VALIDATION REPORT

SALDANHA SMALL HYDROELECTRIC PROJECT IN BRAZIL

REPORT NO. 2007-0582

REVISION NO. 01A

DET NORSKE VERITAS

VALIDATION REPORT

Date of first issue: 2007-04-04	Project No.: 28624550
Approved by: Einar Telnes Director	Organisational unit: DNV Certification, International Climate Change Services
Client: Hidroluz Centrais Elétricas Ltda. and EcoSecurities Group PLC	Client ref.: Eroná Lopes de Oliveira – Hidroluz and Pedro Costa Moura - EcoSecurites

DET NORSKE VERITAS
CERTIFICATION LTD

Palace House
3 Cathedral Street
London SE19DE
United Kingdom
Tel: +44 (0)20 7357 6080
Fax: +44 (0) 20 7407 1239
http://www.dnv.com

Summary:
Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the Saldanha Small Hydroelectric Project 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. This validation report summarizes the findings of the validation.

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 Saldanha Small Hydroelectric Project, as described in the revised PDD of 28 Sep 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 of 23 December 2006) for small-scale CDM project activities. Hence, DNV will request the registration of the Saldanha Small 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 voluntary participation from the DNA of Brazil, including the confirmation that the project assists it in achieving sustainable development.

Report No.: 2007-0582	Subject Group: Environment	
Report title: Saldanha Small Hydroelectric Project in Brazil		
Work carried out by: Luis Filipe Tavares, Tonje Folkestad, Hendrik W. Brinks, Michael Lehmann		
Work verified by: Einar Telnes		
Date of this revision: 01 Set 2007	Rev. No.: 01a	Number of pages: 11

Indexing terms

Key words Climate Change Kyoto Protocol Validation Clean Development Mechanism	Service Area Verification Market Sector Process Industry

☒ No distribution without permission from the client or responsible organisational unit

☐ free distribution within DNV after 3 years

☐ Strictly confidential

☐ Unrestricted distribution

Table of Content *Page*

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
CDM	Clean Development Mechanism
CCC	Conta de Consumo de Combustível (Fuel Consumption Account)
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CERON	Centrais Elétricas de Rondônia S.A. (Rondônia State Electricity Company)
CH_4	Methane
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
GHG	Greenhouse gas(es)
ELETROBRÁS	Centrais Elétricas Brasileiras S/A (Brazilian Electrical Central)
ELETRONORTE	Centrais Elétricas do Norte do Brasil (Electrical Central of North of Brazil)
GTON	Grupo Técnico Operacional da Região Norte (North Region Technical Operational Group)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
N-NE	North-Northeast
N_2O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operation Margin
PCA	Plano de Controle Ambiental (Environmental Control Plan)
PDD	Project Design Document
SEDAM	Secretaria de Estado do Desenvolvimento Ambiental (Rondônia State Environmental Agency)
S-SE-CO	South-Southeast-Midwest
UNFCCC	United Nations Framework Convention on Climate Change

1 INTRODUCTION

Hidroluz Centrais Elétricas Ltda. and EcoSecurities Group PLC have commissioned Det Norske Veritas Certification Ltd. (DNV) to perform a validation of the Saldanha Small Hydroelectric Project, located at Saldanha River, Alta Floresta d'Oeste municipality, 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. Luis Filipe Tavares	DNV Rio de Janeiro	Team Leader, CDM validator;
Mr. Michael Lehmann	DNV Oslo	Energy sector expert
Mrs. Tonje Folkestad	DNV Oslo	GHG Auditor
Mr. Hendrik W. Brinks	DNV Oslo	CDM Validator
Mr. Einar Telnes	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 of 23 December 2006). 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 Description of Proposed CDM Project

The project consists of a small run-of-river Saldanha hydroelectric power plant, with an installed capacity of 5.0 MW located at Alta Floresta d'Oeste municipality at the Saldanha River in Rondônia State. The plant will start operations in March 2006.

The plant is connected to an isolated electricity system: Rondônia-Acre, located in Rondônia State, Northern Region of Brazil.

Emission reductions are claimed from displacing the isolated grid electricity with the estimated electricity generated by the small hydroelectric power plant and supplied to the isolated grid. Estimated GHG emission reductions from the project are 279 710 tonnes CO_2 equivalent (tCO_2e) during the 10 years crediting period, which results in estimated average annual emission reductions of 27 971 tCO2e.

2 METHODOLOGY

The validation consists of the following three phases:

I a desk review of the project design and the baseline and monitoring methodology;

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 Saldanha Small Hydroelectric Project is enclosed in Appendix A to this report.

Findings established during the validation can either 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* (CAR) 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* 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 5 February 2007) /1/ and the version 2 dated 28 Sep 2007 /2/ were submitted by Hidroluz Centrais Elétricas Ltda. and EcoSecurities were assessed by DNV as a part of the validation. The final version 3 dated 28 Set 2007 was submitted, adjusting the actual electricity generation capacity and the actual first action on starting date of project.

In addition, the spreadsheets for the calculations of the operating and build margin emission factors for the Rondônia-Acre grid /4/ and financial calculation /5/ were assessed.

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 on 3 April 2007 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 is to resolve any outstanding issues which need to be clarified for DNV's positive conclusion on the project design.

The initial validation of the project identified one corrective action request and seven requests for clarification. The project participant’s response to DNV’s initial findings, which included the submission of the final PDD dated 28 Sep 2007, addressed the corrective action request 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 preliminary findings of the validation 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 28 Sep 2007.

3.1 Participation Requirements

The project participants are Hidroluz Centrais Elétricas Ltda. and EcoSecurities Group PLC. The host Party (Brazil) and the Annex I Party (the United Kingdom) 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 voluntary participation from the DNA of Brazil, including the confirmation that the project assists it in achieving sustainable development.

DNV will also have to receive the written approval of voluntary participation from the DNA of the United Kingdom.

3.2 Project Design

The Saldanha Small Hydroelectric Project comprises a small run-of-river hydroelectric power plant located in the Saldanha River. The power plant has two new simple Francis turbines installed for generation of electricity. The generation of the renewable electricity partly displaces electricity generation based on fossil fuels supplied to the isolated Rondônia-Acregrid. Due to transmission constraint, this isolated grid is not linked to the interconnected N-NE and S-SE-CO Brazilian grids systems.

Run-of-river small hydroelectric projects use water, either from small holding ponds or directly from the river. In order to be considered as a small hydro by Brazilian Power Regulatory Agency, ANEEL, the area of the reservoir must be less than 3 km^2. The Saldanha unit uses water directly from the river, with minimum flooded area of 0.0075 km^2 of flooded area and hence has a power density of 600 W/m^2.

The project design engineering reflects good practice. The total installed capacity for the power plant is 5.0 MW. As the nominal installed capacity of the project is less than 15 MW and the plants will supply generated electricity to the grid, the project is eligible as a type I.D small-scale CDM project activity (*Renewable Energy Projects / Renewable electricity generation for a grid*) as outlined in Appendix B of the simplified modalities and procedures for small-scale CDM project activities /16/. The project is not a de-bundled component of a larger project activity.

A 10 years crediting period is selected, starting on 1 September 2007 or on the date of registration of the CDM project activity, whichever is later. The first action for starting date of the project activity was 01 Apr 2004, corresponding to the start-up of the construction according to the ANEEL Resolution 727 /9/. The expected operational lifetime of the project is more than 30 years.

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 applies the approved simplified baseline methodology for selected small-scale CDM project activity categories, category I.D – *Renewable electricity generation for a grid* (AMS-I.D) /16/. This category is applicable as the project consists of renewable energy generation units that supply electricity to an electricity distribution system (i.e. the Isolated Rondônia-Acregrid - North region of Brazil) which is supplied by at least one fossil fuel powered generating unit.

As stipulated in AMS-I.D, the baseline emission coefficient is determined in accordance with ACM0002 /17/ as the average of the simple operating margin (OM) and the build margin (BM), i.e. the combined margin. Electricity generation data of power plants connected to the Rondônia-Acre isolated grid was provided by CERON /6/, Eletrobras-GTON Isolated Systems Operational Plan /7/ and Eletronorte /8/. In addition, fuel consumption data of connected thermo power plants was provided by CERON, Eletrobras and Eletronorte. Carbon emission factors for fossil fuels from IPCC were applied to calculate plant specific emission coefficients.

3.4 Additionality

Evidence that the CDM was seriously considered as a factor in the decision to implement the project is evidenced through communication between Hidroluz and Incomex, a consulting company /12/, in order to assess potential CDM revenues. The communication emphasizes the necessity of CDM/CER revenues and subrogation in order to realize the Saldanha project. The letter issued 26 February 2003 was verified by DNV. According to the ANEEL Resolution 727 /9/ the starting date of construction was 1 April 2004.

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 options for medium-sized investors, lack of interest from local utilities and higher costs for implementation of small hydro units in the Northern region compared to other regions of Brazil.

DNV was able to confirm that although the ANEEL's Brazilian Fuel Consumption Account - BFCA (law no. 9648 of 27 May 1998) subsides new renewable energy generation units with up to 75% of the implementation costs, this was not the case for Saldanha Small Hydroelectric Project. The construction of a 69 kV/138kV substation, which was requested by CERON (the operator of the Rondônia-Acre grid and buyer of electricity), was not granted any subsidy and the total subsidy amount to 49%. The project investment analysis provided by the project participants demonstrates an internal rate of return (IRR) of approximately 10% and a net present value (NPV) with a discount rate of 12% (the Brazilian bond SELIC) of R$ -1 705 715. For

comparison an IRR calculated for a typical thermo units (BAU scenario), which face lower investment costs and have all consumed fuel subsidized, is approximately 64%. Thus the project faces financial/economic barriers compared to the business as usual scenario.

(b) Technical/technological barriers: DNV confirms that, as argued in the PDD, 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 increased. It is clearly demonstrated that the prevailing practice in terms of energy generation in Rondônia is predominantly thermal and consequently, the trend in the region is construction of units using fossil fuels, instead of hydro units. The installed capacity from thermal plants is still much higher than the number of hydropower plants. Thus thermal power plants can be regarded as the prevailing practise.

The barrier analysis demonstrates that the most plausible scenario is the continuation of current prevailing practice (continuation of use of electricity from isolated systems fuelled by thermal energy).

3.5 Monitoring Plan

The project applies the approved monitoring methodology AMS-I.D (Version 10 of 23 December 2006) - "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 the plant which will be read by the project developer as well as by CERON. Data collected by the project participant will be cross-checked with electricity invoice issued by Hidroluz Centrais Elétricas Ltda. The generated energy by the power plant will be multiplied by the combined margin emission coefficient for the Rondônia-Acregrid.

Regarding leakage, no sources of emission were identified. The electricity generating equipment is not transferred from any other activity as verified by purchase receipt from "HISA – Hidraulic Industrial S.A.

Detailed monitoring procedures, including responsibilities for project management, procedures for QA/QC of monitoring reports, frequency and calibration were verified. All electricity measuring instruments are to be calibrated by the CERON, which signed a long term PPA with Hidroluz Centrais Elétricas Ltda.

3.6 Calculation of GHG Emissions

Project emissions are considered zero for this project. According to paragraph 9, option (a), of AMS-I.D /16/, baseline emissions are calculated as amount of electricity generated by the project hydroelectric power plants (in kWh) multiplied by the grid emission coefficient (kg CO_2e/kWh). According to ACM0002 methodology, grid emission coefficient is calculated *ex-ante* as the average of the "simple operating margin" and the "build margin". The system boundary is the Rondônia-Acre isolated grid, located in Rondônia State in the Northern Region of Brazil.

The calculations /4/ are based on electricity generation in the grid and fuel consumption data of thermal plants provided by CERON, Eletrobras and Eletronorte for the years 2003-2005 which are the most recent statistics available at the time of PDD submission. The data was verified against the data provided by CERON and Eletronorte and by data published on the Eletrobras/GETON website.

As the Rondônia-Acre electric grid has less than 50% of low-cost must run, the simple OM method was considered for the determination of the operating margin (OM). The build margin emission coefficient (BM) was calculated considering the most recent 20% power plants capacity additions (in MWh) in the electricity system. The simple-adjusted operating margin (OM) emission coefficient is calculated to be 0.8682 tCO_2e/MWh and the build margin (BM) emission coefficient is 1.0160 tCO_2e/MWh, resulting in a combined margin emission coefficient of 0.9421 tCO_2/MWh (weighted average of the build and operating margin), which is fixed ex-ante for the crediting period.

3.7 Environmental Impacts

The Saldanha Small Hydroelectric Project has been granted the Environment Operation Licence No. 001546 issued by NUCOF/SEDAM/RO on 19 December 2005 and valid until 19 December 2007. Such license was issued after all possible impacts were analyzed by the Rondonia State Environmental Agency (SEDAM) and the Environment Control Plan (PCA) /14/ was considered. No adverse environmental impacts are identified, which seems reasonable given the nature of the project design. Transboundary environmental impacts are not foreseen. Given that the Environment Operation Licence is valid until 19 December 2007, during the first verification of emission reductions, the status of the environmental licensing should be assessed.

3.8 Comments by Local Stakeholders

Local stakeholders, such as the Municipal Government, the state environment agency, the Brazilian forum of NGOs, neighbouring communities and the office of the attorney general have all 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 Alta Floresta D'Oeste, Environmental Secretary of Alta Floresta D'Oeste, the State Prosecutor, SEDAM and Community Association of Alta FLoresta D'Oeste. Copies of the letters sent to the stakeholders were assessed by DNV. No comments have been received.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD of 5 February 2007 was made publicly available on DNV's climate change website (www.dnv.com/certification/climatechange). Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 10 February 2007 to 11 March 2007. No comments have been received.

5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the Saldanha Small 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 Hidroluz Centrais Elétricas Ltda. and EcoSecurities. The host Party Brazil and the United Kingdom, as Annex I Party, meet all relevant participation requirements.

The project consists of a run-of-river small hydropower plants with Francis turbines with an overall generation capacity of 5.0 MW.

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 of 23 December 2006). 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.

An ex-ante fixed 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 and ACM0002 version 6, i.e. the average of the simple operating margin and the build margin. The determination of this combined margin emission coefficient is based on actual electricity generation data provided by CERON, Eletrobras-GTON Isolated Systems Operational Plan and Eletronorte for the Rondônia-Acregrid.

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 Saldanha Small Hydroelectric Project as described in the revised and resubmitted project design document of 28 Sep 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 of 23 December 2006). Hence, DNV will request the registration of the Saldanha Small 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 voluntary participation from the DNA of Brazil, including the confirmation that the project assists it in achieving sustainable development. A written approval of voluntary participation from the DNA of the United Kingdom is also needed.

REFERENCES

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

/1/ *Project Design Document for the Saldanha Small Hydroelectric Project* – Version 01 of 5 February 2007.

/2/ *Project Design Document for the Saldanha Small Hydroelectric Project* – Version 02 of 5 April 2007

/3/ *Project Design Document for the Saldanha Small Hydroelectric Project* – Version 03 of 28 Sep 2007

/4/ EcoSecurities – Datasheet to calculate the Combined Margin for Rondônia-AcreIsolated Grid: "2003-2005 Rondônia-Acre.xls"

/5/ EcoSecurities – Datasheet to calculate the emission reduction and financial calculation, Excel spreadsheets: "Saldanha calculation v03 2007-04-04.xls"

/6/ Monthly reports of CERON/COS - Operation System Control for 2003 to 2005

/7/ Eletrobras-GTON Isolated Systems Operational Plan for 2005. http://www.eletrobras.gov.br/img/menu/01_ccc_off.gif

/8/ Eletronorte - CAC "Monthly Accompaniment of Acre Units".

/9/ ANEEL Resolution number 727 of 18/12/2002 - "Authorization for installation of 4 800 kW in Saldanha hydropower plant".

http://www.aneel.gov.br/cedoc/res2002727.pdf

/10/ ANEEL Resolution number 349 of 05/10/2004 - "Postpone implementation to 2004 and application on sub-rogation right. http://www.aneel.gov.br/cedoc/rea2004349.pdf

/11/ ANEEL Resolution number 487 of 10/03/2006 - "Authorization to start the operation on 13 March 2006 of Saldanha hydropower plant.

http://www.aneel.gov.br/cedoc/dsp2006487.pdf

/12/ Letter CT/017/2003 from Mr Erona Oliveira Lopes – Hidroluz to Incomex issued on 26 February 2003, about the necessity of CDM CERs and subrogation in order to make the Saldanha implementation possible.

/13/ Operation License Operation Licence No. 000546, issued by NUCOF/SEDAM/RO on 19 December 2005 and valid until 19 December 2007.

/14/ Environment Control Plan issued on 2002 by Antonio Carlos Vieira, Agricultural Engineer and Jose Valdirley Scardueli, Florestal Engineer for Saldanha Small Hydro Electric Unit

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 of 23 December 2006.

/17/ CDM-EB: Approved Consolidated Baseline and Monitoring Methodology ACM0002 - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 06 of 19 May 2006

/18/ 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.

/19/ Thresholds and Criteria for the Elegibility of Hydroelectric Power Plants with Reservoirs as CDM Project Activities – EB 23

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

/20/ Pablo Fernandez – EcoSecurities

/21/ Marcelo Aguiar – Ecosecurites

- o0o -

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
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 voluntary participation from the DNA of the participating Parties.
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 reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5.c, Simplified Modalities and Procedures for Small Scale CDM Project Activities §26	OK	Table 2, Section B.2.1

Requirement	Reference	Conclusion	Cross Reference/ Comment
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	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	Table 2, Section A.1

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	
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	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	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	The PDD of 5 February 2007 was made publicly available on DNV's climate change website (www.dnv.com/certification/climatechange) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 10 February 2007 to 11 March 2007. No comments have been 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/	DR	Yes. The project has an installed capacity of 5.0 MW, which is below the stipulated limit of 15 MW, qualifying as a small scale CDM project activity as Type I, Category D defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM.		OK
A.1.2. The small scale project activity is not a debundled component of a larger project activity?	/1/	DR	No. The proponent has not registered any small scale CDM projects in the last 2 years and the project boundary is not within 1 km radius of any other proposed small scale CDM project		OK
A.1.3. Does proposed project activity conform to one of the project categories defined for small scale CDM project activities?	/1/	DR	Yes. The project conforms to the type (i) category of small-scale CDM project activities, “renewable energy project activities with a maximum output capacity equivalent to up to 15 megawatts”		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
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. GPS coordinates are given.		OK
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	/1/	DR I	The project system boundaries are given as the physical, geographical site of the renewable generation source as well as the electricity grid that previously provided electricity to the municipality of Alta Floresta D'Oeste, which is not connected to the national grid, and will include all direct emissions related to the mix of electricity produced for those generators that will be add by the Project.		OK
A.2.3. Does the project design engineering reflect current good practices?	/1/	DR	Yes. The project design engineering is based on established technology suitable for small hydroelectric plants.		OK
A.2.4. Will the project result in technology transfer to the host country?	/1/	DR	No. The turbines will be purchased from a Brazilian producer.		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 I	The project will require minimal additional training and project maintenance. Moreover, support from the manufacturer is assured, and, as verified, the operator has experience from another Small Hydro plant.		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
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	The project will have environmental and social benefits like job opportunities, locally improved air quality due to substitution of fossil fuels, improvement of domestic technical capacity.		OK
A.3.2. Will the project create any adverse environmental or social effects?	/1/	DR I	Run-off-river power plants are not expected to result in large flooded areas. Other impacts are not foreseen. Integration and protection with environment is assured trough PCA (Environment Control Plan.		OK
A.3.3. Is the project in line with sustainable development policies of the host country?	/1/	DR I	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.		
A.3.4. Is the project in line with relevant legislation and plans in the host country?	/1/	DR I	The project has a regulatory permit from ANEEL nº 727/2002, 349/2004 and 487/2006 to operate the plant. The Operation License was issued on 19/12/04 and is valid until 19/12/07. The location is not influenced from Indian Protect Agency FUNAI.		OK

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

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 selected baseline methodology in line with the baseline methodologies provided for the relevant project category?	/1/	DR	Yes. The project belongs to the renewable energy category, and is a small-scale project; therefore the selected baseline methodology is appropriate.		OK
B.1.2. Is the baseline methodology applicable to the project being considered?	/1/	DR	Yes. The project complies with paragraph 1 of baseline methodology AMS-I.D: (renewable energy that) "…supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit."		OK
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,	/1/	DR I	By comparing the investment incentives for thermal and renewable electricity generation, the PDD argues that there is an investment barrier, as well as a barrier of prevailing		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
technology barriers, barriers due to prevailing practice or other barriers?			practice. Since the project is already operating, it needs to be documented that CDM was considered before construction, and that it was a prerequisite for the investment, i.e. that the project is different from the baseline scenario. The IRR/NPV calculation indicates that the investment was R$ 28 000 000, however according ANEEL resolution 349, the subrogation was based on R$ 18 000 000. DNV request more clarification. Please document/elaborate on the following assumptions affecting the analysis: <u>Investment barrier:</u> • Why is the comparative analysis between thermal and hydro electricity chosen? Is investment in a thermal plant a relevant option for the project participant? • How will the additionality be affected if the CCC subrogation does not qualify as an E-situation? See also section B.2.3 • A sensitivity analysis on variations in rainfall • The assumed load factor needs to be confirmed (discrepancy in figures in section B.6.3 and Annex 5: resp 75 or 71%) • The assumed load factor needs to be substantiated with documentation. <u>Prevailing practice barrier:</u> • Please explain the relevance of the plans	~~CL 1~~ ~~**CAR 1:**~~ ~~CL 3~~	

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			and forecasts made for Porto Velho system, and confirm that this system is separate from the Rondonia-Acre isolated system. • Please explain the statement that hydro generation is expected to decrease by 5%. Please provide the reference, justify the forecast, and specify the time period for which this forecast was made.	~~CL 4~~	
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	/1/	DR	The baseline is defined as the Rondônia-Acreisolated system; it consists in 9 thermoelectric plants, adding 681.55 MW of installed capacity and 13 hydroelectric plants adding 259.50 MW of installed capacity.		OK
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?	/1/	DR I	The PDD refers to Brazilian law 9648/98 (“the CCC subrogation”) which effectively provides subsidies to renewable electricity generation in isolated grids. It is argued that this policy will be classified as an E- project under Annex 3 of the EB 16 report, ie. is not to be considered. However, the E- classification only applies to laws or policies implemented after November 2001, while the Brazilian law 9648/98 was implemented in 1998. Please clarify, and explain how the additionality will be affected if the CCC subrogation does not qualify as an E- situation.	~~CL 5~~	OK
B.2.4. Is the baseline selection compatible with the available data?	/1/	DR	The data used for calculating OM and BM are based on a variety of sources referred to in Annex 3 of the PDD.		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 I	The baseline is defined as the Rondônia-Acreisolated system, consisting of thermal and hydro-based power stations. The components of the grid, and thus of the baseline, are provided. The project will avoid installation of new thermal unit.		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	Yes. The project start is defined as the start of operation, which happened 1 March 2006. The expected operational lifetime is 30 years. However the ANEEL Resolution 487 of 10 March 2006 define the starting date for operation 13 March 2006. DNV request clarification. It needs to be documented that CDM was considered before plant construction, and that it was a prerequisite for the investment, i.e. that the project does not in itself represent the baseline scenario.	~~CL 2~~ ~~CL 1~~	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 I	Yes. The project asks for a fixed crediting period of 10 years, starting on 1 Set 2007, however, It needs to be confirmed that the crediting period will only start after the date of registration.	~~CL 6~~	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/	DR	Yes. The chosen monitoring methodology (paragraph 13 of AMS-I.D) corresponds to the project category (renewable energy generation of less than 15 MW installed capacity).		OK
D.1.2. Is the monitoring methodology applicable to the project being considered?	/1/	DR	Yes.		OK
D.1.3. Is the application of the monitoring methodology transparent?	/1/	DR I	The application of the monitoring methodology is transparent when it comes to monitoring the electricity production. The emission factor was calculated *ex-ante*.		OK
D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	/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	/1/	DR	The Saldanha unit use water directly from the river, with minimum flooded area of 0.0075 km^2		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?		I	of flooded area and power density of 600 W/m^2 and the project emissions can be ignored when the power density of the project is greater than 10 W/m^2.		
D.2.2. Are the choices of project GHG indicators reasonable?	/1/	DR	N/A		OK
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	/1/	DR	N/A		OK
D.2.4. Will the indicators give opportunity for real measurements of project emissions?	/1/	DR	N/A		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/	DR I	N/A. According to AMS I.D Version 10, a leakage calculation is only needed if the renewable energy equipment is transferred from another activity or to another activity. The electricity generating equipment is not transferred from any other activity as verified by purchase receipt from “HISA – Hidraulic Industrial S.A.		OK
D.3.2. Are the choices of leakage indicators reasonable?	/1/	DR	N/A		OK
D.3.3. Will it be possible to monitor / measure the specified leakage indicators?	/1/	DR	N/A		OK
D.3.4. Will the indicators give opportunity for real measurements of leakage effects?	/1/	DR	N/A		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 baseline emissions during the crediting period?	/1/	DR	Yes, the monitoring plan provides for reading the net amount of electricity supplied to the grid by the project activity.		OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR	Yes. For renewable grid-based energy projects, the crucial indicator to monitor is the net amount of electricity fed into the grid.		OK
D.4.3. Will it be possible to monitor / measure the specified baseline indicators?	/1/	DR	Yes. See previous question.		OK
D.4.4. Will the indicators give opportunity for real measurements of baseline emissions?	/1/	DR	Yes. See previous question.		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 the hydro plant and cross checked with the readings. This information will be transferred to EcoSecurities, which is responsible for the monitoring report.		OK
D.5.2. Is the authority and responsibility for registration monitoring measurement and reporting clearly described?	/1/	DR I	See D.5.1		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
D.5.3. Are procedures identified for training of monitoring personnel?	/1/	DR I	The project will require minimal additional training and project maintenance. Moreover, support from the manufacturer is assured, and, as verified, the responsible employees have previous work experience from another Small Hydro plant.		OK
D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR	N/A		OK
D.5.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR	Yes. Meter(s) are calibrated by the distribution concessionaire CERON in accordance with national standards established by INMETRO - entity responsible for calibration standards) and recalibrated according to manufacturer specifications, but at least once every 3 years.		OK
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR	The electricity meter(s) will undergo maintenance subject to industry standards.		OK
D.5.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR	Yes. Meter readings and energy sales receipts will be collected by the plant operation personnel and transferred to EcoSecurities on a monthly basis in order to monitor emission reductions. To guarantee the consistency and accuracy of the data collected from the meter(s), data will be cross-checked with the sale receipts which will show the amount of energy supplied to the grid.		OK
D.5.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how	/1/	DR I	See D.5.1		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
to process performance documentation)					
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR	See D.5.1		OK
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	/1/	DR	See D.5.1		OK
D.5.11. Are procedures identified for project performance reviews?	/1/	DR	See D.5.1		OK
D.5.12. Are procedures identified for corrective actions?	/1/	DR	See D.5.1		OK
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	N/A. According to the baseline and monitoring methodology AMS-I.D		OK
E.1.2. Have all relevant greenhouse gases and sources been evaluated?	/1/	DR	N/A		

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
E.1.3. Do the methodologies for calculating project emissions comply with existing good practice?	/1/	DR	N/A		
E.1.4. Are the calculations documented in a complete and transparent manner?	/1/	DR	N/A		
E.1.5. Have conservative assumptions been used?	/1/	DR	N/A		
E.1.6. Are uncertainties in the project emissions estimates properly addressed?	/1/	DR	N/A		
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	N/A. According to baseline and monitoring methodology AMS-I.D, leakage is to be considered "if the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity". The electricity generating equipment is not transferred from any other activity as verified by purchase receipt from "HISA – Hidraulic Industrial S.A.		OK
E.2.2. Are potential leakage effects properly	/1/	DR	N/A		

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
accounted for in the calculations (if applicable)?					
E.2.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)?	/1/	DR	N/A		
E.2.4. Are the calculations documented in a complete and transparent manner and (if applicable)?	/1/	DR	N/A		
E.2.5. Have conservative assumptions been used (if applicable)?	/1/	DR	N/A		
E.2.6. Are uncertainties in the leakage estimates properly addressed (if applicable)?	/1/	DR	N/A		
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	Yes. Baseline emissions are calculated on the basis of the emission factor for the Rondonia-Acre isolated grid.		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 sources been evaluated?	/1/	DR	Yes. The evaluation of the greenhouse gases and sources is deemed reasonable.		OK
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	/1/	DR I	The emission factor was calculated *ex-ante*.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
E.3.5. Are the calculations documented in a complete and transparent manner?	/1/	DR	Yes, the calculation is transparent on Datasheet to calculate the Combined Margin for Rondônia-AcreIsolated Grid: "2003-2005 Rondônia-Acre.xls"		OK
E.3.6. Have conservative assumptions been used?	/1/	DR I	Documentation/justification should be provided on the following: • OM and BM calculations • Load factor used in ex-ante calculation of emission reductions (75%) – there are also inconsistent figures in • Check assumed electricity price against the value in the PPA (assuming there is one in place since the project is already built)	~~CL 7~~	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 279 710 tCO_2e (27 971 tCO_2e / year average) over the defined first renewable 10 years crediting period.		OK
***F.* Environmental Impacts** It is assessed whether environmental impacts of the project are sufficiently addressed.					
F.1.1. Does host country legislation require an	/1/	DR	The Saldanha Small Hydroelectric Project has		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
analysis of the environmental impacts of the project activity?		I	been granted the Operation Licence No. 000'546, issued by NUCOF/SEDAM/RO on 19 December 2005 for the Saldanha hydropower plant and valid until 19 December 2007. Environment Licenses are issued after all possible impacts are analyzed by the State Environmental Agency, SEDAM and considering the Environment Control Plan (PCA) /14/. 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.		
F.1.2. Does the project comply with environmental legislation in the host country?	/1/	DR I	See F.1.1		OK
F.1.3. Will the project create any adverse environmental effects?	/1/	DR I	See F.1.1		OK
F.1.4. Have environmental impacts been identified and addressed in the PDD?	/1/	DR	See F.1.1		OK
G. **Comments by Local Stakeholder** Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	/1/	DR I	Yes. A list of consulted stakeholders is provided in the PDD section E.1 according with the requirements of Resolution 1 of the Brazilian DNA. Copies of the letters sent to the		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			stakeholders were assessed by DNV.		
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR I	See G.1.1		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 I	See G.1.1		OK
G.1.4. Is a summary of the comments received provided?	/1/	DR	See G.1.1		OK
G.1.5. Has due account been taken of any comments received?	/1/	DR	No comments were received during the consultation.		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 IRR/NPV calculations evidence that the investment was R$ 28 000 000, however according ANEEL resolution 349, the subrogation was based on R$ 18 000 000. DNV requests more clarification	B.2.1	The difference of values is related to Substation investments that were not considered on ANEEL Resolution 349. The budget was presented to support the value of R$ 28 000 000.	The complementary information related the implementation of 69 kV/138 kV substation, which was requested by CERON (the operator of the Rondônia-Acregrid and buyer of electricity), was not granted with any subsidy, and the investment calculation demonstrate an IRR of about 10%, which is lower than the implementation of thermo unit, the BAU in the North region of Brazil. This CAR is therefore closed.
CL 1 Since the project is already operating, it needs to be documented that CDM was considered before construction, and that it was a prerequisite for the investment, i.e. that the project is different from the baseline scenario	B.2.1 C.1.1	A step 0 document was provided to show CDM was considered before the project operation.	The Letter CT/017/2003 from Mr Erona Oliveira Lopes – Hidroluz to Incomex issued on 26 February 2003, about the necessity of CDM CERs and subrogation in order to realize the Saldanha project. This CL is therefore closed.
CL 2 The project start is defined as the start of operation, which happened 1 March 2006. The expected operational lifetime is 30 years. However the ANEEL Resolution 487 of 10 March 2006 defines the starting date for operation as 13 March 2006. DNV request clarification.	C.1.1	Starting date was modified at the PDD according to the ANEEL Resolution 727.	In the PDD version 3 the correct starting date of 01 April 2004 according to the ANEEL resolution 727 is evidenced. This CL is therefore closed.

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
CL 3 Please document/elaborate on the following assumptions affecting the analysis: <u>Investment barrier:</u> • Why is the comparative analysis between thermal and hydro electricity chosen? Is investment in a thermal plant a relevant option for the project participant? • How will the additionality be affected if the CCC subrogation does not qualify as an E- situation? See also section B.2.3 • A sensitivity analysis on variations in rainfall • The assumed load factor needs to be confirmed (discrepancy in figures in section B.6.3 and Annex 5: 75 or 71%, respectively) • The assumed load factor needs to be substantiated with documentation.	B.2.1	o Diesel thermal plants are the baseline for energy supply on the region, characterized by an isolated system. Therefore, both from a investment and prevailing practice perspectives, a thermal plant is more attractive than small hydro. o The investment analysis considered the incentive from the CCC subrogation, no talking in consideration the E- situation. The PDD text was corrected accordingly. o A spreadsheet with sensitivity analysis on variation in rainfall was provided. In fact, the analysis states that rain variation can only jeopardize the amount of energy generated. o Further clarification was provided. o PDD was corrected According to the calculation. The load factor is calculated on the spreadsheet named "Calculation" under the document "Saldanha calculation v03 2007.04.05.xls".	The electricity generation on North region of Brazil is confirmed the thermo generation as BAU due the CCC subside. The reviewed PDD and financial calculation spreadsheet evidence that CCC subrogation was included to calculate the IRR and the statement of E- situation was removed. Sensitivity analysis was included. The financial calculation and reviewed PDD evidence the load factor as 71% calculated through the electricity generation agree on PPA with CERON and the potential capacity of Saldanha. This CL is therefore closed.
CL 4 <u>Prevailing practice barrier:</u> • Please explain the relevance of the plans and forecasts made for Porto Velho system, and confirm that this	B.2.1	o The Porto Velho system is integrated to the Rondônia-Acre system. o The reference for this assertion is on the PDD and the information can be	Complementary information and the Rondônia-Acrecombined margin calculation provide evidence that Porto Velho is integrated to the Rodônia-Acre system.

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
system is separate from the Rondonia-Acre isolated system. • Please explain the statement that hydro generation is expected to *decrease* by 5%. Please provide the reference, justify the forecast, and specify the time period for which this forecast was made.		can be verified on the 2003 Operational Plan at http://www.eletrobras.com.br/EM_Atuacao_SistIsolados/default.asp	The statement about hydro generation decrease is based on El Niño effect in northern Brazil, reducing the amount of rain and consequent lower the production of electricity. This CL is therefore closed.
CL 5 The PDD refers to Brazilian law 9648/98 ("the CCC subrogation") which effectively provides subsidies to renewable electricity generation in isolated grids. It is argued that this policy will be classified as an E- project under Annex 3 of the EB 16 report, i.e. it is not to be considered. However, the E- classification only applies to laws or policies implemented after November 2001, while the Brazilian law 9648/98 was implemented in 1998. Please clarify, and explain how the additionality will be affected if the CCC subrogation does not qualify as an E- situation.	B.2.3	As stated before on CL3 the information was already corrected on the PDD.	The reviewed PDD and financial calculation spreadsheet has evidence that CCC subrogation was included to calculate the IRR and the statement of E- situation was removed. This CL is therefore closed.
CL 6 It needs to be confirmed that the crediting period will only start after the date of registration.	C.1.2	The PDD is now considering the crediting period starting on September 2007, when most likely the project will be registered.	The reviewed PDD define the starting credit period 01/09/2007, or on the date of registration of the CDM project activity, whichever is later. This CL is therefore closed.

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
CL 7 Documentation/justification should be provided on the following: • OM and BM calculations • Load factor used in ex-ante calculation of emission reductions (75%) – inconsistent numbers are presented. • Check assumed electricity price against the value in the PPA (assuming there is one in place since the project is already built)	18	o Information was provided. o Load Factor is 71% as referred on CL3 above. Correction was made to consider the value stated by PPA (R$117 after the substation construction). To be conservative, this value is now considered since 2006.	The price of electricity was reviewed according to the PPA DT/053/06 with CERON. This CL is therefore closed.

- o0o -

APPENDIX B

CERTIFICATES OF COMPETENCE

CERTIFICATE OF COMPETENCE

Luis Filipe Tavares

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	-
CDM Verifier:	Yes	***JI Verifier:***	-
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 9 & 13		

Høvik, 6 November 2006

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Tonje Folkestad

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	--	***JI Validator:***	-
CDM Verifier:	--	***JI Verifier:***	-
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 5 February 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Hendrik Brinks

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	--	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1, 2, 3 & 12		
Technical Reviewer for (group of) methodologies:			
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes	*AM0013, AM0022, AM0025, AM0039, AMS-III.H, AMS-III.I*	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes		

Høvik, 18 July 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Michael Lehmann

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	Yes
CDM Verifier:	Yes	***JI Verifier:***	Yes
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1,2,3 & 9		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	*AM0021*	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029	Yes	*AM0023*	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	*AM0024*	Yes
ACM0004	Yes	*AM0027*	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	*AM0028, AM0034*	Yes
ACM0007	Yes	*AM0030*	Yes
ACM0008	Yes	*AM0031*	Yes
ACM0009, AM0008, AMS-III.B	Yes	*AM0032*	Yes
AM0006, AM0016, AMS-III.D	Yes	*AM0035*	Yes
AM0009, AM0037	Yes	*AM0038*	Yes
AM0013, AM0022, AM0025, AM0039, AMS-III.H, AMS-III.I	Yes	*AM0041*	Yes
AM0014	Yes	*AM0034*	Yes
AM0017	Yes	*AMS-II.A-F*	Yes
AM0018	Yes	*AMS-III.A*	Yes
AM0020	Yes	*AMS-III.E, AMS-III.F*	Yes

Høvik, 5 February 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Einar Telnes

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	Yes	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1, 2, 3 6 & 10		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	*AM0027*	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes	*AM0028, AM0034*	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	*AM0030*	Yes
ACM0004	Yes	*AM0031*	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	*AM0032*	Yes
ACM0007	Yes	*AM0035*	Yes
ACM0008	Yes	*AM0038*	Yes
ACM0009, AM0008, AMS-III.B	Yes	*AM0041*	Yes
AM0006, AM0016, AMS-III.D, ACM0010	Yes	*AM0034*	Yes
AM0009, AM0037	Yes	*AM0043*	
AM0013, AM0022, AM0025, AM0039, AMS-III.H, AMS-III.I	Yes	*AM0046*	
AM0014	Yes	*AM0047*	
AM0017	Yes	*AMS-II.A-F, AM0044*	Yes
AM0018	Yes	*AMS-III.A*	Yes
AM0020	Yes	*AMS-III.E, AMS-III.F*	Yes
AM0021	Yes		
AM0023	Yes		
AM0024	Yes		

Høvik, 5 February 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Directo