# DETERMINATION REPORT

## CLIMATE CHANGE GLOBAL SERVICES (CCGS LLC)

# DETERMINATION OF THE

## "Pellet Production from Sawmill Wastes at CJSC —Sawmill 25 , Arkhangelsk, the Russian Federation"

## BUREAU VERITAS CERTIFICATION



REPORT NO. RUSSIA/0067-2/2010 v.1

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# Determination Report on JI project "Pellet Production from Sawmill Wastes at CJSC — Sawmill 25, Arkhangelsk, the Russian Federation"

| Date of first issue: | Organizational unit: |
|---|---|
| 16/09/2010 | Bureau Veritas Certification Holding SAS |
| **Client:** | **Client ref.:** |
| CCGS LLC | Mr. Vladimir Dyachkov |


Summary:

Bureau Veritas Certification has made the determination of the project "Pellet Production from Sawmill Wastes at CJSC - Sawmill 25, Arkhangelsk, the 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.: | Subject Group: |
|---|---|
| RUSSIA/0067-1/2010 v.1 | JI |

Project title:
Pellet Production from Sawmill Wastes at CJSC —Sawmill 25 , Arkhangelsk, the Russian Federation

Work carried out by:
George Klenov – Team Leader, Lead verifier

Vladimir Lukin – Team member, Lead verifier

Work verified by:
Leonid Yaskin - Internal technical reviewer

Work approved by:
Flavio Gomes – Operational Manager

| Date of this revision: | Rev. No.: | Number of pages: |
|---|---|---|
| 16/09/2010 | 01 | 87 |

**Indexing terms:**

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

## Abbreviations

| | |
|---|---|
| AIE | Accredited Independent Entity |
| BL(S) | Baseline (Study) |
| BV | Bureau Veritas |
| BWW | Bark and Wood Wastes |
| 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 |
| SWDS | Solid Wastes Disposal Site |
| UNFCCC | United Nations Framework Convention for Climate Change |

## Table of Contents

# 1 Introduction

Climate Change Global Services, LLC has commissioned Bureau Veritas Certification to determine its JI project "Pellet Production from Sawmill Wastes at CJSC — Sawmill 25, Arkhangelsk, the 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 CJSC "Sawmill-25" in the Arkhangelsk.

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 (quoted by PDD Section A.2)

**The aim of the project**

The project is aimed at utilizing sawmill residues by pelletizing which will allow to reduce bark and wood wastes disposal to the dump and thus would cut down methane emissions. Pellets will be used as fuel mainly overseas.

**Situation before the starting date of the project**

Prior to the project implementation there was a big surplus of sawmill wastes at CJSC —Sawmill 25. There was no demand for excessive wastes and therefore they had to be disposed to the dump. Generally, disposal of such unclaimed wastes to the dumps is common practice at all sawmills of the Arkhangelsk Region and it suits them. That is why one can find vast areas of bark and sawdust disposal sites in the neighborhood of any sawmill.

**The baseline scenario**

Under the baseline scenario the company would continue with the existing practice of disposal of excessive sawmill wastes to the dump. Anaerobic decomposition of wastes at the dump would have been accompanied by release of methane into atmosphere – a greenhouse gas with global warming potential of 21.

**The project scenario**

The project scenario involves setting up a plant for pellet production from sawmill residues at CJSC —Sawmill 25□. The feedstock and fuel for this plant are sawdust and bark-wood waste (BWW) generated at the Mill.

The initial rated plant capacity (first stage of the project) was 50 thousand tonnes of pellets per year. In May 2008 the output of products began. The investments into the plant totaled EUR 7 million. The main suppliers of the equipment were Andritz and Hekotek companies.

In February 2010 the rated output capacity of the plant (second stage of the project) increased up to 75 thousand tonnes of pellets per year by setting up an additional production line. This required additional investments in the amount of EUR 2.33 million.

Heat demand of the pellet production plant is met by the heat generators installed at the plant itself and by the mini-CHP plant, both of which are running on BWW only. Electricity is supplied from the mini- CHP plant operated by the Sawmill and/or from the external power grid.

Fuel pellet production will make it possible to reclaim up to 180 thousand tonnes of sawdust and BWW per year. Without the project these wastes would have been disposed to the dump causing methane emissions produced from anaerobic decay. The greenhouse gas emission reductions over 2008-2012 are estimated at 101.8 kt CO2e.

**The project background**

The Sawmill's management first came up with the idea of constructing a pellet production plant in 2004. At the stage of planning, the company's management took into consideration the potential revenues from selling greenhouse gas emission reductions that could be generated by this project. Therefore the project was planned as joint implementation (JI) project in accordance with Article 6 of the Kyoto Protocol. This issue was discussed with the Environmental Investment Centre as early as 2005 [R11] and in 2008 – with CCGS LLC, the company that was finally chosen as a partner for developing all necessary documentation and selling GHG emission reductions in the international market.

The first contract for procurement of equipment for a pellet production plant was signed on June 08, 2007 (the starting date of the project). Actual product output and generation of emission reductions began in May 2008. Officially the construction and installation works under the project with achievement of rated plant capacity of 75 thousand tonnes of pellets per year were fully completed in February 2010.

The total required investments into the project amount to around EUR 9.33 million.

## 1.4 Determination team

The determination team consists of the following personnel:

George Klenov
Bureau Veritas Certification - Lead Verifier

Vladimir Lukin
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 CJSC Sawmill-25 as the project representatives (July 30th 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 (DVM).

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

The Project Design Document (PDD) version 1.0 dated 15/06/2010 was submitted to Bureau Veritas Certification by CCGS on 16/06/2010. 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 1.0 with CAR's and CL's which was submitted to CCGS on 25/06/2010.

On 20/08/2010, CCGS submitted the amended version of PDD, version 2.0 together with summaries of responses to the verifiers' requests. Having reviewed this feedback, Bureau Veritas Certification issued DDR version 2.0 dated 09/08/2010 with clarifications as to why some of CCGS responses can not be accepted.

0n 08/09/2010 CCGS has submitted their final responses and the completed version 2.1. of PDD dated 08/09/2010 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 15/06/2010. The amendments done in the PDD version 2.0 dated 09/08/2010 and version 2.1 dated 08/09/2010 have been taken into account in this Determination Report.

## 2.2 Follow-up Interviews

Bureau Veritas Certification verification team has conducted interviews with project participants (CJSC Sawmill – 25 project representatives) on 30/07/2010. 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 CJSC Sawmill-25 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 |
|---|---|
| CJSC Sawmill-25 | ➢ Technical project documentation<br>➢ Project operational and management structure<br>➢ Operational lifetime of the project<br>➢ Common practice<br>➢ Environmental Impact Assessment Documentation<br>➢ Stakeholders' comments<br>➢ Training programmes for pellet production plant operators<br>➢ Project monitoring responsibilities<br>➢ Monitoring equipments<br>➢ Quality control and quality assurance procedures |
| CCGS LLC | ➢ History of the project<br>➢ Implementation schedule<br>➢ Starting date of the project (the date on which the implementation or construction or real action of the project has begun)<br>➢ Technical design document<br>➢ Investment barrier. IRR of the project as per the feasibility study and technical design<br>➢ Pending issues<br>➢ Baseline and Project scenarios<br>➢ Monitoring plan<br>➢ Barrier analysis<br>➢ Additionality justification<br>➢ Common practice analysis<br>➢ Estimation of the emissions reductions<br>➢ Estimation of the leakage<br>➢ 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.

DDR, version 1.0, summarising Bureau Veritas Certification's findings, was submitted to the project participants on 28 June 2010. Twenty one Corrective Action Requests and four Clarification Requests have been raised. Based on these findings CCGS made necessary amendments and corrections to the PDD version 2.0 and, eventually, the version 2.1 dated 09/08/2010 and 08/09/2010 respectively were 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 02 was issued on 14/09/2010. On the same day the Determination Report version 01 and PDD version 2.1 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 meets all criteria applicable to small-scale (SSC) Projects. The project is eligible as an individual SSC project.

The Sectoral Scopes are identified in the PDD as: (13) Waste handling and disposal. The project activity is referred in PDD to the following type*:

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 GHG emission reductions generated by the project are estimated at an average of 20 356 tonnes of CO2e per year, which is within the limit of 60 thousand tonnes of CO2e per year set for small-scale projects.

The project provides reduction of GHG emissions by reducing of biomass disposal to the SWDS.

The outcomes of project activity will be the following effects:

- mitigation of adverse environmental impacts; and
- average reduction of GHG emissions by 20 356 tCO2e/year over the period 2008-2012. Total estimated emission reductions will be equal to 101 779 tCO2e through the crediting period starting in 2008.

The first stage of project involves installation of two pellet production lines with total initial rated plant capacity of 50 thousand tonnes of pellets per year. The second stage of project implementation involves installation of third pellet production line. After its implementation in February 2010, the total rated capacity become equal to 75 thousand tonnes of pellets per year.

The pellet production technology includes the following stages:

From the storage yard the sawdust is loaded into the receiving bunker by a scoop loader and then fed to the sorting unit. After the sorting the sawdust is transported to proportioning bunker equipped with an electrically driven mixer. Then feedstock is fed by dosing screws to a mixing chamber and further to the drum drier.

At the next stage of pellet processing the feedstock is dried with mixture of hot gas generated from BWW combustion and ambient air (drying agent). The dried feedstock is transported from the drying unit to the cyclone dust collector, where it is separated from the waste drying agent.

From the dust collector the sawdust is supplied to the dry sawdust storage bunker and further to the hammer mill, where it is ground to 1 mm fractions. Then the sawdust is treated with the superheated steam and fed to the pressing matrix. The produced pellets after the press are fed to the cooler where the temperature of pellets is reduced down to the ambient temperature sorted and then they are sorted. The off-grade product is returned to the beginning of the process flow. Pellets moisture is less than 10%.

The project design engineering does reflect current good practices. The main project equipment manufacturer Hekotek http://www.hekotek.ee/eng/products/pellet_factories have a substantial track record in the field of wood processing and pellet production

engineering, management and maintenance. The project is professionally managed and the applied technology represents state of the art technique. Hence the substitution of project technology by new one during crediting period was found to be unlikely.

In order to implement the project successfully and to operate the pellet production plant as presumed during the project period, the company was provided with extensive initial training and maintenance efforts as prescribed in the equipment purchasing contact /10/.

The project activity was officially approved by Positive Sate Expertise Conclusion dd. 26/12/2007 /12/.

The project location is defined as Arkhangelsk town. As it was found during site visit and further discussion with PP the production site Maimaksa is the remote district administratively belonging to Arkhangelsk city relevant justification was included into PDD ver. 2.1.

The project boundary was checked during site visit. It was found that the emissions generated embedded heat generators supplying the heat for pellet production process are specifically attributable to proposed activity and shall be included into project boundary. GHG emissions from the heat generators at pellet production plant were considered in the ER calculations. PDD was revised accordingly.

After the relevant discussion it was explicitly demonstrated on the basis of the relevant calculations that N2O and CH4 emissions from biomass combusted at the CHP for heat generation are negligible (less than 1% of total emissions) and hence they were not included into project boundary. Also it was demonstrated by review of Sawmill-25 energy balance /30/ that the power produced by mini CHP is fully consumed by core production needs. Hence it was conservatively assumed that the additional power demands for the pellet production needs may be covered by power import from the grid. Hence the relevance of project boundary identified in PDD ver. 2.1. was confirmed.

The project's starting date is defined in the PDD as the date of equipment procurement contract signature on June 08, 2007 that has been confirmed by relevant documentary evidence /10/ submitted to verifier.

The project implementation schedule was checked and confirmed on the basis of the documentary evidence review. Project idea was elaborated in the 2004 – 2005 when the project was for the first time announced in local press /23/; the project was developed and officially approved in 2007 /09/ /12/; the construction works were undertaken in 2007- 2010 /34/. The test phase for the first stage of project implementation was completed in May 2008 /16/ /17/ and the second stage – in February 2010.

The crediting period is defined from 21/05/2008 till 31/12/2012. The starting date was identified as the date when the first emission reductions were achieved /17/.

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, CL 01 and CL 02).

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

The identified area of concern as to Duration of the project/Crediting period, PP's response and BV Certification's conclusion are summarised in Appendix A Table 5 (refer to CAR 14).

## 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 ver. 2.0 /04/. The baseline has been established in accordance with appendix B of the JI guidelines /03/.

The baseline scenario has been identified on the basis of analysis of six alternatives covering all theoretically options for utilization of equal amount of wood wastes. Key factors and relevant national and/or sectoral policies that may affect a baseline have been taken into account.

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

On the basis of alternative analysis three alternatives: the uses of wood wastes as the fuel for central CHPP, as feedstock for pulp and paper production and for hydrolyze plant were rejected as technically unfeasible. The use of wood wastes for energy generation at the plant was found unfeasible as the current energy needs are covered by existing facilities – mini CHP and particularly power export from the grid.

Two alternatives continuation of current situation: stockpiling of wood wastes for anaerobic decomposition at the SWDS and project activity not being registered as JI) were left for further analysis. The investment analysis was undertaken to demonstrate that the project activity without JI registration is not economically feasible.

All input values used for investment analysis including total investments, operational costs and benchmark were checked against the independent sources like a equipment procurement contract /10/, loan lending agreement /36/, and publicly available sources referred to in the PDD. All references were checked and found reliable.

The period covered by investment analysis is chosen to be equal to project operation lifetime. The length of equipment lifetime – 15 years was confirmed by information provided by equipment manufacturer /37/.

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.

The baseline scenario assumes continuation of the existing practice of wood waste stockpiling at the SWDS. No legal constraints were found that may constitute any barriers preventing BWW and saw dust dumping at the SWDS operated by Sawmill 25.

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

The baseline scenario reflects the "business as usual" as it was demonstrated by the common practice analysis. Particularly it was shown that there are no projects comparable with the proposed activity in terms of technology, scale, and economical environment occurring in the Arkhangelsk region. The analysis of the commonly available sectoral scope review /33/ demonstrates that pellet production business in Russia usually faces some barriers relate to absence of local pellet market, high pellet prices in comparison with traditional fuels and high prices for pellet based energy generation.

The JI status and the relevant revenues from ERU were considered to be the key factor for project realization prior the project implementation start. As it was found during the interview with PP and document review the framework agreement for the PDD development was concluded in 2005 /11/ at the stage of project idea elaboration.

On the basis of the above analysis, the GHG emission reductions generated by the pellet production project at Sawmill-25 are found to be 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 03, CAR 04, CAR 05, CAR 06, CAR 07, CAR 08, CAR 09, CAR 10, CAR 11, CAR 12, CAR 13 CAR 15, CL 03 and CL 04).

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 14).

## 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 /04/ 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.

In order to implement the Monitoring plan the project specific Monitoring procedure /26/ covering all parameters necessary for ER estimation was adopted at Sawmill-25. The company has appointed the person who has overall responsibility for monitoring

plan implementation /28/. The roles and responsibility for the staff involved in the monitoring processes are officially approved by the relevant internal order /27/.

The plant poses all meters and equipment to perform the relevant measurments for all monitoring parameters with low level of uncertainty. The level of uncertainty was confirmed by the review of certificates for meters /22/, /24/, undertaken during site visit.

Quality control procedures include mandatory metering equipment calibration. The calibration records /22/, /29/ were checked on site.

In order to ensure the most conservative approach and default values for emission reduction estimation during whole monitoring period FAR 01 was raised.

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 15, CAR 16, 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 2.0 and 2.1 and found them accurate.

Implementation of the project will lead to reduction of GHG emissions due to avoidance of methane emissions from biomass wastes anaerobic decomposition at the dump.

The baseline emissions are calculated using the first order decay model (PCF) /39/ developed specifically for estimation of methane emissions generated by sawdust anaerobic decay. The baseline emissions estimated with implication of this model were compared with those resulted from implication of approach delineated in IPCC 2006 /40/ and CDM tool to Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site v.5.0 /41/ and found to be more conservative.

Project emissions are the CO2 emissions generated by the production of power consumed by project at the grid connected power plants and the N2O and CH4 emissions generated by combustion of biomass at the heat generators supplied heat to the pellet production plant.

$CO_2$ emissions from combustion of biomass are considered to be climatically neutral.

The calculated value of project emission reduction over the crediting period 2008 – 2012 is 101 779 tCO2e. Annual average emission reduction is 20 356 tCO2e/year.

No areas of concern as to Calculation of GHG emissions, were identified.

## 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 installation of pellet production plant where the wood wastes (BWW and sawdust) will be processed to pellets. The project activity is associated with enhanced air pollutant emissions generated by wood waste combustion in heat generators providing heat for technological needs of pellet production plant and enhanced power consumption from the regional grid.

$CO_2$ emissions from combustion of biomass are considered to be climatically neutral. The emissions of GHG under the project are assumed negligible and lying within the officially established norms as it was demonstrated in the EIA developed as the part of project design /09/ and officially approved by State expertise conclusion /12/.

The company has received the official permit for air pollutant emissions /13/ valid till 2012. Since the pellet production plant was commissioned the air pollutant emissions have not exceeded the established limits that was confirmed by review of official statistical reporting form /38/.

All documentary evidence were provided to the auditor and reviewed as the part of determination process.

Thus the compliance to local environmental requirements was assured.

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

## 3.6 Comments by Local Stakeholders

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

Positive comments on behalf of local and federal authorities were received in the form of positive opinion /11/ regarding the project activity from the state expert examination.

The project activity was announced in the local press /23/. No comments were received as the feedback.

# 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 17.06.2010 and invited comments within the period from 17.06.2010 to 16.07.2010 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 "Pellet Production from Sawmill Wastes at CJSC — Sawmill 25□, Arkhangelsk, 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 investments 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 one 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 2.1 dated

08/09/2010 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.

Bureau Veritas Certification Holding SAS
16 September 2010

Flavio Gomes – BVC Operational Manager

George Klenov – Team leader, Lead verifier

BUREAU VERITAS CERTIFICATION Reviewed Init Date: 17/09/2010

Bureau Veritas Certification Holding SAS

## REFERENCES

**Reviewed document or Type of information referred to in Appendix A**

| | |
|---|---|
| 1 | PDD "Pellet Production from Sawmill Wastes at CJSC "Sawmill 25", Arkhangelsk the Russian Federation",<br>a/ Version 1.0, dd. 05/05/2010,<br>b/ version 2.0, dd. 20/08/2010,<br>c/ version 2.1, dd. 08/09/2010.<br>Excel spreadsheets:<br>"SM25_calc model final ver. 2.1.xls",<br>"SM25_economics.xls" |
| 2 | Guidelines for Users of the Joint Implementation Project Design Document Form. Version 04, JISC. |
| 3 | JI Guidelines. Annex to decision 9/CMP.1. |
| 4 | JISC Guidance on criteria for baseline setting and monitoring. Version 02. |
| 5 | Tool for the demonstration and assessment of additionality, Version 05.2. |
| 6 | General scheme for allocation of power objects up to 2020, approved by the RF government order # 215-p dated 22/02/2008. |
| 7 | RF Urban Development Code N 190-ФЗ (Federal Law). |
| 8 | "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". |

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| 9 | Project "Wood Pellet Production Shop", Arkhangelsk, 2007, "Explanatory Note" Paragraph #1 "General description" and #8 "Environmental Protection". |
| 10 | Contract No643 dd.08/06/2007 "Procurement of equipment for a pellet production plant from sawmill wastes". |
| 11 | The Minutes Of Deliberations between local non-profit organization "Environmental Investment Center" and CJSC "sawmill-25" regarding implementation of project aimed, dated 21/04/2005. |
| 12 | State Expertise Conclusion (Positive) on the Project "Wood Pellet Production Shop" No 29-1-4-0321-07 approved on 26/12/2007. |
| 13 | The Permit on Air Pollutant Emissions No.11-28/01-22 dd.18/03/2010 valid till 19/03/2012 |
| 14 | Letter on permission of air pollutant emissions #11-18/2008 dd. 16/03/2010. |
| 15 | Order No514 dd.20/12/2007 On appointment of responsible person for JI project implementation |
| 16 | Order No270 dd.05/05/2008 On the beginning of start-up and testing of wood pellet production shop |
| 17 | Order No329 dd.21/05/2008 On the checking of preparedness to comissionning of wood pellet production shop |
| 18 | Certificate dd. 31/05/2008 on the pellet production in May'08 |
| 19 | The datasheet on the pellet production in March'09 |
| 20 | The report "Energy Survey of main equipment of pellet production shop undertaken to determine its technical and economical and environmental characteristics. Executed by Arkhangelsk State Technical University, 2008 |
| 21 | Sazanov B. Sytas V. Thermal and Energy systems in industrial enterprises, 1990 |
| 22 | Certificate on track weights TsKV-10 T with the last calibration record on 18/06/2010. |
| 23 | Project announcement in local newspaper "Volna" #49-50 dd. 26/12/2005 |
| 24 | Test Certificate for moisture meter Precissa XM 10 SE ser. # 3300-500 dd. 10/06/2008. |
| 25 | Monthly data for GHG emission reduction monitoring of JI project "The Pellet production from wood processing wastes in JSC Sawmill-25" fo 2008 and 2009. |
| 26 | The GHG emission reduction monitoring procedure for JI project "The Pellet production from wood processing wastes in JSC Sawmill-25" |
| 27 | Order # 729 dd. 11/12/2008 On execution of GHG emission reduction monitoring |
| 28 | Order # 153 dd. 30/03/2010 On the appointment of responsible persons for JI project implementation |
| 29 | Calibration certificate # 11-445-05 dd. 18/05/2010 for moisture testing weights Precissa XM 10 SE ser. # 19501478 valid till 18/05/2011 |
| 30 | Information note on power depletion on Maimaksa production site JSC Sawmill |

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| | 25 for 2008, 2009 and the 1st half of 2010. |
| 31 | Informational note for planned economical features used for adoption of the decision to execute construction of pellet production plant dd. 23/10/2008. |
| 32 | Reference book on wood drying, 4th edition, ed. E. Bogdanov – Moscow, 1990. |
| 33 | On the features of biofuel sector development in Russia in 2001-2005. http://www.proles.ru/news/news_read.php?n=5 |
| 34 | Contract No676 dd.27/11/2007 On installation works of the equipment |
| 35 | S.I.Golovkov, I.F.Koperin, V.I.Naidyonov. Wood Wastes-to-Energy. – M.: Forest Industry, 1987 |
| 36 | Loan lending agreement #001/0982L/07 with CJSC "International Moscow Bank" dd. 15/10/2007 |
| 37 | The letter from AS Hekotek dd. 17/08/2010 signed by Wood Pellet Project Coordinator Mr. Alary Rossy on the astimated equipment lifetime |
| 38 | State statistical reporting form 2-tp "air" for 2009. |
| 39 | Methane and nitrous oxide emissions from biomass waste stockpiles Prepared for PCFplus Research by Biomass Technology Group BV, PCFplus Report 12 Washington DC, August 2002 |
| 40 | 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 3: Solid Waste Disposal |
| 41 | Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site, v. 5.0 http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v5.pdf |

**Persons interviewed:**

| | |
|---|---|
| 1 | Alexander V. Samorodov, CCGS, Director. |
| 2 | Vladimir Dyachkov , CCGS, specialist, PDD-writer. |
| 3 | Mrs. Krasilnikova E. Sawmill-25 Financial director |
| 4 | Mr. Vashuta V.F. –Sawmill-25 the Head of granulation shop |

## 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 # 843 of 28/10/2009 "About measures on realization of Article 6 of Kyoto Protocol to United Nation 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.<br>Verifiers' Note: JISC Glossary of JI terms/Version 01 defines the following:<br>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;<br>(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.5.1.1. |

| 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 | Table 2, Section B.2 |
| 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<br>Sponsor party is not specified yet. | 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.<br>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 |

| REQUIREMENT | REFERENCE | CONCLUSION | Cross Reference to this protocol |
|---|---|---|---|
| | | | 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". |
| 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 5th National Communication dated 12/02/10. |
| 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 |

| REQUIREMENT | REFERENCE | CONCLUSION | Cross Reference to this protocol |
|---|---|---|---|
| | | | dated 20/02/06. |
| 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 version 1.0 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 | The PDD ver. 01 dd. 15/06/2010 was published at the Bureau Veritas Certification Rus website (www.bureau-veritas.ru) and made available for comments from 17/06/2010 to 16/07/2010. |
| 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 | Marrakech Accords, JI Modalities, §33(d) | OK | Table 2, Section F |

| REQUIREMENT | REFERENCE | CONCLUSION | Cross Reference to this protocol |
|---|---|---|---|
| carried out. | | | |
| 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 A.2 |
| 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.2 |
| 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.<br>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 project** | | | | | |
| A.1.1. Is the title of the project presented? | 1,2 | DR | The title of the project is: "Pellet production from Sawmill Wastes at CJSC "Sawmill 25", Arkhangelsk, the Russian Federation".<br>The Sectoral Scope is (13) Waste handling and management. | | OK |
| A.1.2. Is the current version number of the document presented? | 1,2 | DR | The PDD Version 1.0 was presented to Bureau Veritas and reviewed as a part of determination. | | OK |
| A.1.3. Is the date when the document was completed presented? | 1,2 | DR | PDD Version 1.0 dd.05/05/2010. | | OK |
| **A.2. Description of the project** | | | | | |
| A.2.1. Is the purpose of the project included? | 1,2 | DR | The purpose of the project is utilization sawmill residues by pelletizing which will allow to reduce the stockpile of sawdust and bark and wood waste. | | OK |
| A.2.2. Is it explained how the proposed project reduces greenhouse gas emissions? | 1, | DR | The GHG emission will be reduced as the result of abated methane emissions from anaerobic decomposition of bark and wood wastes that are proposed to be utilized for | CL 01 | OK |

| CHECKLIST QUESTION | Ref. | MoV* | COMMENTS | Draft Concl | Final Concl |
|---|---|---|---|---|---|
| | | | pellet production instead of stockpiling.<br><br>CL 01. Please clarify whether the project implies to use the already stockpiled BWW as a fuel for energy generation. If so, please specify the period and conditions (anaerobic or aerobic) of stockpiling. The NCV for fresh and stockpiled BWW may differ significantly that may affect the baseline emission calculations.<br><br>As it was observed during site visit the already stockpiled BWW from stockpiling site is used as a fuel for heat generators at the pellet production process. Calculation of GHG ER has been revised and the time of BWW stockpiling was considered.<br><br>In terms of conservativeness the NCV for fresh BWW was used for all BWW combusted.<br><br>This approach is deemed conservative and does not allow overestimation of amount of BWW burnt. | | |

| CHECKLIST QUESTION | Ref. | MoV* | COMMENTS | Draft Concl | Final Concl |
|---|---|---|---|---|---|
| **A.3. Project participants** | | | | | |
| A.3.1. Are project participants and Party(ies) involved in the project listed? | 1,2 | DR | Host Party is the Russian Federation. Legal entity for A1 is CJSC "Sawmill 25".<br>Party B will be determined after the project approval by host country. | | OK |
| 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 table in section A3 PDD. | | 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. | | OK |
| **A.4. Technical description of the project** | | | | | |
| A.4.1. Location of the 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. | | OK |
| A.4.1.2. Region/State/Province etc. | 1,2 | DR | The Arkhangelsk Region. | | OK |
| A.4.1.3. City/Town/Community etc. | 1,2 | DR | The town of Arkhangelsk. | | OK |
| A.4.1.4. Detail of the physical location, including information allowing the unique identification of the project. (This section should not | 1,2 | DR | **CAR 02.** The project physical location is not described consistently to allow the unique identification of the project. The PDD sec. A.3 states the production site Maimaksa is | CAR 02 | OK |

| CHECKLIST QUESTION | Ref. | MoV* | COMMENTS | Draft Concl | Final Concl |
|---|---|---|---|---|---|
| exceed one page). | | | located in 20 km apart from Arkhangelsk city whereas section A.4.1.4 and chart A 4.2 indicates the project is situated in the town.<br>The Russian language is used in figure 4.2.<br>As it was communiicated on site the PDD will be revised to justify the physical location of project. Maimaksa production site is situated in Arkhangelsk city. Russian text will be removed from figure 4.2. | | |
| A.4.2. Technology(ies) to be employed, or measures, operations or actions to be implemented by the project | | | | | |
| A.4.2.1. Does the project design engineering reflect current good practices? | 1, 2 | DR | **SV 01.** Check if the project implies state-of-art technology, which is not likely to be substituted during crediting period and represents the good operation practice.<br>As per interview with Sawmill 25 representatives the project implies installation of new pellet production equipment manufactured by Hekotek and Andritz. Both companies are well known through the world manufacturers of the pellet production equipment. The project equipment installed in 2007-2008 meets all technical requirement to the pellet production technology. | | OK |

| CHECKLIST QUESTION | Ref. | MoV* | COMMENTS | Draft Concl | Final Concl |
|---|---|---|---|---|---|
| A.4.2.2. 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 | DR | The project uses state of art technology in pellet production provided by new equipment manufactured by the world wide known companies Andriz and Hekotek | | OK |
| A.4.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period? | 1, 2 | DR | As per interview with chief Engineer of Sawmill 25 it is unlikely to substitute the project technology during crediting period because this technology represents state of art technical solutions, meets all requirements, and investments are high enough to make any substitutions in equipment or technology economically unfeasible. | | OK |
| A.4.2.4. Does the project extensive initial training and maintenance efforts in order to work as presumed during the project period? | 1,2 | DR I | **CL 02.** Please clarify whether the project requires extensive initial training and maintenance efforts in order to work as presumed during the project period.<br>As per interview with Chief Energy Engineer the extensive personal trainings have been provided to operational personal of pellet production shop by the equipment supplier in accordance with equipment supplying contract.<br>Pending the documentary evidence. | CL 02 | OK |

| CHECKLIST QUESTION | Ref. | MoV* | COMMENTS | Draft Concl | Final Concl |
|---|---|---|---|---|---|
| A.4.2.5. Does the project make provisions for meeting training and maintenance needs? | 1,2 | DR I | Conclusion is pending a response to CL 02.<br>The extensive trainings and maintenance service are included into the contract for equipment purchasing. | Pending | OK |
| A.4.3. Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances | | | | | |
| A.4.3.1. Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page) | 1,2 | DR I | It is stated in PDD Section A.4.3 that greenhouse gas emissions reduction will be achieved due to abatement of anaerobic decomposition of biomass wastes (BWW and sawdust) that will be used as feedstock for pellet production.<br>**SV 02.** Check the legal aspects of environmental impact caused by BWW dumping. Check whether individual norms for waste generation and disposal could be met without the project.<br>As it was observed on site the BWW is dumped at the internal disposal site inside the territory of Sawmill 25 so the special permissions or individual norms for waste disposal at the external or municipal SWDS | Pending | OK |

| CHECKLIST QUESTION | Ref. | MoV* | COMMENTS | Draft Concl | Final Concl |
|---|---|---|---|---|---|
| | | | are not applicable.<br>Pending State statistical forms 2-tp 'wastes'. | | |
| A.4.3.2. Is it provided the estimation of emission reductions over the crediting period? | 1,2 | DR | Section A.4.4.1 provides the estimated total emission reductions equal to 134,842 tCO2 over the crediting period. | | OK |
| A.4.3.3. Is it provided the estimated annual reduction for the chosen credit period in $tCO_2e$? | 1,2 | DR | The estimated average annual emission reduction over the crediting period equals 26,968 $tCO_2e$. | | OK |
| A.4.3.4. Is the data from questions A.4.3.2 and A.4.3.3 above presented in tabular format? | 1,2 | DR | The data is presented in the required tabular format [2]. Refer to the Table in PDD Section A.4.4.1. | | 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 after the determination of the PDD.<br>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 | DR | As it is stated in PDD Section B.1. JI specific approach is used for the baseline selection. | CAR 03<br>CAR 04 | OK<br>OK |

| CHECKLIST QUESTION | Ref. | MoV* | COMMENTS | Draft Concl | Final Concl |
|---|---|---|---|---|---|
| | | | Alternative analysis is applied to select the baseline scenario from two possible alternatives:<br>1/ continuation of current practice with biomass residues dumping, and<br>2/ the proposed activity not being registered as JI.<br>**CAR 03**. Alternative analysis is not sufficient. Please discuss other options of BWW and sawdust utilization such as combustion as a fuel for heat and power production (either with or without power export into the grid) or as a feedstock for pulp-and-paper industry etc.<br>PDD will be revised. The following alternatives will be taken into consideration:<br>1/ use of wood wastes as a feedstock for pulp and paper production;<br>2/ use the wastes as a feedstock for hydrolyze plant.<br>3/ use the wastes as a fuel for heat and power generation at the own mini CHP;<br>4/ use the wood wastes as the fuel for heat and power production at the Central CHP of Arkhangelsk city. | CL 03 | OK |

| CHECKLIST QUESTION | Ref. | MoV* | COMMENTS | Draft Concl | Final Concl |
|---|---|---|---|---|---|
| | | | The alternative analysis is now deemed sufficient.<br><br>**CAR 04**. Analysis of national policies and circumstances given at page 11 PDD is not transparent:<br><br>1/ please provide relevant evidence that the project activity requires bank loans and could not be financed by own funds,<br><br>2/ please provide relevant evidence to confirm that entry to international market is necessary and pellets could not be sold at the local market,<br><br>3/ please specify the risks associated with the company's entry into international market.<br><br>As per the site visit results:<br><br>1/ further explanation is required from Sawmill -25 financial director.<br><br>2/ As per the Russian biofuel market review /33/ there are no local demands for pellets due to absence of national policies to support the pellet utilization as a fuel and high prices for both pellets and pellet burning boilers and furnaces.<br><br>3/ As it was explained in interview with | | |

| CHECKLIST QUESTION | Ref. | MoV* | COMMENTS | Draft Concl | Final Concl |
|---|---|---|---|---|---|
| | | | Sawmill-25 Chief engineer the main risk is related with application of new technology and non-compliance to international standards for pellets.<br><br>**CL 03**. Please clarify how another activity seeking JI status - Wood Waste-To-Energy Project at Sawmill-25 (Arkhangelsk) published at UNFCCC website ref. #0039 http://ji.unfccc.int/JI_Projects/DB/YZXL9NJUWQPEABAQR5HZI652IXD6ZJ/PublicPDD/7QGCEK2I9BT7K8CQBA2XN7VG89GNRQ/view.html) and the same project registered at VCS website ID 104 (https://vcsprojectdatabase1.apx.com/mymodule/ProjectDoc/EditProjectDoc.asp?id1=104) were considered while baseline establishing for the pellet production project.<br><br>As per description given in the PDD available at the UNFCCC and VSC websites under above mentioned links the waste-to-energy project was implemented at Sawmill-25 in 2005-2007. It has the identical source for baseline emissions – methane emissions from anaerobic decay of BWW (including bark, sawdust, and shavings) as the pellets production project. The waste-to-energy project envisages "reduction of the amount of dumped BWW up to complete stop". The | | |

| CHECKLIST QUESTION | Ref. | MoV* | COMMENTS | Draft Concl | Final Concl |
|---|---|---|---|---|---|
| | | | emission reductions generated by waste-to-energy project in 2006 and 2007 were verified and registered at VCS website. Please provide explicit justification on whether or not the waste-to-energy and pellet production projects are bundled, and how waste-to-energy project activity was considered in the baseline identification for the pellet production project activity. Also please provide traceable historical records for BWW and sawdust production/stockpiling/utilization and relevant forecasts to confirm that project will not result in decrease of on-site biomass based energy generation.<br><br>PDD is to be revised to include the explicit description of differences between these projects.<br><br>Implementation of pellet production project has not been resulted in any decrease in waste to energy project activity as the **BWW** stockpile existed at the start of pellet production project was sufficient to provide the fuel for both activities.<br><br>As per interview with sawmill-25 Chief Engineer the sawdust is used for pellet production only and normally could not be burned at the CHP. The stockpiled BWW is | | |

| CHECKLIST QUESTION | Ref. | MoV* | COMMENTS | Draft Concl | Final Concl |
|---|---|---|---|---|---|
| | | | used as the fuel for both CHP and heat generators in pellet production shop. The pellet production does not lead to decrease in Waste- to-energy project activity as the energy generation at the CHP is limited by the plant's own steam demands. | | |
| B.1.2. Is it justified the choice of the applicable baseline for the project category? | 1,2, 4, | DR | Baseline is established on the basis of analysis of plausible alternative scenarios. Alternative analysis is not convincing.<br>Conclusion is pending a response to CAR 03.<br>Alternative analysis was supplemented to consider all plausible alternatives including use of BWW and sawdust as the feedstock and as the fuel.<br>Pending revised PDD. | Pending | OK |
| B.1.3. Is it described how the methodology is applied in the context of the project? | 1,2,4 | DR | The JI specific approach is applied to baseline identification. Baseline is determined on the basis of alternative analysis. | | 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 | DR | The baseline is established on the basis of project specific assumptions. Baseline emission sources are defined as methane emissions associated with anaerobic decay | CAR 05 | OK |

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| | | | of biomass wastes BWW and sawdust.<br>According to technical description presented in Section A.2 of PDD the mass of pellet produced annually is equal to 75,000 tonnes. The total mass of BWW and sawdust annual utilization is equal to 180,000 tonnes.<br>**CAR 05.** The units for heat value for evaporation of 1% of fuel moisture as equal to 24.42 are not specified. The definition of this coefficient given on page 27 PDD is not consistent. It is not clear how it correlates with referred value of 2442 kJ per kg of water. Please justify.<br>Pending revised PDD.<br>Conclusion is pending a response to CL 03. | | |
| B.1.5. Is all literature and sources clearly referenced? | 1,2 | DR | Relevant literature and sources are referenced through the text of PDD. | | OK |
| **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, 4, | DR | JI specific approach is applied for demonstration of additionality.<br>Investment analysis (benchmark analysis) | CAR 06<br>CAR 07 | OK<br>OK |

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| | | | and barrier analysis were applied in order to demonstrate that proposed project activity is not most feasible.<br><br>**CAR 06.** The barrier analysis is not convincing to prove the project additionality.<br><br>1/ It is not demonstrated that technological and operational barriers constitute overwhelming obstacles that would prevent project implementation without revenues from ERU selling. Please justify how these barriers will be alleviated with JI status.<br><br>2/ As prescribed by EB 50 annex 13 (Guidelines for Objective Demonstration and Assessment of Barriers) the barriers that can be mitigated by additional financial means can be quantified and represented as costs and should be rather considered in the framework of investment analysis. Please revise the barrier analysis accordingly.<br><br>3/ As per barrier description given in PDD the financial barrier is related to lack of internal financing for project activity. Please demonstrate that financing of the project was assured only due to the benefit of the JI. It should be demonstrated that the loan approval (or other significant financing | CAR 08 | OK |

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| | | | decision(s)) by the lender takes explicitly the JI status into account.<br>**CAR 07.**<br>1/ Please provide relevant evidence to confirm the assumptions for invest analysis and to demonstrate that all of them were actual and applicable at the time of investment decision adoption.<br>2/ Please provide justification on conservativeness of the benchmark choice.<br>The CCU method has been used to determine the benchmark as described in the PDD.<br>3/ Inflation rate is not considered in investment analysis. Please clarify whether the inflation rate is considered in identification of non-risk rate. Please provide reliable reference for identification of risk premiums.<br>The risk premium values were taken from the source referred to in PDD.<br>4/ The Sensitivity analysis does not uses conservative approach and thus could not be applicable to demonstrate the reliability of investment analysis outcome. Please consider the decrease of investment, | | |

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| | | | overproduction and decrease of current costs by at least 10%. Please justify why the power tariffs, operational costs and pellet costs variation is not considered in sensitivity analysis.<br><br>The sensitivity analysis was revised to use ±10% variation for all investment parameters.<br><br>Pending revised PDD.<br><br>**CAR 08.** As per commonly available information at least two similar projects have been implemented in the Arkhangelsk region OJSC BIOM /http://www.wood-pellets.com/cgi-bin/cms/index.cgi?ext=content&pid=1240/ and OJSC Ecoterm /http://www.wood.ru/ru/lonewsid-17971.html/. Please describe justify whether or not these activities could be deemed similar to project in terms of location, technology, scale, comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc. and why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically | | |

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| | | | unattractive or subject to barriers.<br>As per review of the available sources and pellet producers websites there is no information on the pellet production by OJSC BIOM. The OJSC Ecoterm is not comparable with the proposed project in terms of scale of production. Total volume of pellet production is two times less than the proposed project. | | |
| B.2.2. Is the baseline scenario described? | 1,2 | DR | The detailed description of baseline scenario is presented in PDD Sections B.1 and B.2. | | OK |
| B.2.3. Is the project scenario described? | 1,2 | DR | No, the PDD does not provide consistent description of project emission sources related with energy consumption.<br>**CAR 09.** PDD is not consistent with regards to project emissions from energy consumption.<br>1/PDD section A.2 states that heat for project will be supplied from heat generators installed at the plant and from mini CHP but heat generation is not determined as project emission source. Please justify why the GHG emissions from heat generation are not considered.<br>After discussion on site the NO and CH4 | CAR 09 | OK |

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| | | | emissions from wood waste burning in the heat generators will be taken into consideration in the revised ER calculations.<br><br>2/ As it is stated in PDD section A.2 project power demands will be met with electricity supplied from two sources: mini CHP and regional grid. But only one source - emissions from fossil fuel combustion at the grid connected plants is presented in the table in section B 3-1. Further more the monitoring plan (PDD sec. D1) implies estimation of project emissions on the basis of cumulative power consumption from both sources multiplied by grid emission factor. Please provide justification of the approach used to identification of emissions related to power consumption by project.<br><br>As per review of the energy balance of Sawmill-25 /30/ the power production from mini CHP does not cover the demands of core production of Sawmill 25. Hence additional power demands will be covered by power import from the regional power grid. | | |
| 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 | Baseline emissions are determined as methane emissions from anaerobic decay of biomass wastes. | CAR 10 | OK |

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| | | | Project emissions are determined as emissions from consumption of power generated at the fossil fuel combusting grid connected power plants.<br><br>It is not taken into consideration that another JI activity envisaging usage of all BWW wastes for energy production has already been implemented at the plant in 2007. Conclusion is pending a response to CL 03.<br><br>**CAR 10.** Please clarify why the N2O and CH4 emissions from wood waste combustion at mini CHPP and heat generators are not considered as project emissions as defined in IPCC 2006 vol.2 section 2.3.3.4. Please justify if there any back-up fossil fuels used for heat and power production at mini CHPP and provide relevant evidence.<br><br>N2O and CH4 emissions from BWW combustion at the heat generators will be taken into account in the revised ER calculation and in the PDD.<br><br>As it was communicated during site visit the GHG emissions from biomass combustion to produce the steam used in pellet production process are negligible and hence not taken into account. | | |

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| | | | Conclusion is pending a response to CL 03. | | |
| B.2.5. Is it demonstrated that the project activity itself is not a likely baseline scenario? | 1,2,4 | DR | Conclusion is pending a response to CAR 03, CAR 04, CAR 06, CAR 07, CAR 08, and CL 03. | Pending | OK |
| B.2.6. Are national policies and circumstances relevant to the baseline of the proposed project activity summarized? | 1,2, 6 | DR | Conclusion is pending a response to CAR 04. | Pending | OK |
| **B.3. Description of how the definition of the project boundary is applied to the project activity** | | | | | |
| B.3.1. Are the project's spatial (geographical) boundaries clearly defined? | 1,2, 4 | DR | The project's spatial (geographical) boundaries are not defined clearly.<br>**CAR 11.** Project boundary is not delineated consistently. Mini CHP supplying heat and power for the pellet production process and local heat generators are not included into project boundary.<br>As per site visit results the CH4 and N2O emissions generated from combustion of biomass at the CHP to produce the amount of steam required for pelletization process are estimated as negligible.<br>Power produced at the CHP is depleted for core production needs of sawmill hence the additional power demands for pellet production are met by consumption from the | CAR 11<br>CAR 12 | OK<br>OK |

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| | | | regional grid.<br><br>**CAR 12.** Please provide relevant calculation to substantiate that GHG emissions from transportation of pellets to final consumers are negligible (constitute less than 1 per cent of average annual emissions). Please clarify which type of fuel (diesel or bunker fuel) is used.<br><br>As per interview with Sawmill-25 managers the pellets are transported to the consumer by maritime transport only. The bunker fuel is used for pellet transportation. Its combustion is not considered as national emission source according to KP.<br><br>**CL 04.** Please estimate of emissions from transportation of ash from BWW burning from the pellet production plant to the disposal site. If these emissions are significant they should be considered as project emissions. | | |
| **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 May 5, 2010.<br><br>**CAR 13.** Please provide date of baseline | CAR 13 | OK |

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| | | | setting in (DD/MM/YYYY) format.<br>Format will be corrected.<br>Pending revised PDD | | |
| B.4.2. Is the contact information provided? | 1,2 | DR | CCGS LLC contacts are provided in section B.4. | | 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 CCGS LLC is not the project participant and not indicated in Annex 1 of PDD. | | OK |
| ***C. Duration of the project and crediting period*** | | | | | |
| **C.1. Starting date of the project** | | | | | |
| C.1.1. Is the project's starting date clearly defined? | /1, 2, 11/ | DR | The starting date is defined as June 29, 2007 – the date when contract for pellet plant designing was signed. This starting date is in line with definition given in JI glossary.<br>**CAR 14.** Please provide the documentary evidence such as relevant board decision, contracts, official permissions, information from equipment manufacturer etc. to confirm:<br>1/ Preliminary JI consideration as a decisive factor for project implementation that was applied in 2005 as described in PDD sec. A.2. | CAR 14 | OK |

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| | | | 2/ The starting date – June 29, 2007,<br>3/ The start of crediting period which was on or after the day when emissions reduction began - May 1, 2008,<br>4/ Project operation lifetime – 15 years.<br>As per site visit results<br>1/ Preliminary JI consideration is confirmed by the Framework agreement with CCGS /11/ in 2005.<br>2/ The starting date is confirmed by the Contract on equipment purchasing<br>3/ The start of crediting period is confirmed by the pellet production shop commissioning.<br>4/ Information from equipment supplier is to be provided. | | |
| **C.2. Expected operational lifetime of the 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.<br>Conclusion is pending a response to CAR 14. | Pending | OK |
| **C.3. Length of the crediting period** | | | | | |
| C.3.1. Is the length of the crediting period specified | 1,2 | DR | The length of crediting period is defined as 4,67 years, 57 months. | | OK |

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| in years and months? | | | | | |
| ***D. Monitoring Plan*** | | | | | |
| **D.1. Description of monitoring plan chosen** | | | | | |
| D.1.1. Is the monitoring plan defined? | 1,2, 4 | DR | JI specific approach defined by guidance on criteria for baseline setting and monitoring, is chosen [4] to establish the monitoring plan.<br><br>The monitoring plan covers parameters, and QA/QC procedures for the measurement, maintenance, and data handling to guarantee traceable emission reduction calculations. Description of the monitoring plan in Section D and Annex 2 distinguishes:<br><br>a) 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 as specified in the tabular form in Section B.1 and summarised in Section D.<br><br>b) Data and parameters that are to be monitored throughout the crediting period.<br><br>**CAR 15**. The monitoring plan does not imply | CAR 15 | FAR01 |

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| | | | the monitoring of latest revisions/new editions of the sources referred to for default values of the grid emission factor, specific equivalent fuel consumption for pellet production, specific calorific value of BWW on dry basis, etc that might be issued during the crediting period.<br><br>Please justify how the conservativeness of the default values fixed as constant parameters will be ensured through the whole crediting period.<br><br>CAR 15 is transformed to **FAR 01:**<br><br>The conservativeness of default values used for baseline emission calculation shall be ensured prior the first periodic verification on the basis of review of available sources. In occurrence of new specific investigation of methane emissions from sawdust decomposition process providing more conservative method of baseline emissions calculation or default values the applied baseline emissions calculation approach should be revised to consider the most actual information. | | |
| D.1.2. Option 1 – Monitoring of the emissions in the | 1,2, 4 | DR | Two parameters – Pellet production and Moisture content in BWW are to be | Pending | OK |

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| project scenario and the baseline scenario. | | | monitored to determine baseline emissions.<br>The electricity consumption is the only parameter to calculate project emissions.<br>Emissions from heat and power generation at mini CHP and heat generators are not considered.<br>Conclusion is pending a response to CAR 09, CAR 10, CAR 11, CAR 12. | | |
| D.1.3. Data to be collected in order to monitor emissions from the project, and how these data will be archived. | 1, | DR | **CAR 16.** Please justify the conservativeness of the country specific grid emission factor values referred to in [R4] (Guidelines developed by Netherlands Ministry of Economic Affairs in 2004) taking into consideration the difference between specific fuel equivalent consumption and respective GHG emissions in cogeneration and condensation power generation mode. The additional electricity cannot be generated in cogeneration mode as the power output in this case strongly depends on the covered heat load. The GHG emissions from additional electricity generated in condensation cycle may be higher than those in cogeneration mode up to 30%. | CAR 16 | OK |

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| | | | Conclusion is pending a response to CAR 09, CAR 10, CAR 11, CAR 12. | | |
| 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 | Estimation of project emissions does not include emissions from fuel combustion at the mini CHP and energy generators supplying power and heat for the project.<br>Conclusion is pending a response to CAR 09, CAR 10, CAR 11, CAR 12. | Pending | 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 | **CAR 17.** Please justify the conservativeness or uniqueness of chosen default values for lignin fraction, specific calorific value for BWW and the value of heat of evaporation per 1% of fuel moisture. | CAR 17 | FAR 01 |
| 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 | **CAR 18.** Please substantiate that application of Model for Calculation of CO2-equivalent Emission Reductions from Biomass Prevented from Stockpiling or Taken From Stockpiles developed by BTG biomass technology group B.V. [R4] for baseline emissions calculation gives more conservative results in comparison with the model described in IPCC 2006 and "Tool to | CAR 18<br>CAR 21 | FAR 01<br>OK |

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| | | | determine methane emissions avoided from disposal of waste at a solid waste disposal site" (Version 04). IPCC model is more conservative as it involves MCF and uncertainty correction factors as well as due to application of the more conservative default values for:<br><br>1/ decomposition rate constant for the dry boreal climatic zone (0.02 vs. 0.046);<br><br>2/ methane concentration in biogas (50% vs. 60%);<br><br>3/ degradable organic carbon content on dry basis IPCC 2006 Vol.5 ch. 2 table 2.4 (50% vs. 53.6%).<br><br>Please justify if IPCC 2006 model and default values is not applicable to the calculation of baseline emissions. It should be demonstrated that application of model developed by BTG does not lead to overestimation of baseline emissions.<br><br>**CAR 21.** In the baseline calculation it is assumed that the sawdust mass on dry basis is equal to the mass of pellets. But in PDD page 9 it is mentioned that Pellets moisture should not be more than 10% that is in line with relevant standards for pellets . | | |

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| | | | As pellet moisture content is more than zero the assumed equality of pellet production and sawdust on dry basis leads to overestimating of baseline emissions. Please consider the pellet moisture content. | | |
| 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 | Option 2 is 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 | Option 2 is 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 | Option 2 is 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 | Leakages are not applicable according to Modalities and Provisions for Small Scale Projects. | | 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 | Leakages are not applicable according to Modalities and Provisions for Small Scale Projects. | | 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 | 1,2 | DR | Refer to the formulae in PDD Section D.1: $ER_y = BE_y - PE_y$ . | | OK |

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| equivalent). | | | | | |
| D.1.13. Is information on the collection and archiving of information on the environmental impacts of the project provided? | 1,2 | DR | Not applicable for SSC projects. | | OK |
| D.1.14. Is reference to the relevant host Party regulation(s) provided? | 1,2 | DR | Not applicable for SSC projects. | | OK |
| D.1.15. If not applicable, is it stated so? | 1,2 | DR | Not applicable for SSC projects. | | OK |
| **D.2. Qualitative control (QC) and quality assurance (QA) procedures undertaken for data monitored** | | | | | |
| D.2.1. Are there quality control and quality assurance procedures to be used in the monitoring of the measured data established? | 1,2 | DR | QC/QA procedures are described in section D.3. PDD.<br>**CAR 19.** QC/QA procedures are not specified for the data on energy consumption in section D.3. | CAR 19 | OK |

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| **D.3. Please describe of the operational and management structure that the project operator will apply in implementing the monitoring plan** | | | | | |
| D.3.1. 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 briefly described in PDD Section D.4.<br>**SV 03.** The authority/responsibility distribution for data collection, achieving and storing will be checked on site.<br>The authority responsibility is confirmed by interview and the internally approved monitoring manual. | Pending | OK |
| **D.4. Name of person(s)/entity(ies) establishing the monitoring plan** | | | | | |
| D.4.1. Is the contact information provided? | 1,2 | DR | Yes, the contact information is provided.<br>1. CCGS LLC.<br>2. Vladimir Dyachkov.<br>e-mail: v.dyachkov@ccgs.ru | | OK |
| D.4.2. Is the person/entity also a project participant listed in Annex 1 of PDD? | 1,2 | DR | It is indicated that CCGS LLC is not the project participant listed in Annex 1 of PDD. | | OK |
| ***E. Estimation of greenhouse gases emission reductions*** | | | | | |

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| **E.1. Estimated project emissions** | | | | | |
| E.1.1. Are described the formulae used to estimate anthropogenic emissions by source of GHGs due to the project? | 1,2 | DR | The formula to estimate project emissions from power consumption is described in section E.1<br>Conclusion is pending a response to CAR 09, CAR 10, CAR 11, CAR 12. | Pending | OK |
| 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 | The estimated values of the project emissions are presented in PDD Section E.1. Calculation was also provided in form excel spreadsheet. Formulae used for GHG ER calculation is in consistency with description in PDD. | | OK |
| E.1.3. Have conservative assumptions been used to calculate project GHG emissions? | 1,2 | DR | Conservative assumptions were not applied.<br>Conclusion is pending a response to CAR 16, CAR 17 and CAR 18. | Pending | OK |
| **E.2. Estimated leakage** | | | | | |
| E.2.1. Are described the formulae used to estimate leakage due to the project activity where required? | 1,2 | DR | Leakages are not applicable accordingly to Modalities and Provisions for Small Scale Projects. | | 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 | DR | Leakages are not applicable accordingly to Modalities and Provisions for Small Scale Projects. | | OK |

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| E.2.3. Have conservative assumptions been used to calculate leakage? | 1,2 | DR | Leakages are not applicable accordingly to Modalities and Provisions for Small Scale Projects. | | OK |
| **E.3. The sum of E.1 and E.2.** | | | | | |
| E.3.1. Does the sum of E.1. and E.2. represents 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 Table 8. | | OK |
| **E.4. Estimated baseline emissions** | | | | | |
| 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 | DR, I | Baseline emissions defined as methane emissions from anaerobic decomposition of BWW and sawdust. | | 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 | DR, I | The estimated values for the baseline emissions are presented in PDD Section E.4.<br>The calculations in excel spreadsheet are made available. The formulae used for emission reduction calculation is consistent with PDD. | | OK |
| E.4.3. Have conservative assumptions been used to calculate baseline GHG emissions? | 1, 2 | DR | Conservative assumptions were not used.<br>Conclusion is pending a response to CAR | Pending | OK |

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| | | | 17. | | |
| **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, Table E5-1. | | 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 yearly and total values of project emissions, leakages, baseline emissions and emission reductions for the crediting period are presented in table in section E.6. | | OK |
| ***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 /09/ /12/ | DR I | Analysis of the environmental impacts of the project is described in PDD Section F1.<br>**CAR 20.** Adverse environmental effect of air pollutant emissions caused by project (from fuel combustion for energy generation for project needs, emission of dust etc.) is not described sufficiently in PDD. No | CAR 20 | OK |

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| | | | information is presented to confirm its insignificance and no monitoring is suggested. Please justify if this environmental impact is not significant and/or lies within applicable norms and provide relevant evidences.<br><br>As it was ensured on site the pollutant emissions norms are agreed with the local authorities /13/. 2-tp "air" statistical reporting form for 2009 is requested.<br><br>**SV 04.** EIA and evidence for its official approval in accordance to procedure as determined by Host Part (positive State Environmental Conclusion) will be checked on site.<br><br>EIA has been provided /09/ along with its official approval by State Expertise /12/. | | |
| F.1.2. Are there any host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved? | 1,2, 7 | DR I | Under the RF Urban Development Code N 190-ФЗ [7], the project design for the proposed project activity including EIA as the part of project documentation should be passed through State Expertise to obtain official permission from local authorities.<br><br>PDD section G1 contains the lists of official permissions where the State Expertise conclusion is referred to. | | OK |

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| | | | Confirmed as per site visit results. | | |
| F.1.3. Are the requirements of the National Focal Point being met? | 1,2, 8 | DR I | To meet the requirements of Regulation [8], 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 determination of the project. | | OK |
| F.1.4. Will the project create any adverse environmental effects? | 1,2 | DR I | PDD does not consider the possible adverse effect on the atmospheric air due to emission of pollutant attributable to project activity.<br>Conclusion is pending a response to CAR 20. | Pending | OK |
| F.1.5. Are transboundary environmental impacts considered in the analysis? | 1,2 | DR I | PDD states that effect on the atmospheric air lies within established norms and could not be considered significant outside 100 m long sanitary protective zone.<br>This should be checked during site visit. | Pending | OK |
| F.1.6. Have identified environmental impacts been addressed in the project design? | 1,2 | DR | Identified environmental impact on the land use conditions and geological environment are sufficiently addressed.<br>The impacts on the atmospheric air due to additional air pollutant emissions are not considered properly. Conclusion is pending a response to CAR 20. | Pending | OK |

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| **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 | DR | The PDD section G describes the comments and approvals that project have received from local authorities and officials. Consultation with public representatives is not described sufficiently in PDD.<br>**SV 05.** Check if there are any host country requirements for arrangement of consultations with public representatives. If consultation was arranged check the nature of comments received and whether the comments are to be addressed.<br>According to local legislation it is required to make the information of expected environmental impacts publicly available. The project was announced in local press /23/. | | OK |
| G.1.2. The nature of comments is provided? | 1,2 | DR | Stakeholder's consultation process description given in PDD is not sufficient.<br>**SV 05.** This issue will be checked on site. | | OK |
| G.1.3. Has due account been taken of any stakeholder comments received? | 1,2 | DR | **SV 05.** This issue will be checked on site. | | 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 | All applicable licenses and official permits are listed in section G.1. | | OK |
| 1.2. | Are there conditions of the environmental permit? In case of yes, are they already being met? | 1 | DR I | All applicable licenses and official permits are listed in section G.1.<br>**SV 06.** The relevance and contents of licenses should be further checked out during site visit and document review.<br>The positive state Expertise conclusion /12/ and the permit for air pollutant emission /13/ were checked on site and their relevance has been confirmed. | | 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 project physical location is not described consistently to allow the unique identification of the project. The PDD sec. A.3 states the production site Maimaksa is located in 20 km apart from Arkhangelsk city whereas section A.4.1.4 and chart A 4.2 indicates the project is situated in the town.<br>The Russian language is used in figure 4.2. | A.4.1.4 | PDD was revised to justify the physical location of project. Maimaksa production site is situated in Arkhangelsk city. Russian text has been removed from figure 4.2. | The project location was properly identified in the revised PDD. CAR 02 is closed. |
| **CAR 03**. Alternative analysis is not sufficient. Please discuss other options of BWW and sawdust utilization such as combustion as a fuel for heat and power production (either with or without power export into the grid) or as a feedstock for pulp-and-paper industry etc. | B.1.1 | PDD was revised. The following alternatives were taken into consideration:<br>1/ use the wastes as a fuel for heat and power generation at the own energy sources;<br>2/ use the wood wastes as the fuel for heat and power production at the Central CHP of Arkhangelsk city.<br>3/ use of wood wastes as a feedstock for pulp | Alternative analysis was revised to take into consideration all theoretically possible alternatives.<br>The site visit has identified that revised alternative analysis completely covers all possible scenarios of wood waste utilization available for the project owner. The results of alternative |

| 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 paper production;<br>4/ use the wastes as a feedstock for hydrolyze plant;<br>All these alternatives were discussed and found unfeasible. Hence the alternative analysis is now deemed sufficient. | analysis have been confirmed by interview undertaken during site visit. CAR 03 is closed |
| **CAR 04**. Analysis of national policies and circumstances given at page 11 PDD is not transparent:<br>1/ please provide relevant evidence that project activity requires bank loans and could not be financed by own funds;<br>2/ please provide relevant evidence to confirm that entry to international market is necessary and pellets could not be sold at the local market;<br>3/ please specify the risks associated with the company's entry into international market. | B.1.1. | 1/ At the time when the decision to start construction was taken, the enterprise did not have sufficient own funds because all the available funds were used to repay earlier loans and to finance core activities of the enterprise. For this reason it was decided to finance construction of the first phase by debt financing;<br>2/ there are no local demands for pellets due to absence of national policies to support the pellet utilization as a fuel and due to high prices for both pellets and pellet burning based boilers and furnaces;<br>3/ the main risk is related with application of new technology and non-compliance to international standards for pellets. | 1/ The lack of own funds has been confirmed by interview with the chief financial specialist of Sawmill-25;<br>2/ The pellet based heat generation is more expensive and economically unattractive without governmental support in comparison with other fuels as confirmed by review of the pellet production market study /33/;<br>3/ the compliance to International standards and homogeneity of pellets are required by pellet consumers. When the decision to start the project was elaborated it constituted the real problem for Russian pellet producers /33/. |

| 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 |
|---|---|---|---|
| | | | All statements are confirmed by reliable evidence and hence CAR 04 is closed. |
| **CAR 05** The units for heat value for evaporation of 1% of fuel moisture as equal to 24.42 are not specified. The definition of this coefficient given on page 27 PDD is not consistent. It is not clear how it correlates with referred value of 2442 kJ per kg of water. Please justify. | B.1.4 | Specific evaporation heat is the quantity of heat that is to be transmitted to 1 kg of matter in order to bring it from liquid condition to vapor at the vaporization temperature of this matter. Specific evaporation heat is measured in J/kg.<br>Specific evaporation heat of water is 2 442 kJ/kg. Per 1 % of evaporated water this value is equal to 24.42 kJ/(%×kg) or $24.42\times10^{-3}$ GJ/(%×t). This updating of unit is given in revised PDD. | Explanation given in the PDD ver. 2.0 is acceptable and sufficient. CAR 05 is closed. |
| **CAR 06.** The barrier analysis is not convincing to prove the project additionality.<br>1/ It is not demonstrated that technological and operational barriers constitute overwhelming obstacles that would prevent project from implementation without revenues from ERU selling. Please justify how these barriers will be alleviated with JI status.<br>2/ As prescribed by EB 50 annex 13 | B.2.1 | The barrier analysis was excluded from consideration in revised PDD. | The barrier analysis was excluded from PDD ver.2.0. Hence CAR 06 is no longer applicable. |

| 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 |
|---|---|---|---|
| (Guidelines for Objective Demonstration and Assessment of Barriers) the barriers that can be mitigated by additional financial means can be quantified and represented as costs and should be rather considered in the framework of investment analysis. Please revise the barrier analysis accordingly.<br><br>3/ As per barrier description given in PDD the financial barrier is related to lack of internal financing for project activity. Please demonstrate that financing of the project was assured only due to the benefit of the JI. It should be demonstrated that the loan approval (or other significant financing decision(s)) by the lender takes explicitly the JI status into account. | | | |
| **CAR 07.**<br><br>1/ Please provide relevant evidence to confirm the assumptions for invest analysis and to demonstrate that all of them were actual and applicable at the time of investment decision adoption.<br><br>2/ Please provide justification on conservativeness of the benchmark choice. | B.2.1 | 1/ Economic performance parameters for the investment analysis were provided by the enterprise (letter of 23.10.2008 signed by the Financial Director of Sawmill 25). These parameters were used at the enterprise for internal assessment of investment efficiency before taking the decision to start the construction of the pellet production plant.<br><br>2/ The CCU method has been used to | 1/ Economical feasibility assessment is based on the data provided by financial director of the company /31/ The basic parameters of investment analysis were confirmed by independent documentary evidence:<br><br>Loan conditions, amount and debt |

| 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 |
|---|---|---|---|
| 3/ Inflation rate is not considered in investment analysis. Please clarify whether the inflation rate is considered in identification of non-risk rate. Please provide reliable reference for identification of risk premiums.<br><br>4/ The Sensitivity analysis does not uses conservative approach and thus could not be applicable to demonstrate the reliability of investment analysis outcome. Please consider the decrease of investment, overproduction and decrease of current costs by at least 10%. Please justify why the power tariffs, operational costs and pellet costs variation is not considered in sensitivity analysis. | | determine the benchmark as described in the PDD.<br><br>3/ The risk premium values were taken from the source referred to in PDD.<br><br>4/ The sensitivity analysis was revised to use ±10% variation for all investment parameters.<br><br>Power costs and operational costs are included as separate items in the total production costs which are considered in the sensitivity analysis.<br><br>The sensitivity of the project economics to changes in the fuel pellet cost is additionally considered in revised PDD. | servicing expenses – loan lending agreement /36/;<br><br>2/ The discount rate calculation was done on the basis of standard methodology -CCU using the country specific parameters from publicly available sources referred in PDD ver.2.0. All referred sources were checked and found reliable.<br><br>3/ No inflation non-risk rate was assumed to be equal to the Russia 2030 Eurobounds. The non-risk value was validated against publicly available source referred to in PDD ver. 2.0.<br><br>4/ The sensitivity analysis was revised to gain a confidence in reliability of investment analysis results.<br><br>Project additionality is confirmed by results of investment analysis using reliable input values which has been validated and found acceptable. Hence CAR 07 is |

| 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 |
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| | | | closed. |
| **CAR 08.** As per commonly available information at least two similar projects have been implemented in the Arkhangelsk region OJSC BIOM /http://www.wood-pellets.com/cgi-bin/cms/index.cgi?ext=content&pid=1240/ and OJSC Ecoterm /http://www.wood.ru/ru/lonewsid-17971.html/. Please describe justify whether or not these activities could be deemed similar to project in terms of location, technology, scale, comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc. and why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers. | B.2.1 | There is no available information on the pellet production by OJSC BIOM.<br>The OJSC Ecoterm is not comparable with the proposed project in terms of scale. | As per information available at the open sources the pellet production capacity at the OJSC Ecoterm is two fold lower than that at Sawmill 25. Due to incomparable scale this project was excluded from common practice analysis.<br>CAR 08 is closed on the basis of review of available information on other pellet producers.<br>. |
| **CAR 09.** PDD is not consistent with regards to project emissions from energy consumption. | B.2.3. | 1/ N2O and CH4 emissions from wood waste burning in the heat generators were taken into consideration in the revised ER calculations. | On the basis of review of revised calculation sheet and the power balance CAR 09 is closed. |

| 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 |
|---|---|---|---|
| 1/PDD section A.2 states that heat for project will be supplied from heat generators installed at the plant and from mini CHP but heat generation is not determined as project emission source. Please justify why the GHG emissions from heat generation are not considered.<br><br>2/ As it is stated in PDD section A.2 project power demands will be met with electricity supplied from two sources: mini CHP and regional grid. But only one source - emissions from fossil fuel combustion at the grid connected plants is presented in the table in section B 3-1. Further more the monitoring plan (PDD sec. D1) implies estimation of project emissions on the basis of cumulative power consumption from both sources multiplied by grid emission factor. Please provide justification of the approach used to identification of emissions related to power consumption by project. | | 2/ As per review of energy balance of Sawmill 25 presented on site Power production from mini CHP does not cover the demands of core production of Sawmill 25. Hence additional power demands will be covered by power import from the regional power grid. | |
| **CAR 10.** Please clarify why the N2O and CH4 emissions from wood waste combustion at mini CHPP and heat generators are not considered as project emissions as defined in | B.2.4. | N2O and CH4 emissions from BWW combustion at the heat generators were taken into account in the revised ER calculation and in the PDD. | N2O and CH4 emissions from BWW combustion at the heat generators were considered in revised PDD and ER calculation |

| 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 |
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| IPCC 2006 vol.2 section 2.3.3.4. Please justify if there any back-up fossil fuels used for heat and power production at mini CHP and provide relevant evidence. | | GHG emissions from biomass combustion to produce the steam used in pellet production process have been considered to be negligible and hence not taken into account.<br>Back-up fossil fuels at mini CHP is not provided, the emergency fuel does not apply. | spreadsheet.<br>CAR 10 is closed |
| **CAR 11.** Project boundary is not delineated consistently. Mini CHP supplying heat and power for the pellet production process and local heat generators are not included into project boundary. | B.3.1. | CH4 and N2O emissions generated from combustion of biomass at the CHP to produce the amount of steam required for pelletization process are estimated as negligible.<br>GHG emissions from heat generators are included into project boundary.<br>Power produced at the CHP is depleted for core production needs of sawmill hence the additional power demands for pellet production are met by consumption from the regional grid. | Closed on the basis of review of sawmill-25 energy balance.<br>CH4 and N2O emissions generated from combustion of biomass at the CHP were considered in the revised PDD ver.2.0 and ER calculation.<br>CAR 11 was closed |
| **CAR 12.** Please provide relevant calculation to substantiate that GHG emissions from transportation of pellets to final consumers are negligible (constitute less than 1 per cent of average annual emissions). Please clarify which type of fuel (diesel or bunker fuel) is used. | B.3.1. | Pellets are transported only by shipping.<br>Bunker fuel is used for pellet transportation. In accordance with the IPCC Guidelines for the preparation of greenhouse gas (GHG) inventories and the UNFCCC reporting guidelines on annual inventories, emissions from international aviation and maritime | As the burning of bunker fuel is not subject to the limitation and reduction a commitment of Annex I Parties under the Convention and the Kyoto Protocol the emissions from pellet transportation were not considered. |

| 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 |
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| | | transport (also known as international bunker fuel emissions) should be calculated as part of the national GHG inventories of Parties, but should be excluded from national totals and reported separately. These emissions are not subject to the limitation and reduction commitments of Annex I Parties under the Convention and the Kyoto Protocol. | Explanation is acceptable CAR 12 is closed. |
| **CAR 13.** Please provide date of baseline setting in (DD/MM/YYYY) format. | B. 4.1. | The date format has been corrected | The date format has been corrected in the PDD ver.2.0<br>CAR 13 can be closed |
| **CAR 14.** Please provide the documentary evidence such as relevant board decision, contracts, official permissions, information from equipment manufacturer etc. to confirm:<br>1/ Preliminary JI consideration as a decisive factor for project implementation that was applied in 2005 as described in PDD sec. A.2.<br>2/ The starting date – June 29, 2007,<br>3/ The start of crediting period which was on or after the day when emissions reduction began - May 1, 2008, | C.4.1. | 1/ Preliminary JI consideration has been confirmed by Framework agreement with EIC /11/<br>2/ The project starting date – 8/06/2008 is established on the basis of the date of contract #643 for procurement of equipment for a pellet production plant /10/.<br>3/ The start of crediting period was established by Order No.329 of 21.05.2008 "On the start of production" /17/.<br>4/ The lifetime is established on the basis of informational note from financial director /31/. | 1 and 2/ Prior JI consideration and project starting date are confirmed by reliable sources /11/ and /10/ respectively submitted to verifier.<br>3/ The crediting period start date was corrected in revised PDD ver.2.0<br>4/ The lifetime duration (15 years) is confirmed by the official letter from equipment supplier /37/.<br>CAR 14 can be closed |

| 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 |
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| 4/ Project operation lifetime – 15 years. | | In revised PDD the sensitivity of the project economics to changes in the operation lifetime is additionally considered to 10 and 20 years. | |
| **CAR 15.** The monitoring plan does not imply the monitoring of latest revisions/new editions of the sources referred to for default values of the grid emission factor, specific equivalent fuel consumption for pellet production, specific calorific value of BWW on dry basis, etc that might be issued during the crediting period.<br><br>Please justify how the conservativeness of the default values fixed as constant parameters will be ensured through the whole crediting period. | D.1.1 | The conservativeness of constant values (default values) was built into them at the stage when they were determined and is not to be revised throughout the crediting period.<br><br>Specific fuel consumption by heat generators of the pellet production plant is established by special tests of the new equipment /20/. Besides from the range of fuel consumption values that were recorded during these tests and are given in the report, we took the lowest consumption which leads to lowest GHG emission reduction level.<br><br>As the equipment is further operated, the efficiency of fuel combustion is bound to go down and a larger quantity of wood wastes will have to be burnt to produce the same amount of heat. And an increase in the quantity of utilized BWW leads to an increase in GHG emission reduction level. Thus it is a conservative decision to set the specific wood | The conservativeness of applied baseline emissions calculation approach is confirmed by comparative study of application of different models (see comment to CAR 18)<br><br>CARs 15, 17 and 18 is transformed to **FAR 01**<br><br>The conservativeness of default values used for baseline emission calculation shall be ensured prior the first periodic verification on the basis of review of available sources. In occurrence of new specific investigation of methane emissions from sawdust decomposition process providing more conservative method of baseline emissions calculation or |

| 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 |
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| | | waste consumption at the level which corresponds to maximum combustion efficiency for the entire crediting period.<br>According to reference data /35/, calorific value of spruce wastes (used as fuel) on dry-and-ash-free basis is 19.33 MJ/kg. Calorific value on as-received basis allows for ash and moisture content of wood, these represent a "ballast" and reduce the calorific value of fuel. In this project calorific value on dry-and-ash-free basis is made equal to calorific value on as-received basis and only moisture content (main ballast) is taken into account. Ignoring ash content of the fuel is a conservative assumption because this factor, when taken into account, gives a lower calorific value of wood wastes and therefore brings about an increase in fuel consumption and an increase in GHG emission reductions.<br>As for the emission factor for power grid, please, see answer to CAR 16. | default values the applied baseline emissions calculation approach should be revised to consider the most actual information. |
| **CAR 16.** Please justify the conservativeness of the country specific grid emission factor values referred to in [R4] (Guidelines developed by Netherlands Ministry of Economic Affairs in 2004) taking into | D.1.3. | In revised PDD it was assumed that increase of electricity consumption from the grid for project activity will occur due to TPPs of the Interconnected Power System of North-West. A TPP works as a rule in condensation mode. | Accordingly to the data available for verifier the grid emission factor calculated on the basis of all generating capacities installed in North-West Energy system is not |

| 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 |
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| consideration the difference between specific fuel equivalent consumption and respective GHG emissions in cogeneration and condensation power generation mode. The additional electricity cannot be generated in cogeneration mode as the power output in this case strongly depends on the covered heat load. The GHG emissions from additional electricity generated in condensation cycle may be higher than those in cogeneration mode up to 30%. | | Emission factors were analyzed for the three TPPs of the North-West for 2005-2007 and the most conservative value was adopted. In revised PDD the GHG emission factor for power grid was assumed equal to 0.609 t CO2/MWh. | applicable because the combine heat and power plants (CHPP) do not take part in power output regulation. The grid emission factor is calculated on the basis of available information of power production from TPP. The most conservative value for the period from 2005 – 2007 was taken for project emission calculation. This was accepted as conservative approach.<br><br>CAR 16 was closed |
| **CAR 17.** Please justify the conservativeness or uniqueness of chosen default values for lignin fraction, specific calorific value for BWW and the value of heat of evaporation per 1% of fuel moisture. | D.1.5. | See answers to CARs 5, 15, 18. | CARs 15, 17 and 18 is transformed to **FAR 01:**<br><br>The conservativeness of default values used for baseline emission calculation shall be ensured prior the first periodic verification on the basis of review of available sources. In occurrence of new specific investigation of methane emissions from sawdust decomposition process providing more conservative method of |

| 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 |
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| | | | baseline emissions calculation or default values the applied baseline emissions calculation approach should be revised to consider the most actual information. |
| **CAR 18.** Application of Model for Calculation of CO2-equivalent Emission Reductions from Biomass Prevented from Stockpiling or Taken From Stockpiles developed by BTG biomass technology group B.V. [R4] for baseline ER calculation gives less conservative results in comparison with the model described in IPCC 2006 and "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" (Version 04). IPCC model is more conservative as it involves MCF and the uncertainty correction factors as well as due to application of the more conservative default values for:<br>1/ decomposition rate constant for the dry boreal climatic zone (0.02 vs. 0.046)<br>2/ Methane concentration in biogas (50% vs. 60%) | D.1.6. | In order to demonstrate that the results obtained according to the BTG model are more conservative in comparison with the IPCC model, a special comparison of results obtained from the abovementioned models for the period 2008-20012 was made.<br>The calculation results for sawdust:<br>• according to the IPCC model, methane emissions amount to 100 878 tCO2e;<br>• according to the BTG model, methane emissions amount to 100 698 tCO2e.<br>The calculation results for bark and wood wastes:<br>• according to the IPCC model, methane emissions amount to 25 607 tCO2e;<br>• according to the BTG model, methane emissions amount to 22 326 tCO2e.<br>It should be specifically noted that the BTG | It was demonstrated by providing comparative calculation that application of BTG model gives more conservative estimation of emission reduction.<br>Application of BTG model for baseline methane emission calculation from sawdust is found acceptable because this model was specifically developed on the basis of field investigations of sawdust decomposition. Then this model gives more objective results. Further more the abovementioned model has been applied for baseline emissions calculation in the number of JI projects implemented in Bulgaria Romania and Czech republic. |

| 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 |
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| 3/ Degradable organic carbon content on dry basis IPCC 2006 Vol.5 ch 2 table 2.4 (50% vs. 53.6%)<br><br>Please justify if the model and default values prescribed by IPCC 2006 are not applicable. It should be demonstrated that application of model developed by BTG does not lead to overestimation of baseline emissions. | | model allows for the age of biomass taken from the stockpile and utilized, i.e. it accounts for the fact that some methane from the utilized wastes was already released while they were in the stockpile.<br><br>Whereas the IPCC model does not allow for the age of the utilized wastes which leads to higher results when wastes from stockpile are used.<br><br>Thus comparative calculations showed that the results obtained with the help of the BTG model are more conservative because methane emissions as per the BTG model are lower than in the IPCC model for sawdust by 0.18%, and for bark and wood wastes – by 12.81%. | CARs 15, 17 and 18 is transformed to **FAR 01:**<br><br>The conservativeness of default values used for baseline emission calculation shall be ensured prior the first periodic verification on the basis of review of available sources. In occurrence of new specific investigation of methane emissions from sawdust decomposition process providing more conservative method of baseline emissions calculation or default values the applied baseline emissions calculation approach should be revised to consider the most actual information. |
| **CAR 19.** QC/QA procedures are not specified for the data on energy consumption in section D. | D.2.1 | QC/QA procedures for electricity consumption by the pellet production plant are specified in section D3. | Quality control/Quality procedure for Electricity consumption measurement including regular calibration by Federal State Institution — Standardization and Metrology Center of Arkhangelsk are specified in revised PDD ver. |

| 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 |
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| | | | 2.0<br>CAR 19 is closed |
| **CAR 20.** Adverse environmental effect of air pollutant emissions caused by project (from fuel combustion for energy generation for project needs, emission of dust etc.) is not described sufficiently in PDD. No information is presented to confirm its insignificance and no monitoring is suggested. Please justify if this environmental impact is not significant and/or lies within applicable norms and provide relevant evidences. | F.1.1 | Current (annual) monitoring of environmental impact of the enterprise is carried out by an independent environmental service – the Center for Laboratory Analysis and Technical Measurements.<br>2-tp "Air" reporting form is drawn up and shows information on actual emissions and established standards.<br>Information on actual emissions and established standards is given in revised PDD. | The results of air pollutant emissions monitoring are presented in the revised PDD ver.2.0. The Pollutant emissions generated by the plant does not exceed established individual limits that was confirmed by review of State statistical reporting forms 2-tp "air" /38/.<br>CAR 20 is closed. |
| **CAR 21** In the baseline calculation it is assumed that the sawdust mass on dry basis is equal to the mass of pellets. But in PDD page 9 it is mentioned that Pellets moisture is less than 10%. If there is the nonzero pellet moisture content, the above assumption (on equality of pellet production and sawdust on dry basis) is not conservative and may lead to overestimating of baseline emissions. I guess the actual moisture content of pellets should be the object of thorough check and | D. 1.6. | PDD has been revised.<br>Pellet and sawdust moisture content has been considered in the baseline calculation. | The moisture content was considered in the calculation of baseline emissions as confirmed by review of revised ER calculation spreadsheet.<br>CAR 21 is closed. |

| 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 |
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| discussion during forthcoming site visit. | | | |
| **CL 01.** Please clarify whether the project implies to use the already stockpiled BWW as a fuel for energy generation. If so, please specify the period and conditions (anaerobic or aerobic) of stockpiling. The NCV for fresh and stockpiled BWW may differ significantly that may affect the baseline emission calculations. | A.2.2. | Bark and wood wastes are supplied to the pellet production plant from the debarking department which is located in close vicinity to the pellet production department.<br><br>However it should be noted that old boiler house in Maimaksa has been firing some wood wasted taken from the stockpile. This effect (use of stockpiled BWW) in revised PDD is attributed to operation of the pellet production plant.<br><br>Thus it is assumed that all BWW required for fuelling the pellet production plant is supplied from the stockpile. The model developed by BTG for calculation of methane emissions from BWW decomposition allows for the age of BWW supplied for combustion from a stockpile.<br><br>The calorific value of stockpiled wastes is somewhat lower than that of fresh wastes, which increases their consumption and therefore increases GHG emission reductions.<br><br>Therefore it is conservative to ignore the loss of calorific value by wood wastes taken from the | It was assumed that the NCV of all biomass used as fuel for pellet production process is equal to fresh biomass hence. As the stockpiling lead to gradual decrease of net calorific value this assumption may be accepted as conservative.<br><br>CL01 is closed |

| 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 |
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| | | stockpile.<br>In revised PDD calorific value of BWW taken from the stockpile is made equal to calorific value of fresh wastes.<br>This approach does not lead to overestimation of amount of BWW burnt and may be accepted as conservative. | |
| **CL 02.** Please clarify whether the project requires extensive initial training and maintenance efforts in order to work as presumed during the project period. | A.4.2.4. | The extensive personal trainings have been provided to operational personal of pellet production shop by the equipment supplier in accordance with equipment supplying contract /34/. | The on-job training was provided to operators of pellet production equipment by equipment supplier as prescribed in the contract for equipment purchasing.<br>CL 02 is closed. |
| **CL 03**. Please clarify how another activity seeking JI status - Wood Waste-To-Energy Project at Sawmill-25 (Arkhangelsk) published at UNFCCC website ref. #0039 http://ji.unfccc.int/JI_Projects/DB/YZXL9NJUWQPEABAQR5HZI652IXD6ZJ/PublicPDD/7QGCEK2I9BT7K8CQBA2XN7VG89GNRQ/view.html ) and the same project registered at VCS website ID 104 (https://vcsprojectdatabase1.apx.com/mymodule/ProjectDoc/EditProjectDoc.asp?id1=104) | B.1.1. | PDD has been revised to include the explicit description of differences between these projects.<br>Implementation of pellet production project has not been resulted in any decrease in waste to energy project activity as the BWW stockpile existed at the start of pellet production project was sufficient to provide the fuel for both activities.<br>Sawdust is used for pellet production only and | Revised PDD ver.2.0 contains explicit explanation why the waste-to-energy project is not consideredto be bundled with the proposed pellet production project. Waste-to-energy project was published three years earlier than pellet production project.<br>CL 03 is closed |

| 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 |
|---|---|---|---|
| were considered while baseline establishing for the pellet production project.<br><br>As per description given in the PDD available at the UNFCCC and VSC websites under above mentioned links the waste-to-energy project was implemented at Sawmill-25 in 2005-2007. It has the identical source for baseline emissions – methane emissions from anaerobic decay of BWW (including bark, sawdust, and shavings) as the pellets production project. The waste-to-energy project envisages "reduction of the amount of dumped BWW up to complete stop". The emission reductions generated by waste-to-energy project in 2006 and 2007 were verified and registered at VCS website. Please provide explicit justification on whether or not the waste-to-energy and pellet production projects are bundled, and how waste-to-energy project activity was considered in the baseline identification for the pellet production project activity. Also please provide traceable historical records for BWW and sawdust production/stockpiling/utilization and relevant forecasts to confirm that project will not result | | normally could not be burned at the CHP. | |

| 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 |
|---|---|---|---|
| in decrease of on-site biomass based energy generation. | | | |
| **CL 04.** Please estimate of emissions from transportation of ash from BWW burning from the pellet production plant to the disposal site. If these emissions are significant they should be considered as project emissions. | B.3.1 | The emissions from transportation of ash from BWW burning from the pellet production plant to the disposal site are estimated as negligible. | It was confirmed by review of relevant calculation submitted to verifier that the emissions from ash transportation are negligible (less than 1 % of total emissions) and hence could not be considered.<br>CL 04 is closed. |
| CARs 15, 17 and 18 is transformed to **FAR 01:**<br>The conservativeness of default values used for baseline emission calculation shall be ensured prior the first periodic verification on the basis of review of available sources. In occurrence of new specific investigation of methane emissions from sawdust decomposition process providing more conservative method of baseline emissions calculation or default values the applied baseline emissions calculation approach should be revised to consider the most actual information. | D.1.1 | | |

**Table 6 Following issues are to be checked on site and might be transformed to the new CARs/CLs as per site visit (SV) results**

| Issues to be checked on site | Ref. to checklist question in tables 1, 2, 3 | Summary of site visit results | Determination team conclusion |
|---|---|---|---|
| **SV 01.** Check if the project implies state-of-art technology, which is not likely to be substituted during crediting period and represents the good operation practice. | A.4.2.1 | The project implies installation of new pellet production equipment manufactured by Hekotek and Andritz. Both companies are well known through the world manufacturers of the pellet production equipment. The project equipment installed in 2007-2008 meets all technical requirement to the pellet production technology.<br><br>Project uses state of art technology in pellet production provided by new equipment manufactured by the world wide known companies Andriz and Hekotek<br><br>As per interview with chief Engineer of Sawmill 25 the project technology is unlikely to be substituted during crediting period because this technology represents state of art technical solutions, meets all requirements, and investments are high enough to make any substitutions in equipment or technology economically unfeasible. | It was confirmed that the project implies installation of state-of-art technology which unlikely to be substituted during crediting period. |
| **SV 02.** Check the legal aspects of environmental impact caused by BWW dumping. Whether individual norms for waste production and disposal would be met with | A.4.3.1. | BWW is dumped at the internal disposal site inside the territory of Sawmill 25 so the individual norms for waste disposal at the | It was demonstrated that the plant would be able to continue biomass disposing at the |

| Issues to be checked on site | Ref. to checklist question in tables 1, 2, 3 | Summary of site visit results | Determination team conclusion |
|---|---|---|---|
| out project activity? | | municipal SWDS are not applicable. | internal stockpile in the absence of project. Environmental limits are not applicable for the wastes stockpiling at the site. |
| **SV 03.** The authority/responsibility distribution for data collection achieving and storing should be checked against the local monitoring procedure (as referred to in the PDD) and/or relevant employer manuals. | D.3.1. | Local monitoring procedure /26/ has been checked. Responsibility is confirmed by the local ordinance /15/. | Local monitoring procedure along with authority/responsibility distribution was checked and found sufficient to ensure proposed monitoring plan implementation. |
| **SV 04.** EIA and evidence for its official approval in accordance to procedure as determined by Host Part (positive State Environmental Conclusion) shall be submitted to verifier. | F.1.1. | EIA has been provided /09/ along with its official approval by State Expertise /12/. | Officially approved EIA was provided to verifier. Compliance to local environmental legislation was ensured. |
| **SV 05.** Check if there are any host country requirements for arrangement of consultations with public representatives. If consultation was arranged check the nature of comments received and whether the comments are to be addressed. | G.1.1. | According to local legislation it is required to make the information of expected environmental impacts publicly available. The project was announced in local press /23/. | All applicable requirements for stakeholder's consultation have been met. The information on project was made publicly available and the contacts for feedbacks and comments were maintained. The open public hearing or stakeholders meeting |

| Issues to be checked on site | Ref. to checklist question in tables 1, 2, 3 | Summary of site visit results | Determination team conclusion |
|---|---|---|---|
| | | | are not applicable for this type of projects. |
| **SV 06.** The relevance and contents of licenses should be further checked out during site visit and document review. | Table 4<br>1.2 | The positive state Expertise conclusion /12/ and the permit for air pollutant emission /13/ were checked on site and its relevance has been confirmed. | The compliance to local environmental requirements was confirmed by review of provided State Expertise conclusion and the permit for the air pollutant emissions. |

**Appendix B: Determination Team's CV**

**George Klenov, Professor, Doctor of Science (engineer electromechanic, phisicist)**
Lead Verifier.
Bureau Veritas Certification Rus - Lead Auditor, IRCA Lead Tutor, Lead 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 determination and verification of over 15 JI projects.

**Vladimir B. Lukin, PhD. (biology)**
Climate Change Verifier, Bureau Veritas Certification Holding SAS.

He has an experience in researchs in the field of environmental science. He has been involved in several environmental consulting, auditing, and EMS development projects. He has undergone intensive training for Quality Management System certification auditing (IRCA registered) Environmental Management System auditing cource and intensive training on Clean Development Mechanism /Joint Implementation. V.Lukin is a member of Russian National Environmental Auditing Chabmer since 2007. He has been involved in determination and verification of about 30 JI projects implemented in Russia and Ukraine, and several CDM validation and verifications projects in Tajikistan, Uzbekistan and Armenia.

**Leonid Yaskin, PhD (thermal engineering)**
Internal Technical Reviewer
Bureau Veritas Certification Rus General Director, Lead Auditor, Lead Tutor, Lead 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 verification of over 60 JI projects.