VALIDATION REPORT

"MARTINUV ESPIGÃO HYDROELECTRIC PROJECT" IN BRAZIL

REPORT NO. 2006-1312

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DET NORSKE VERITAS

VALIDATION REPORT

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Approved by: Michael Lehmann Technical Director	Organisational unit: DNV Certification, International Climate Change Services
Client: Incomex - Indústria, Comércio e Exportação Ltda., Maurício Martinuv and EcoSecurities Group PLC.	Client ref.: Mr. Antonio Gomes - Incomex

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Summary:

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Martinuv Espigão Hydroelectric Project" in Brazil on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, the simplified modalities and procedures for small-scale CDM project activities and the subsequent decisions by the CDM Executive Board.

The validation 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 validation report and opinion.

In summary, it is DNV's opinion that the "Martinuv Espigão Hydroelectric Project", as described in the revised PDD of 22 January 2007, meets all relevant UNFCCC requirements for the CDM, and all relevant host country criteria and correctly applies the simplified baseline and monitoring methodology AMS-I.D (Version 10) for small-scale CDM project activities. Hence, DNV will request the registration of the "Martinuv Espigão Hydroelectric Project" as a CDM project activity.

Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of the DNA of Brazil and the United Kingdom, including the confirmation by the DNA of Brazil that the project assists in achieving sustainable development.

Report No.: 2006-1312	Subject Group: Environment	
Report title: "Martinuv Espigão Hydroelectric Project" in Brazil.		
Work carried out by: Vicente San Valero, Raphael de Souza, Mário Epstein, Michael Lehmann		
Work verified by: Susanne Haefeli-Hestvik		
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Abbreviations

ANEEL	Agência Nacional de Energia Elétrica (Brazilian National Electricity Agency)
BFCA	Brazilian Fuel Consumption Account
BM	Build margin
BNDES	Brazilian Bank for Development
CAR	Corrective Action Request
CCC	Conta de Consumo de Combustível (Fuel Consumption Account)
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CERON	Centrais Elétricas de Rondônia S.A. (Rondônia State Electricity Company)
CL	Clarification request
CM	Combined Margin
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
ELETROBRÁS	Centrais Elétricas Brasileiras S/A (Brazilian Electrical Central)
GTON	Grupo Técnico Operacional da Região Norte (North Region Technical Operational Group)
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
NGO	Non-governmental Organisation
ODA	Official Development Assistance
ONS	Brazilian National Electric System Operator
OM	Operation Margin
PDD	Project Design Document
SEDAM	Secretaria de Estado do Desenvolvimento Ambiental (Rondônia State Environmental Agency)
UNFCCC	United Nations Framework Convention on Climate Change

1 INTRODUCTION

Incomex - Indústria, Comércio e Exportação Ltda., Maurício Martinuv and EcoSecurities Group PLC have commissioned Det Norske Veritas Certification Ltd. (DNV) to perform a validation of the "Martinuv Espigão Hydroelectric Project", located at Pimenta Bueno River, Vilhena municipality (Martinuv) and Preto River, Espigão D'Oeste municipality (Espigão), Rondônia State, Brazil.

This validation report summarises the findings of the validation of the project, performed on the basis of UNFCCC and host Party criteria for CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation team consisted of the following personnel:

Mr. Vicente San Valero	DNV Rio de Janeiro	Team Leader, CDM validator
Mr. Mario Epstein	DNV Porto Alegre	GHG auditor
Mr. Raphael de Souza	DNV Rio de Janeiro	GHG auditor
Mr. Michael Lehmann	DNV Oslo	Energy sector expert
Mrs. Susanne Haefeli-Hestvik	DNV Oslo	Technical reviewer

1.1 Validation Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, the simplified modalities and procedures for small-scale CDM project activities and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology AMS-I.D (Version 10). The validation team has, based on the recommendations in the Validation and Verification Manual /15/ employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for *clarifications* and *corrective actions requests* may provide input for improvement of the project design

1.3 "Martinuv Espigão Hydroelectric Project"

The project consisted of a bundle of two small run-of-river hydroelectric power plants:

- Martinuv, located at Vilhena municipality, at the Pimenta Bueno River in Rondônia State with an installed capacity of 0.92 MW in phase 1 and 1.48 MW in phase 2, adding a total of 2.4 MW and starting operations in 2006;
- Espigão, located at Espigão D'Oeste municipality at the Preto River in Rondônia State, with an installed capacity of 0.90 MW in phase 1 and 0.60 MW in phase 2, adding a total of 1.5 MW and starting operations in 2007.

The plants are connected to the Rondônia-Acre isolated electricity system, located in Rondônia State in the North Region of Brazil. Emission reductions are claimed from displacing grid electricity with electricity generated by these two small hydroelectric power plants and supplied to the grid. The forecasted amount of GHG emission reductions from the project is projected to be 179 634 tonnes CO_2 equivalents (tCO_2e) during the 10-year crediting period, resulting in forecasted average annual emission reductions of 17 963 tCO_2e.

2 METHODOLOGY

The validation consisted of the following three phases:

I a desk review of the project design documents;

II follow-up interviews with project stakeholders;

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

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual /15/. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

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

The completed validation protocol for the "Martinuv Espigão Hydroelectric Project" is enclosed in Appendix A to this report.

Findings established during the validation can be seen as a non-fulfilment of validation protocol criteria or where a risk to the fulfilment of project objectives is identified. *Corrective action requests* (CARs) are issued, where:

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

ii) Validation protocol requirements have not been met; or

iii) There is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

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

Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities			
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)** 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 Validation process.*

Validation 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 should meet. The checklist is organised in seven 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). 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).A request for **Clarification (CL)** is used when the validation team has identified a need for further clarification.*

Validation Protocol Table 3: Resolution of Corrective Action Requests and Requests for Clarification			
Draft report corrective action requests and requests for clarifications	***Ref. to Table 2***	***Summary of project participants' response***	***Final conclusion***
If the conclusions from the draft Validation 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 participants during the communications with the validation team should be summarised in this section.*	*This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".*

Figure 1 Validation protocol tables

2.1 Review of Documents

The Project Design Document (version 1 of 20 June 2006) /1/ and the subsequent version 02 dated 03 July 2006 /2/, version 03 dated 31 August 2006 /3/, version 04 dated 13 September 2006 /4/, version 05 dated 28 November 2006 /5/ and final version 06 dated 22 January 2007 /6/ submitted by Incomex - Indústria, Comércio e Exportação Ltda., Maurício Martinuv and EcoSecurities Group PLC (EcoSecurities) were assessed by DNV.

In addition, a spreadsheet for the calculations of the operating and build margin emission factor for the Rondônia-Acre grid was assessed /7/.

Other documents, such as the Environmental Impact Assessment, the Environmental Licences and licence requirements as well as the letters sent to local stakeholders, were reviewed during the follow-up interviews in order to ensure the accuracy of the provided information.

2.2 Follow-up Interviews

DNV contacted the project stakeholders to confirm selected information and to resolve issues identified in the document review. The interviews took place between 28 and 31 July 2006 and the main topics involved were:

- Environmental licenses and legal compliance;
- Local stakeholder consultation process;
- Additionality of the project;
- Baseline emission calculations;
- Emission factor calculation.

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 initial validation of the project identified 3 (three) *corrective action requests* and 14 (fourteen) requests for *clarification.* The project participant's response to DNV's initial findings, which included the submission of the final PDD dated 22 January 2007, addressed the *corrective action requests* and requests for *clarifications* to DNV's satisfaction.

To guarantee the transparency of the validation process, the concerns raised are summarised in chapter 3 below and documented in more detail in the validation protocol in Appendix A.

2.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a technical review before being submitted to the project participants. The final validation report underwent another technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3 VALIDATION FINDINGS

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

The final validation findings relate to the project design as documented and described in the PDD of 22 January 2007.

3.1 Participation Requirements

The project participants are Incomex - Indústria, Comércio e Exportação Ltda., Maurício Martinuv and EcoSecurities Group PLC. The host Party Brazil and the United Kingdom, as Annex I Party, meet all relevant participation requirements.

Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of the DNA of Brazil and the United Kingdom, including the confirmation by the DNA of Brazil that the project assists in achieving sustainable development

3.2 Project Design

The project consists of two run-of-river small hydropower plants with Francis turbines with an overall generation capacity of 3.9 MW (2.4 MW at Martinuv and 1.5 MW at Espigão). According to the Brazilian National Electricity Agency, ANEEL, the two hydropower plants are considered small hydropower plants as the area of the reservoir(s) is less than 3 km^2. The plants are connected to the Rondônia-Acre electricity system located in Rondônia State in the North Region of Brazil.

The project is a renewable energy project activity with an output capacity (3.9 MW) of less than 15 MW and is thus eligible as type I.D small-scale CDM project activity "Grid *connected renewable electricity generation"* / Type I – *Renewable Energy Projects*) as outlined in the *"Appendix B of the "Simplified modalities and procedures for small-scale CDM project activities" - Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activities* and Decision 17/CP.7.

The project design engineering reflects current good practice.

A 10-year crediting period is selected, with a forecasted starting date of 01 June 2007. The starting date of the project activity is 01 June 2006 with an expected operational lifetime of 30 years.

No public funding is involved, and the validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards Brazil.

3.3 Baseline Determination

The project correctly applies the approved baseline methodology AMS-I.D (Version 10) - "Grid *connected renewable electricity generation"* for Type I – *Renewable Energy Projects*. /16/. The project fulfils the conditions under which AMS-I.D is applicable.

The baseline emission coefficient is determined as the combined margin of the approximate operating margin (OM) and the build margin (BM) of the Rondônia-Acre grid electricity system. Electricity generation data by the units connected to the Rondônia-Acre isolated grid was provided by Eletrobras-GTON Isolated Systems Operational Plan /9/ /10/. In addition data on the fuel consumption by these power plants provided by Eletrobras/CCC and the IPCC carbon emission factors for specific fuels were applied to calculate plant specific emission coefficients.

3.4 Additionality

The additionality of the project is demonstrated through an analysis of the following barriers: (a) investment barriers, (b) technological barriers, (c) barriers due to prevailing practice for the two scenarios: i) continuation of current activities (produce energy by thermal sources) and ii) construction of new renewable energy plants.

While the continuation of current activities does not face any barriers, the construction of new renewable energy plants faces an investment barrier and a barrier due to prevailing practice. DNV's assessment of the presented investment barriers and barriers due to prevailing practice is as follows:

(a) Investment barriers: The project faces an investment barrier due to the lack of long-term financing available for medium investors and lack of interest from energy concessionaires. Although the Brazilian Fuel Consumption Account - BFCA (law no. 9648 of 27 May 1998) subsides new generation with 50% to 75% and the plants considered for the project are affected by this regulation, DNV was able to confirm that the project remains to face financial/economic barriers. Although, Espigão and Martinuv will receive subsidies from CCC Subrogation to support the equipment purchasing, this will only occur in the second phase because both plants are under 1MW in the first phase.

(b) Technical/technological barriers: There are no significant technical/technological barriers. All the technologies involved in both scenarios are available in the market, and have been used effectively in Brazil.

(c) Prevailing business practice barriers: From 2001 until 2005, thermal generation inside the isolated system has only increased. It is clearly demonstrated that the prevailing practice in terms of energy generation in Rondônia is predominantly thermal and consequently, the trend in that region is the construction of units using fossil fuels, instead of hydro units. Recently the amount of energy generated by thermal plants has increased, but the numbers of thermal power plant has decreased. On the other hand the number of hydropower plants and the amount of energy generated by hydropower plants has increased. However, the number of thermal plants is still much bigger than the number of hydropower plants and thermal power plants can be considered the prevailing practise.

The barrier analysis demonstrates that the most plausible scenario is the continuation of current practices (continuation of use of electricity from isolated systems fuelled by thermal energy). Therefore, the project scenario is not a likely baseline scenario and the baseline scenario is that electricity delivered to the grid by the project would have otherwise been generated by the operation of power plants from the Rondônia-Acre isolated system and by the addition of new generation sources, as reflected in the average of the "approximate operating margin" and the "build margin".

3.5 Monitoring Plan

The project applies the approved monitoring methodology AMS-I.D (Version 10) - "Grid *connected renewable electricity generation"* for Type I – *Renewable Energy Projects*, according to the *"Appendix B of the "Simplified modalities and procedures for small-scale CDM project activities" - Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activities*. /16/

The main parameter to monitor is the electricity generated and supplied to the grid, to be obtained from one meter for each plant which will be read by the project developer as well as by the grid operator. Data collected by the project developer will be cross checked with the electricity sales receipts obtained from the grid operator. The generated energy in each power plant will be multiplied by the combined margin emission coefficient for the Rondônia-Acre grid.

Concerning leakage, no sources of emission were identified. The electricity generating equipment is not transferred from any other activity.

Detailed monitoring procedures, including responsibilities for project management, procedures for QA/QC of monitoring reports, frequency and calibration are described. All electricity measuring instruments are calibrated by the distribution concessionaire CERON, which signed a long term PPA with the plants.

3.6 Calculation of GHG Emissions

Project emissions are considered zero for this project. The calculations of baseline emissions are established according to paragraph 9, option (a), of AMS-I.D /16/ which is the kWh produced by the hydroelectric power plants multiplied by an emission coefficient (kg CO_2e/kWh) calculated as the average of the "approximate operating margin" and the "build margin". The system boundary is the Rondônia-Acre isolated grid, located in Rondônia State in the North Region of Brazil.

All relevant emissions are properly accounted for. The emission factor is computed considering all the power plants in the Rondônia-Acre system, resulting in an emission coefficient of 0.9421 tCO_2/MWh.

3.7 Environmental Impacts

The "Martinuv Espigão Hydroelectric Project" has been granted the Operation Licence No. 0002255, issued by NUCOF/SEDAM/RO on 20 July 2006 for the Martinuv hydropower plant. A Previous Licence Request/Protocol issued by NUCOF/SEDAM/RO has been presented, dated 13 October 2004, for the Espigão hydropower plant.

Environment Licenses are issued after all possible impacts are analyzed by the State Environmental Agency, SEDAM. No adverse environmental impacts are identified, which seems reasonable given the nature of the project design. Transboundary environmental impacts are not foreseen. The project has the necessary environmental licenses. The licenses were issued by the state environmental agency NUCOF/SEDAM in July 2006 and are valid until 20 January 2007 (The renewal of the licence has already been requested). The renewed environmental license(s) must be presented during first verification of emission reductions.

3.8 Comments by Local Stakeholders

Local stakeholders, such as the Municipal Government, the state and municipal agencies, the Brazilian forum of NGOs, neighbouring communities and the office of the attorney general, have been invited to comment on the project, in accordance with the requirements of Resolution 1 of the Brazilian DNA. Letters were sent to the City Hall of Vilhena and Espigão D'Oeste, the State Prosecutor and SEDAM. No comments have been received. Copies of the letters sent to the stakeholders were assessed by DNV.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

DNV published the PDD of 20 June 2006 on the DNV Climate Change web site (http://www.dnv.com/certification/ClimateChange) and stakeholders were through the UNFCCC CDM web site invited to provide comments within a 30 days period from 06 July 2006 to 04 August 2006. No comments were received.

5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Martinuv Espigão Hydroelectric Project" in Brazil. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project participants are Incomex - Indústria, Comércio e Exportação Ltda., Maurício Martinuv and EcoSecurities Group PLC. The participating Parties - Brazil as host Party and the United Kingdom as Annex I Party - meet all relevant participation requirements.

The project consists of two run-of-river small hydropower plants with Francis turbines with an overall generation capacity of 3.9 MW (2.4 MW at Martinuv and 1.5 MW at Espigão).

By promoting renewable energy, the project is in line with the current sustainable development priorities of Brazil.

The project correctly applies the simplified baseline methodology for selected small-scale CDM project activity categories, category I.D – Renewable electricity generation for a grid (AMS-I.D, Version 10). The additionality of the project is demonstrated by applying the barrier analysis contained in Attachment A to the simplified modalities and procedures for small-scale CDM project activities. The presented barriers demonstrate that the project is not a likely baseline scenario.

A combined margin emission coefficient of 0.9421 tCO_2e/MWh for the Rondônia-Acre grid was calculated in accordance with the simplified baseline methodology for category I.D small-scale CDM project activities, i.e. the average of the approximate operating margin and the build margin. The determination of this combined margin emission coefficient is based on actual electricity generation data provided by Eletrobras Isolated Systems Operation Report for the Rondônia-Acre grid.

By promoting renewable energy and displacing fossil fuel-based electricity, the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. Given that the project is operated as designed, the project is likely to achieve the estimated amount of emission reductions.

The project correctly applies the monitoring methodology AMS-I.D. The monitoring plan sufficiently specifies the monitoring requirements.

In summary, it is DNV's opinion that the "Martinuv Espigão Hydroelectric Project" as described in the revised and resubmitted project design document of 22 January 2007, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology for category I.D small-scale CDM project activities(AMS-I.D, Version 10). Hence, DNV will request the registration of the "Martinuv Espigão Hydroelectric Project" as a CDM project activity.

Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of the DNA of Brazil and the United Kingdom, including the confirmation by the DNA of Brazil that the project assists in achieving sustainable development.

REFERENCES

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

/1/ *Project Design Document for the "Martinuv Espigão Hydroelectric Project"* – Version 01 of 20 June 2006.

/2/ *Project Design Document for the "Martinuv Espigão Hydroelectric Project"* – Version 02 of 03 July 2006.

/3/ *Project Design Document for the "Martinuv Espigão Hydroelectric Project"* – Version 03 of 31 August 2006.

/4/ *Project Design Document for the "Martinuv Espigão Hydroelectric Project"* – Version 04 of 13 September 2006.

/5/ *Project Design Document for the "Martinuv Espigão Hydroelectric Project"* – Version 05 of 28 November 2006.

/6/ *Project Design Document for the "Martinuv Espigão Hydroelectric Project"* – Version 06 of 22 January 2007

/7/ EcoSecurities – Datasheet to calculate the Combined Margin for Rondônia-Acre and Cone Sul Isolated Grids, Excel spreadsheets. Received on 23 January 2007.

/8/ EcoSecurities – Datasheet to calculate the emission reduction, Excel spreadsheets. Received on 15 September 2006.

/9/ Eletrobras-GTON Isolated Systems Operational Plan for 2005. http://www.eletrobras.gov.br/img/menu/01_ccc_off.gif

/10/ ANEEL "Small Hydroelectric Units Accompaniment" issued on 15/10/2005. http://www.aneel.gov.br/37.htm

/11/ ANEEL Resolution number 157 of 05/03/2004 - "Authorization for installation of 900 kW in Espigão hydropower plant".

/12/ ANEEL Resolution number 962 of 26/11/2004 - "Authorization for installation of 920 kW in Martinuv hydropower plant".

/13/ ANEEL Resolution number 442 of 23/12/2004 - "Authorization for reduction of 50% at the taxes values for Espigão".

/14/ ANEEL Resolution number 251 of 27/06/2005.

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

/15/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Validation and Verification Manual*. http://www.vvmanual.info

/16/ *"Appendix B of the "Simplified modalities and procedures for small-scale CDM project activities"* - Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activities: AMS-I.D – "*Grid connected renewable electricity generation"* for Type I – *Renewable Energy Projects*. Version 10.

/17/ Attachment A to the *"Appendix B of the "Simplified modalities and procedures for small-scale CDM project activities" - Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activities*. Version 06 of September 2005.

Persons interviewed/ contacted during the validation, or persons who contributed with other information that are not included in the documents listed above:

/18/ Mr. Leandro Schwartz Noel, EcoSecurities, Rio de Janeiro, Brazil.

/19/ Mr. Pablo Fernandez, EcoSecurities, Rio de Janeiro, Brazil.

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APPENDIX A

VALIDATION PROTOCOL
FOR SMALL-SCALE CDM PROJECT ACTIVITIES

Table 1 Mandatory Requirements for Small Scale Clean Development Mechanism (CDM) Project Activities

Requirement	Reference	Conclusion	Cross Reference/Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art. 12.2	OK	Table 2, Section E.4.1. The PDD identifies the United Kingdom as ANNEX I project participant.
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	-	Table 2, Section A.3. Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of voluntary participation from the DNA of Brazil, including the confirmation that the project assists it in achieving sustainable development.
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art. 12.2.	OK	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authority of each party involved	Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	-	Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of the DNA of Brazil and the United Kingdom, including the confirmation by the DNA of Brazil that the project assists in achieving sustainable development
5. The emission reductions should be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	OK	Table 2, Section E.1 to E.4
6. Reduction in GHG emissions must be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are	Kyoto Protocol Art. 12.5.c, Simplified Modalities and Procedures for Small	OK	Table 2, Section B.2.1

Requirement	Reference	Conclusion	Cross Reference/Comment
reduced below those that would have occurred in the absence of the registered CDM project activity	Scale CDM Project Activities §26		
7. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK	No public funding is involved, and the validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards Brazil.
8. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures § 29	OK	The Brazilian designated national authority for the CDM is the Comissão Interministerial de Mudança Global do Clima. The DNA of the United Kingdom is the Department for Environment, Food and Rural Affairs.
9. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol	CDM Modalities and Procedures § 30, 31b	OK	Brazil ratified the Kyoto Protocol on 23 August 2002. The United Kingdom ratified the Kyoto Protocol on 31 May 2002.
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	OK	The United Kingdom's assigned amount is 92% of its 1990 emissions.
11. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7	CDM Modalities and Procedures §31b	OK	The United Kingdom has in place a national registry and reported on March 2006 its national GHG inventory for the years 1990-2004.
12. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	OK ~~CAR 1~~	Table 2, Section G

Requirement	Reference	Conclusion	Cross Reference/Comment
13. The project design document shall conform with the Small Scale CDM Project Design Document format	Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A	OK ~~CL 9~~	
14. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	OK	Table 2, Section A.1.3, B and D
15. Comments by local stakeholders are invited, and a summary of these provided	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22b	OK ~~CL 5~~	Table 2, Section G
16. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c	OK ~~CL 6~~	Table 2, Section F
17. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available	Simplified Modalities and Procedures for Small Scale CDM Project Activities §23b,c,d	OK	DNV published the PDD of 20 June 2006 on the DNV Climate Change web site (http://www.dnv.com/certification/ClimateChange) and stakeholders were through the UNFCCC CDM web site invited to provide comments within a 30 days period from 06 July 2006 to 04 August 2006. No comments were received.

Table 2 Requirements Checklist

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
A. **Project Description** The project design is assessed.					
A.1. Small scale project activity It is assess whether the project qualifies as small scale CDM project activity.					
A.1.1. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	/1/ /16/	DR	The project is a renewable energy project activity with an output capacity (3.9 MW) of less than 15 MW and is thus eligible as type I.D small-scale CDM project activity "Grid *connected renewable electricity generation"* / Type I – *Renewable Energy Projects*) as outlined in the *"Appendix B of the "Simplified modalities and procedures for small-scale CDM project activities" - Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activities* and Decision 17/CP.7. CAR 1 The PDD states that the project is not a debundled component of a larger project. But the Espigão project is located in the same area as the Incomex project, a set of 3 hydroelectric plants with 13.7 MW belonging to Incomex, one of the partners of the present "Martinuv Espigão Hydroelectric Project". The 13.7 MW added to the 1.5 MW results in more than 15 MW. According to the Brazilian National Electricity Agency, ANEEL, in order to be considered as a small hydro plant, the area of the reservoir(s) must	~~CAR 1~~ ~~CL1~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			be less than 3 km^2. CL 1 The areas for the two reservoirs need to be stated.		
A.1.2. The small scale project activity is not a debundled component of a larger project activity?	/1/	DR	See A.1.1.	~~CAR 1~~	OK
A.1.3. Does proposed project activity confirm to one of the project categories defined for small scale CDM project activities?	/1/	DR	Yes, if the project proves that the present project is not a debundled component of a larger project. The project activity is included in the Type I – *Renewable Energy Projects*, AMS-I.D - "Grid *connected renewable electricity generation"*. See A.1.1.	~~CAR 1~~	OK
A.2. Project Design Validation of project design focuses on the choice of technology and the design documentation of the project.					
A.2.1. Are the project's spatial (geographical) boundaries clearly defined?	/1/	DR	Yes. The project consists of a bundle of two small run-off-river hydroelectric power plants ,located at Pimenta Bueno River, Vilhena municipality (Martinuv) and Preto River, Espigão D'Oeste municipality (Espigão), Rondônia State.		OK
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	/1/	DR	Yes. The plants are connected to the Rondônia-Acre electricity system, in Rondônia State in the North Region of Brazil.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
A.2.3. Does the project design engineering reflect current good practices?	/1/	DR	Yes. The technology using Francis turbines for run-off-river small hydroelectric plants reflects good practices in the electricity industry.		OK
A.2.4. Will the project result in technology transfer to the host country?	/1/	DR	Not. The Francis technology is provided by several turbine manufactures in Brazil.		OK
A.2.5. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?	/1/	DR	The project will require minimal additional training and project maintenance. Moreover, support from the manufacturer is assured.		OK
A.3. Contribution to Sustainable Development The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or social benefits than GHG emission reductions?	/1/	DR	Yes. They are located in very remote areas, and bring electricity to develop these areas socially and economically.		OK.
A.3.2. Will the project create any adverse environmental or social effects?	/1/	DR	Run-off-river power plants are not expected to result in large areas flooded. Other impacts are not foreseen.		OK
A.3.3. Is the project in line with sustainable development policies of the host country?	/1/	DR	Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of the DNA of Brazil and the United Kingdom, including the confirmation by the DNA of Brazil that the project assists in achieving sustainable development	--	-

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
A.3.4. Is the project in line with relevant legislation and plans in the host country?	/1/	DR, I	Both projects have authorizations to produce energy, issued by ANEEL (Res 205 issued on 06 June 2001). Environmental Operation Licenses were mentioned in the PDD. Neither the ANEEL authorizations nor the environmental licenses were evidenced.	~~CL 6~~	OK
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 selected baseline methodology in line with the baseline methodologies provided for the relevant project category?	/1/ /16/	DR	The project applies the simplified baseline methodology for type I.D small-scale CDM project activities (AMS-I.D, Version 10), i.e. the average of the approximate operating margin and the build margin.		OK
B.1.2. Is the baseline methodology applicable to the project being considered?	/1/ /16/	DR	Yes. The project applies the baseline methodology for "Grid *connected renewable electricity generation"* (AMS-I.D). This is applicable to the proposed small hydroelectric run-off-river units and electricity is supplied to the isolated Rondônia-Acre grid.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
B.2. Baseline Determination It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario.					
B.2.1. Is it demonstrated that the project activity itself is not a likely baseline scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to prevailing practice or other barriers?	/1/ /17	DR, I	The additionality of the project is demonstrated through an analysis of the following barriers: (a) investment barriers, (b) technological barriers, (c) barriers due to prevailing practice for the two scenarios: i) continuation of current activities (produce energy by thermal sources) and ii) construction of new renewable energy plants. While the continuation of current activities does not face any barriers, the construction of new renewable energy plants faces an investment barrier and a barrier due to prevailing practice. DNV's assessment of the presented investment barriers and barriers due to prevailing practice is as follows: *(a) Investment barriers*: The Brazilian Fuel Consumption Account - BFCA (law no. 9648/98) states that the construction of new generation unit can be subsided from 50% to 75%. Although the plants considered for the project are affected by this regulation, this regulation can be disregarded in the determination of the baseline scenario. This is due to the fact that the BFCA Law is a national and/or sectoral regulation that gives positive comparative advantages to less emissions-intensive technologies over more emissions-intensive technologies. According to annex 3 of the report of EB 22, since	~~CL 4~~ ~~CL 11~~ ~~CL 12~~ ~~CL 14~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			this regulation was implemented after the adoption by the COP of the CDM M&P (decision 17/CP.7, 11 November 2001), the regulation does not need be taken into account in developing the baseline scenario (i.e. the baseline scenario can refer to a hypothetical situation without the regulation being in place). The law nº 9648 of 27 May 1998 has been implemented after the adoption by the COP of the CDM M&P (decision 17/CP.7, 11 November 2001) and would be classified as type E-. *(b) Technical/technological barriers*: There are no significant technical/technological barriers. All the technologies involved in both scenarios are available in the market, and have been used effectively in Brazil. *(c) Prevailing business practice barriers*: From 2001 until 2005, thermal generation inside the isolated system has only increased. It is clearly demonstrated that the prevailing practice in terms of energy generation in Rondônia is predominantly thermal and consequently, the trend in that region is the construction of units using fossil fuels, instead of hydro units. Recently the amount of energy generated by thermal plants has increased, but as shown in table 7 of the PDD, the numbers of thermal power plant has decreased. On the other hand the number of hydropower plants and the amount of energy generated by hydropower plants has increased. However, the number of thermal plants is much bigger than the number of hydropower plants and thermal power plants can be considered		

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			prevailing practise. The barrier analysis demonstrates that the most plausible scenario is the continuation of current practices (continuation of use of electricity from isolated systems fuelled by thermal energy). Therefore, the project scenario is not a likely baseline scenario and the baseline scenario is the continued use of electricity from the Rondônia-Acre isolated system, based mainly on diesel consumption. CL 4 In the additionality argument, regarding the "prevailing business practice", it is stated that "in the Operational Plans for 2004 and 2005, a comparison between thermal and hydro generations always indicates a clear predominance of thermal generation". Although this is correct for the Rondônia-Acre System, the same argument is not valid for the Cone Sul system. According to the available data /7/, there are 7 hydropower plants and just 2 thermal plants in the Cone Sul system. In 2004, 82% of the energy was generated by water. This point must be clarified keeping in mind that there are two independent systems. CL 11 DNV requests more information about the law nº 9648 of 27 May 1998. CL 12 It remains to be clarified how the lack of long-term financing available because of lack of electricity		

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			selling guarantees is not also applicable to thermal power plants. CL 14 It remains to be clarified whether the funding for the CCC Subrogation only comes in phase 2, because the projects are under 1 MW.		
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	/1/ /9/ /10/ /16/	DR, I	Yes. The baseline emission coefficient is determined as the combined margin of the approximate operating margin (OM) and the build margin (BM), in accordance with the simplified baseline methodology for category I.D small-scale CDM project activities. Electricity generation data by the units connected to the Rondônia-Acre isolated grid was provided by Eletrobras-GTON Isolated Systems Operational Plan. However, the excel sheet with the calculation of the emission factor was not presented. The consumption of fuel considered the specific consumption as established by Eletrobras/CCC and the IPCC carbon emission factors for specific fuels were applied to calculate plant specific emission coefficients. The origin of the fuel NCVs it is not stated.	~~CL 13~~ ~~CL 8~~	OK
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?	/1/	DR	Yes. The Brazilian Fuel Consumption Account - BFCA (law no. 9648/98) states that the construction of new generation unit can be subsided from 50% to 75%.		OK
B.2.4. Is the baseline selection compatible with the available data?	/1/	DR, I	Yes.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?	/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?	/1/	DR, I	The project's starting date is 01 May 2006 with an expected operational lifetime of 30 years. CL 2 The starting date of the project activity is stated as 01 May 2006 (C.1.1). In C.2.1.1, the starting date of the first crediting period is stated as 01 January 2007. In Table 16, the operation starting dates are 01 June 2006 (Martinuv) and 01 August 2006 (Espigão). These dates must be corrected /checked. CL 7 In order to claim 3 times 7 years, the project needs to have a lifetime of at least 21 years and 8 months i.e. from may 2006 to January 2007 it is 8 months.	~~CL 2~~ ~~CL 7~~	OK
C.1.2. Is the assumed crediting time clearly defined (renewable crediting period of seven years with two possible renewals or fixed crediting period of 10 years with no renewal)?	/1/	DR	Yes. A fixed 10-year crediting period is selected, with a forecasted starting date of 01 June 2007.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
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 monitoring methodology.					
D.1.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category?	/1/ /16/	DR	Yes. The project applies the approved monitoring methodology AMS-I.D (Version 10) - "Grid *connected renewable electricity generation"* for Type I – *Renewable Energy Projects*, according to the *"Appendix B of the "Simplified modalities and procedures for small-scale CDM project activities" - Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activities*.		OK
D.1.2. Is the monitoring methodology applicable to the project being considered?	/1/ /16/	DR	Yes. The monitoring methodology, i.e. metering the electricity, is in accordance with the AMS-I.D. The operating and build margin are calculated *ex-ante* prior to validation.		OK
D.1.3. Is the application of the monitoring methodology transparent?	/1/ /16/	DR	Yes.		OK
D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	/1/ /16/	DR	Yes.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
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/		No project emissions are foreseen.		OK
D.3. Monitoring of Leakage If applicable, 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/ /16/		If the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity, AMS-I.D states that leakage is to be considered. The project was implemented with new equipment. Hence, no leakage is expected.		OK
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 baseline	/1/		Yes. During the whole crediting period plus 2 years.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
emissions during the crediting period?					
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR	Yes. It is the electricity generated by the power plants and delivered to grid.		OK
D.4.3. Will it be possible to monitor / measure the specified baseline indicators?	/1/	DR	Yes. The main parameter to monitor is the electricity generated and supplied to the grid, to be obtained from one meter for each plant which will be read by the project developer as well as by the grid operator. Data collected by the project developer will be cross checked with the electricity sales receipts obtained from the grid operator.		OK
D.4.4. Will the indicators give opportunity for real measurements of baseline emissions?	/1/	DR	Yes.		OK
D.5. Project Management Planning It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
D.5.1. Is the authority and responsibility of project management clearly described?	/1/	DR	Yes. Energy sales receipts will be collected for each hydro plant. This information will be transferred to EcoSecurities. CL 10 The Mauricio Martinuv email is missing.	~~CL 10~~	OK
D.5.2. Is the authority and responsibility for registration monitoring measurement and reporting clearly described?	/1/	DR	Yes. See D.5.2.		OK
D.5.3. Are procedures identified for training of monitoring personnel?	/1/	DR	Yes. See D.5.2.		OK
D.5.4. Are procedures identified for emergency preparedness for cases where	/1/	DR	In case of emergency the power plant stops. There are no unintended emissions.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
emergencies can cause unintended emissions?					
D.5.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR	Yes. All electricity measuring instruments are calibrated by the distribution concessionaire CERON, which signed a long term purchase agreement with the plants.		OK
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR	Yes. See D.5.5.		OK
D.5.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR	Yes. See D.5.5.		OK
D.5.8. 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. The data will be collected continuously and archived in paper and electronic form, during the whole crediting period plus 2 years.		OK
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR	Yes. Data collected by the project developer will be cross checked with the electricity sales receipts obtained from the grid operator. In case of divergence, the value of the grid operator is the valid one.		OK
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	/1/	DR	Yes.		OK
D.5.11. Are procedures identified for project performance reviews?	/1/	DR	See D.5.10.		OK
D.5.12. Are procedures identified for corrective actions?	/1/	DR	See D.5.9.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
E. **Calculation of GHG emission** 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. Project GHG Emissions The validation of ex-ante estimated project GHG emissions focuses on transparency and completeness of calculations.					
E.1.1. Are all aspects related to direct and indirect project emissions captured in the project design?	/1/	DR	There are no project emissions.		OK
E.2. Leakage 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 and estimated ex-ante.					
E.2.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?	/1/	DR	No leakage calculation is required. See D.3.1.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
E.3. Baseline GHG Emissions The validation of ex-ante estimated baseline GHG emissions focuses on transparency and completeness of calculations.					
E.3.1. Are the baseline emission boundaries clearly defined and do they sufficiently cover sources for baseline emissions?	/1/	DR, I	The PDD is not clear in defining the boundaries. CL 3 In A.2 it is stated that "The plants are connected to two isolated electricity systems: Cone Sul and Rondônia-Acre, both located in Rondônia State, North Region of Brazil. These isolated systems will be connected when the plants start operation." It is not clear if a new transmission line will be constructed linking directly the two systems or if the two plants will deliver power to both systems. Moreover, it is not stated the proportion of the energy that each plant will deliver to each system. The lines connecting the new power plants to the systems can't be considered as a line interconnecting the systems because they have a very small capacity. So, the Project should explain why it takes the two systems as a sole one when, in fact, they will continue to be two independent systems. The link of each hydroelectric plant to its respective grid is not clear. This point is very important in the calculation of the GHG emissions reduction.	~~CL 3~~	OK
E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	/1/	DR	Yes.		OK
E.3.3. Have all relevant greenhouse gases and	/1/	DR	The project considers only emission reductions		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
sources been evaluated?			related to CO_2 emitted by fossil fuel electricity generation in the Rondônia-Acre isolated grid and displaced by the project.		
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	/1/	DR	Yes, according to the AMS-I.D.		OK
E.3.5. Are the calculations documented in a complete and transparent manner?	/1/	DR	The calculations are based on combined factors for both grids. Emission reductions are to be recalculated according to the factors established for each of the two isolated grids, using the most recent available data. See E.4.1. CL 8 It is not stated the origin of the fuel NCVs. The table 16 in the PDD has a mistake and must be corrected. The CER generation in A.4.3 does not agree with the values in the rest of the document. In B.3 it should read "160 (148 + 12)". It is not stated the option used to compute the BM.	~~CAR 2~~ ~~CAR 3~~ ~~CL 8~~	OK
E.3.6. Have conservative assumptions been used?	/1/	DR	Yes. Fuel consumption and electricity generated by the plants figures of the isolated grid are based on data provided by Eletrobras.		OK
E.3.7. Are uncertainties in the baseline emissions estimates properly addressed?	/1/	DR	Yes.		OK
E.4. Emission Reductions Validation of ex-ante estimated emission reductions.					
E.4.1. Will the project result in fewer GHG emissions than the baseline case?	/1/	DR	The project is forecasted to reduce CO_2 emissions to the extent of 179 634 tCO_2e (17 963 tCO_2e / year	~~CAR 2~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			average) over the defined renewable 10-year crediting period. CAR 2 It is stated that there are two independent systems (Rondônia-Acre and Cone Sul) in the areas of Espigão and Martinuv. Each system has its own emission coefficient. So, if Espigão delivers electricity to Cone Sul, the GHG emissions reduction for this relationship (Espigão - Cone Sul) should be calculated multiplying the Cone Sul emission factor by the amount of electricity sent by Espigão. The PDD works in a different direction: instead of taking the emission factors for each system independently (resulting in factors of ~0.86 for Rondônia-Acre and ~0.41 for Cone Sul), it takes all the plants in the two systems as a sole system, resulting in an emission coefficient of 0.8472, much larger than the one computed taking two systems. CAR 3 The table 16 in the PDD has a mistake and must be corrected. The CER generation in A.4.3 does not agree with the values in the rest of the document. In B.3 it should read "160 (148 + 12)".	~~CAR 3~~	
F. **Environmental Impacts** It is assessed whether environmental impacts of the project are sufficiently addressed.					
F.1.1. Does host country legislation require an analysis of the environmental impacts of the project activity?	/1/	DR	Yes.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
F.1.2. Does the project comply with environmental legislation in the host country?	/1/	DR	The "Martinuv Espigão Hydroelectric Project" has been granted the Operation Licence No. 0002255, issued by NUCOF/SEDAM/RO on 20 July 2006 for the Martinuv hydropower plant. A Previous Licence Request/Protocol to NUCOF/SEDAM/RO has been presented, dated 13 October 2004, for the Espigão hydropower plant. Environment Licenses are issued after all possible impacts are analyzed by the State Environmental Agency, SEDAM. No adverse environmental impacts are identified, which seems reasonable given the nature of the project design. Transboundary environmental impacts are not foreseen. The renewed environmental license(s) must be presented during first verification of emission reductions. CL 6 DNV requests a copy of the environmental licenses and of the ANEEL authorizations.	~~CL 6~~	OK
F.1.3. Will the project create any adverse environmental effects?	/1/	DR	No adverse environmental effects are foreseen.		OK.
F.1.4. Have environmental impacts been identified and addressed in the PDD?	/1/	DR	Yes. Slope instability, erosion, water and soil pollution, drowned forest, loss of fish habitat and spawning areas, loss of agricultural land, alteration of terrestrial habitats and fauna's habits have been assessed.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
G. **Comments by Local Stakeholder** Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	/1/	DR, I	Local stakeholders, such as the Municipal Government, the state and municipal agencies, the Brazilian forum of NGOs, neighbouring communities and the office of the attorney general, are to be invited to comment on the project, in accordance with the requirements of Resolution 1 of the Brazilian DNA. Letters were sent to the City Hall of Vilhena and Espigão D'Oeste, the State Prosecutor and SEDAM. No comments have been received. CL 5 DNV requests a copy of the letters sent to the local stakeholders. It is not clear if all the local stakeholders, as per Resolution 1, have been invited to comment on the project.	~~CL 5~~	OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR	Yes.		OK
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/	DR	See G.1.1.	~~CL 5~~	OK
G.1.4. Is a summary of the comments received provided?	/1/	DR	No comments were received.		OK
G.1.5. Has due account been taken of any comments received?	/1/	DR	See G.1.4.		OK

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
CAR 1 The PDD states that the project is not a debundled component of a larger project. But the Espigão project is located in the same area as the Incomex project, a set of 3 hydroelectric plants with 13.7 MW belonging to Incomex, one of the partners of the present "Martinuv Espigão Hydroelectric Project". The 13.7 MW added to the 1.5 MW results in more than 15 MW.	A.1.1 A.1.2	According to Appendix C of the Simplified Modalities and Procedures for Small-Scale CDM project activities, an analysis of debundling was done and resulted is negative. The "Incomex hydroelectric project" boundary is more than 1km far from the "Martinuv Espigão hydroelectric project" boundary. The PDD was revised and the new version with related modifications was sent to DNV.	According to the Rondônia Map, the distance between these projects is more than 1 km. Therefore, this CAR is closed.
CAR 2 It is stated that there are two independent systems (Rondônia-Acre and Cone Sul) in the areas of Espigão and Martinuv. Each system has its own emission coefficient. So, if Espigão delivers electricity to Cone Sul, the GHG emissions reduction for this relationship (Espigão - Cone Sul) should be calculated multiplying the Cone Sul emission factor by the amount of electricity sent by Espigão. The PDD works in a different direction: instead of taking the emission factors for each system independently (resulting in factors of ~0.86 for Rondônia-Acre and ~0.41 for Cone Sul), it takes all the plants in the two systems as a sole system, resulting in an emission coefficient of 0.8472, much larger than the one computed taking two systems. It is not	E.3.5 E.4.1	As stated in the resolution number 483, issued in 12/11/2001 by ANEEL (national electricity agency), and in the resolution 301, issue in 31/08/2005 by ANEEL, the transmission line system is under construction, and the systems will be connected in 2006, before the crediting period begins. Since the systems will be connected, the plants will deliver electricity to a sole system and there will be a unique emission factor. The PDD was revised and the new version with related modifications was sent to DNV.	The ANEEL resolutions were assessed and DNV was able to confirm that the Acre-Rondônia- Acre and the Cone Sul system are currently being interconnected, so that they can be considered as one grid system. Therefore, this CAR is closed.

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
stated the option used to compute the BM.			
CAR 3 The table 16 in the PDD has a mistake and must be corrected. The CER generation in A.4.3 does not agree with the values in the rest of the document. In B.3 it should read "160 (148 + 12)".	E.3.5 E.4.1	The table was corrected in the attachment 1, the PDD was revised and the new version with related modifications was sent to DNV.	The table 16 in now in agreement with other tables with CERs calculation. This CAR is closed.
CL 1 The areas for the two reservoirs need to be stated.	A.1.1 A.3.2	The project activity does not create big reservoirs, and according to the local environmental agency, do not lead to significant negative impacts. The PDD was revised and the new version with related modifications was sent to DNV.	As a run-of-river do not include significant water storage and small hydro plants in Brazil must have a reservoir area of less than 3km^2. This CL is closed.
CL 2 The starting date of the project activity is stated as 01 May 2006 (C.1.1). In C.2.1.1, the starting date of the first crediting period is stated as 01 January 2007. In Table 16, the operation starting dates are 01 June 2006 (Martinuv) and 01 August 2006 (Espigão). These dates must be corrected /checked.	C.1.1	The starting date of the project activity, the starting date of the first crediting period and the operation starting dates were checked and corrected. The PDD was revised and the new version with related modifications was sent to DNV.	The starting date of the project activity was corrected/revised to 01 June 2006. This CL is closed.
CL 3 In A.2 it is stated that "The plants are connected to two isolated electricity systems: Cone Sul and Rondônia-Acre, both located in Rondônia State, North Region of Brazil. These isolated systems will be connected when the plants start operation." It is not clear	E.3.1	As answered in CAR 2, the systems will be connected when the crediting period begins. A new transmission line is under construction and the systems will be connected in 2006. The plants will deliver electricity to a unique system. The PDD was revised and the new	The new PDD and others evidences were assessed and considered enough. This CL is closed.

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
if a new transmission line will be constructed linking directly the two systems or if the two plants will deliver power to both systems. Moreover, it is not stated the proportion of the energy that each plant will deliver to each system. The lines connecting the new power plants to the systems can't be considered as a line interconnecting the systems because they have a very small capacity. So, the Project should explain why it takes the two systems as a sole one when, in fact, they will continue to be two independent systems. The link of each hydroelectric plant to its respective grid is not clear. This point is very important in the calculation of the GHG emissions reduction.		version with related modifications was sent to DNV.	
CL 4 In the additionality argument, regarding the "prevailing business practice", it is stated that "in the Operational Plans for 2004 and 2005, a comparison between thermal and hydro generations always indicates a clear predominance of thermal generation". Although this is correct for the Rondônia-Acre System, the same argument is not valid for the Cone Sul system. According to the available data /7/, there are 7 hydropower plants and just 2 thermal plants in the Cone Sul system. In 2004, 82% of the energy was generated by water. This point must be clarified keeping in mind that there are two independent systems.	B.2.1	It is stated that the systems will be connected, so the argument is valid for the unique system. According to the tables 7 and 8, provided in the PDD, the electricity generation is predominantly thermal. About number of thermal plants: is stated in the PDD that the installed capacity of thermal units increased from 2004 to 2005, and not the number of thermal units. It is important to know that the key information took to prove expansion is the installed capacity and not the number of units. Number of units is an additional information and just a comparison between number of	In accordance with ANEEL documents, the two plants are connected on the Acre-Rondônia system which comprises the formerly separated the Rondônia-Acre and Cone Sul systems. Thermal generation dominates the Acre-Rondônia system. Recently the amount of energy generated by thermal plants has increased, but as shown in table 7 of the PDD, the numbers of thermal power plant has decreased. On the other hand the number of hydropower plants and the amount of energy generated by hydropower plants has increased. However, the number of thermal plants is much bigger than numbers of hydropower plants and

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
		thermal and number o hydro is made. Please take a look in the PDD, maybe you can take the right interpretation of it.	thermal power plants can be considered prevailing practise. This CL is closed.
CL 5 DNV requests a copy of the letters sent to the local stakeholders. It is not clear if all the local stakeholders, as per Resolution 1, have been invited to comment on the project.	G.1.1 G.1.3	All letters and receipt confirmation were sent to DNV.	The copy of letters were received and assessed. This CL is closed.
CL 6 DNV requests a copy of the environmental licenses and of the ANEEL authorizations. At the ANEEL website, only three authorizations were found and assessed. In accordance with these authorizations, Martinuv hydropower plant could have only with 0.92 MW of installed capacity and the starting date of this plant is September 30, 2006. (ANEEL 962 - 26/11/2004) and Espigão hydropower plant have only with 0.90 MW of installed capacity and the starting date of this plant is September 30, 2006. (ANEEL 157 - 05/03/2004). The third resolution is a reduction in 50% of all taxes paid by Espigão to use electricity system transmission. Also, the resolution 251 of 27 June 2006 was assessed and no evidences about Martinuv-Espigão authorizations were found.	A.3.4	All the licences were sent to DNV. About ANEEL authorization for 2nd phase (" autorização de despacho): Talking to the project developer, he explained that the project for the 1st phase is done and submitted to ANEEL, then they make a study in the area (hydrological system, river capacity) and took the decision to expand the project (2nd phase), but the ANEEL authorization came only after the1st phase electricity commercialization begins. For Martinuv it will happen by the end of september/2006 and for Espigão only in 2008.	The "Martinuv Espigão Hydroelectric Project" has been granted the Operation Licence No. 0002255, issued by NUCOF/SEDAM/RO on 20 July 2006 for the Martinuv hydropower plant. A Previous Licence Request/Protocol issued by NUCOF/SEDAM/RO has been presented, dated 13 October 2004, for the Espigão hydropower plant. The second phase for the project is being considered as starting in 2008 for Martinuv and 2009 for Espigão. Then, the ANEEL authorization (or renewal) for each subsequent phase and Espigão operation license should be presented during the verification(s). This CL is closed.
CL 7 In order to claim 3 times 7 years, the project	C.1.1	The project lifetime was corrected, the expectative of lifetime is 30 years.	Project lifetime was corrected to 30 years (evidences presented) and CL

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
needs to have a lifetime of at least 21 years and 8 months i.e. from may 2006 to January 2007 it is 8 months.			clarified to DNV's satisfaction. This CL is closed.
CL 8 It is not stated the origin of the fuel NCVs.	E.3.5	NCV source: BEN 2003. The value was changed in the calculation and the PDD was modified.	The PDD and spreadsheet for the calculation of emission reductions were corrected. This CL is closed.
CL 9 The header and footer is missing. Table 3 in A.4.3.1 needs to contain the last two rows too i.e. regarding number of crediting years and average annual forecast CERs.	Table 2 - 13 14	The PDD was revised and the new version with related modifications was sent to DNV.	The PDD was corrected. This CL is closed.
CL 10 The Mauricio Martinuv email is missing.	13 D.5.1	Mauricio Martinuv information were inserted in the PDD.	The PDD was corrected. This CL is closed.
CL 11 DNV requests more information about the law nº 9648 of 27 May 1998.	B.2.1	About the law 9648/98 cited in the PDD (version 4, page 1): We made reference to this law because in the ANEEL guide to use CCC + CCC sub-rogation this reference is also made, in section V..	The CCC manual was sent and assessed. The CCC sub-rogation define subsides for implementation of renewable source at the isolated systems such as the Rondônia-Acre system. The law nº 9648/98 establishes general rules for implementation of new power plants and sales of energy to the grid. These questions were clarified. This CL is therefore closed.
CL 12 It remains to be clarified how the lack of long-term financing available because of lack of electricity selling guarantees is not also applicable to thermal power plants.	B.2.1	SPHs depend on the hydrological system. We can't control the hydrological system, so in case of a dry season electricity can't be produced. Hence the electricity can't be sold. It's different for thermal units because in	The provided clarification satisfactorily addresses the request for clarification. This CL is closed.

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
		this case electricity production depends only of fuel supply and is not expected to occur lack of supply during the project activity lifetime.	
CL 13 The excel sheet with determination of the emission factor was not presented.	B.2.2	Attached the Grid calculation.	The excel sheet was received and assessed. This CL is closed.
CL 14 It remains to be clarified whether the funding for the CCC Subrogation only comes in phase 2, because the projects are under 1 MW.	B.2.1	Yes, the money comes only in phase 2 because in phase 1 both SPH are under 1MW and can't claim for CCC Subrogation revenues .	The CCC manual was assessed. The manual explains that only PCHs that generated energy between 1 MW until 30 MW can receive subsides from ANEEL. Therefore, neither Martinuv nor Espigão can receive revenues from ANEEL until the second phase of the project. This CL is closed.

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