



DETERMINATION REPORT

EN+ MAGNESIUM LIMITED

**DETERMINATION OF THE
“Increase in efficiency of water resources
use at Bratsk HPP, Irkutsk region,
Russian Federation”**

Bureau Veritas Certification
Holding SAS

BUREAU VERITAS CERTIFICATION

REPORT No. RUSSIA/0034-2/2009, v.1



Determination Report on JI project
 "Increase in efficiency of water resources use at Bratsk HPP, Irkutsk region, Russian Federation"

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|------------------------------------|--|
| Date of first issue: 21/11/2009 | Organizational unit: Bureau Veritas Certification Holding SAS |
| Client: EN+ Magnesium Limited | Client ref.: Mr N. Sakharov |

Summary:

Bureau Veritas Certification was commissioned by EN+ Magnesium Limited to make the determination of the project "Increase in efficiency of water resources use at Bratsk HPP, Irkutsk region, Russian Federation" on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI guidelines and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The determination 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 Corrective Actions Requests (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/0034-2/2009 | Subject Group: JI |
| Project title: "Increase in efficiency of water resources use at Bratsk HPP, Irkutsk region, Russian Federation" | |
| Work carried out by: Leonid Yaskin – Team Leader, Lead Verifier Vera Skitina - Team Member, Lead Verifier | |
| Work verified by: Ivan Sokolov - Internal Technical Reviewer | |
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Abbreviations

| | |
|--------------------|--|
| AIE | Accredited Independent Entity |
| BHPP | Bratsk Hydro Power Plant |
| BVC | Bureau Veritas Certification |
| CAR | Corrective Action Request |
| CCGT | Combined Cycle Gas Turbine |
| CO ₂ | Carbon Dioxide |
| DDR | Draft Determination Report |
| DR | Document Review |
| EIA | Environmental Impact Assessment |
| EN+ | EN+ Magnesium Limited |
| ERU | Emission Reduction Unit |
| GHG | Greenhouse House Gas(es) |
| I | Interview |
| IE | Joint Stock Company "Irkutskenergo" |
| IPCC | Intergovernmental Panel on Climate Change |
| IRR | Internal Rate of Return |
| JI | Joint Implementation |
| JISC | Joint Implementation Supervisory Committee |
| JSC | Joint Stock Company |
| MoV | Means of Verification |
| NCSF | National Carbon Sequestration Foundation |
| NPV | Net Present Value |
| PDD | Project Design Document |
| PP | Project Participant |
| RF | Russian Federation |
| tCO ₂ e | Tonnes CO ₂ equivalent |
| UNFCCC | United Nations Framework Convention for Climate Change |

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1 Introduction

EN+ Magnesium Limited (hereafter called EN+) has commissioned Bureau Veritas Certification to determine its JI project "Increase in efficiency of water resources use at Bratsk HPP, Irkutsk region, Russian Federation" (hereafter called "the project") located in the city of Bratsk, Irkutsk Region, Russian Federation. National Carbon Sequestration Foundation (hereafter called NCSF) being PDD developer coordinated the project and the determination process on behalf of the project participant JSC "Irkutskenergo" (hereafter called IE).

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, JI guidelines, in particular the verification procedure under the JI Supervisory Committee, JISC Guidance on criteria for baseline setting and monitoring, Guidelines for users of JI PDD Form, 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 EN+, NCSF and IE. However, stated requests for corrective actions may have provided input for improvement of the project design.

1.3 GHG Project Description (quoted by PDD Version 6 Section A.2)

Bratsk hydroelectric plant (BHPP) is the second HPP of the coordinated hydroelectric system downstream the Angara river and the world's leader in the total volume of electricity production since putting into operation of the first generating unit. The installed capacity of Bratsk HPP is 4500 MW (18 generating units by 250 MW). The annual output under the

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design is some 21-22 billion kWh. The share of BHPP in the total electricity production of JSC «Irkutskenergo» is about 40%. Due to the unique and sufficiently stable water resources, Bratsk HPP plays an important role in providing the steady-state reliable functioning of Irkutsk region. BHPP supplies the electric energy through the Irkutsk power grid to the regional industrial enterprises, population and to the neighbor deficit power systems.

The project provides extra electricity production due to efficiency increase in water resources use in connection with BHPP efficiency increase caused by replacement of wheels on the 6 hydro generating units. As a result of project activity at BHPP additional 692 million kWh it will be generated a year.

The project is additional and one of the substantiations is that the existing wheels are in operational conditions and can serve till at least 2013.

The project activity will result in reducing electricity generation by the existing coal fired TPPs of JSC «Irkutskenergo».

Estimated reduction of GHG emissions should be about 4 009 995 tCO₂e in the period of 2008-2012 or 801 999 tCO₂e per a year. It will lead to additional carbon financing from ERU sales.

BHPP was put in operation in 1961. Because of cavitation wear the turbine's efficiency decreases in time and each 6-8 years overhaul repair works take place at each turbine wheel when they are restored by facing 600-700 kg of metal per one maintenance campaign. Nevertheless maintenance works can't increase efficiency to the initial level and from the time of commissioning the efficiency fell down from initial 93.5% to approximately 88,1.

In the absence of the project activity, the BHPP would continue to provide electricity with the historical average efficiency coefficient, until the time at which the generation facility would likely be replaced or retrofitted. From this point of time onwards, the baseline scenario is assumed to correspond to the project activity, and no emission reductions are assumed to occur.

Emission reduction happens because of BHPP efficiency coefficient increase.

For the purposes of the project it should be specially noted the following:

- BHPP generates cheap electricity (i.e. it is the «low-cost» energy source) and it is also the «must-run» source in the power system that is loaded in the primary order.
- Water regime of BHPP which means the support of water level in the reservoir in the prescribed range, the control of overflow water in the period of snowmelt flood, etc. is specified by the Yenisei Basin Water Directorate, the requirements of navigation, conservation of fish resources in the river Angara and normal water stream in the lower reach is taken into account. The Operative Group of the Ministry of Natural Resources can give out the recommendations on running the water schedule. Thus, the BHPP generates maximal electricity with the specified restrictions of water resources utilization. This principle doesn't

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depend of the retrofit works at BHPP and is true for both baseline scenario and project activity.

- There is electricity demand growth in the region that predetermines also the maximal utilization of BHPP capacities;
- The electricity loads of BHPP and its units are dispatched by the regional branch of JSC "System Operator of UES".

Table A.2.1. Schedule of capacities retrofit at BHPP

| Replacement of wheel | The date of putting into operation |
|----------------------|------------------------------------|
| No. 13 | 12.2010 |
| No. 14 | 10.2008 |
| No. 15 | 02.2010 |
| No. 16 | 03.2007 |
| No. 17 | 03.2008 |
| No. 18 | 12.2009 |

Source of data: JSC "Irkutskenergo"

The projected area of BHPP reservoir surface is 5470 km², and as JSC «Irkutskenergo» declared, it would remain invariable under project activity, i.e. stay the same under the baseline scenario and project activity. The long-term water schedules of BHPP operation prescribed by State bodies are expected not to be changed.

The new wheels are made of stainless steel at JSC «Leningradsky Engineering Metal Works», St Petersburg. They have much less cavitations wear of metal (18 kg of metal a year).

The project was considered as a Joint Implementation (JI) from the appearance of the investment proposal in 2004 when JSC Irkutskenergo first took the appropriate decision (the copy of the protocol of 22.04.2004 is attached in Annex 4). Since that time the decision to implement the investment project was made by the Irkutskenergo Board of the Directors (2004). It should be pointed out that the Kyoto Protocol entered into force only in 2005 when the negotiations with the JI Project developer and a potential carbon investor were started. In 2006 the appropriate agreements were signed. In parallel the investment project's realization was under way.

By the time of developing PDD Version No. 4 (September 2009) three wheels have been already replaced at turbines No. 14, 16 and 17 and refurbishment of No.18 is under way. The increase of efficiency was confirmed by tests carried out for turbine No.16 by "Turboinstitute" (city Ljubljana, Slovenia) in 2007: annual average wheel efficiency was 95.2% at nominal head 100 m. All other new wheels are of the same design, the conditions under which the turbines retrofit is carried out and their operation takes place are the same², there are all reasons to accept the efficiency of 95.2% for all other retrofitted turbines for the purpose of emission reduction assessment. The efficiency 95.2% for all new wheels is guaranteed by the wheels' manufacturer LMW. Increasing of wheel efficiency coefficient till 95,2% will results in hydraulic unit efficiency coefficient increasing till 93,5% taking into ac-

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count loses between generator and wheel (in the project calculation hydraulic unit efficiency coefficient is taken under capacity 232 MW and equal to 92,9%)

Table A.2.2. BHPP efficiency coefficient before and after the project implementation

| Indicator | BHPP Efficiency % |
|---|-------------------|
| Efficiency coefficient of BHPP turbines in 2002-2007 (η_{baseline}) | 85.92% |
| Efficiency coefficient of BHPP turbines in 2008-2012 (average η_y) | 88.65% |

Excel table with the data for each year is presented in Annex 8 (separate file).

1.4 Determination team

The determination team consists of the following personnel:

Leonid Yaskin
 Bureau Veritas Certification – Team Leader, Lead Verifier

Vera Skitina
 Bureau Veritas Certification – Team Member, Lead Verifier

Ivan Sokolov
 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 on 17/09/2009 and on-line interactions with EN+, CNSF and IE throughout the determination process;
- iii) resolution of outstanding issues (ref. to Appendix A Table 5 with CAR'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.

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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 because the questions regarding the used approach are presented 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. |

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| 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

Bureau Veritas Certification (BVC) signed the contract with EN+ on 27/08/2009. The Project Design Document (PDD) Version 3 dated August 2009 was received on 14/09/2009 together with supporting documentation including spreadsheets with investment analysis, calculation of GHG emission, and calculation of BHPP key parameters.

PDD Version 3 of August 2009 was made publicly available for comments on BVC site from 16 September 2009 to 15 October 2009.

Following the project site visit held on 17/09/2009, the project participant has made a decision to revise the PDD. As a result a revised PDD Version 4 dated September 2009 was submitted to BVC on 15/10/2009 together with renewed supporting documentation. The title of the project was revised.

PDD Version 4 and supporting documentation as well as additional background documents related to the project design, baseline, and monitoring plan, such as Kyoto Protocol, host Country laws and regulations, JI guidelines, JISC Guidance on criteria for baseline setting and monitoring, and Guidelines for users of the JI PDD Form were reviewed.

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The first deliverable of the document review was the Draft Determination Report (DDR) Version 1 dated 27/10/2009 with 12 CAR's.

On 09/11/2009, NCSF submitted the amended version of PDD Version 5 dated November 2009 together with summaries of responses to the BVC requests stated in Table 5 of DDR. Having reviewed this feedback, Bureau Veritas Certification sent to NCSF Table 5 dated 11/11/2009 with clarifications as to why some of NCSF responses can not be accepted.

On 20/11/2009 NCF submitted the amended version of PDD Version 6 together with further elaborated responses to BVC requests. This NCSF feedback was accepted by BVC.

The chronology of issuance of PDD and DDR is shown in Table 6.

The determination findings presented in this Determination Report Version 1 relate to the project as described in the PDD Version 4 dated September 2009 and the final PDD Version 6 dated November 2009.

Table 6. Chronology of issued PDD and DDR

| PDD version | PDD date | Received on | DDR version | DDR date |
|----------------------|----------------|-------------|-------------|------------|
| 3 published 15/09 | August 2009 | 14/09/2009 | - | - |
| 4 | September 2009 | 15/10/2009 | 1 | 27/10/2009 |
| 5 | November 2009 | 09/11/2009 | - | - |
| 6 | November 2009 | 20/11/2009 | 2 | 21/11/2009 |

2.2 Follow-up Interviews

Bureau Veritas Certification verifier Vera Skitina conducted a visit to the project site on 17/09/2009. On-site interviews with the project participant IE, the PDD developer NCSF and the customer EN+ were conducted to confirm the selected information and to clarify some issues identified in the document review. Verifier Leonid Yaskin was switched to the interviews through conference call. The interview topics are listed in Table 7. The interviewees are listed in Section 6 References. Following the submission of the DDR Version 1, on-line interactions between BVC and project actors took place to resolve pending issues. The last conference call was held on 20/11/2009.

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Table 7 Interview topics

| Date / Interviewed organization | Interview topics |
|---------------------------------|---|
| 17/09/2009 IE NCSF EN+ | <ul style="list-style-type: none"> ➤ Project history ➤ Project approach ➤ Baseline scenario ➤ Calculation of turbines efficiency ➤ Project management organisation ➤ Turbine retrofit schedule ➤ Capacity replacement issues ➤ Electricity dispatch issues ➤ Investment analysis |

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 summarising Bureau Veritas Certification's findings of the desk document review was submitted to NCSF on 27/10/2009. The findings identified have been 12 Corrective Action Requests. No Clarification Requests were issued.

The amendments made by IE and NCSF to the PDD and reported in PDD Version 6 dated November 2009 satisfactorily addressed the verifiers' responses. As a result, the present Determination Report Version 1 was issued on 21/11/2009 and sent, together with the final PDD Version 6, to BVC Internal Technical Reviewer (ITR) for review.

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

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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 represented a risk to the fulfillment of the determination protocol criteria or the project objectives, a Corrective Action Request has been issued. The Corrective Action Requests are stated in the in Appendix A Determination Protocol.
- iii) where 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 design engineering presents an effective energy efficiency measure, which envisages the replacement of six old degraded-efficiency wheels of Bratsk HPP with the new high-performance ones. For more details please refer to Section 1.3 above.

The new wheels manufactured at JSC «Leningradsky Engineering Metal Works» are state-of-the-art. The project design is unlikely to be substituted by other or more efficient designs within the project period.

Due to efficiency increase in water resources use, additional 692 445 MWh a year will be generated. This carbon-free energy will replace the carbon-intensive electric energy generated by coal fired TPP of Irkutskenergo.

The project is expected to provide the reduction of GHG emissions by 4 009 995 tCO₂e over the crediting period 2010-2012.

The identified areas of concern as to Project Design, PP's response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CAR 01, CAR 02).

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

3.2 Baseline and Additionality

A JI specific approach regarding baseline setting and additionality demonstration and assessment has been developed in accordance with JISC Guidance on criteria for baseline setting and monitoring (Version 02) [3].

The proposed approach to baseline setting applies the following three steps: Step 1. Identification of alternative scenarios; Step 2 Analysis of barriers; Step 3 Analysis of common practice.

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Under Step 1, two alternative scenarios are identified: 1 - Continuation of the current situation; 2 - Proposed project activity without JI registration. Both alternatives are in compliance with all mandatory applicable legal and regulatory requirements.

Under Step 2, the financial barrier in terms of financial return is identified by the finding from the benchmark analysis: project's IRR is significantly lower than the financial benchmark set by IE.

Under Step 3, common practice analysis shows that no projects activities similar to the proposed one were undertaken in the project geographical area as well as elsewhere in terms of the unit scale.

As an outcome, the continuation of business as usual is reasonably identified as the most plausible scenario, thus representing the baseline.

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. This implies that the project cannot be the most plausible baseline scenario that can otherwise occur.

The verifiers observe that the additionality is already demonstrated at the baseline setting where the investment analysis is used to prove the existence of financial barrier. This observation does not challenge the project approach.

The application of the used baseline approach is described in detail in Section B.1, Annex 2 and Annex 8. Its distinguishing features are as follows:

- Project emissions are zero (hydro energy) and leakage is negligibly small. Hence, the baseline emissions equal the emission reduction.
- Baseline emissions are defined as the product of the operational margin emission factor and the extra electricity generation at Bratsk HPP due to the increase in the efficiency of turbines after retrofit.
- The emission factor is estimated ex-ante by Irkutskenergo data for condensing regime of coal fired TPP (presented in Annex 8).
- The extra electric energy generation is estimated as the product of the annual energy production by BHPP and the difference between the average HPP efficiency coefficients for baseline and project conditions.
- Baseline parameters of BHPP are specified in Annex 8 and correspond to averaged parameters for the 5 year period prior to the year 2008.
- The method of calculating the efficiency coefficients is clearly described in Section B.1, Annex 2 and Annex 8. Turbine efficiency coefficients are calculated with taking into account efficiency deterioration with years of old and new wheels due to wear.

The 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).

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The identified area of concern as to Project Duration / Crediting Period, PP's response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CAR 09).

3.3 Monitoring Plan

A JI specific approach regarding monitoring has been developed in accordance with the JISC Guidance on criteria for baseline setting and monitoring (Version 02) [3].

All categories of data to be collected in order to monitor GHG emission reductions from the project (Option 2) are described in required details.

The parameters which are monitored throughout the crediting period include: for each turbine - electricity production, efficiency, operation hours, the number of years from the last repair for each turbine; electricity production by BHPP; upper pool; lower pool. Formulae for calculation of turbine efficiency are embedded in the spreadsheet in Annex 8.

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 are: the operational margin emission factor; averaged historical 2002-2007 data for Bratsk HPP; efficiency coefficient for new wheels; point in time when the existing equipment would need to be replaced in the absence of the project activity.

Operational structure that IE and EN+ will implement to monitor emission reduction is clearly described in the PDD. Monitoring related quality control and quality assurance procedures are outlined subject to checking at the verification phase.

The identified areas of concern as to Monitoring Plan, PP's response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CAR 10, CAR 11).

3.4 Calculation of GHG Emissions

Formulae used for calculation of GHG emissions are presented in PDD Section B.1 and D.1.2.2. Input data for calculations and the calculations per se are presented on the comprehensive spreadsheet included in Annex 8. The verifiers observe the final calculations as accurate. The results are summarised in Section E.

The calculated amount of project emission reduction over the crediting period 2008 - 2012 is 4 009 995 tCO₂e. The annual average emission reduction is 801 999 tCO₂e.

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

3.5 Environmental Impacts

The project does not exert environmental impacts. On the opposite, it leads to reduction of environmental impact in Irkutsk oblast by deloading or replacement of coal power capacities.



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The 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). The issued CAR concerns just the fulfillment of JI reporting standard.

3.6 Comments by Local Stakeholders

No comments from local stakeholders were received.

No areas of concern were identified as to Comments by Local Stakeholders.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

By analogy with the Section E “Verification procedure under the Article 6 Supervisory Committee” of the JI guidelines, Bureau Veritas Certification published the PDD Version 3 on Bureau Veritas Rus site on 15/09/2009 and invited comments within 15/10/2009 by interested parties. No comments were received.

5 DETERMINATION OPINION

Bureau Veritas Certification has been engaged by EN+ to perform a determination of the JI project “Increase in efficiency of water resources use at Bratsk HPP, Irkutsk region, Russian Federation”. 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 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 on the project site with the project participants and PDD developer; iii) the issuance of the determination report and opinion.

The review of the project design documentation, the subsequent follow-up interviews, and the resolution of the Corrective Action 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.

The investment analysis and common practice analysis demonstrate that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the pro-



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ject 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 6 dated November 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 # 843 dated 28/10/2009.

Bureau Veritas Certification Holding SAS
21 November 2009

Leonid Yaskin - Team Leader , Lead Verifier

Vera Skitina - Team Member, Lead Verifier

Bureau Veritas Certification
Holding SAS

