DETERMINATION REPORT

"SREDEN ISKAR CASCADE HPP PORTFOLIO PROJECT" IN BULGARIA

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DETERMINATION REPORT

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Summary:

Det Norske Veritas Certification AS (DNV) has performed a determination of the "Sreden Iskar Cascade HPP Portfolio Project" in Bulgaria 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 modalities and procedures, and in particular the verification procedure under the JI supervisory committee.

The determination consisted of the following three phases: i) a desk review of the project design documents, ii) follow-up interviews with project stakeholders and iii) the resolution of outstanding issues and the issuance of the final determination report and opinion. This determination report summarises the findings of the determination.

In summary, it is DNV's opinion that the project, as described in the project design document, revision 02 of 15 October 2007, meets all relevant UNFCCC requirements for the JI.

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Report title: "Sreden Iskar Cascade HPP Portfolio Project" in Bulgaria		
Work carried out by: Soumik Biswas, Mario Voros, Michael Lehmann		
Work verified by: Einar Telnes		
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Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CEF	Carbon Emission Factor
CL	Clarification request
CM	Combined Margin
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNV	Det Norske Veritas
EBRD	European Bank for Reconstruction and Development
EF	Emission Factor
EIA	Environmental Impact Assessment
ERU(s)	Emission Reduction Unit(s)
GHG	Greenhouse gas(es)
HPP	Hydro Power Plants
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
NEK	National Elektricheska Kompania (National Electricity Company)
NFP	National Focal Points
NGO	Non-governmental Organisation
OM	Operating Margin
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change
GWP	Global Warming Potential

1 INTRODUCTION

The European Bank for Reconstruction and Development (EBRD) has commissioned Det Norske Veritas Certification AS (DNV) to perform a determination of the "Sreden Iskar Cascade HPP Portfolio Project" in Bulgaria. This report summarises the findings of the determination of the project, performed on the basis of UNFCCC criteria for Joint Implementation (JI) projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The determination team consisted of the following personnel:

Mr Michael Lehmann	DNV Norway	Project manager, JI validator & sector expert
Mr Soumik Biswas	DNV India	GHG auditor
Mr Mario Voros	DNV Slovakia	JI validator
Mr Einar Telnes	DNV Norway	Technical reviewer

1.1 Objective

The purpose of the determination is to have an independent third party assessing the project design. In particular, the project's baseline, the monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria for Joint Implementation (JI) projects are validated in order to confirm that the project design as documented is sound and meets the identified criteria.

In the absence of specific verification procedures for JI projects hosted by Bulgaria, the determination was carried out in accordance with the verification procedure under the Article 6 supervisory committee (JI track II) described in the JI modalities and procedures, i.e. the Guidelines for the implementation of Article 6 of the Kyoto Protocol (Decision 16/CP. 7).

Determination is a requirement for JI projects following the verification procedures under the Article 6 supervisory committee and it is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of the emission reduction units (ERUs).

1.2 Scope

The determination scope is defined as an independent and objective review of the Project Design Document (PDD). The information contained in this document is reviewed against the Kyoto Protocol requirements for 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 procedures under the Article 6 supervisory committee, and associated interpretations. DNV has, based on the recommendations in the Validation and Verification Manual /6/, employed a risk-based approach in the determination process, focusing on the identification of significant risks for project implementation and the generation of ERUs.

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

1.3 GHG Project Description

The project involves the installation and commissioning of 9 small run-of-the-river hydro power plants on the river Iskar near the town of Sofia in Bulgaria. The total installed capacity of the project is 25.65 MW. The project is expected to generate 415.5 GWh of electricity over the entire crediting period starting from 1 January 2008 and extending to 31 December 2012 and is likely to reduce an average 74 194 t CO_2 emissions per year by displacing electricity produced by existing and upcoming fossil fuel fired power plants connected to the electrical grid. Construction of the first two HPPs started construction in July 2006 and is expected to be commissioned in January 2008, three HPPs are expected to start construction in July 2009 and and the last four HPPs are expected to start construction in May 2010.

The project involves Bulgaria as the host Party and the Netherlands as the sponsor Party.

2 METHODOLOGY

The determination of the project commenced in August 2006. The determination consisted of the following three phases:

I a desk review of the project design, baseline and monitoring plan

II follow-up interviews with project stakeholders

III the resolution of outstanding issues and the issuance of the final determination report and opinion.

In order to ensure transparency, a determination protocol was customised for the project, according to the Validation and Verification Manual /5/. 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 organises, details and clarifies the requirements a JI project is expected to meet;
- It ensures a transparent determination process where the validator will document how a particular requirement has been validated and the result of the determination.

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

The completed determination protocol for the "Sreden Iskar Cascade HPP Portfolio Project" in Bulgaria is included in Appendix A to this report.

Findings established during the determination can either be seen as a non-fulfilment of determination protocol criteria or where a risk to the fulfilment of project objectives is identified. Corrective Action Requests (CAR) are issued, where:

i) mistakes have been made with a direct influence on project results;

ii) determination protocol requirements have not been met; or

iii) there is a risk that the project would not be accepted as a JI project or that emission reductions will not be verified.

The term Clarification (CL) may be used where additional information is needed to fully clarify an issue.

Determination Protocol Table 1: Mandatory Requirements for Joint Implementation (JI) Project Activities			
Requirement	***Reference***	***Conclusion***	***Cross reference***
The requirements the project must meet.	*Gives reference to COP decision where the requirement is found.*	*This is either acceptable based on evidence provided (**OK**), a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements or a request for **Clarification (CL)** where further clarifications are needed.*	*Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent determination process.*

Determination Protocol Table 2: Requirement 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 shall meet. The checklist is organised in six different 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).*	*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). A request for **Clarification (CL)** is used when the independent entity has identified a need for further clarification. N/A means not applicable.*

Determination Protocol Table 3: Resolution of Corrective Action Requests and Requests for Clarification			
Draft report clarifications and corrective action requests	***Ref. to checklist question in table 2***	***Summary of project owner response***	***Determination conclusion***
If the conclusions from the draft 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 Table 2 where the Corrective Action Request or Clarification Request is explained.*	*The responses given by the project proponent or other project participants during the communications with the independent entity should be summarised in this section.*	*This section should summarise the independent entity's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".*

Figure 1 Determination protocol tables

2.1 Review of Documents

The Project Design Document, Revision 0 dated 08 August 2006, Revision 1 dated 08 November 2006 and revision 02 dated 15 October 2007 /1/ for the "Sreden Iskar Cascade HPP Portfolio Project" in Bulgaria, calculation spreadsheets and additional background documents /2/ - /5/ were assessed.

2.2 Follow-up Interviews

In the period of 7-8 September 2006 DNV performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of MWH S.p.A and Vez Svoghe OOD were interviewed. The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
MWH S.p.A, Italia *Eugenio Ferro, Leader Energy Department,* ***Vez Svoghe OOD, Bulgaria***, *Marco Vivaldelli, Energy Department* *Plamen Dilkov, Director,* *Patrick Pauletto, Project Manager*	➢ Project baseline ➢ Project additionality ➢ Grid calculation ➢ Environmental impacts ➢ Monitoring Plan ➢ Crediting period

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve any outstanding issues which needed to be clarified for DNV's positive conclusion on the project design. The corrective action requests and requests for clarification raised by DNV, presented to the project participants in DNV's draft validation report (rev. 0 of 31 October 2006 and rev. 1 of 8 November 2006) were resolved during communications with EBRD. To guarantee the transparency of the validation process, the concerns raised and responses given are documented in the validation protocol in Appendix A.

Since modifications to the project design were necessary to resolve DNV's concerns, the client decided to revise the PDD and resubmitted revised versions of the PDD (version 01 of 08 November 2006 and version 02 of 15 October 2007). After assessing the revised PDD version 02, DNV issued this final determination report and opinion.

3 DETERMINATION FINDINGS

The findings of the determination are stated in the following sections. The determination criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the determination protocol in Appendix A.

The determination findings relate to the project design as described in the PDD of 15 October 2007.

3.1 Participation requirements

The project participants are the private entity Vez Svoghe OOD of Bulgaria and the European Bank for Reconstruction and Development (EBRD) of the Netherlands. The Parties involved in this project are Bulgaria as the host Party and the Netherlands as the sponsor Party. The Parties involved meet the requirements to participate in the JI. The Focal Point of Bulgaria approved the project and authorised the participation of Vez Svoghe OOD through its Letter of Approval dated 1 August 2007. The Focal Point of the Netherlands approved the project and authorised the participation of EBRD through its Declaration of Approval dated 28 November 2007.

3.2 Project design

The project involves the construction of 9 run-of-the-river hydro power plants on the river Iskar. Kaplan turbines with dual regulation will be installed for power generation. Kaplan turbines are well accepted for hydro power plants all around the world. Hence, the project uses one of the best technologies for hydro power generation. The transmission system will also be developed as per European standards. The project does not involve construction of any dams.

The spatial boundaries of the project are limited to 9 sites along the river Iskar near Sofia, Bulgaria. The project's system boundaries include the hydro power plants and the national electricity grid of Bulgaria.

The first two power plants have started construction in July 2006 and are expected to be commissioned by January 2008. The last four power plants are expected to be commissioned by July 2011. The expected operating lifetime of the project is 30 years. The crediting period of the project starts from 1 January 2008 which is the date of commencement of the first power plant. As for all JI projects the crediting period extends up to 31 December 2012.

3.3 Baseline Determination

The baseline methodology for the project has been selected with reference to the approved CDM methodology ACM0002, version 06. The baseline scenario has been selected as power generation from the existing and upcoming power plants in the grid. The baseline methodology uses the algorithms and formulae prescribed in ACM0002. According to ACM0002, the baseline grid emission factor has been calculated using the combined margin approach. The operating margin has been calculated by the dispatch data analysis method by the National Elektricheska Kompania (NEK) using NEK data for the national grid.

NEK has calculated the grid emission factor on the basis of a simulation package which gives the power sector scenario based on maximum and minimum demands. The project proponent has

selected the emission factor values for the maximum demand since this gives a conservative estimate of the project emissions. However, the actual emission factors will be monitored and calculated *ex-post* in the project scenario during the crediting period.

The baseline has been determined on a project specific basis and takes into account relevant sectoral trends in the power sector in Bulgaria.

The baseline has been determined based on actual data from the year 2000-2004 from the records of the National Dispatching Centre of the power grids. The baseline determination has also established some emission factors for the future years 2005-2012 based on a computer model which takes into account forecast new capacities and rehabilitation projects. However, the grid emission factor will be monitored and calculated *ex-post* from NEK data during the project activity period and the actual values will be used in determining the project's emission reductions.

The selected baseline of power generation with existing and planned capacity additions to the grid is the most likely baseline scenario in the absence of the project.

The additionality of the project has been established based on the *Tool for the demonstration and assessment of additionality* (version 02) developped by the CDM Executive Board.

Step 1: The only alternative available in the absence of the project is the generation of power through the operation of existing and upcoming power plants. This has been identified as the baseline scenario and this is considered justified.

Step 2: This step has not been selected.

Step 3: The additionality of the project is demonstrated through a barrier analysis.

Investment barrier: A list of the major capital investments in Bulgaria clearly indicates that the major investments in Bulgaria have mostly been financed by EBRD. The local banks have provided funding for only the lucrative sectors (mainly telecom). Thus for small HPPs, which is not a very lucrative sector, local funding was not available. It can be concluded from the list of investments that the local banks were reluctant to provide funds to projects where the returns are uncertain. The project proponent thus had to arrange for loans from EBRD where again JI benefits and sale of the ERUs were considered prior to granting the loans. Hence, it can be concluded that the project participants had to face difficulty in arranging for the investment required in the project.

Barrier due to inexperience: The project developers are new to the field of power generation and lacks experience in implementing small hydro power units. The list of small hydro power units in Bulgaria shows that from 1990 the installed capacity of small hydro power units in Bulgaria has increased by ~27 MW only. The project activity itself adds ~25 MW power generation capacity. Hence it can be concluded that installation of SHP is not a common practice in Bulgaria.

Step 4: At present, many of the hydro power plants in Bulgaria have taken up modernisation plans and new hydro power plants are also been set up. However, most of these projects are also looking for JI benefits. NEK has identified over 700 potential sites for small HPPs. However, only a few of these potential sites have been exploited. As observed from the study on small HPPs of NEK titled *"Small Hydro Power plants – Investments for the Future"* the main disadvantages for small hydro power plants have been noted as longer payback periods and

comparatively higher investments per kWh. This prevents the wide implementation for this type of projects.

Step 5: The draft loan agreement with EBRD stipulates that the financing from EBRD will be obtained if part of the ERUs is sold through the bank. This stipulation adequately establishes that the financing from EBRD is available only if the projects obtain the benefits from JI.

From the above discussions, it can be concluded that the project had to face barriers due to investment, lack of experience and common practice. Hence, the project activity is not a business-as-usual scenario and thus additional.

3.4 Monitoring Plan

The monitoring methodology is in accordance with the approved CDM methodology ACM0002 and can hence be considered as good monitoring practice. The following parameters will be monitored:

a. electricity delivered to the grid
b. emission factor of the national grid

There is no need to monitor any parameter outside the project boundary.

The monitoring methodology allows for accurate and transparent calculation of GHG emissions. The grid emission factor will be monitored ex-post from published NEK data as per ACM0002. The electricity generation data will be recorded monthly and the yearly generation data obtained by summation of the monthly data will be archived. All data will be archived for ten years.

Since the project involves generation of power from renewable sources, there are no emissions due to the project activity and hence project emissions have not been monitored. Similarly, leakage calculations are not required by ACM0002 and as such there are no leakages from the project activity. The only source for leakage might have been from the transportation and construction work carried out during construction. However, these emissions are negligible with respect to the emission reductions by the project activity through-out its life cycle.

It was confirmed by the National Focal Point of Bulgaria that the environmental impacts of the project has to be monitored. The project proponent has addressed the monitoring of the environmental impacts of the project. The actual monitoring plan will be firmed up after the implementation of the project

3.5 Calculation of GHG Emissions

All aspects related to direct and indirect GHG emissions have been captured in the GHG emission calculations and presented in a transparent manner. The baseline boundaries are clearly defined and they include the hydro power plants and the national electrical grid to which power is despatched. There are no GHG emissions from the project activity.

There are no leakage effects due to the project activity.

The baseline calculations use the algorithms and formulae prescribed in ACM0002. According to ACM0002 the baseline grid emission factor has been calculated using the combined margin approach. The operating margin has been calculated by the dispatch data analysis method by NEK using NEK data for the National grid.

NEK has calculated the grid emission factor on the basis of a simulation package which gives the power sector scenario based on maximum and minimum demands. The project proponent has selected the emission factor values for the maximum demand for the *ex-ante* emission reduction forecast since this gives a conservative estimate of the project emissions.

The major uncertainty in the baseline estimates lies with the calculation of the grid emission factor. However, since the emission factors will be monitored and calculated ex-post, the risk to the baseline will be eliminated during the project period.

3.6 Environmental Impacts

An environmental impact assessment has been carried out for the project and the environmental impacts of the project have been described adequately. As per the legislation in Bulgaria an EIA is required for the project and the EIA has been approved by the Ministry of Environment and Water of Bulgaria. The project has the necessary water permit and building permit and the EIA of the project has also been approved. Hence, the project is compliant with the environmental legislation of Bulgaria. The project is not likely to create any adverse environmental effects. There are no trans-boundary impacts due to the project activity.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD of 8 November 2006 was made publicly available on the JI website and Parties, stakeholders and observers were through the UNFCCC Secretariat invited to provide comments during a 30 days period from 27 June 2007 - 26 July 2007. No comments were received.

Prior to this, DNV published the PDD of 8 August 2006 on its climate change website at http://www.dnv.com/certification/ClimateChange and invited Parties, stakeholders and observers through the Climate-L mailing list to provide comments on the PDD during a period of 30 days from 12 August 2006 to 11 September 2006. No comments were received.

5 DETERMINATION OPINION

Det Norske Veritas Certification AS (DNV) has performed a determination of the "Sreden Iskar Cascade HPP Portfolio Project" in Bulgaria. The determination was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for JI.

The project participants are the private entity Vez Svoghe OOD of Bulgaria and the European Bank for Reconstruction and Development (EBRD) for the account of the Netherlands. The Parties involved in this project are Bulgaria as the host Party and the Netherlands as the sponsor Party. The Parties involved meet the requirements to participate in the JI. The Focal Point of Bulgaria approved the project and authorised the participation of Vez Svoghe OOD through its Letter of Approval dated 1 August 2007. The Focal Point of the Netherlands approved the project and authorised the participation of EBRD through its Declaration of Approval dated 28 November 2007.

By displacing fossil fuel-based electricity with electricity generated from a renewable source, the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of the investment, lack of experience and common practice 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 the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions.

The baseline methodology for the project has been selected with reference to the approved CDM methodology ACM0002, version 06. The baseline scenario has been selected as power generation from the existing and upcoming power plants in the grid. The baseline methodology uses the algorithms and formulae prescribed in ACM0002. According to ACM0002, the baseline grid emission factor has been estimated using the combined margin approach. The operating margin has been estimated by the dispatch data analysis method by the National Elektricheska Kompania (NEK) using NEK data for the national grid. However, the actual emission factors will be monitored and calculated ex-post in the project scenario during the crediting period.

In summary, it is DNV's opinion that the project, as described in the project design document, revision 02 of 15 October 2007, meets all relevant UNFCCC requirements for the JI.

REFERENCES

*Documents provided by the project proponent that relate directly to the project***:**

/1/ MWH S.p.A.: *Project Design Document for the "Sreden Iskar Cascade HPP Portfolio Project" in Bulgaria*, Rev.0, dated 08 August 2006 and Rev. 1, dated 08 November 2006 and Rev. 02 dated 15 October 2007.

/2/ MWH S.p.A.: *Monitoring Plan for"Sreden Iskar Cascade HPP Portfolio Project" in Bulgaria – Excel Spreadsheets*

/3/ MWH S.p.A.: *Emission reduction calculation - Excel Spreadsheets*

/4/ Petrol Villa Group: *Energy Production Analysis*

/5/ NEK: *Study on HPPs titled "Small Hydro Power Plants – Investment for the Future"*

/6/ Ministry of Environment and Water of Bulgaria: *Letter of Approval dated 1 August 2007.*

/7/ Ministry of Economic Affairs of the Netherlands: *Declaration of Approval dated 28 November 2007.*

Background documents related to the design and/or methodologies employed in the design or other reference documents.

/8/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Validation and Verification Manual*. http://www.vvmanual.info

/9/ CDM Executive Board: *Tool for the demonstration and assessment of additionality*. Version 02 of 28 November 2005.

/10/ CDM Executive Board: *ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"*, version 6 of 19 May 2006.

Persons interviewed during the determination, or persons contributed with other information that are not included in the documents listed above.

/11/ Eugenio Ferro, Leader, Energy Department, MWH S.p.A, Italia

/12/ Marco Vivaldelli, Energy Department, Vez Svoghe OOD, Bulgaria

/13/ Plamen Dilkov, Director, Vez Svoghe OOD, Bulgaria

/14/ Patrick Pauletto, Project Manager, Vez Svoghe OOD, Bulgaria

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APPENDIX A

JI DETERMINATION PROTOCOL

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

Requirement	Reference	Conclusion	Cross Reference / Comment
1. The project shall have the approval of the Parties involved	Kyoto Protocol Article 6.1 (a)	OK ~~CAR 1~~	The Focal Point of Bulgaria approved the project and authorised the participation of Vez Svoghe OOD through its Letter of Approval dated 1 August 2007. The Focal Point of the Netherlands approved the project and authorised the participation of EBRD through its Declaration of Approval dated 28 November 2007.
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 ~~CL 2~~ ~~CL 3~~ ~~CL 4~~	Table 2, Section B.2
3. The sponsor Party shall not aquire emission reduction units if it is not in compliance with its obligations under Articles 5 & 7, i.e. the sponsor Party shall have in place a national system for estimating GHG emissions and a national registry and has submitted annualy its most recent inventory	Kyoto Protocol Article 6.1 (c) Guidelines for the implementation of Art. 6 §21c,d,e,f	OK	The determination has not in detail assessed the Netherlands's compliance with article 5 and 7 of the Kyoto Protocol. However, the Netherlands have in place a national system for estimating GHG emissions and annually reports its national GHG inventory to the UNFCCC.

Requirement	Reference	Conclusion	Cross Reference / Comment
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	The determination has not in detail assessed the Netherlands's domestic actions for meeting commitments under Article 3. However, the Netherlands are undertaking several measures to reduce domestic GHG emissions.
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	Guidelines for the implementation of Art. 6 §20	OK	The JI focal point for Bulgaria is the Ministry of Environment and Water and the JI focal point for Netherlands is the Ministry of Economic Affairs.
6. Parties participating in JI shall be a Party to the Kyoto Protocol	Guidelines for the implementation of Art. 6 §21a/24	OK	Bulgaria ratified the Kyoto Protocol on 15-08-2002 and Netherlands ratified on 31-05-2002.
7. The participating Parties' assigned amount shall have been calculated and recorded	Guidelines for the implementation of Art. 6 §21b/24	OK	The assigned amounts for Bulgaria and Netherlands are 92% each relative to the 1990 levels.
8. The host Party shall have in place a national registry in accordance with Article 5 of the Kyoto Protocol	Guidelines for the implementation of Art. 6 §21d/24	OK	Bulgaria has in place a national system for estimating GHG emissions and annually reports its national GHG inventory to the UNFCCC.

Requirement	Reference	Conclusion	Cross Reference / Comment
9. ERUs shall not be issued as a result of project activities undertaken within the European Community that also lead to a reduction in, or limitation of, emissions from installations covered by Directive 2003/87/EC, unless an equal number of allowances is cancelled from the registry of the Member State of the ERUs' origin.	Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004	OK	To ensure that the project will not claim double benefits from both JI and EU ETS, the project activity will be included in the allowances reserves in the National Allocation Plan of Bulgaria. This has been confirmed through interviews with the National Focal Point of Bulgaria.
10. Project participants shall submit to the independent entity a project design document that contains all information needed for the determination	Guidelines for the implementation of Art. 6 §31	OK	The project design document has been submitted to DNV for the determination.
11. 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	Guidelines for the implementation of Art. 6 §32	OK	The PDD of 8 November 2006 was made publicly available on the JI website and Parties, stakeholders and observers were through the UNFCCC Secretariat invited to provide comments during a 30 days period from 27 June 2007 - 26 July 2007. No comments were received.
12. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures as determined by the host Party shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out	Guidelines for the implementation of Art. 6 §33d	OK	Table 2, Section F.1

Requirement	Reference	Conclusion	Cross Reference / Comment
13. 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	Guidelines for the implementation of Art. 6, Appendix B	OK	Table 2, Section B.2
14. 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	Guidelines for the implementation of Art. 6, Appendix B	OK	Table 2, Section B.2
15. The baseline methodology shall exclude to earn EURs for decreases in activity levels outside the project activity or due to force majeure	Guidelines for the implementation of Art. 6, Appendix B	OK	Table 2, Section B.2
16. The project shall have an appropriate monitoring plan	Guidelines for the implementation of Art. 6 §33c	OK	Table 2, Section D

Table 2 Requirements Checklist

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
A. General Description of Project Activity The project design is assessed.					
A.1. Project Boundaries Project boundaries are the limits and borders defining the GHG emission reduction project.					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	/1/	DR	The project is located on the river Iskar near the city of Sofia in Bulgaria.		OK
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	/1/	DR	Yes, the project's system boundaries include the hydro power generating units and the electrical grid to which it delivers the power.		OK
A.2. Technology to be employed Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.					
A.2.1. Does the project design engineering reflect current good practices?	/1/	DR/I	The project involves the construction of 9 run-of-the-river hydro power plants on the river Iskar. Kaplan turbines with dual regulation will be installed for power generation. Kaplan turbines are well accepted for hydro power plants all around the world. The project engineering can be considered as good practice. The project will not result in construction of any dams.		OK

* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
A.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/	DR	Yes, the project uses one of the best technologies for hydropower generation. The transmission system will also be developed as per European standards.		OK
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	/1/	DR	The project technology is not likely to be substituted by better technologies at least within the crediting period.		OK
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	/1/	DR	The project requires initial training and maintenance efforts to work as presumed during the crediting period.		OK
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/1/	DR	Yes, the project makes provision for meeting training and maintenance needs. All employees will be trained as per the annual training scheme.		OK
A.3. Compliance with host country requirements *The project's contribution to sustainable development is assessed.*					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	/1/	DR/I	Yes, the project is inline with relevant legislations and plans in Bulgaria. This has been confirmed by the National Focal Point of Bulgaria.		OK
A.3.2. Is the project in line with host-country specific JI requirements?	/1/	DR/I	The project idea is inline with the JI requirements of Bulgaria. However, this will be confirmed after the approval from the National Focal Point of Bulgaria has been obtained.	~~CAR 1~~	OK

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
B. Project Baseline The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.					
B.1. Baseline Methodology It is assessed whether the project applies an appropriate baseline methodology.					
B.1.1. Is the discussion and selection of the baseline methodology transparent?	/1/	DR	The baseline methodology for the project has been selected with reference to the approved CDM methodology ACM0002, version 06.		OK
B.1.2. Does the baseline methodology specify data sources and assumptions?	/1/	DR	Yes the baseline methodology specifies data sources and assumptions.		OK
B.1.3. Does the baseline methodology sufficiently describe the underlying rationale for the algorithm/formulae used to determine baseline emissions (e.g. marginal vs. average, etc.)	/1/	DR/I	The baseline methodology uses the algorithms and formulae prescribed in ACM0002. According to ACM0002 the baseline grid emission factor has been calculated using the combined margin approach. The operating margin has been calculated by the dispatch data analysis method by the National Elektricheska Kompania (NEK) using NEK data for the National grid. However, the project proponent is requested to clarify the OM and BM values used in the calculation and the method used to calculate the BM. NEK has calculated the grid emission factor on the basis of a simulation package which gives the power sector scenario based on maximum and minimum demands. The	~~CL 1~~	OK

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			project proponent has selected the emission factor values for the maximum demand since this gives a conservative estimate of the project emissions. However, the actual emission factors will be monitored and calculated in the project scenario during the crediting period.		
B.1.4. Does the baseline methodology specify types of variables used (e.g. fuels used, fuel consumption rates, etc)?	/1/	DR	Yes.		OK
B.1.5. Does the baseline methodology specify the spatial level of data (local, regional, national)?	/1/	DR/I	Yes, the baseline methodology specifies the spatial level of data. The grid emission factor has based on the national grid data.		OK
B.2. Baseline Determination The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	/1/	DR	The baseline scenario has been selected as power generation from the existing and upcoming power plants in the grid. This is in line with the approved CDM methodology ACM0002.		OK
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/1/	DR/I	Yes, the baseline has been determined using conservative estimates. The grid emission factor corresponding to the maximum demand has been selected.		OK
B.2.3. Has the baseline been established on a project-specific basis?	/1/	DR/I	The baseline has been determined on a project specific basis.		OK
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral	/1/	DR	The baseline scenario has taken into account relevant sectoral trends in the		OK

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
policies, macro-economic trends and political aspirations?			power sector in Bulgaria.		
B.2.5. Is the baseline determination compatible with the available data?	/1/	DR	The baseline has been determined based on actual data from the year 2000-2004 from the records of the National Dispatching Centre of the power grids. The baseline determination has also established some emission factors for the future years 2005-2012 based on a computer model which takes into account forecast new capacities and rehabilitation projects. Although this is not as per the methodology ACM0002, since the grid emission factor will be monitored and calculated ex-post from NEK data this will be taken care of during the project activity period and the actual values will be used in estimating the emission reductions.		OK
B.2.6. Does the selected baseline represent a likely scenario in the absence of the project?	/1/	DR	The selected baseline of power generation with existing and planned capacity additions to the grid is the most likely baseline scenario in the absence of the project.		OK
B.2.7. Is it demonstrated that the project activity itself is not a likely baseline scenario (e.g. through (a) a flow-chart or series of questions that lead to a narrowing of potential baseline options, (b) a qualitative or quantitative assessment of different potential options and an indication of why the non-project option is more likely, (c) a qualitative or quantitative assessment of one or more barriers facing the proposed project	/1/	DR/I	The additionality of the project has been established with reference to the additionality tool. The project proponent is requested to provide the additionality discussion in section B.2 of the PDD. Step 1: The only alternative available in the absence of the project is the generation of power through the operation of existing and upcoming power plants.	~~CAR 2~~ ~~CL 2~~ ~~CL 3~~ ~~CL 4~~ ~~CL 5~~	OK

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
activity or (d) an indication that the project type is not common practice in the proposed area of implementation, and not required by a Party's legislation/regulations)?			This has been identified as the baseline scenario and this is considered justified. Step 2: This step has not been selected. Step 3: The additionality of the project is demonstrated through a barrier analysis. Investment barrier: The project proponent is requested to provide evidence of the investment made under the project. It has been argued that project developers do not have sufficient access to finance and commercial loans are inaccessible due to high interest rates and short payback times. Information is requested about the interest rates of the banks and the stipulated payback periods. The project proponent is requested to provide evidence that this project had to face problems in acquiring the finance for the project. Information is also requested on the payback period of the project itself without considering the JI benefits. Barrier due to inexperience: The project developers are new to the field of power generation and lacks experience in implementing small hydro power units. Information is requested on the number and installed capacity of small hydro power projects in Bulgaria. Step 4: At present, many of the hydro power plants in Bulgaria have taken up modernisation plans and new hydro power plants are also been set up. However,		

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			most of these projects are also looking for JI benefits. NEK has identified over 700 potential sites for small HPPs. However, only a few of these potential sites have been exploited due to longer period of returns and large investments. The project proponent is requested to provide information about the period of return for this type of project. Step 5: The project participant is requested to provide the loan agreement with EBRD to confirm the stipulation that the loan has been provided after taking JI into account.		
B.2.8. Have the major risks to the baseline been identified?	/1/	DR/I	The major risk to the baseline lies with the calculation of the grid emission factor. However, since the emission factors will be monitored and calculated ex-post, the risk to the baseline will be eliminated during the project period.		OK
B.2.9. Is all literature and sources clearly referenced?	/1/	DR	Yes.		OK
C. Duration of the Project/ Crediting Period It is assessed whether the temporary boundaries of the project are clearly defined.					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	/1/	DR	The project's starting date has been clearly identified as the start date of construction for the first two hydro power plants. The first two unit starts construction in July 2006 and the last unit will start construction in May 2010. The lifetime of the project is 30 years. This lifetime is		OK

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			deemed justified for a hydro power plant.		
C.1.2. Is the project's crediting time clearly defined?	/1/	DR/I	The crediting period of the project has been identified as 5 years. However, the start date of the crediting period is 01-07-2008 and end date is 31-12-2012. This gives a crediting period of 4 years and 6 months. The project proponent is requested to state the crediting period correctly.	~~CAR 3~~	OK
D. Monitoring Plan The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.					
D.1. Monitoring Methodology It is assessed whether the project applies an appropriate baseline methodology.					
D.1.1. Does the monitoring methodology reflect good monitoring and reporting practices?	/1/	DR	The monitoring methodology is in accordance with the approved CDM methodology ACM0002 and hence can be considered as good monitoring practice.		OK
D.1.2. Is the selected monitoring methodology supported by the monitored and recorded data?	/1/	DR	Yes, the monitoring methodology is supported by monitored and recorded data.		OK
D.1.3. Are the monitoring provisions in the monitoring methodology consistent with the project boundaries in the baseline study?	/1/	DR	Yes.		OK
D.1.4.Have any needs for monitoring outside the project boundaries been evaluated and if so, included as applicable?	/1/	DR	There is no need to monitor any parameter outside the project boundary.		OK

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
D.1.5. Does the monitoring methodology allow for conservative, transparent, accurate and complete calculation of the ex post GHG emissions?	/1/	DR/I	The monitoring methodology allows for accurate and transparent calculation of GHG emissions. The grid emission factor will be monitored ex-post from published NEK data as per ACM0002.		OK
D.1.6. Is the monitoring methodology clear and user friendly?	/1/	DR	Yes, the monitoring methodology is transparent.		OK
D.1.7. Does the methodology mitigate possible monitoring errors or uncertainties addressed?	/1/	DR	Yes.		OK
D.2. Monitoring of Project Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/	DR	Since the project involves generation of power from renewable sources, there are no emissions due to the project activity.		OK
D.3. Monitoring of Leakage It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/	DR	Leakage calculations are not required by ACM0002 and as such there are no leakages from the project activity. The only source for leakage might have been from the transportation and construction work carried out during construction. However, these emissions are negligible with respect to the emission reductions by the project activity through-out its life cycle.		OK

* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
D.4. Monitoring of Baseline Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining the baseline emissions during the crediting period?	/1/	DR/I	The monitoring plan provides for the collection of the power generation data by the project activity as well as the grid emission factor from NEK data. However, the PDD mentions that the electricity generation data will be recorded monthly but the monitoring plans in excel sheet archives the yearly data. The project proponent is requested to maintain parity between the PDD and the MP. The monitoring plan does not mention the data archiving period. The project proponent is requested to modify accordingly. The project proponent is also requested to explicitly mention in the PDD the parameters that will be monitored to calculate the grid emission factor.	~~CAR 4~~	OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR	CO_2 is the only baseline GHG indicator that needs to be monitored and it has been accounted for.		OK
D.4.3. Will it be possible to monitor the specified baseline indicators?	/1/	DR	Yes.		OK

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
D.5. Monitoring of Environmental Impacts It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.					
D.5.1. Does the monitoring plan provide for the collection and archiving of relevant data on environmental impacts?	/1/	DR/I	The monitoring plan does not provide for the collection of data on environmental impacts. It was confirmed by the National Focal Point of Bulgaria that the environmental impacts of the project has to be monitored. The project proponent is requested to incorporate the necessary monitoring parameters in the monitoring plan.	~~CAR 5~~	OK
D.5.2. Will it be possible to monitor the specified environmental impact indicators?	/1/	DR/I	Refer to D.5.1.	~~CAR 5~~	OK
D.6. Project Management Planning It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
D.6.1. Is the authority and responsibility of project management clearly described?	/1/	DR	Yes.		OK
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/1/	DR	Yes.		OK
D.6.3. Are procedures identified for training of monitoring personnel?	/1/	DR	Yes.		OK
D.6.4. Are procedures identified for emergency preparedness where emergencies can result in unintended emissions?	/1/	DR	Yes.		OK

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Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
D.6.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR	Yes.		OK
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR	Yes.		OK
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR	Yes.		OK
D.6.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	/1/	DR	Yes.		OK
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR	Yes.		OK
D.6.10. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	/1/	DR	Yes.		OK
D.6.11. Are procedures identified for project performance reviews?	/1/	DR	Yes.		OK
D.6.12. Are procedures identified for corrective actions?	/1/	DR	Yes.		OK

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
E. Calculation of GHG Emissions by Source It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.					
E.1. Predicted Project GHG Emissions The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	/1/	DR	There are no GHG emissions from the project activity.		OK
E.2. Leakage Effect Emissions It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	/1/	DR	There are no leakage effects due to the project activity.		OK
E.3. Baseline Emissions The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	/1/	DR/I	The baseline methodology uses the algorithms and formulae prescribed in ACM0002. According to ACM0002 the baseline grid emission factor has been calculated using the combined margin approach. The operating margin has been	~~CL 1~~	OK

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			calculated by the dispatch data analysis method by the National Elektricheska Kompania (NEK) using NEK data for the National grid. However, the project proponent is requested to clarify the OM and BM values used in the calculation and the method used to calculate the BM.		
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	/1/	DR/I	Yes, the baseline boundaries are clearly defined and they include the hydro power plants and the national electrical grid to which power is despatched.		OK
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	/1/	DR	Yes, the GHG calculations are documented in a complete and transparent manner.		OK
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	/1/	DR/I	NEK has calculated the grid emission factor on the basis of a simulation package which gives the power sector scenario based on maximum and minimum demands. The project proponent has selected the emission factor values for the maximum demand since this gives a conservative estimate of the project emissions.		OK
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	/1/	DR/I	The major uncertainty in the baseline estimates lies with the calculation of the grid emission factor. However, since the emission factors will be monitored and calculated ex-post, the risk to the baseline will be eliminated during the project period.		OK
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative	/1/	DR/I	Yes.		OK

Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
assumptions?					
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	/1/	DR/I	Yes, the project will result in reduction of 74 194 t CO_2 emissions per annum.		OK
F. Environmental Impacts Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/	DR/I	Yes, an environmental impact assessment has been carried out for the project and the environmental impacts of the project have been described adequately		OK
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/	DR	Yes, an EIA is required for the project and the EIA has been approved by the Ministry of Environment and Water of Bulgaria.		OK
F.1.3. Will the project create any adverse environmental effects?	/1/	DR/I	The project is not likely to create any adverse environmental effects.		OK
F.1.4. Are transboundary environmental impacts considered in the analysis?	/1/	DR/I	There are no trans-boundary impacts due to the project activity.		OK
F.1.5. Have identified environmental impacts been addressed in the project design?	/1/	DR/I	The project proponent is requested to mention in the PDD what actions have been planned to prevent landslides in some of the sites.	~~CL 6~~	OK
F.1.6. Does the project comply with environmental legislation in the host country?	/1/	DR/I	The project has the necessary water permit and building permit and the EIA of the project has also been approved.		OK

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Checklist question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			Hence, the project is compliant with the environmental legislation of Bulgaria.		

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests	Ref. to Table 2	Summary of project participants' response	Final determination conclusion
OK CAR ~~1~~ The approval from the focal point of Netherlands and Bulgaria is to be submitted to the validator.	Table I	The project is in line with the JI requirement of Bulgaria, it has been approved by the National focal point of Netherlands and Bulgaria and it will be provided to the validator at the end of the validation process.	**OK.** The Focal Point of Bulgaria approved the project and authorised the participation of Vez Svoghe OOD through its Letter of Approval dated 1 August 2007. The Focal Point of the Netherlands approved the project and authorised the participation of EBRD through its Declaration of Approval dated 28 November 2007.
CAR 2 The project proponent is requested to provide the additionality discussion in section B.2 of the PDD.	Table II, B.2.7	The additionality discussion was provided in the section B.2 of the PDD-Rev.1 as required (it previously was discussed in section A.4.3)	**OK.** The additionality discussions have been provided in section B.2 as per the template.
CAR 3 The crediting period of the project has been identified as 5 years. However, the start date of the crediting period is 01-07-2008 and end date is 31-12-2012. This gives a crediting period of 4 years and 6 months. The project proponent is requested to state the crediting period correctly.	Table II, C.1.2	The operational date for project Phase I and II (HPP 1-5) has been revised and the calculation of the project's emission reductions in Section A.4.3.1., C.1., C.3., E.4. E.5. and E.6 have been revised accordingly.	**OK.** The PDD was revised to indicate that the first two power plants are expected to be commissioned by January 2008. The crediting period of the project thus starts from 1 January 2008 and the emission reduction calculations have been corrected accordingly.
CAR 4 The PDD mentions that the electricity generation data will be recorded monthly but the monitoring plans in excel sheet archives the yearly data. The project proponent is requested to maintain parity between the PDD and the MP. The	Table II, D.4.1	The workbook of MP in excel sheet was modified in order to be consistent with the PDD. It is envisaged that the annual values will be the sum of each monthly data. In section D.3 of the PDD-Rev.1 it was inserted that "record of project electricity generation and of emission factor will be	**OK.** The monitoring plan has been modified to maintain parity with the PDD. The electricity generation data will be monitored monthly and the data of project monitoring will be archived for 10 years. The grid emission factor will be

Draft report clarifications and corrective action requests	Ref. to Table 2	Summary of project participants' response	Final determination conclusion
monitoring plan does not mention the data archiving period. The project proponent is requested to modify accordingly. The project proponent is also requested to explicitly mention in the PDD the parameters that will be monitored to calculate the grid emission factor.		archived for a period of at least ten years" The grid emission factor is based on the document "Study on standard multi project baseline for joint implementation projects in the Bulgaria power sector" performed by NEK and published on May 5th, 2005 and its following updating. All historical data are taken from the records of the National Dispatching Centre of the Power Grid and from the annual reports of the electricity producers. Vez Svoghe OOD will not monitor all parameters necessary to calculate the national grid emission factor, which relates to several power plants, but the grid emission factor, annually published by NEK.	monitored from published data of NEK. NEK collects the data required for the emission factor calculation from the national despatch centre and calculates the emission factor based on the methods specified in ACM0002. This is hence acceptable.
CAR 5 The monitoring plan does not provide for the collection of data on environmental impacts. It was confirmed by the National Focal Point of Bulgaria that the environmental impacts of the project has to be monitored. The project proponent is requested to incorporate the necessary monitoring parameters in the monitoring plan.	Table II, D.5.1	As reported in the draft version of the document "*Energy utilization of the river Iskar's water via the construction of nine mini water power stations (MWPS) along the river bed on the territory of Svoghe and Mezdra municipalities, Bulgaria*" the environmental monitoring programme for the Project will be developed to address the conditions set out by the Bulgarian Ministry of Environment and Water, Environmental Impact Decision № 1 - 1/2005. Monitoring will be focused on three locations along the Iskar Gorge: the Iskar River at Prokopanik and Gabrovnitsa and the Iskretska River near Svoghe. The data will be collected quarterly	**OK.** The revised PDD addresses the monitoring of the environmental impacts of the project. The actual monitoring plan will be firmed up after the implementation of the project.

Draft report clarifications and corrective action requests	Ref. to Table 2	Summary of project participants' response	Final determination conclusion
		throughout the development of the Project, and will focus on water and sediment quality as well as recording data on fish life and groundwater. This monitoring will be used to assess the impacts on the river, both from the surrounding communities and from the development of the project. The results of the monitoring programme will be used to effect continuous improvement as the MPWS scheme is implemented. The mentioned document is going to be finalized by Vez Svoghe OOD and EBRD and it will be made available to the public by EBRD. This paragraph have been included in the section D.1.5 of the PDD-Rev.1	
CL 1 The project proponent is requested to clarify the OM and BM values used in the calculation and the method used to calculate the BM.	Table II, B.1.3	All OM and BM values used and the procedures for calculating the BM values were taken from the document "Study on standard multi project baseline for joint implementation projects in the Bulgaria power sector" performed by NEK and published on May 5th, 2005. The study was developed referring to the formulae and algorithms used in the ACM0002 Baseline Methodology. During the meeting with validator in Sofia this point was deeply analyzed and clarified and a worksheet with all data and calculations was provided to the validator.	**OK.** Since the project proponent plans to monitor the emission factor data directly from the published data of NEK, separate calculation of OM and BM would not be necessary. NEK calculates the emission factor based on the equations provided in ACM0002. This is hence acceptable.
CL 2 The project proponent is requested to	Table II, B.2.7	More information to give evidence project developers do not have sufficient access to	While it is acceptable that the project proponent need not produce the

Draft report clarifications and corrective action requests	Ref. to Table 2	Summary of project participants' response	Final determination conclusion
provide evidence of the investment made under the project. It has been argued that project developers do not have sufficient access to finance and commercial loans are inaccessible due to high interest rates and short payback times. Information is requested about the interest rates of the banks and the stipulated payback periods. The project proponent is requested to provide evidence that this project had to face problems in acquiring the finance for the project. Information is also requested on the payback period of the project itself without considering the JI benefits.		financial and commercial loans is provided in the section B.2 of the PDD. Project additionality is given by the presence of technical and investment barriers as clearly described in the PDD-Rev.1. According to the document "*CDM PDD Guidebook: navigating the pitfalls*" jointly published by UNEP and DNV, the lack of availability of funding in absence of EBRD finance is element of additionality independently of IRR and payback of the project without considering JI benefits. Since a "barrier analysis" and not a "financial analysis" (according with the document: "*Tools for demonstration and assessment of additionality*"), was used for demonstrating the additionality of this project, further information about payback period and interest rates are not relevant to prove project additionality. Furthermore it must be taken into account that interest rates are strictly connected to the type and size of projects for which loans are required. Projects requiring lower investment and shorter tenures can access to lower interest rates. On the other side projects, like SHPP projects, requiring significant investment and having longer payback periods are unlikely to obtain lower interest rates. Furthermore local Banks were not able to bear to issue loans to cover the full amount of investment required for	payback period for the project, the project proponent has not provided any documentary evidence to the validator to substantiate the claims that investment was not available locally and the project proponent had difficulty in acquiring the funds.

Draft report clarifications and corrective action requests	Ref. to Table 2	Summary of project participants' response	Final determination conclusion
		this project.	
CL 2 (Continued) Documentary evidence to substantiate the claims that investment was not available locally and the project proponent had difficulty in acquiring the funds is requested.	Table II, B.2.7	A comprehensive list of the major capital investments have been provided in the PDD. The list clearly indicates that the major investments in Bulgaria have mostly been financed by EBRD. The local banks have provided funding for only the lucrative sectors (mainly telecom). Thus for small HPPs, which is not a very lucrative sector, local funding is not available.	**OK.** It can be concluded from the list of investments in the PDD that the local banks are reluctant to provide funds to projects where the returns are uncertain. The project proponent thus had to arrange for loans from EBRD where again JI benefits and sale of the ERUs were considered prior to granting the loans.
CL 3 Information is requested on the number and installed capacity of small hydro power projects in Bulgaria.	Table II, B.2.7	The main statistics regarding SHPP number, installed capacity and electricity generation in Bulgaria were included in the section B.2 table-B.4 and figure-B.5 of the PDD-Rev.1.	**OK.** The list of small hydro power units in Bulgaria have been provided in the PDD. The list shows that from 1990 the installed capacity of small hydro power units in Bulgaria has increased by ~27 MW only. The project activity itself adds ~25 MW power generation capacity. Hence, it can be concluded that installation of SHP is not a common practice in Bulgaria.
CL 4 At present, many of the hydro power plants in Bulgaria have taken up modernisation plans and new hydro power plants are also been set up. However, most of these projects are also looking for JI benefits. NEK has identified over 700 potential sites for small HPPs. However, only a few of these potential sites have been exploited due to longer period of returns and large investments. The project proponent is requested to provide information about the	Table II, B.2.7	General comments related to the typical period of returns for SHPP were included in the PDD-Rev.1. Specific information about the period of return of new SHPP under development are confidential information in possession project developers and are not publicly available.	**OK.** As observed from the study on small HPPs of NEK titled *"Small Hydro Power plants – Investments for the Future"* the main disadvantages for small hydro power plants have been noted as longer payback periods and comparatively higher investments per kWh. This prevents the wide implementation for this type of projects.

Draft report clarifications and corrective action requests	Ref. to Table 2	Summary of project participants' response	Final determination conclusion
period of return for this type of project.			
CL 5 The project participant is requested to provide the loan agreement with EBRD to confirm the stipulation that the loan has been provided after taking JI into account.	Table II, B.2.7	Loan agreement has not been signed yet and can therefore not be send to DNV.	**OK.** The draft loan agreement with EBRD stipulates that the financing from EBRD will be obtained if part of the ERUs is sold through the bank. This stipulation adequately establishes that the financing from EBRD is available only if the projects obtain the benefits from JI.
CL 6 The project proponent is requested to mention in the PDD what actions have been planned to prevent landslides in some of the sites.	Table II, F.1.5	Action to be planned to prevent landslides in some of the site have been provided in the section F.1 of the PDD-Rev.1.	**OK.** The measures indicated in the PDD are deemed adequate to prevent or at least reduce the risk of potential landslides.

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