



# DETERMINATION REPORT

## CLIMATE CHANGE GLOBAL SERVICES (CCGS)

**Determination Report on JI Project  
“Biomass wastes to energy at OJSC “Ilim Group”  
Branch in the town of Bratsk”  
RUSSIAN FEDERATION**

**BUREAU VERITAS CERTIFICATION**

REPORT NO. RUSSIA/0025-2/2009, REV. 01



DETERMINATION REPORT




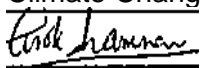
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Client: CCGS Ltd.	Client ref.: Mr. Ilya Goryashin

Summary:  
Bureau Veritas Certification has made the determination of the project “Biomass wastes to energy at OJSC “Ilim Group” Branch in the town of Bratsk”, 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 methodology and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Report No.: RUSSIA/0025-2/2009	Subject Group: JI
Project title: Biomass wastes to energy at OJSC “Ilim Group” Branch in the town of Bratsk	
Work carried out by: Flavio Gomes – Team leader, Lead verifier  Leonid Yaskin – Team member, verifier  George Klenov – Team member, verifier 	
Work verified by: Ashok Mammen - BVC Technical Manager for Climate Change, Internal reviewer 	
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**Indexing terms:**

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

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### Abbreviations change / add to the list as necessary

AIE	Accredited Independent Entity
BPPM	Bratsk Pulp and Paperboard Mill
BTIC	Bratsk Timber Industry Complex
BV	Bureau Veritas
BWW	Bark and wood wastes
CAR	Corrective Action Request
CCGS	Climate Change Global Services (LLC)
CHPP	Combined Heat and Power Plant
CL	Clarification Request
CO <sub>2</sub>	Carbon Dioxide
CPP	Cardboard and Paper Production
DDR	Draft Determination Report
DR	Document Review
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ERU	Emission Reduction Unit
FBC	Fluidized bed combustion
GHG	Green House Gas(es)
HYP	Hydrolysis yeast plant
HYW	High yield workshop
I	Interview
IE	Independent Entity
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate Return
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
LRB	Liquor recovery boilers
LTS-furnace	Low-temperature swirling-type furnace
MoV	Means of Verification
NGO	Non Governmental Organization
NPV	Net Present Value
PCF	Prototype Carbon Fund (World Bank Carbon Finance Unit)
PDD	Project Design Document
PP	Project Participant
PPM	Pulp and Paper Mill
THPP	Technological heat and power plant
UNFCCC	United Nations Framework Convention for Climate Change
WCP	Wood chemical production
WWS	Wastewater sludge



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## 1 Introduction

Climate Change Global Services, LLC has commissioned Bureau Veritas Certification to determine its JI project “Biomass wastes to energy at OJSC “Ilim Group” Branch in the town of Bratsk” (hereafter called “the project”) located in Irkutsk Region, Russian Federation. Climate Change Global Services (CCGS) coordinates the project and the determination process on behalf of the project participant OJSC “Ilim Group” Branch in the town of Bratsk.

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 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. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.



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### 1.3 GHG Project Description

The project is implemented on the site of OJSC “Ilim Group” Branch in the town of Bratsk (the former OJSC “Bratsk Pulp and Paper Mill”), Irkutsk Region, Russia.

Open Joint Stock Company “Ilim Group” (OJSC “Ilim Group”) is the largest company of the Russian pulp and paper industry founded in 1992 as Closed Joint Stock Company “Ilim Pulp Enterprise”. The strategic partner of OJSC “Ilim Group” and the holder of 50% of its shares is the world’s largest pulp and paper company, “International Paper”. The company’s enterprises located in the Leningrad, Arkhangelsk and Irkutsk Regions account for 65% of Russia’s overall market pulp production and for over 25% of paperboard production. The total annual production of pulp and paper by the company is over 2.5 million tonnes.

The OJSC “Ilim Group” Branch in the town of Bratsk was set up in 1997 by including Bratsk Timber Industry Complex (BTIC) into Closed Joint Stock Company “Ilim Pulp Enterprise”. BTIC consists of Bratsk Pulp and Paperboard Mill (BPPM) and a number of neighboring woodworking and wood chemical enterprises.

BPPM is one of the largest producers of pulp and paperboard in Russia, the traditional supplier of South-East Asian markets. The Mill’s total annual yield of pulp and paper products is over 715 000 tonnes.

The project is aimed at efficient utilization of high-moisture biomass wastes for production of heat and electricity for auxiliary needs of OJSC “Ilim Group” Branch in the town of Bratsk.

The project envisages complex modernization of the energy system of Bratsk Pulp and Paperboard Mill (BPPM) and switching of the boiler equipment to fluidized bed combustion of bark and wood wastes (BWW) and wastewater sludge (WWS). The core business of BPPM is production of pulp and paperboard. Pulp chips are used for pulp cooking. The pulp chips production yields large quantities of BWW. Also some quantity of BWW is supplied to BPPM from the neighbouring woodworking enterprises which do not have their own utilization capacities. WWS is generated at the biological treatment plant for the Mill’s industrial effluents.

Heat and electricity are produced at the Mill by the technological heat and power plant (THPP) consisting of three sites: CHPP-2, CHPP-3 and the boiler house interconnected by steam pipelines and power transmission lines. THPP uses residual fuel oil, BWW and black liquor as fuel. Prior to the project implementation BWW have been combusted in utilizing boilers No. 9 and No.10 of CHPP-2 and in utilizing boiler No.15 of the boiler house. It was possible to achieve stable burning of BWW only by using residual fuel oil for flame stabilization. Basically only relatively dry wood wastes (sawdust and wood sliver) was used, whereas high-moisture bark (moisture content up to 70%) was mostly disposed at the dump. WWS with even higher moisture content has never been utilized at all and the entire quantity of it is disposed at the dump.



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The shortfall of heat and electricity at the Mill is covered by CHPP-6 of OJSC "Irkutskenergo" located in close vicinity to BPPM. The main fuel of CHPP-6 is lignite. In the absence of the project the Branch management would have carried on with the existing practice of waste biomass handling, heat and electricity generation and purchase of energy from OJSC "Irkutskenergo" to bridge the shortfall.

The project envisages complex modernization of the energy system of BPPM in three stages.

The first stage:

- reconstruction of E-75-40K boiler unit No.16 for BWB combustion without residual fuel oil firing (or any other fossil fuel) for fuel stabilization due to implementation of fluidized bed combustion technology designed by "INECO".

The second stage:

- reconstruction of E-75-40K boiler unit No.14 for BWB combustion without residual fuel oil firing for fuel stabilization with increase of steam output to 90 t/h due to implementation of fluidized bed combustion technology designed by "INECO".

The third stage:

- installation of a new E-90-3.9-440DFT boiler unit No.15 designed for fluidized bed combustion of BWB and WWS without residual fuel oil firing for fuel stabilization using "Kvaerner Power" technologies (Finland);
- modernization of BWB feed system of renewed utilizing boilers No.14, No.15 and No.16;
- modernization of the thermal flow diagram of THPP.

As a result of the project the following will be achieved:

- ✓ practically all BWB generated on the territory of the Branch (including BPPM and neighbouring woodworking enterprises) will be utilized and BWB disposal at the dump will be almost completely avoided;
- ✓ a significant proportion of WWS will be utilized with a respective reduction of WWS disposal at the dump;
- ✓ in-house production of heat and electricity will increase;
- ✓ residual fuel oil consumption in the Mill's fuel balance will reduce;
- ✓ the system of energy supply of the production will be optimized, its reliability and cost-efficiency will be improved;
- ✓ negative environmental impact will be reduced,
- ✓ reduction of greenhouse gas (GHG) emissions will be 278 thousand tonnes of CO<sub>2</sub>e/year, on average.

Implementation of the first stage began in April 2000 and was completed in June 2001. The required amount of investments into the first stage totalled to EUR 1.6 million. In many respects it was a pilot stage with the objective to study the possibility of applying new BWB combustion technologies and to check them. The second stage builds on the results and findings of the first stage.



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Implementation of the second stage required by far more time and investments. The second stage was implemented from April 2002 till June 2004. The required investments into the second stage totalled to about EUR 4 million. Implementation of the third stage began in June 2007. All construction and installation works are planned to be completed by the 1<sup>st</sup> March 2010. The required investments into the third stage amount to around EUR 24.6 million.

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

Quality, environment and industrial safety management systems at Bratsk Branch meet the international standards of ISO 9001, ISO 14001 and OHSAS 18001.

To this end in 2008 the company began cooperation with CCGS Ltd., which acts as a consultant and a commercial agent of OJSC "Ilim Group". CCGS Ltd. is not a project participant.

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

## 1.4 Determination team

The determination team consists of the following personnel:

Flavio Gomes

Bureau Veritas Certification - Team Leader, Lead verifier

Leonid Yaskin

Bureau Veritas Certification – Team member, verifier

George Klenov

Bureau Veritas Certification - Team member, verifier

Ashok Mammen

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) on-site assessment (June 08<sup>th</sup> – 09<sup>th</sup> 2009);



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iii) resolution of outstanding issues (ref. to Appendix A Table 5 with CAR's and CL's) and the issuance of the final determination report and opinion. In order to ensure transparency, a determination protocol was customized for the project, according to the Determination and Verification Manual (IETA/PCF).

The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The determination protocol serves the following purposes:

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

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

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

<b>Determination Protocol Table 1: Mandatory Requirements</b>			
<b>Requirement</b>	<b>Reference</b>	<b>Conclusion</b>	<b>Cross reference</b>
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 ( <b>OK</b> ), a <b>Corrective Action Request (CAR)</b> or a <b>Clarification Request (CL)</b> 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.

<b>Determination Protocol Table 2: Requirements checklist</b>				
<b>Checklist Question</b>	<b>Reference</b>	<b>Means of verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
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 ( <b>OK</b> ), or a <b>Corrective Action Request (CAR)</b> due to non-compliance with the checklist question. (See below). <b>Clarification Request (CL)</b> is used when the determination team has identified a need for further clarification.



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<b>Determination Protocol Table 3: Baseline and Monitoring Methodologies</b>				
<b>Checklist Question</b>	<b>Reference</b>	<b>Means of verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
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 <b>Corrective Action Request (CAR)</b> due to non-compliance with the checklist question. (See below). <b>Clarification Request (CL)</b> is used when the determination team has identified a need for further clarification.

<b>Determination Protocol Table 4: Legal requirements</b>				
<b>Checklist Question</b>	<b>Reference</b>	<b>Means of verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
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 <b>Corrective Action Request (CAR)</b> due to non-compliance with the checklist question. (See below). <b>Clarification Request (CL)</b> is used when the determination team has identified a need for further clarification.

<b>Determination Protocol Table 5: Resolution of Corrective Action and Clarification Requests</b>			
<b>Report corrective action and clarifications requests</b>	<b>Ref. to checklist question in tables 1/2/3/4</b>	<b>Summary of project owner response</b>	<b>Determination conclusion</b>
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) submitted by CCGS and additional background documents related to the project design, baseline, and monitoring plan, i.e. Kyoto Protocol, Host Country Laws, Guidelines for Users of the Joint Implementation Project Design Document Form, JISC Guidance on Criteria for Baseline Setting and Monitoring, Combined tool to identify the baseline scenario and demonstrate additionality and others were reviewed.


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The deliverable of the document review was the Draft Determination Report (DDR) version 01 with CAR's and CL's which were submitted to CCGS on 18 June 2009. The determination findings presented in this DDR versions relate to the project as described in the original PDD version 1.0 dated 20.03.2009.

CCGS has submitted the completed PDD, version 1.1, dated 23.06.2009 which was issued by the PDD developer as a response to the DDR version 01. The amendments done in the PDD version 1.1 have been taken into account in this Determination Report.

## 2.2 Follow-up Interviews

Bureau Veritas Certification verifier George Klenov conducted a visit to the project site on 8<sup>th</sup> - 9<sup>th</sup> June 2009. On-site interviews with project stakeholders were conducted to confirm selected information and to resolve issues identified in the document review. Representatives of OJSC "Ilim Group" Branch in the town of Bratsk, and CCGS were interviewed (see References in Section 6). The main topics of the interviews are summarized in Table 1.

**Table 1 Interview topics**

<b>Interviewed organization</b>	<b>Interview topics</b>
OJSC "Ilim Group" Branch in the town of Bratsk	<ul style="list-style-type: none"> <li>➤ History of the project</li> <li>➤ Business Plan</li> <li>➤ OJSC "Ilim Group" Branch in the town of Bratsk pulp production programme</li> <li>➤ Baseline scenario parameters</li> <li>➤ Project management organisation</li> <li>➤ Environmental Impact Assessment</li> <li>➤ Public Hearings</li> <li>➤ Attendance of production facilities</li> <li>➤ Project monitoring responsibilities</li> <li>➤ Monitoring equipments</li> <li>➤ Technical project design</li> <li>➤ Quality control and quality assurance procedures</li> </ul>
CCGS	<ul style="list-style-type: none"> <li>➤ Baseline scenario</li> <li>➤ Monitoring plan</li> <li>➤ Investment analysis</li> <li>➤ Additionality justification</li> <li>➤ Common practice analysis</li> <li>➤ Estimation of the methane emissions from the dump</li> <li>➤ Conformity of PDD to JI requirements</li> </ul>



### 2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the determination is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be followed on by the project participants for Bureau Veritas Certification positive conclusion on the project design.

*Corrective Actions Requests (CAR)* are issued, where:

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

*Clarification Requests (CL)* are issued where

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

A Draft Determination Report, version 01, summarising Bureau Veritas Certification's findings, was submitted to the project participants on 18/06/2009. The findings identified have been fourteen Corrective Action Requests, one Clarification Request. Based on the findings of the Draft Determination Report, CCGS made necessary amendments and corrections to the PDD Version 1.0 and, eventually, the Version 1.1 dated 23/06/2009 was issued and submitted to Bureau Veritas Certification for review.

The amendments and corrections made by the project participants to the PDD and the additional information and clarifications provided by them satisfactorily addressed BV Certifications' items of concern and, as a result, the Determination Report Version 01 was issued on 08/07/2009. On the same day the Determination Report Version 01 and PDD Version 1.1 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 site visit 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



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- 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

The project provides reduction of GHG emissions by reducing of:

- the proportion of residual fuel oil in the Mill's fuel balance due to the realisation of fluidized bed combustion (FBC) of biomass;
- lignite combustion at CHPP-6 due to increase of BPPM's own heat production;
- biomass (BWW and WWS) disposal at the dump.

The project uses the state-of-art technology. It envisages modernization of the two boilers E-75-40K and construction of a new high-technology boiler E-90-3,9-440ДТФ with the technology of FBC that allows to utilize practically all BWW and WWS with great moisture content generated on the territory of the Bratsk's Branch with a respective reduction of BWW and WWS disposal at the dump.

The outcomes of project activity will be the following effects:

- mitigation of adverse environmental impacts; and
- average reduction of GHG emissions by 278 256 tonnes of CO<sub>2</sub>e/year over the period 2008-2012. Total estimated emission reductions will equal 1 391 280 tCO<sub>2</sub>e over 5 year crediting period starting in 2008.

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

OJSC "Ilim Group" Branch in the town of Bratsk" made a decision on implementation of this project on 28 April, 2000 (this date is considered to be the actual project starting date – the reconstruction of E-75-40K boiler unit No.16 for BWW combustion without residual fuel oil firing for fuel stabilization due to implementation of fluidized bed combustion technology designed by "INECO"). This first stage was completed in June 2001.

The second stage (reconstruction of E-75-40K boiler unit No.14) builds on the results and findings of the first stage. Implementation of the second stage required by far more time and investments. The second stage was implemented from April 2002 till June 2004.

Implementation of the third stage (installation of a new E-90-3.9-440DFT boiler unit No.15 designed for fluidized bed combustion of BWW and WWS without residual fuel oil firing for fuel stabilization using "Kvaerner Power" technologies) began in June 2007. All construction and installation works are planned to be completed by the 1<sup>st</sup> of March, 2010.



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

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

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

### 3.2 Baseline and Additionality

Following Clause 20 (b) of JISC "Guidance for baseline setting and monitoring", the project participants established their own baseline approach that is in accordance with appendix B of the JI Guidelines.

The baseline scenario assumes continuation of the existing practice of firing bark and wood wastes generated within BTIC in the utilizing boilers of CHPP-2 and the boiler house. The biomass wastes that are not utilized will be disposed at the dump. The shortfall of heat and electricity will be supplied from CHPP-6 and from the external power grid.

The baseline scenario is business as usual within the framework of the existing standards and rules which do not prohibit combustion of BWW by BPPM in the existing boilers using residual fuel oil (or any other fossil fuel) for flame stabilization nor are there any restrictions as to biomass disposal at dump. The baseline scenario is reasonably conservative and is by far less costly than the project activity. It should be also noted that there are no GHG emission caps in Russia for individual companies and according to projections such are not expected at least until 2012.

To prove the project additionality, the routine provisions of the CDM "Combined tool to identify the baseline scenario and demonstrate additionality" (Version 02.2) were implicitly followed.

The following Alternatives to the stages 1 and 2 of JI project were identified: 1- Continuation of the current situation; 2 - Installation of new boilers running on fossil fuel; 3 - Project activity without JI mechanism.

For stage 3 the following four alternatives were identified: 3.1 -Continuation of the current situation; 3.2 - Decommissioning of CHPP-2 boiler equipment, increase of energy purchase from the outside; 3.3 - Installation of new boilers running on fossil fuel; 3.4 - The project activity without JI mechanism. Each alternative was reviewed.

These scenarios are not in contradiction with the mandatory legislation and regulations. Each alternative was reviewed.

The alternative analysis, investment and sensitivity analysis, barrier analysis and common practice analysis have demonstrated that the proposed project



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activity is not financially attractive and not economically or financially feasible, without the revenue from the sale of emission reduction units (ERUs). Accordingly, the Alternatives 1 was taken as the baseline.

The investment analysis was carried out in terms of NPV. The discount rate (hurdle rate of return) was duly derived from Russia 2030 Eurobonds rates, increased by a suitable risk premium to reflect private investment and the project type in accordance with the verified project owner allowances, generally in line with the publicly available financial data referred to in the PDD.

The sensitivity analysis that was carried out showed that even under the optimistic assumptions the Project is still economically unattractive.

Common practice analysis showed that Bratsk Pulp and Paperboard Mil, for the first time in Russia, implemented a unique set of technical solutions for reconstruction and modernization of its boilers using FBC state-of-the-art technologies.

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 04, CAR 05, CAR 06, CAR 07, CAR 08, CAR 09).

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 10).

### 3.3 Monitoring Plan

The monitoring plan is defined on the basis of CCGS's approach in accordance with the specifics of the project and requirements of *Decision 9/CMP.1, Appendix B* 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 site visit confirmed the availability and operationability of this structure. Monitored data quality assurance and quality control procedures are backed up by the Quality and Environmental Management Systems certified to ISO 9001 and ISO 14001.

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 11).



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### 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 E. The verifiers checked the calculations completed in the amended PDD version 1.1 and found them accurate.

Implementation of the project will lead to reduction of GHG emissions from combustion of fossil fuel and anaerobic decomposition of biomass wastes at the dump.

The principal GHG released during combustion of fossil fuel is CO<sub>2</sub>. Emissions of CH<sub>4</sub> and N<sub>2</sub>O from combustion of fossil fuel are negligibly small as compared with CO<sub>2</sub> emissions and were neglected in development of this project. Anaerobic decomposition of biomass wastes at the dump is accompanied by release of methane. Emissions of CO<sub>2</sub> from biomass combustion are climatically neutral and are assumed equal to zero.

The key factors that characterize the project scenario are:

- combustion of BWW and WWS;
- heat production;
- fossil fuel combustion;
- heat supply;
- electricity supply.

Each factor is considered in detail in the PDD.

The baseline scenario assumes continuation of the existing practice of firing bark and wood wastes generated within BTIC in the utilizing boilers of CHPP-2 and the boiler house. The biomass wastes that are not utilized will be disposed at the dump. The shortfall of heat and electricity will be supplied from CHPP-6 and from the external power grid.

The baseline scenario is business as usual within the framework of the existing standards and rules which do not prohibit combustion of BWW by BPPM in the existing boilers using residual fuel oil (or any other fossil fuel) for flame stabilization nor are there any restrictions as to biomass disposal at dump. The baseline scenario is reasonably conservative and is by far less costly than the project activity. It should be also noted that there are no GHG emission caps in Russia for individual companies and according to projections such are not expected at least until 2012.

The key factors that determine GHG emissions under the baseline scenario are as follows:

- heat production;
- heat supply;
- fossil fuel combustion;
- electricity supply;
- electricity consumption from the external power grid;
- BWW and WWS disposal at the dump.

Each factor is considered in detail in the PDD.



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The calculated value of project emission reduction over the crediting period 2008 – 2012 is 1 391 280 tCO<sub>2</sub>e. Annual average emission reduction is 278 256 tCO<sub>2</sub>e/year.

No areas of concern as to Calculation of GHG Emissions are identified.

### 3.5 Environmental Impacts

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

The environmental impact assessment of the project was carried out in accordance with the Russian legislation within the framework of the design documentation development for reconstruction of boilers No.16 and No.14, and for installation of boiler No.15.

Switching of E-75-40K boiler No.16 (as well as boiler No.14) to fluidized bed combustion of BWW has led to increased fly ash emissions into the atmosphere because the real volume of fuel combustion has increased, meanwhile the demand for land area for BWW stockpiling has reduced. Installation of efficient ash collecting equipment helped to reduce ash content in flue gases down to the technically attainable level.

Arrangement of two-stage low-temperature combustion of BWW created favorable conditions for significant limitation of thermal NO<sub>x</sub> generation. This process was facilitated by reducing conditions of the first combustion stage (furnace extension) and by relatively low flame temperatures of the second stage (boiler furnace).

Commissioning of new E-90-3.9-440DFT boiler No.15 will not lead to increase of pollutant emissions into the atmosphere. The level of impact upon air, surface waters and land resources is within the permissible limits.

The project implementation will lead to reduction of lignite combustion at CHPP-6, which produces a large quantity of harmful emissions, and to reduction of fossil fuel combustion at grid power plants.

In general, the project implementation will lead to mitigation of negative environmental impacts.

Thereby the project has met the key requirements of Russian environmental legislation.

Identified area of concern as to Environmental Impacts, PP's response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CAR 12).

### 3.6 Comments by Local Stakeholders

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



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The public of the town was informed about the planned implementation of the project through the local mass media: “Bratskyi Lesokhimik” No.37 dated 15 May 2002 and No.89 dated 15 November 2002; “Rabochaya Smena” No.1 dated 14 January 2008, No.27 dated 18.07.2008 and No.38 dated 3 October 2008. No comments from the town’s community were received. This publication has not given rise to any public comments.

Identified area of concern as to Comments by Local Stakeholders, their responses and BV Certification’s conclusions are described in Appendix A Table 5 (refer CAR 13, CAR 14).

#### **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 01 on BVC site [www.bureau-veritas.ru](http://www.bureau-veritas.ru) on 28.05.2009 and invited comments within 26.06.2009 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 “Biomass wastes to energy at OJSC “Ilim Group” Branch in the town of Bratsk”. The determination was performed on the basis of UNFCCC criteria for 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 interviews with project stakeholders; iii) the issuance of the determination report and opinion.



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

An analysis of the investment and barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that it is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The determination revealed two pending issues related to the current determination stage of the project: the issue of the written approval of the project and the authorization of the project participant by the host Party (Russian Federation). If the written approval and the authorization by the host Party are awarded, it is our opinion that the project as described in the Project Design Document, Version 1.1 dated 23/06/2009 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 332 dated 28/05/2007.

Flavio Gomes – Team leader, Lead verifier

Leonid Yaskin – Team member, verifier

George Klenov – Team member, verifier

Ashok Mammen – Internal Technical Reviewer



## 6 REFERENCES

### Reviewed document or Type of Information referred to in Appendix A

1	PDD "Biomass wastes to energy at OJSC "Ilim Group" Branch in the town of Bratsk" Version 01, dated 10/02/2009.
2	Guidelines for Users of the Joint Implementation Project Design Document Form/Version 03, JISC.
3	Glossary of JI terms/Version 01, JISC.
4	Guidance on criteria for baseline setting and monitoring. Version 01. JISC.
5	Tool for the demonstration and assessment of additionality. Version 05.2. EB 39, Annex 10.
6	JISC "Clarification regarding the public availability of documents under the verification procedure under the Joint Implementation Supervisory Committee." Version 02.
7	Bureau Veritas Certification audit report on the Certification Audit of the OJSC "Ilim Group" Branch in the town of Bratsk" Integrate Management System to ISO 9001, ISO 14001, 17 – 21 November 2008.
8	2006 IPCC Guidelines for National Greenhouse Inventories, v.2, Energy.
9	Operational Guidelines for Project Design Documents of Joint Implementation Projects. Volume 1. General Guidelines. Version 2.3. Ministry of Economic Affairs of the Netherlands. May 2004.
10	B.V.Sazanov, V.I.Sitas. Heat Energy Systems at Industrial Enterprises. M.: Energoatomizdat, 1990.
11	On approval of methodological instructions for examination of project documentation. Order by the Ministry of Economic Development and Trade of the RF, dated 20 December 2007, N 444.
12	RF Government Decree No. 332, dated 28 May 2007, Procedure for Approval and Verification of Status of Projects Carried Out in Accordance with Article 6 Of the Kyoto Protocol to the United Nations Framework Convention on Climate Change.
13	Methane and Nitrogen Oxide Emissions from Biomass Waste Stockpiles, PCFplus Research, World Bank, August 2002.
14	The World Resources Institute (WRI) and World Business Council for Sustainable Development. 2001. Calculating CO2 emissions from mobile sources - Guide to calculation worksheets. Washington, DC: World Resources Institute.

### Document or Type of Information obtained at the site visit References in Appendix A are underlined

1	Project "Reconstruction of the boiler No.16 of E-75-40K type", JSC "Engineering and Power Company" (INECO), OJSC "BPPM", Moscow, 2000, v.1, "General Explanatory Note", 41.99.ПЗ, part 13 "Environmental Protection".
2	Project "Reconstruction of the boiler No.14 of E-75-40K type", OJSC "BPPM", Bratsk, 2002, v.1, "General Explanatory Note", 53.01.GEN; v.4 "Environmental Protection during Construction and Exploitation", 53.01.EP.
3	Project "Installation of the boiler No.15 of E-90-3,9-440ДТФ type", OJSC "Sibgiprobum", JSC "Energomash – East Siberia", Irkutsk, 2008, v.I, "General Explanatory Note"; v.II "Environmental Protection".



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4	Statement of the State Environmental Expertise approved by the order of Rostekhnadzor Office in the Irkutsk Region (on the project of installation of the boiler No.15 of E-90-3,9-440ДТФ type for fluidized bed combustion of bark and wood wastes), dated 30.10.2008, No16-7767.
5	Permit of the Russian Federal and Industrial Inspection (for operation of the boiler No.14) dated 21.05.2004, No. PPC 03-12335.
6	Passport of the boiler No.16 of E-75-40K type, reg. No4624 (Permit of the Russian Federal and Industrial Inspection dated 28.06.2001).
7	Act of Acceptance "Acceptance of the boiler No.16 of E-75-40K type completed by construction", OJSC "Ilim Group" Branch in the town of Bratsk", dd.31.08.2004.
8	Act of Acceptance "Acceptance of the boiler No.14 of E-75-40K type completed by construction", OJSC "Ilim Group" Branch in the town of Bratsk", dd.23.04.2001.
9	Information Dispatch Service (electronic recording forms), The review of production performance output for May 2009, OJSC "Ilim Group" Branch in in the town of Bratsk".
10	Calibration records and tags concerning testing equipment
11	Contract # 017-831-07 dd.29.06.07 "Installation of boiler No.15 of E-90-3,9-440ДТФ type" with JSC "Energomash – East Sibiria" and Schedule of Project realization.
12	Additional Agreement dated 27.05.09 to the Contract No.017-831-07.
13	Reporting data on production parameters and steam consumption at OJSC "Ilim Group" Branch in the town of Bratsk.
14	Protocol of Intention between local non-profit organization "Environmental Investment Center" and OJSC "Ilim Group" Branch in the town of Bratsk" regarding implementation of project aimed.

All these documents have been available for auditors.

**Persons interviewed:**

1	Nikolay T. Sikov, OJSC "Ilim Group" Branch in the town of Bratsk, EHS Director.
2	Nadezhda I. Motina, OJSC "Ilim Group" Branch in the town of Bratsk, Head of ISM Department.
3	Oleg V. Dembitsky, OJSC "Ilim Group" Branch in the town of Bratsk, Deputy of Head of Production.
4	Artem L.Dariev, OJSC "Ilim Group" Branch in the town of Bratsk, Deputy of Head of Workshop No.1 of CHPP station.
5	Irina V.Glushich, OJSC "Ilim Group" Branch in the town of Bratsk, Lead Ecologist.
6	Vladimir T. Grishin, OJSC "Ilim Group", Lead H&S Specialist.
7	Valery A. Farukshin, JSC "Ilim Vostok", Lead Engineer of Investment and Production Direction.
8	Alexander V. Samorodov, CCGS, Director.
9	Ilya Goryashin, CCGS, specialist, PDD-writer.



## 7 DISCLAIMER

This report contains the results of the determination of whether the project under consideration meets the relevant requirements of Article 6 of the Kyoto Protocol and the JI guidelines. The used determination procedure does not fall under the verification procedure under the JISC, as defined in the JI guidelines, paragraphs 30–45. Instead, paragraph 23 of the JI guidelines applies to the determination based on which Bureau Veritas Certification Holding SAS issues, under the contractual arrangements with CCGS, an expert opinion on the project as per the RF Government Decree No. 332, dated 28 May 2007, “Procedure for approval and verification of status of projects carried out in accordance with Article 6 of the Kyoto Protocol to the United Nations Framework Convention on Climate Change”.