR	Refer to D.2.		OK
D.1.15. If not applicable, is it stated so?	1,2	DR	Refer to D.1.14, Table 2.		OK
D.2. Data to be monitored					
D.2.1. Is the data/parameters subject to monitoring during crediting period provided in the	1,2, 4, 10	DR	Description of the data and parameters of the monitored plan in Section D.2 explicitly and clearly distinguishes:	CAR 17 CAR 18	OK

prescribed tabular form?			a) Data and parameters that are monitored throughout the crediting period (7 parameters). b) 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 regarding the PDD (29 parameters). Both types of data are specified in the tabular form in Section B.2. Data and parameters that are not monitored throughout the crediting period and are determined only once, but are not already available at the stage of determination regarding the PDD are not used in the monitoring plan. **CAR 17.** Please justify the conservativeness of taking the value of diesel oil NCV from an external source rather than from the fuel supplier. **CAR 18.** Please explain why the moisture content of sawdust is not included in the list of measured parameters whereas its value is needed for calculation of $k_{sawdust}$ by Formula (B.1-18).	CAR 19	

			CAR 19. Sawdust consumption is measured on the basis of number of loader scoops. Please estimate the uncertainty of this data and assess implications.		
D.2.2. Is information on the collection and archiving of information on the environmental impacts of the SSC project provided?	1,2, 4	DR	The information about the environmental impact of the project will be collected and archived in compliance with Russian regulations (p. 34). The enterprise has reporting obligations as per the statistic for 2-tp (air) Data on Atmospheric Air Pollution.		OK
D.3. Qualitative control (QC) and quality assurance (QA) procedures undertaken for data monitored					
D.3.1. Are there quality control and quality assurance procedures to be used in the monitoring of the measured data established?	1,2	DR	Quality control and quality assurance procedures are complete. Refer to the tabular form in PDD Section D.3		OK

D.4. Please describe of the operational and management structure that will be applied in implementing the monitoring plan					
D.4.1. Is it described briefly the operational and management structure that the project participants(s) will implement in order to monitor emission reduction and any leakage effects generated by the project	1,2	DR	The operational and management structure that the project participants(s) will implement in order to monitor emission reduction generated by the project is described in sufficient detail in PDD Section D.4. Data Team (operations) and JI Team (management) will be set up; responsibilities of employees will be established.		OK
D.5. Name of person(s)/entity(ies) establishing the monitoring plan					
D.5.1. Is the contact information provided?	1,2	DR	LLC "CCGS". Contact person: Ilya Goryashin E-mail: i.goryashin@ccgs.ru		OK
D.5.2. Is the person/entity also a project participant listed in Annex 1 of PDD?	1,2	DR	LLC "CCGS" is not the project participant listed in Annex 1 of PDD.		OK
E. Estimation of greenhouse gases emission reductions					
E.1. Estimated project emissions and formulae used in the estimation					
E.1.1. Are described the formulae used to estimate anthropogenic emissions by source of GHGs due to the project?	1,2	DR	It is stated in the PDD that CO_2 emissions from combustion of biomass are considered to be climatically neutral. The emissions of GHG under the project are equal to zero. The emergency operations with combustion of	Pending	OK

			diesel oil in the new boiler were not considered. Conclusion is pending a response to CAR 13 and CAR 14.		
E.1.2. Is there a description of calculation of GHG project emissions in accordance with the formula specified in for the applicable project category?	1,2	DR	Refer to the PDD Section B.3.		OK
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	1,2	DR	Conservative assumptions were not made.		OK
E.2. Estimated leakage and formulae used in the estimation					
E.2.1. Are described the formulae used to estimate leakage due to the project activity where required?	1,2,8	DR	Refer to PDD Section B.3 Table B.3-1 "leakage" and Section D.1 Formulae (D.1-2) – (D.1-3). The leakage is defined by methane emissions in the processes of production, processing, storage, transportation and distribution of oil and oil product [8] and at wood waste supplies from the outside. The formulae used to estimate leakage are presented in PDD Section B.3.		OK
E.2.2. Is there a description of calculation of leakage in accordance with the formula specified in for the applicable project category?	1,2,8	DR	A description of calculation of leakage is presented in PDD Section D.3. For the present project, leakage increases the emission reductions. In PDD, leakage is	Pending	OK

			assumed equal zero. This offsets the additional project emissions from the increased consumption of grid electricity. Conclusion is pending a response to CAR 13, CAR 14, and CAR 15.		
E.2.3. Have conservative assumptions been used to calculate leakage?	1,2,8	DR	The conservative assumption was made to set leakage equal zero. Refer to comments in E.2.2 above.		OK
E.3. The sum of E.1 and E.2.					
E.3.1. Does the sum of E.1. and E.2. represent the project activity emissions?	1,2	DR	The calculated values of the sum of E.1 and E.2 represent the project emissions. The sum equals E.1 since the leakage emissions are assumed equal to zero. Refer to PDD Section E.3. Conclusion is pending a response to CAR 13, CAR 14, and CAR 15.	Pending	OK
E.4. Estimated baseline emissions and formulae used in the estimation					
E.4.1. Are described the formulae used to estimate the anthropogenic emissions by source of GHGs in the baseline using the baseline methodology for the applicable project category?	1,2,9	DR, I	Refer to PDD Section D.1 Formulae (D.1-4) – (D.1-19) and Section E.4 Formulae (E.4-1 – E.4-3).		OK
E.4.2. Is there a description of calculation of GHG baseline emissions in accordance with the formula specified for the applicable project category?	1,2,9	DR, I	The estimated values of the baseline emissions are presented in PDD Section E.4. The calculations on excel spreadsheet were	CAR 20	OK

			checked and observed to be correct at the assumptions taken and input data used. **CAR 20.** Please make transparent recalculation of sawdust consumption in the new boiler house ($FC^{v}_{sawdust,new\_BH,x}$) to the dry matter of wood waste disposal to the dumps ($WW^{dry}_{dump,BL}$) used in the formula (E.4-3).		
E.4.3. Have conservative assumptions been used to calculate baseline GHG emissions?	1, 2	DR	Following conservative assumptions were made: - minimum values of parameter $k'_{sawdust}$ and $\rho_{12,sawdust}$ at the stage of the PDD preparation (see Section B.2) were applied; - organic carbon content on dry basis value is set as 50% whereas the default value is 53,6%.		OK
E.5. Difference between E.4. and E.3. representing the emission reductions of the project					
E.5.1. Does the difference between E.4. and E.3. represent the emission reductions due to the project during a given period?	1,2	DR	The estimated values of GHG emission reductions (the difference between E4 and E3) are presented in PDD Section E.5.		OK
E.6. Table providing values obtained when applying formulae above					
E.6.1. Is there a table providing values of total CO_2 abated?	1,2	DR	The presented Table E.6 provides the yearly and total values of project emissions, leakages, baseline emissions and emission	CAR 21	OK

			reductions for the crediting period. **CAR 21.** Please provide Table 6 in the format prescribed in [2].		
F. Environmental Impacts					
F.1. Documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party					
F.1.1. Has an analysis of the environmental impacts of the project been sufficiently described?	1,2,4 1	DR, I	Analysis of the environmental impacts of the project is described in PDD Section F1 with reference to the Detail Design documentation [4].		OK
F.1.2. Are there any host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	1,2, 14	DR I	The project has the following permits and positive expert opinions: - Positive opinion of the state expertise No.29-1-4-0356-07 issued on 4.04.2008; - Permit issued by Rostekhnadzor for operation of the energy generating unit No.01-07-T/024 dated 09.02.2009.		OK
F.1.3. Are the requirements of the National Focal Point being met?	1,2, 10	DR I	To meet the requirements of National Regulation [10], the application for the project approval shall include, inter alia, the substantiation of environmental effectiveness of the project. The application will be submitted following the presented determination of the project.		OK

F.1.4. Will the project create any adverse environmental effects?	1,2,4	DR I	The project does not create any impermissible environmental impact.		OK
F.1.5. Are transboundary environmental impacts considered in the analysis?	1,2	DR I	The project does not entail transboundary environmental impacts.		OK
F.1.6. Have identified environmental impacts been addressed in the project design?	1,2, 1	DR	Refer to PDD Section F.1.		OK
F.2. If environmental impacts are considered significant by the project participants or the host Party, provision of conclusions and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party					
F.2.1. Has an analysis of the environmental impacts of the project been sufficiently described?	1,2	DR, I	Not applicable		OK

***G.* Stakeholders' comments**					
G.1. Information on stakeholders' comments on the project, as appropriate					
G.1.1. Is there a list of stakeholders from whom comments on the project have been received?	1,2, 11-13	DR	Refer to the PDD Section G.1. Comments on behalf of local and federal authorities were received in the form of positive opinions regarding the project activity		OK

			from the state expert examinations and permits.		
G.1.2. The nature of comments is provided?	1,2	DR	State expert examinations confirmed that the design documentation complies with the industrial safety requirements, including environmental, health and safety requirements, fire safety requirements and agrees with the results of engineering surveys. The results of engineering surveys comply with the requirements of technical regulations.		OK
G.1.3. Has due account been taken of any stakeholder comments received?	1,2	DR	Not applicable.		OK

Table 4 Legal requirements

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1 Legal requirements					
1.1. Is the project activity environmentally licensed by the competent authority?	1	DR, I	Please refer to F.1.2.		OK
1.2. Are there conditions of the environmental permit? In case of yes, are they already being met?	1	DR, I	Please refer to 1.1 above.		OK
1.3. Is the project in line with relevant legislation and plans in the host country?	1	DR, I	Yes, the project is in line with relevant legislation and plans in the host country.		OK

Table 5 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CAR 01. The project has no approval of the host Party.	1 Table 1	N/A	Conclusion is pending. The approval should be obtained following the determination of the project.
CAR 02. The assertion that the decision to implement the project was taken by company's management in view of possibility to cover some cost by selling GHG emission reduction in the international market (PDD, p.3) is not supported with appropriate documents or references. In this respect, the history of the project lacks transparency.	A.2.2	Response 1 of 28/01/2010 Necessary comments were included into the PDD (See p. 3). Protocol of intention regarding cooperation of CJSC "Teplo-Invest" and local non-profit organization "Environmental Investment Center" in the sphere of development and implementation of projects using the joint implementation mechanism of the Kyoto Protocol dated 1 November 2006 was submitted to Bureau Veritas.	Conclusion on Response 1 This CAR is closed based on the pertinent information added to the PDD.
CAR 03. Please provide Table A.3 in the format as prescribed in [2].	A.3.2	Response 1 of 28/01/2010 The corresponding Table of the PDD was corrected accordingly (See p. 3). Response 2 of 09/02/2010	Conclusion on Response 1 The CAR will be closed after appropriate words in the Table A.3 will be underlined.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		The appropriate words in the Table A.3 were underlined (See p. 3).	Conclusion on Response 2 This CAR is closed based on the adequate correction made to the PDD.
CAR 04. Section A.4.1 is left blank. According to [2] para. 13, p.4 it shall be explicitly stated in PDD that the section is left blank on purpose.	A.4.1.1	Response 1 of 28/01/2010 The corresponding Section of the PDD was corrected accordingly (See pp. 3-5).	Conclusion on Response 1 This CAR is closed based on the adequate addition made to the PDD.
CAR 05. Project categories indicated in section A.4.2 are not in compliance with those listed in appendix B of annex II to decision 4/CMP.1. The project cannot be referred to Type III since there is no appropriate category for the project.	A.4.2.1	Response 1 of 28/01/2010 Indeed, the Appendix B of annex II to decision 4/CMP.1 of 30 November 2005 (http://cdm.unfccc.int/Reference/COPMOP/08a01.pdf#page=30) includes list of fourteen SSC project categories which are not in full compliance with ones indicated in PDD. However this list is only initial and this appendix B may be reviewed and amended as provided for in paragraphs 15-17 of annex II to decision 4/CMP.1. The most recent list of SSC project categories is available under	Conclusion on Response 1 This CAR is closed based on the given clarification.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html. This link is recommended in particular by paragraph 9 of Provisions for Joint Implementation Small-Scale Projects, Version 03, JISC (p. 4) and by Guidelines for Users of the Joint Implementation SSC Project Design Document Form and F-JI-SSC-Bundle/Version 04, JISC (p. 11). Project categories indicated in section A.4.2 of PDD are in full compliance with the recent list of SSC project categories.	
CAR 06. Please provide the Table A.4.4.1 in format as prescribed in [2].	A.4.4.4	Response 1 of 28/01/2010 The corresponding Table of the PDD was corrected accordingly (See p. 9). Response 2 of 09/02/2010 The appropriate words in the Table A.4.4.1 were underlined (See p. 9).	Conclusion on Response 1 The CAR will be closed after appropriate words in the Table A.4.4.1 will be underlined. Conclusion on Response 2 This CAR is closed based on the adequate correction made to the PDD.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CAR 07. Please refer to the current version of Provisions for Joint Implementation Small-Scale Projects [3]. Current version is 03.	A.4.5.1	Response 1 of 28/01/2010 The date of completing of the initial PDD is 28 August 2009. At that moment version 02 of Provisions for Joint Implementation Small-Scale Projects was available. Version 03 was approved only in October 2009. Reference to the current version of Provisions was added in the new PDD (See p. 69).	Conclusion on Response 1 This CAR is closed based on the adequate correction made to the PDD.
CAR 08. It is not explicitly indicated which of the approaches regarding baseline setting and monitoring, defined in the paragraph 2 of the annex I to the "Guidance on criteria for baseline setting and monitoring" has been chosen [2,4]. The same issue of concern pertains to Sections B.2 and D.1. The used term "own approach" is not applied in JI.	B.1.1	Response 1 of 28/01/2010 Necessary additions and corrections were made in PDD (See pp. 11, 28, 39, 69).	Conclusion on Response 1 This CAR is closed based on the pertinent information added to the PDD.
CAR 09. Please include in the tabular form the missing information and data used to establish the baseline, in particular, values of emission factors for residual fuel oil combustion and electricity production as well as parameters of the model used for	B.1.1	Response 1 of 28/01/2010 Additional tables contained key parameters that were assumed as constants under the baseline scenario were included into the Section B.1 of the PDD (See pp. 24-27).	Conclusion on Response 1 This CAR is closed based on the adequate addition made to the PDD.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
estimation of avoided methane emissions from anaerobic decomposition of wood waste (refer to Annex 2-2).			
CAR 10. Section B.1 does not provide the justification of the baseline in accordance with paragraph 23 through 29 of the Guidance on criteria for baseline setting and monitoring [6] as prescribed in [2].	B.1.2	Response 1 of 28/01/2010 Necessary additions were made in PDD (See p. 11). Response 2 of 09/02/2010 Necessary additions and corrections were made in PDD (See pp. 11-14, 17, 20, 31).	Conclusion on Response 1 The response is not accepted. Section B.1 still does not provide the justification of the baseline in accordance with paragraph 23 through 29 of the Guidance on criteria for baseline setting and monitoring [6] as prescribed in [2]. The added reference to Section B.2 was considered as inadequate because Section B.2 does not provide justification of the baseline. Only brief description with proofless summary is observed. Section B.1 does not contain information about the baseline emissions of CH_4 from decomposition of wood waste at

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
			the dumps. Conclusion on Response 2 This CAR is closed based on the adequate addition made to the PDD.
CAR 11. Please clearly reference the sources of data as follows: - the factor of heat supply from the new boiler house during the year *y* (p.11); - heat losses in the heat pipeline section running from the new boiler house to the point of connection with existing district network in 2008 and for 2009-2012 (reference [5] to the Contract N15/2008 is unclear); - footnote 4 (p.9) doesn't work; - R [11] on p.30 (indicate Chapter and Table); - values of parameters in Annex 2-1; - values of parameters from Ministry of Energy guidelines (indicate page or table); - average temperature of the outside air; - density and NCV of residual fuel oil	B.1.5	Response 1 of 28/01/2010 Footnote 4 was changed (See p.9). As stated at p.19 of PDD monthly average temperatures of the outside air were assumed as per SNiP "Construction Climatology" [R5]. Necessary references and comments were added into the PDD (See pp. 12, 19-21, 36, 37, 48, 49, 51-54, 63, 69, 71, 72). The Annex to Contract No.15/2008 dated 07.07.2008 "The calculation of insulation losses in the supply and return heat pipelines from the point where the sensors of the heat metering unit are located and to the border dividing ownership and operational responsibilities" was submitted to Bureau Veritas.	Conclusion on Response 1 The CAR is not closed. The following parameters are not clearly referenced: - parameters in Table B.3-2; - standard specific heat losses in the supply pipeline running from the old boiler house to the point where the heat pipeline from the new boiler house connects with the existing district heating network (477.9) page 20, 52; - standard specific heat losses in the return pipeline running from the old boiler house to the point

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
(p.30); - emission factor for diesel oil (p.43); - emission factor for residual fuel oil (p. 49); - methane density 0,714 kg/m3; - increased value of electricity consumption from the external power grid.		Response 2 of 09/02/2010 Parameters in Table B.3-2 were clearly referenced in the previous version of the PDD (See p. 37). Necessary additions for justification of standard specific heat losses were made in the PDD (See pp. 23, 24, 51, 52, 54, 55). Data/Parameter 15 was corrected (See p. 52). Necessary additions for justification of methane density were made in the PDD (See pp. 30, 60). In addition necessary additions for justification of other parameters were made in the PDD (See pp. 27, 28, 57, 58).	where the heat pipeline from the new boiler house connects with the existing district heating network (430.7) page 21, 53; - standard specific heat losses in the supply pipeline running from the new boiler house to the point of connection with the existing district heating network (194.6); - Data/Parameter 15 description is incorrect (page 50); - methane density. Conclusion on Response 2 This CAR is closed based on the adequate addition made to the PDD.
CAR 12. The general conclusion in Section B.2 (p.27) that "Russian industry does not manufacture boiler units which can ensure efficient combustion of wood waste" is	B.2.1	Response 1 of 28/01/2010 In Russian boiler units biomass, as a general rule, is fired using fossil fuel for flame stabilization and the combustion efficiency is	Conclusion on Response 1 This CAR is closed based on the pertinent information added to the

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
proofless. There are a few Russian manufacturers producing such boilers (e.g. Kovrov, Biysk, Lesenergo).		low, especially when high-moisture biomass is fired. In foreign boilers (manufactured in Europe and USA) flame stabilization is not used at all even if the moisture content of biomass is high and the efficiency is up to 90%. Also reliability of domestic biomass boilers often is much lower than foreign ones. Necessary reference was included into the PDD (See p. 32).	PDD.
CAR 13. Please include "combustion of wood waste" in the column 'Source" of Table B.3-1 and assess emissions of CH4 and N2O from wood waste combustion. Please assess implications of these project emissions.	B.3.1	Response 1 of 28/01/2010 The corresponding Table of the PDD was corrected accordingly (See p. 35). Necessary comments were added in the PDD (See p. 37).	Conclusion on Response 1 This CAR is closed based on the adequate correction made to the PDD.
CAR 14. Please justify the applicability of the electricity grid emission factor 0,557 tCO_2e/MWh (p.31) [7] for Arkhangelsk energy system with power plants working on residual fuel oil (Severodvinskaya TEZ-2 and Arkhangelskaya TEZ).	B.3.1	Response 1 of 28/01/2010 As stated in the 2008 annual report of JSC "Territorial generating company #2", p.7, "Arkhangelsk power grid has a surplus of existing generating capacities. The existing net power flow from Vologda power grid is due to economic factors – the high generating cost because power generation relies on heavy fuel	Conclusion on Response 1 This CAR is closed based on the pertinent information added to the PDD.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		oil". Thus any increment of electricity consumption in Arkhangelsk region will be covered rather with supply from Central European part of Russia where electricity generation is based on natural gas. This is less expensive. Under the circumstances the electricity grid emission factor of 0.557 tCO_2e/MWh or so taken from [7] can be used for estimation. Necessary reference and comment were included into the PDD (See p. 36-37).	
CAR 15. Please correct the value of GHG emissions due to consumption of diesel oil by trucks (p. 31). The right value of diesel oil consumption is 613 333 rather than 460 000 l/year. Please assess implications of this correction.	B.3.1	Response 1 of 28/01/2010 The value of GHG emissions due to consumption of diesel oil was corrected accordingly (See p. 37).	Conclusion on Response 1 This CAR is closed based on the adequate correction made to the PDD.
CAR 16. The starting date of the crediting period cannot be earlier than 01/08/2008 (PDD p. 6).	C.3.1	Response 1 of 28/01/2010 The corresponding Section of the PDD was corrected accordingly (See p. 38).	Conclusion on Response 1 This CAR is closed based on the adequate addition made to the PDD.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CAR 17. Please justify the conservativeness of taking the value of diesel oil NCV from an external source rather than from the fuel supplier.	D.1.1	Response 1 of 28/01/2010 It should be noted that the standard certificate of a diesel fuel supplier (see for example http://nefteresurs.ru/filearhiv/pub/1264406451_PasportDiztop.zimn.Z%200,2-35(Rosrezerv,k-t%20Chulim,Krasnoyarsky%20kray.,st.Kozulka%20Krasnoyarskoy%20g.d.).jpg) does not specify the calorific value because GOST 305-82 "Diesel fuel. Specifications" does not bring this parameter under regulation. However assuming the diesel fuel density at 840 kg/m^3 according this GOST, and the calorific value per mass unit at the upper range of values specified in 2006 IPCC Guidelines for National Greenhouse Gas Inventories [R11], Volume 2, Chapter 1, Table 1.2 – 43.3 GJ/t, we get the volumetric calorific value of diesel fuel equal to 0.0364 GJ/l. This value is lower than the one assumed in the PDD (0.0371) in accordance with WRI 2008 [R14], Table 3. Since the calorific value of diesel fuel is used in calculation of project emissions the assumed value can be considered as conservative.	Conclusion on Response 1 This CAR is closed based on the given clarification.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CAR 18. Please explain why the moisture content of sawdust is not included in the list of measured parameters whereas its value is needed for calculation of $k_{sawdust}$ by Formula (B.1-18).	D.1.1	Response 1 of 28/01/2010 The value of the moisture content of sawdust is not needed for calculation of $k_{sawdust}$. When formula (B.1-17) is inserted into formula (B.1-16) the sawdust moisture is cancelled out: $k_{sawdust} = k'_{sawdust} \times \rho_{sawdust,PJ,y} \times \frac{(100 - W_{sawdust,PJ,y})}{100} \times 10^{-3} =$ $= k'_{sawdust} \times 0.823 \times \frac{100}{(100 - W_{sawdust,PJ,y})} \times \rho_{12,sawdust} \times$ $\times \frac{(100 - W_{sawdust,PJ,y})}{100} \times 10^{-3} = 0.823 \times k'_{sawdust} \times \rho_{12,sawdust} \times 10^{-3}$ That is formula (B.1-18) which is used for emission reduction calculation.	Conclusion on Response 1 This CAR is closed based on the given clarification.
CAR 19. Sawdust consumption is measured on the basis of number of loader scoops. Please estimate the uncertainty of this data and assess implications.	D.1.1	Response 1 of 28/01/2010 "The Record of Measurement of the Scoop of XCMG ZL 50 G Front Loader" of 26 May 2009 was provided to Bureau Veritas. This document contains the record of measurements of the volume of the loader scoop loaded with crushed wood fuel. The measurements were taken of the length, width	Conclusion on Response 1 This CAR is closed based on the given clarification.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		and height (2.9/1.3/1.1 m). In doing so, the height was measured with allowance for a "hump" of fuel in the scoop. The length and width are constrained by the size of the loader scoop. The measurement uncertainty of the length and width may be assumed to be 0.01 m, and of the height - 0.1 m. Relative measurement errors are: length – 0.0034; width – 0.0077; height – 0.091, respectively. Relative root-mean-square measurement uncertainty of the volume of sawdust in the scoop is determined as to the root of sum of squares of relative errors of length, width and height, and equals 0.091. This level of measurement uncertainty is estimated as "Good" (up to +/- 15%) in accordance with *GHG Protocol guidance on uncertainty assessment in GHG inventories and calculating statistical parameter uncertainty* (http://www.ghgprotocol.org).	
CAR 20. Please make transparent recalculation of sawdust consumption in the	E.4.2	Response 1 of 28/01/2010 Necessary comments were included into the	Conclusion on Response 1 This CAR is closed based on the

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
new boiler house ($FC^{v}_{sawdust,new\_BH,x}$) to the dry matter of wood waste disposal to the dumps ($WW^{dry}_{dump,BL}$) used in the formula (E.4-3).		PDD (See p. 64).	adequate amendment and clarification made in the PDD.
CAR 21. Please provide Table 6 in the format prescribed in [2].	E.6.1	Response 1 of 28/01/2010 The corresponding Table of the PDD is corrected accordingly (See p. 66).	Conclusion on Response 1 This CAR is closed based on the adequate correction.
CL 01. Please clarify the discrepancies as follows: - according to PDD (Section A.4.3 p.6) wood wastes consist of chips 2,7%; bark 5,5%; sawdust 52%; long sawmill residues 39,8% - according to the Detailed Design [4] wood wastes consist of: chips 2,6%; bark 5,4%; sawdust 40,2%; long sawmill residues 51,8%.	A.4.2.1	Response 1 of 28/01/2010 The PDD contains the volumetric composition of word wastes, because volumetric consumption of wood wastes is used in the estimation of GHG emission reductions. The Detailed Design [R4] on page 14 gives both volumetric and mass composition of wood wastes.	Conclusion on Response 1 This CL is closed based on the given clarification.
CL 02. Please clarify why the annual outside air temperature 5°C is used if formulae (B.1-9) and (B.1-10) whereas this temperature equals 0,9 °C (Annex 2 p. 66).	B.1.1	Response 1 of 28/01/2010 This approach is determined by the standard heat losses calculation method. In reference literature (e.g. [R4]) the values of standard heat losses are given for the annual mean outside temperature of +5℃.	Conclusion on Response 1 The CL will be closed when reference to the exact paragraph or page is provided.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		Response 2 of 09/02/2010 Please see Table 1.2 of Annex 1 to Guidelines for calculation and justification of standard process losses for heat delivery in the Russian Ministry of Energy (p. 28). The values of standard heat losses are given for the annual mean outside temperature of +5℃. This is indicated in the title of the table. Further this values are recalculated for the annual mean outside temperature of the district where heat network is laid as shown in formulae (B.1-9) and (B.1-10) of the PDD.	Conclusion on Response 2 This CAR is closed based on the adequate amendment and clarification made in the PDD.
CL 03. The specific volumetric wood waste consumption for generation of 1 GJ of heat in the new boiler house during the year y is assumed equal to 1.035 bulk m3/GJ according to the design data. Please compare this factor with data obtained in 2008.	B.2.3	Response 1 of 28/01/2010 Actual wood fuel consumption in the new boiler house in 2008 was as follows, bulk m^3: chips – 20818; sawdust – 12469; long sawmill residues in terms of chips – 4385; bark – 182; total – 37854. Actual specific volumetric wood waste consumption for generation of 1 GJ of heat in 2008 was equal to 0.662. Supposedly, the difference can be attributed to lower actual fuel moisture, higher actual	Conclusion on Response 1 This CL is closed based on the given clarification.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		efficiency of boiler operation, lower actual volumetric share of long sawmill residues (around 10% against 40%). In the Design the long sawmill residues were most likely measured in stock cubic meters, whereas in actual fact they are measured in terms of chips, that are produced as a result of chopping of long sawmill residues before feeding them to the boilers. The stock volume of long sawmill residues is clearly higher than their volume in the form of chips.	
CL 04. Please make clear in PDD what activities were implemented in December 2006.	C.1.1	Response 1 of 28/01/2010 Extract from the investment contract No. 2/06 dated 13 December 2006 mentioned in PDD was submitted to Bureau Veritas.	Conclusion on Response 1 This CL is closed based on the given clarification.

Appendix B: Verifiers CV's

George Klenov, Professor, Doctor of Science (engineer electromechanic, phisicist)
Lead Verifier
Bureau Veritas Certification Rus - Lead Auditor, Lead Tutor, Verifier

He has over 30 years of experience in Low Frequency Electromagnetic Fields of ocean, atmosphere and ships R&D, engineering, and management, environmental science. He worked in Krylov's Research Centre, Saint-Petersburg. At the same time he worked for 15 years as professor of physics at the Marine Technical University. He has published two books, more then one hundred papers in the different scientific journals. Now he is a Lead auditor of Bureau Veritas Certification for Quality Management Systems, Environmental Management System, Occupational Health and Safety Management System. He performed over 400 audits since 1998. Also he is a Lead Tutor of the IRCA registered ISO 9001 QMS Lead Auditor Training Course. He is an Assuror of Social Reports. He has undergone intensive training on Clean Development Mechanism /Joint Implementation in September 2008, Istanbul and March 2009, Moscow and was/is involved in the determination of 7 JI projects.

Grigory Berdin. (accounting, analysis, inspection and audit**)**
Verifier
Bureau Veritas Certification Rus - Verifier.

He has finished Tax Academy under the Ministry of Finance of the Russian Federation. He has over 4 years of experience in implementing of JI & CDM projects. He was developer of more than 10 PDDs. He has undergone training on Clean Development Mechanism /Joint Implementation and he is involved in the determination of six JI projects.

Leonid Yaskin, PhD (thermal engineering)
Lead verifier, Technical reviewer
Bureau Veritas Certification Rus General Director- Lead Auditor, Lead Tutor, Verifier

He has over 30 years of experience in heat and power R&D, engineering, and management, environmental science and investment analysis of projects. He worked in Krrzhizhanovsky Power Engineering Institute, All-Russian Teploelectroproject Institute, JSC Energoperspectiva. He worked for 8 years on behalf of European Commission as a monitor of Technical Assistance Projects. He is a Lead auditor of Bureau Veritas Certification for Quality Management Systems (IRCA registered), Environmental Management System (IRCA registered), Occupational Health and Safety Management System (IRCA registered). He performed over 250 audits since 2002. Also he is a Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and a Lead Tutor of the IRCA registered OHSAS 18001 Lead Auditor Training Course. He is an Assuror of Social Reports. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and was/is involved in the determination of over 30 JI projects.