VALIDATION REPORT

Ecopart Assessoria em Negócios Empresariais Ltda.

Baguari Hydropower Plant CDM Project Activity

SGS Climate Change Programme
SGS United Kingdom Ltd
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Date of Issue:
13/04/2010

Project Number:
CDM.VAL1576

Project Title:
Baguari Hydropower Plant CDM Project Activity

Organisation:
SGS United Kingdom Limited

Client:
Ecopart Assessoria em Negócios Empresariais Ltda.

Publication of PDD for Stakeholders Consultation

First Commenting Period:	02 November 2007 – 01 December 2007
Second Commenting Period:	28 January 2009 – 26 February 2009
First PDD Version and Date:	Version 1 – 31/10/2007
Final PDD Version and Date:	Version 6 – 22/09/2009

Summary:
Ecopart Assessoria em Negócios Empresariais Ltda.have commissioned SGS to perform the validation of the project: Baguari Hydropower Plant CDM Project Activity.

Methodology used: ACM0002 / Version 10 – EB47 – Valid from 11th June 2009

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and applicable CDM requirements.

The report is based on the assessment of the project design document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to document reviews, follow up actions (e.g site visit, telephone or e-mail interviews) and also the review of the applicable approved methodology and underlying formulae and calculations.

The report and the annexed validation describes a total of 20 findings which include:

- 13 Corrective Action Requests (CARs);
- 06 Clarification Requests (CLs);
- 01 Forward Action Request (FAR).

All findings have been closed satisfactorily and the project:

☒ Will be recommended to the CDM Executive Board with a request for registration OR
☐ Is not recommended for registration because a Negative Validation Opinion is issued. The validation report shall be sent to the CDM Executive Board

At time of the validation, no Letter of Approval from the host country had been provided. The Letter of Approval will be signed after the DNA of Brazil receive and analyse the validation report.

Subject:
CDM Validation

Validation Team:
Fabian Goncalves – Lead Assessor, Assessor
Leandro Silva – Assessor, Local Assessor (until 29th December 2009)
Lucas Engelbrecht – Local Assessor
Roberto Santos – Financial Expert
Geisa Principe – Lead Assessor (until 14th August 2009)
Talita Beck – Local Assessor (until 22nd September 2009)
Joe Sun – Sectoral Expert (scope 1)

Technical Review:
Date: 30-11-2009; 08-03-2010 and 22-04-2010

Trainee Technical Reviewer:
Name: (*Insert Name)*

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Abbreviations

ACM	Approved Consolidated Methodology
ANEEL	Agencia Nacional de Energia Elétrica (Brazilian Agency of Power Electricity).
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
COP/MOP	Conference of Parties / Meeting of Parties
DOE	Designated Operational Entity
DNA	Designated National Authority
EB	CDM Executive Board
EF	Emission Factor
ER	Emissions Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
HPP	Hydro Power Plant
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
PDD	Project Design Document
PPA	Power Purchase Agreement
PP	Project Participants
ROA	Return on Assets
SHPP	Small Hydro Power Plant
SGS	SGS United Kingdom Limited
UNFCCC	United Nations Framework Convention on Climate Change

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Annexes:

1. Validation Opinion

SGS United Kingdom Ltd has been contracted by Ecopart Assessoria em Negócios Empresariais Ltda. To perform a validation of the project "Baguari Hydropower Plant CDM Project Activity" in Brazil.

The validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism (CDM), Validation and Verification Manual (VVM) version 1 and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

SGS reviewed of the project design documentation, using a risk based approach and conducted follow-up interviews.

By the installation of a hydro power plant, with installed capacity of 140MW and 8.72 W/m^2 of power density to provide renewable electricity to the Brazilian interconnected grid, the project activity will result in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project correctly applies the methodology ACM0002 version 10 dated 11th June 2009. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 450,613 tCO2e over a 7 years crediting period, averaging 64,373 tCO2e annually for the crediting period during 01st January 2010 to 31st December 2016. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

The project will hence be recommended by SGS for registration with the UNFCCC, since the Brazilian DNA provides the Letter of Approval to the project activity, which is will be signed after the DNA of Brazil receive and analyse the validation report issued by the DOE.

Signed on Behalf of the Validation Body by Authorized Signatory

Signature:

Name:

Date:

2. Introduction

2.1 Objective

Ecopart Assessoria em Negócios Empresariais Ltda. has commissioned SGS to perform the validation of the project: Baguari Hydropower Plant CDM Project Activity with regard to the relevant requirements for Clean Development Mechanism (CDM) project activities. 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 (MP) and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reduction (CER). UNFCCC criteria refer to the Kyoto Protocol (KP) criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board (EB).

2.2 Scope

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, 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 Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

2.3 GHG Project Description

The report summarizes the results of the validation of Baguari Hydropower Plant CDM Project Activity, performed on the basis of UNFCCC criteria. The validation has been performed as a desk review of the project documents presented by Ecopart Assessoria em Negócios Empresariais Ltda. And a site visit carried out on 28th and 29th May 2008, where the details of the project activity were verified on-site. During the site visit, Consórcio UHE Baguari's manager and Ecopart Assessoria em Negócios Empresariais Ltda. Consultant were interviewed.

The project activity consists of the installation of a Hydropower plant with an installed capacity of 140MW and a reservoir of 16.06km², located on the Garcia River, in the municipalities of Fernandes Tourinho, Sobrália, Governador Valadares, Iapu, Alpercata and Periquito, Minas Gerais State, Brazil.

The project has the objective to provide renewable electricity from Baguari Hydropower Plant CDM Project Activity and dispatch the energy to interconnected system. This project will increase the supply of renewable source of energy to the grid, avoiding the use of fossil fuel that would be burned in thermal power.

Total amount of emission reductions estimated for the first seven years crediting period 450,613 tCO_2e.

Baseline Scenario:
In the absence of the project activity the electricity would be generated by large hydro power and thermal generation from the grid.

With-project scenario:
The installation of a hydroelectric power plant to provide renewable electricity to the Brazilian interconnected system.

Leakage:
No leakage was identified for this project.

Environmental and social impacts:

The project is in line with host-country specific CDM requirements. It is expected that the project activity will help Brazil to fulfil its goals of promoting sustainable development. The contributions of the project activity for this were described in the PDD, and comprises, among others: decreasing the dependence on fossil fuels, thus improving air quality; increasing employment opportunities in the area where the project is located; promotion of better revenue distribution since it contributes to the regional/local economic development and encouraging other similar companies that want to replicate this experience.

The construction and operation of the plant have followed the legal requirements regarding environmental protection and control. During the site visit, documented evidences regarding the environmental assessments were verified, including the Environmental Report. The environmental and social impacts were identified before the installation of the project and measures have been taken to minimize these impacts.

2.4 The Names and Roles of the Validation Team Members

Name	Role	Affiliate
Fabian Goncalves	Lead Assessor, Assessor	SGS Brazil
Leandro Silva	Assessor, Local Assessor (until 29th December 2009)	SGS Brazil
Lucas Engelbrecht	Local Assessor	SGS Brazil
Roberto Santos	Financial Expert	SGS Brazil
Geisa Príncipe	Lead Assessor (until 14th August 2009)	SGS Brazil
Talita Beck	Local Assessor (until 22th September 2009)	SGS Brazil
Joe Sun	Sectoral Scope Expert	SGS China

3. Methodology

3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project design document version 01 dated 31/10/2007 and the subsequent versions 02, 03, 04, 05 and 06 (final version, dated 22/09/2009). The assessment is performed by trained assessors using a validation protocol (Annex A.2, Table 2).

The site visit was performed on 28th and 29th May 2008 to confirm the statements expressed in the PDD.

3.2 Use of the Validation Protocol

The validation protocol used for the assessment is designed in accordance with the Validation and Verification Manual, version 1, dated 28th November 2008.

It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation (reporting).

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Ref ID	Means of Verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements are linked to checklist questions the project should meet.	Lists any references and sources used in the validation process. Full details are	Explains how conformance with the checklist question is investigated. Examples of means of	The section is used to elaborate and discuss the checklist question and/or the conformance	This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification Request (CL) is

	provided in the table at the bottom of the checklist.	verification are document review (DR) or interview (I). N/A means not applicable.	to the question. It is further used to explain the conclusions reached.	used when the validation team has identified a need for further clarification.

The completed validation protocol for this project is attached as Annex A.1 to this report

3.3 Findings

As an outcome of the validation process, the team can raise different types of findings

A Clarification Request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR).** A CAR

is issued, where:

I. The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
II. The CDM requirements have not been met;
III. There is a risk that emission reductions cannot be monitored or calculated.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

A Forward Action Request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

Corrective Action Requests and Clarification Requests are raised in the draft validation protocol and detailed in a separate form (Annex A.3). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to CLs and FARs.

3.4 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team. Findings can be raised at this stage and client must address them within agreed timeline.

4. Validation Findings

4.1 Approval

According to Resolution Nº 1 (Ref.44a) *"For the purposes of obtaining approval for project activities under the Clean Development Mechanism, project proponents shall submit to the Executive Secretariat of the Interministerial Commission on Global Climate Change, in electronic and printed format…. the project activity validation report prepared by the Designated Operational Entity authorized to operate in the country…. in Portuguese".*

The LoA for Brazil is currently pending DNA approval process in accordance with Resolution Nº 1 (Ref.44a).

4.2 Participation Requirements

Brazil is listed as the host Party. Brazil ratified the Kyoto Protocol on 23rd August 2002. (http://unfccc.int/files/essential_background/kyoto_protocol/application/pdf/kpstats.pdf).

Consórcio UHE Baguari and Ecoinvest Carbon Brasil Ltda. were the project participants in the PDD version 01. The project participant *Ecoinvest Carbon Brasil Ltda* changed its name twice during the validation process, first to *Ecoinv Global Lt*da in the republication of the PDD version 03, and finally in the PDD version 06 the company's name was *Ecopart Assessoria em Negócios Empresariais Ltda*. However, the registration number of the company kept unchanged. The information provided about the PP in the PDD version 06 was consistent in the sections A.3, Annex 1. Also, evidences were provided and checked through the website http://www.receita.fazenda.gov.br/pessoaJuridica/CNPJ/CNPJREVA/CNPJREVA_solicitacao.asp to ensure the project's ownership (Ref.12a-b).
There is no Annex I Party involved at this time of the project activity.

4.3 Project Design Document including Project Description

The title "Baguari Hydropower Plant CDM Project Activity", clearly identifies the CDM project activity, which started the validation process with the PDD version number 01, dated 31/10/2007 and finalized with the PDD version number 06, dated 22/09/2009.

The project activity is a hydropower plant with a total installed capacity of 140 MW, located in Fernandes Tourinho, Sobrália, Governador Valadares, Periquito, Iapu and Alpercata municipalities, state of Minas Gerais, Southeast region of Brazil. The primary objective of the project activity is to help Brazil to meet its raising demand for energy and to improve the supply of electricity contributing to the environmental, social and economic sustainability of the country. The PDD states clearly the technology applied and that the project's activity will reduce GHG emissions substituting partially fossil fuel generated electricity by renewable energy sources. The PP stated that the project activity is a hydropower "run-of-river" plant and in the first version of the PDD it was not provided accurate evidences of it because in the Despacho Nº1143, dated 20th March 2008 (Ref.29), issued by the ANEEL (*Brazilian Regulatory Agency of the Energy sector*), the reservoir area was cited as 14.16 km^2 and in the PDD version 01 it was cited as 16.06 km^2. **CL#01** was raised to clarify which area was correct and if the project activity is a run-of-river power plant or not.

The PP then presented an ANEEL Report of Progress (Ref.30), dated January 2009, which states the reservoir area as 16.06 km^2. As in both cases the power density would be between 4 and 10 MW/km^2, the most recent document was accepted. The evidences provided by the PP in the PDD version 05 about the definition of "run-of-river" (PDD page 6) and the comparison with the UHE Baguari were confirmed by the assessment team and **CL#01** was closed out.

Referred to Guidelines for completing the PDD, version 07, section 4.3 (EB41 Annex 12), the description of the project activity, in the section A.4.3 of the PDD, should include the scenario existing prior to the start of the implementation of the project activity, a list of the equipments and system that will be installed, among

others. As the PDD version 03 has a lack of information of the technology to be employed, **CAR#14** was raised.

To close out CAR#14, PP stated in the Annex 3 below that: "*Before the implementation of the project activity, no electricity was generated in the place where the plant is located and all the electricity was supplied by plants connected to the grid. This information as well as a list of the equipments that will be used in the Hydroelectric Power Plant was included in the fourth version of the PDD*".

Also, the PP provided the specification of the equipment which will be employed in the project activity and made changes in the respective section of the PDD version 04.

The DOE assessed the information and cross-checked with other documentation provided by the PP about the installed potency (Ref.30) to guarantee the transparency of the statements of the technology employed in the project activity. **CAR#14** was closed out. Refer to item A.2.1 – Annex A.2 for more information.

The DOE could not confirm the bibliography mentioned as reference in the PDD (PDD version 3 – Annex 5) and footnotes because a complete reference was not available. **CAR#15** was raised. To close out CAR#15 all the references mentioned in the PDD were revised by the PP in order to provide to the auditor the correct information.

The assessment team verified the PDD versions 04, 05 and 06, including its footnote links and bibliography. The links of the bibliography and footnotes were working properly and the bibliography was evaluated to confirm the information provided in the PDD. **CAR#15** was closed out.

The project location described in the PDD, version 03, did not correspond on the location of UHE Baguari. The installation license and EIA/RIMA state that project activity is located on Fernando Tourinho, Governador Valadares, Periquito, Sobrália, Iapu, and Alpercata municipalities, while the PDD mentions Fernandes Tourinho, Sobrália, Governador Valadares and Periquito. **CL#12** was raised.

The inconsistency of sites was solved due to the inclusion by the PP of the municipality of Iapu and Alpercata in the PDD version 04, which was checked and considered correct. After the closure of the CL#12, the DOE verified that the project activity is located among Fernandes Tourinho, Sobrália, Governador Valadares, Periquito, Iapu and Alpercata, in the state of Minas Gerais, Brazil, as stated in the section A.4.1 of the PDD version 04.

The geographical coordinates were in decimal points (Latitude: 19° 01' 20''S / Longitude: 42° 07' 26''W) and were checked, as correctly applied, in the following website: http://www.rdtec.com.br/. **CL#12** was closed out.

The PP possesses a concession given by the Ministry of Mines and Energy of Brazil (Ref.7) allowing them to implement the HPP Baguari in the designated location and explore its hydraulic potential for 35 years.

The project activity was identified in the section A.4.2 of the PDD version 01 (Ref.1) as being from the Sectoral Scope: 1 – Energy industries (renewable - / non-renewable sources) and its schedule of implementation are in accordance with the actual situation, which was to finalize and to start operation on December 2009.

There is no public funding involved in the project activity.

4.4 Applicability of selected methodology to the project activity

The baseline methodology applied initially was the ACM0002, version 06, valid from 19th May 2006 onwards.

The baseline methodology ACM0002 version 06 expired and **CAR#11** was raised asking the PP to take the corrective actions about the required changes in the PDD version 01. The PDD version 03 was re-published for global stakeholder consultation on 28th January 2009 for thirty (30) days with the version 08 of the ACM0002.

The chronology of updates of the methodology ACM0002 is expressed below, with timeline and main changes on it, from the latest version to the first published.

Version 10 – Approved on EB 47, Annex 7
28 May 2009
The revision expands the applicability of the methodology to project activities that retrofit or replace renewable energy power generation units, to restore the installed power generation capacity to or above its

original level. This revision includes the required provisions in the (i) definitions, (ii) baseline identification, and (iii) baseline emissions sections, in order to allow these types of project activities, as well as (iv) editorial changes in order to improve the overall clarity of the approved methodology.

Version 09 – Approved on EB 45, Annex 10
13 February 2009
Inclusion of project emissions for operation of solar power plant and backup power generation of all the renewable energy plants.

Version 08 – Approved on EB 44, Annex 12
28 November 2008
Incorporate changes in equation 9 of baseline emissions to account for the cases where the expansion of existing capacity of plant takes place as an additional energy generation unit is installed under CDM project activity.

Version 07 – Approved EB 36, Annex 11
30 November 2007
• General editorial revision of the methodology to put it in the new format;
• Inclusion of the "Tool to calculate the emission factor for an electricity system";
• Inclusion of the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion";
• Inclusion of the definitions for power plant/unit, installed power generation capacity, electricity capacity addition, modification and retrofit, net electricity generation and grid/project electricity system;
• Editorial revisions of the applicability conditions to clarify:
o That the methodology is applicable only to electricity capacity additions;
o The requirements for hydro power plants in terms of reservoir and power density;
o The minimum vintage of baseline data that has to be available;
o That the methodology is not applicable to biomass power plants and to hydro power plants with power density less than 4W/m2.
• Inclusion of an equation to calculate the power density of hydro power plants;
• Deletion of the parameters related to emissions associated with well testing in case of geothermal power plants, as those parameters were not necessary in the methodology.

Version 06 – Approved on EB 24, Annex 7
19 May 2006
• Revision of the applicability conditions to include hydro power plants with new reservoirs that have power density greater than 4 W/m2 and inclusion of the equation to calculate the emissions from the reservoir in the emissions reductions section;
• Revision of the baseline section to allow ex-ante calculation of the simple OM, simple-adjusted OM and average OM emission factors;
• Inclusion of the clarification that the choice between ex-ante and expost vintage for calculation of the build margin and the operating margin should be specified in the PDD and cannot be changed during the crediting period;
• Inclusion of guidance and clarifications on the selection of alternative weights for the calculation of the combined margin.

The assessment team closed out **CAR#11** and even tough it was necessary to update the methodology twice again (PDD version 06 applies the ACM0002 version 10), there was no need of PDD re-publication because the changes in the methodology did not impact on the project activity.

The "Tool for the demonstration and assessment of additionality" (Ref.3) (version 03) applied in the PDD version 01, had to be updated from the original due to the release of a more actual version. **CAR#02** was raised for the tool update.

The table below presents the revisions which the Tool (Ref.3) had during the validation process:

Version	Date	Nature of Revision
05.2	26 August 2008	Updated with version 2 of the annex "Guidance on the assessment of investment analysis".

05.1	25 July 2008	Addition of the "Guidance on the assessment of investment analysis" as an annex to the Additionality Tool.
05	EB 39, Annex 10 16 May 2008	• Changes in scope and applicability. • Clarity in the conditions under which different aproaches, provided in Step 2: Investment analysis can be applied. • Clarity in the appropriate choice of the benchmark for the assessment of additionality using benchmark analysis. • Footnote 6 deleted.
04	EB 36, Annex 16 30 November 2007	Footnote 7 revised.
03	EB 29, Annex 05 16 February 2007	• Removed Step-0 and Step-5 from Tool and other small changes done. • The tool is aligned with combined tool.

Once the PDD was corrected by the PP with the addition of the "Tool to calculate the emission factor for an electricity system" (version 01) and new version of the ACM0002 (version 10) (Ref.2), and the "Tool for the demonstration and assessment of additionality" /3/ (version 05.2), **CAR#02** were closed out.

It was verified that the project activity consists of "*a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield)*" (case a). Also, the UHE Baguari is a new hydro power plant with power density greater than 4 W/m^2.

The applicability of the case (a), cited above, was cross-checked during site visit and the power density was calculated, and confirmed as higher than 4 W/m^2 (8.72 W/m^2), based on the evidences of the specification of the turbines and generators (Ref.23 and 24), the Regulatory Agency ANEEL documentation related to the project activity (Ref.29), and the Report of Progress developed by the PP (Ref.30), which declares the Installed Capacity as 140MW and the Reservoir area as 16.06 Km^2 (refer to CL#01 – Annex 3 of this report for more details about the reservoir area data).

4.5 Project Boundary

All the emissions related to the project activity are clearly identified and are:

- Baseline: CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the Project Activity.
- Project Activity: CH_4 emissions from reservoir are accounted as project emissions once power density of the plant is between 4 and 10 W/m^2.

Through the equipments (Ref.23, 24) and other project documentation (Ref.29, 30), it was verified that the HPP has the capacity of 140MW and 16.06km^2 of reservoir area. As the power density is 8.72 W/m^2 , the project activity has to take into consideration the CH_4 emissions from decomposition in the reservoir (refer to CL#01-Annex A.3).

No leakage is expected.

The electricity generated by the project activity will replace fossil fuel electricity from the Brazilian interconnected grid as defined on May 26th, 2008 by the Brazilian Designated National Authority Resolution nº 8 defining the Brazilian Interconnected Grid as a single system comprising the fifth macro-regions of the country (http://www.mct.gov.br/upd_blob/0024/24719.pdf). It is according to the methodology ACM0002, version 10, applied in this project. Also, the "Tool to calculate the emission factor for an electricity system" (version 01.1) (http://cdm.unfccc.int/Reference/tools/index.html) was correctly applied for the emission factor calculation as stated by the Brazilian DNA and used data from official source.

The physical project boundary of the project activity is its geographical location and all components of the project activity. Its boundaries are defined in the PDD as: the reservoir, the power house, the substation and the interconnected national grid, including all GHGs required by the methodology (Figure 3 of the PDD final version).

4.6 Baseline Selection and Additionality

Due to the requirement of methodology ACM0002, the PP applied the "Tool for demonstration and assessment of additionality" (version 04 and later 05.2) to demonstrate additionality in the project activity.

The baseline scenario selected was, as stated in the sections B.4 and B.5 of the PDD, the continuation of the present scenario, with the supply of electricity from the Brazilian interconnected grid.

The baseline scenario is the actual situation scenario in Brazil, which is the presence of large hydro power plants, with low power density, and increasingly thermal power plants based on natural gas, which together represent the majority of the electricity generation installed capacity.

The documentation provided by the PP to underlie the demonstration of additionality was accessed by the DOE and were credible according to the VVM requirements (EB44 Annex 3). Also the links containing the data available in the internet, which was related to the project activity, were provided and accessed to check their authenticity.

4.6.1 Additionality

The version 01 of the PDD applied the methodology ACM0002 version 06 and the "Tool for the demonstration and assessment of additionality" version 03. The methodology ACM0002 version 06 expired during the validation process and the PDD was revised and re-published (refer to section B.1.1. and B.1.2 of PDD version 06 and/or CAR#02 and CAR#11 - Annex A.3 of this report).

In the last version of the PDD (version 06), the PP applies the ACM0002 version 10 and the "Tool for the demonstration and assessment of additionality" version 05.2, which are the most actual versions of these documents.

For evaluating the project additionality, the assessment team cross-check each step of the tool applied for demonstration of additionality with the respective section in the PDD plus evidences provided by the PP. The additionality will be discussed in the section below.

The source of data to ensure the alternatives to the project activity (Step 1), described in details in the section 4.6.3 of this report, were accessed through the evidences of companies constitution contracts (Ref.12a and 12b), which the DOE could analyse the companies field of market, and accessing the local legislation, verifying the authenticity of the Environmental Licenses' of the project (Ref.9a-d).

The Investment Analysis (Step 2), described in details in the section 4.6.4 of this report, was verified by the DOE by cross-checking the values of the investment costs (Ref.25a-b), the financial loan made by the PP (Ref.28) and the revenues with energy sales through the evidences of energy price of R$ 115.10/MWh (Ref.36), load factor (Ref.7 and 30), guaranteed energy sold of 77MW (Ref.36) and installed capacity (Ref.23, 24 and 30).

The Barrier Analysis (Step 3), described in details in the section 4.6.5 of this report, was excluded from the version 06 of the PDD.

The Common Practice (Step 4)), described in details in the section 4.6.6 of this report, was analysed with a research in the previous hydroelectric projects developed in the region of the UHE Baguari, based on their similarity with the project activity.

4.6.2 Prior Consideration of the Clean Development Mechanism

According to the Guidelines on the demonstration and assessment of prior consideration of the CDM (version 03) released in the EB49 – Annex 22, the "*Proposed project activities with a start date before 2 August 2008, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, are required to demonstrate that the CDM was seriously considered in the decision to implement the project activity*".

During the desk review stage, **CL#08** was raised to provide evidence of the CDM consideration prior to the implementation of the project activity.

To close out CL#08, PP included additional information in the section B.5 of the PDD version 04 and provided evidences of what they had done through out the timeline prior and following the starting date of the project activity.

The DOE, based on the requirement above, made the assessment of the project activity to ensure the PP considered CDM on the decision making and the following dates and actions were chronologically analyzed:

- 29/10/2004 – Preliminary Environmental License (LP) was issued (Ref.9a);
- 22/12/2005 – Auction Report of SHPs, HPPs and TPPs with UHE Baguari information (Ref.36)
- 07/03/2006 – UHE Baguari Board Meeting Minute (Ref.13a)
- 06/06/2006 – UHE Baguari Board Meeting Minute (Ref.13b)
- 14/07/2006 – UHE Baguari Board Meeting Minute including a Presentation of CDM potential projects

Date when the Board evaluated CDM incentives to the project activity (Ref.13c, d);

- 15/08/2006 – Concession Signature (Starting date of the project activity)

Date when the concession contract to explore for 35 years the hydraulic potential of the Doce River was signed between the PP and the Brazilian Government (Ref.7);

- 15/12/2006 – Installation Environmental License (LI) was issued (Ref.9b);
- 26/02/2007 – Major equipment orders

Date when the supply contract for the major equipments was signed between PP and the construction equipments suplier company (Ref.25 a, 25b);

- 26/03/2007 – Civil works contract signed

Date when the civil works contract was signed between PP and the construction company (Ref.21);

- 09/05/2007 – Start of the civil works
- 20/12/2007 – Financial loan contract signed with BNDES

Date when the major shareholder signed a contract with the financing institution (BNDES - Brazilian Bank of the National Development) (Ref.28).

- 05/06/2009 - Operation Environmental License (LO) was issued (Ref.9d)

The starting date of the project activity, 15 August 2006, was considered correct by the DOE as it was the date which the contract was signed for the concession to implement the project activity. The break of the contract would generate penalties to the PP and so it would be very unlikely to happen, as demonstrated in the section C.1 of the PDD version 06.

Other actions were taken before the beginning of the project activity and anticipating the validation process, and they were stated by the PP in the section B.5 of PDD version 06, as presented below (Ref.37):

- Participation of Neoenergia in a CDM market training carried out by Fundação Educacional Charles Darwin at Neoenergia office on July 6th and 7th, 2006 (Ref.37a), which the contract for holding the training was signed on 01/06/2006 by the PP (Ref.37b).
- Contact with the DOE "Det Norske Veritas" in 20/06/2006 till 03/07/2006 (Ref.37c) and 11/07/2006 (Ref.37d) setting a meeting to discuss CDM and exchanging information about projects;
- Commercial proposal from the Consultancy Ecopart (previous Ecoinvest) sent to Neoenergia (major shareholder of Consórcio UHE Baguari) on August 23rd, 2006 (Ref.37e-f);

The Ref.12a "Constitution Contract of UHE Baguari" states the three shareholders of the Joint Venture *Consórcio UHE Baguari*. The company called *Neoenergia* is the major shareholder, with 51% of the total capital invested and consequently it has the management control of the enterprise. As the controller of the Consórcio UHE Baguari, the Neoenergia company made contacts with DOEs and Consultancy companies.

Considering all the evidences provided by the PP relating to the prior consideration of CDM in the decision making process, the DOE understand that there is a concise timeline of real actions undertaken by the PP to implement the project activity as CDM. **CL#08** was closed out.

As the proposed project activity is an existing project, the DOE analysed the documentation related to the CDM consideration and concluded it was authentic and reliable. Also, the DOE followed the guidance to assess of real and continuing actions and verified that *"there is less than 2 years of a gap between the documented evidence the DOE shall conclude that continuing and real actions were taken to secure CDM status for the project activity"*.

4.6.3 Identification of Alternatives

Initially **CAR#03** was raised to correct the Step 1: Identification of the alternatives to the project activity consistent with laws and regulations, more specifically the Sub-steps 1a and 1b, which had a lack of information to underlie the alternatives.

The explanation given by the PP in the Section B.5 of the PDD version 04 was according to the referenced Tool. It was verified that the only two alternatives for the current project activity were correctly identified by the PP in the PDD version 04 (Sub-step 1a). Also, the discussion about the consistency with mandatory laws and regulations (Sub-step 1b) was properly addressed and specific information of the Regulatory Agencies in the host country was added, so **CAR#03** was closed out.

According to the "Additionality Tool" the proposed project should identify realistic and credible alternative(s) available to the project participants. The PP presented realistic alternatives to the project activity and the justification was the fact that the 2 companies which are the Project Participants: "Ecopart Assessoria em Negócios Empresariais Ltda." is the CDM project developer and do not invest in the construction and operation of Power Plants and the "Consórcio UHE Baguari" is a special purpose company set up specifically to construct and operate HPP Baguari (Consórcio UHE Baguari was created specifically to build and operate UHE Baguari being classified under Brazilian laws as an independent power producer. This means that the only possible alternatives to the company (i.e. investor) were to build or not the plant).

Consórcio UHE Baguari is a consortium formed by the shareholders Baguari I Geração de Energia Elétrica S.A.: 51%, it is Special Purpose Company owned by Neoenergia, CEMIG Geração e Transmissão S.A: 34% and Furnas Centrais Elétricas: 15%. All companies in the consortium are active in the electricity sector and could implement independently other projects but not the proposed project activity. Based on the characteristics of the project participants no other hypothetical alternative like the construction of a thermal power plant could be considered as an alternative for the proposed project activity.

As discussed above, there are no other realistic and credible alternative scenarios to the proposed CDM project activity that deliver the same service delivered by the proposed activity, *i.e.* renewable electricity, since from the project participants, the available option was to develop the Hydro Power Plant.

Based on the statements above, the only realistic alternatives to the project activity are:

- Continuation of the present scenario, with the supply of electricity from the Brazilian interconnected grid.
- The implementation of the project without incentives from the CDM.

The DOE considered that the alternatives are reliable (CAR#03 section B.3.1 – Annex A.2). The additionality of the proposed project was justified based on the financial unattractiveness of the project following the

Additionality Tool. The implementation of the proposed project without CDM is not feasible and without the proposed project activity the electricity can be supplied by the Brazilian grid.

4.6.4 Investment Analysis

STEP 2: Investment analysis

Sub-step 2a: Determine appropriate analysis method

The investment analysis method chosen by PP was the option III, benchmark analysis.

Sub-step 2b: Option III. Benchmark analysis

The financial analysis presented in the PDD and to DOE as part of the validation assessment is dated of December 2005 and as informed by PP was the official document utilized for the decision making of the Project Activity and Energy Auction. Considering the Guidance on the Assessment of Investment Analysis (version 2), values used in the investments analysis should be valid and applicable at the time of the investment decision taken by the project proponent. Then, values were not changed in the financial analysis of the PDD reflecting the decision making context of the project.

The PDD refers to another financial indicator (Proinfa) of 14.98%, which indicates the minimum attractiveness tax to implement an energy project. No reference was mentioned in the PDD for this and **CAR#16** was raised.

As the financial indicator of 14.98% related to "Proinfa" was not required in the analysis, it was excluded from the PDD. **CAR#16** was closed out.

The weighted-average cost of capital (WACC) presented in the PDD did not correspond to the WACC used to UHE Baguari project activity. The WACC given was considered for another project activity. PP would demonstrate the WACC used when the decision was taken to proceed with the project activity. **CAR#17** was raised.

The weighted-average cost of capital (WACC) is the rate used to discount business cash flows and takes into consideration the cost of debt and the cost of equity of a typical investor in the sector of the project activity. The WACC considers that shareholders expect compensation towards the projected risk of investing resources in a specific sector or industry in a particular country.

The WACC calculation was based on parameters that are standard in the market, considers the specific characteristics of the project type, and is not linked to the subjective profitability expectation or risk profile of this particular project developer. The WACC calculated for the sector is 12.41%.

The detailed calculation of WACC (calculated as 12.41%) was verified (ref. 40 of the validation report) during the validation process. Assumptions, values and equations were checked and documented copies were provided to DOE and mentioned in the reference list of the validation report. The assessment team verified the assumptions and calculation of each component of the equation. The values used in the project were based in parameters observed in global financial markets. These parameters are based on available data that was confirmed by the validation team (BNDES quotations, emerging markets bond index). The calculation of WACC was provided as below:

- Cost of equity 35% (based on the 65% cost of debt, ref. 40):

Rf – Risk free = 5.41% (Treasury Bonds Index – 10-year http://finance.yahoo.com/q?s=%5ETNX)
Unlevered Beta = 0.410 (ref. 40)
Levered Beta = 0.913 (ref. 40)
Market Premium = 6.53% (ref. 40, Value of T.bonds)
Country Risk = 5.39% (J.P.Morgan – http://www.acionista.com.br/graficos_comparativos/risco_brasil_mensal.htm)

Currency Risk = 2.0% (considered in the electricity sector in Brazil, Nota Técnica no 164/2006-SRE/ANEEL)
Rn – Expected Return (nominal) = 18.76% (Calculated based on the values above)
P – American Inflation = 2.17% (ref. 40, http://data.bls.gov/cgi-bin/surveymost)

Re – Expected Return (real) = 16.24% (Calculated (1+Rn)/(1+P)-1)

- Cost of Debt 65%(http://inter.bndes.gov.br/english/conditions.asp):

Fc - BNDES Financial Cost – TJLP = 9.75% (http://inter.bndes.gov.br/english/tjlp.asp)
Ff – BNDES Fee = 2.5%
(http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Relacao_Com_Investidores/Relatorio_I/RelAnual2007.html)
Fr – Credit Risk Rate = 2.5% (http://inter.bndes.gov.br/english/finem.asp)
Cost of Debt (nominal) = 15.31% (calculated based on the values above)
Expected Inflation = 4.5%/year for the years –005 - 2011
(http://www.bcb.gov.br/pec/metas/InflationTargetingTable.pdf)
Cost of Debt (real) = 10.34% (calculated)

WACC (without taxes) = 12.41%

The use of the WACC as a benchmark is considered suitable to CDM projects in Brazil. Several approaches are being used in CDM projects in Brazil, and the WACC being the most commonly used in recent projects. Recent similar CDM projects in Brazil were analyzed through the Brazilian DNA website (http://www.mct.gov.br/index.php/content/view/57967.html). CAR #17 was closed out.

Sub-step 2c: Calculation and comparison of financial indicators

CL#19 was raised asking PP to provide the cash-flow spreadsheet with formulas and source of data used. The cash flow spreadsheet and WACC calculation were provided with formulas. From the spreadsheets it was possible to verify how the IRR and WACC were calculated.

The project IRR is 10.95%. With this IRR the proposed project activity demonstrates that the IRR of the project without considering CERs revenues is lower than the WACC of the sector, calculated as 12.41%.

The financial indicator IRR (internal rate of return) was calculated using the spreadsheet "UHE_Baguari_Cash Flow_v.6.1" (Ref. 31). The cash flow shows that proposed project activity was planned with an expected IRR of 10.95%. Evidences and sources used for calculation of IRR were provided and discussed with the client during the site visit. With the spreadsheet provided it was possible to recalculate the IRR and confirm that the proposed project is not financial attractive.

The cashflow presented the following data and respective references:

- Total Investment: R$ 445,288,000 (Ref. 31, 21, 25a related to the implementation contract of Baguari).
- Lifetime: 34 years is based on the concession contract between Consorcio UHE Baguari and MME on 15/08/2006 (ref. 7).
- Legal fees: based on the legal fees applied in the country (Brazil) and confirmed through the website of the Secretariat of the Federal Revenue of Brazil (ref. 31a).
- Regulatory fees: based on the fees established by the national agencies in the electricity sector and confirmed through the following documents: Resolution ANEEL Nº285, 23/12/2004; ANEEL website TFSEE based on the Decreto 2410, 28/11/1997; (ref. 31a)
- Costs: (R$'000) 519 based on the data provided by the PP and confirmed through the annual balance of the company published in the public newspaper "Valor Econômico" on 31/12/2009 (ref. 31a).
- Installed capacity: 140MW (Ref. 24, 29 related to the equipment specification and ANEEL document DESPACHO N° 1.143, dated 20/03/2008)
- Assured energy: 80.2 MW (Ref. 30, 36 related to the ANEEL report and Energy Auction)
- Energy tariff: R$ 115.10 (Ref. 36 related to the Energy Auction)

The calculations, data and their sources were validated. The financial analyses verified on-site are in compliance with information presented in the PDD. **CL#19** was closed out.

As stated above and in the sensitivity analysis below, the assessment of the investment analysis was conducted through the assessment of the parameter and assumptions used to calculate the internal rate of

return. The data provided was analysed by the financial expert and considered accurate. Parameters were checked against publicly available documents/websites. The benchmark applied is suitable for the typo of IRR presented. It is reasonable to assume that no investment would be made at an IRR of 10.95%, lower than the benchmark of 12.41%.

Sub-step 2d: Sensitivity analysis (only applicable to Options II and III)

The sensitivity analysis was performed according to the "*Guidance on the Assessment of Investment Analysis*" (EB 41, Annex 45), considering variables that constitute more than 20% of either total project costs or total project revenues. Variations was done increasing project's revenues (sale of electricity), increasing energy generation by the plant (load factor variation), reducing investment expenses, and reducing operation and maintenance costs.

Baguari Project		**IRR (%)**	**WACC (%)**
Original IRR		10.95	12.41
Tariff increase	(+10%)	12.33	
Energy Generation / Load Factor increase	(+10%)	12.28	
O&M Cost reduction	(-10%)	11.18	
Investment reduction	(-10%)	12.16	

The Sensitivity analysis presented in the Table above shows the impact of the variation in + 10% or -10%, of some variables. The WACC of 12.41%, calculated based in the energy sector (Ref.39 and 40) is higher than any value of IRR calculated to measure the investment return of the project activity.

The original IRR calculated was 10.95%, the lowest value, and the highest value calculated was in the case the energy generation (load factor) is 10% higher, but the value obtained was 12.28%, which is still lower than the WACC of 12.41% for the proposed project activity. Based on the values, calculation and evidences provided by the PP and verified by the DOE, it was possible to conclude that the proposed project activity is not financially attractive.

4.6.5 Barrier Analysis

The ***STEP 3: Barrier analysis*** of the tool (Ref.3) was not applied correctly in the PDD version 01 and the **CL#04, CAR#05, CL#06** and the **CAR#07** were raised. To close out the findings cited above, the PP opted for the exclusion of the discussion of Step 3: Barrier Analysis from the section B.5 of the PDD and to apply only the Step 2: Investment Analysis to demonstrate additionality.

As the "Tool for the demonstration and assessment of additionality" version 05.2, states that PP could: *"Proceed to Step 2 (Investment analysis) or Step 3 (Barrier analysis). (Project participants may also select to complete both Steps 2 and 3.),* the assessment team accepted the exclusion of the Step 3 from the PDD and the **CL#04, CAR#05, CL#06** and the **CAR#07** were closed out (refer to CAR/CL for more detail – Annex 3).

4.6.6 Common Practice Analysis

In the ***STEP 4: Common practice analysis*** of the tool (Ref.3), the PP applied the Sub-steps as following:

Sub-step 4a: Analyze other activities similar to the proposed project activity

The Sub-step 4a was not discussed in PDD version 01 and **CAR#09** was raised.

The PP made alterations in the sub-sequent versions of the PDD but due to the lack of accurate information or inconsistency of data, the CAR#09 remained outstanding until the version 06 of the PDD, when the PP

discussed clearly the criteria and the steps undertaken to demonstrate the project activity was not a common practice.

The criteria of analysis in the sub-step 4a of the PDD version 06 was summarized below, as following:

i. Country/region

The approach made by the PP was that Brazil has an extension of 8,514,876.599 square kilometres and 6 distinct climate regions. These varieties of climate have influence in the technical aspects related to a hydropower projects and so just the state of Minas Gerais, where the UHE Baguari is located.

ii. Scale

According to the Brazilian regulations, large scale hydropower plants are defined as plants with an installed capacity greater than 30MW, as it was verified in the ANEEL Regulation #652, but due to the great difference amongs HPPs, only plants with installed capacity 50% lower and 50% higher than UHE Baguari project activity were analyzed, in the case, UHEs with between 70 and 210 MW of installed capacity.

iii. Same environment with respect to regulatory framework

It is known in Brazil that until the beginning of the 1990's, the energy sector was composed almost only by state-owned companies. In 2003, the recently elected government decided to fully review the electricity market institutional framework in order to boost investments in the electric energy sector. Market rules were changed and new institutions were created such as Energetic Research Company and the Chamber for the Commercialization of Electric Power.

The new structure, cited above, was approved by the House of Representatives and published on 15th March 2004 and it was taken into account the new regulatory framework and it was considered only the projects for which the decision making process happened after March of 2004.

iv. Same environment with respect to investment climate, access to technology and financing

This part of the common practice analysis uses part of the criteria " I " because depending on the project location, differences related to the technical aspects of hydropower plants projects have influence in their implementation.

These technical differences have an influence in the investment of a project. Furthermore, the PP states that "as financial information of similar projects is not accessible for PPs, these projects should be excluded from this analysis following the additionality tool. However, PPs decided to do their upmost in making a reasonable comparison for the purpose of common practice analysis".

As the criteria presented by the PP considers all the criteria stated by the additionality tool and the discussion of them are compatible with the Brazilian regional reality in the project activity field, the assessment team closed out the **CAR#09**.

Minas Gerais State (where the project is located) has an extension of 586,528.293 square kilometres (IBGE, 2009). Additionally, as mentioned in the PDD it has to be considered that the infrastructure, weather, hydrological regime among other important issues differ between all the Brazilian States and the larger the region being considered is, more different situations occur, which is the opposite to what the guidance recommends. The only existent classification related to small hydropower plants, which according to the Brazilian legislation consist of those plants with an installed capacity lower than 30MW. UHE Baguari installed capacity is 140 MW. The mentioned range comprises plants from 70MW to 210 MW which seems conservative.

Currently there are 15 Large Hydropower Plants under construction in Brazil (http://www.aneel.gov.br/aplicacoes/capacidadebrasil/GeracaoTipoFase.asp?tipo=1&fase=2). This figure excludes UHE Santo Antônio, UHE Jirau and UHE Estreito which are plants with an installed capacity over 1000 MW (not comparable to the proposed project activity). From these 15 projects, 2 are being developed exclusively in Minas Gerais state and other two are being conducted in areas comprising Minas Gerais as well as other states but not in the same environment with respect to regulatory framework of the proposed project activity.

The regulatory framework of the energy sector in Brazil were changed and new institutions were created such as Energetic Research Company, an institution responsible for the long term planning of the electricity sector

with the role of evaluating, and Chamber for the Commercialization of Electric Power (CCEE), an institution responsible for the management of electric power commercialization within the Brazilian interconnected system. This new structure was approved by the House of Representatives and published in March of 2004 (http://www.planalto.gov.br/CCIVIL/_Ato2004-2006/2004/Lei/L10.848.htm).

There are still hydropower potentials being explored in the state where UHE Baguari is located. The hydrologic potential of Minas Gerais State is not completely explored, analysing Rio Doce's hydrologic basin area (that represents only a small part of the State), the water committee of the basin in terms of electric energy generation Rio Doce basin possesses (http://www.riodoce.cbh.gov.br/default.asp):

- 320 MW installed capacity;
- 18 MW under construction;
- 282 MW being considered in basic projects;
- 300 MW being considered in feasibility studies; and
- 3,029 MW inventoried.

Information above clearly shows that all the hydrological potential of the State hasn't being explored yet.

Applying criteria above to the results presented the conclusion is that none hydropower plant is to be considered similar to the one included in the proposed project activity.

Sub-step 4b: Discuss any similar Options that are occurring

Concerning Sub step 4b, it was not presented the scenario of similar options that are occurring in Brazil. It was not possible to confirm which similar activities comparing to Baguari project was occurring in PDD version 01. **CAR#10** was raised.

To close out CAR#10, the PP revised the section B.5 of the version 03 of the PDD, dated 22/01/2009, but it was not included all the reference links in the respective section and the CAR#10 remained open.

The exact reference of information used in Sub-step 4a and 4b was included in version 04 of the PDD, but the DOE considered that the approach used by the PP did not reach the additionality due to the fact it was not possible to evaluate if the comparison made among UHEs were appropriate and the CAR#10 remained open.

The PDD version 06 approached the common practice analysis regionally and considered the appropriate steps of the most recent version of the additionality tool (Ref.3), which is the version 05.2 (refer to CAR#09 for details) and based on the information and evidence provided (Ref.32), the DOE concludes that there are no similar UHE which is comparable to the UHE Baguari which were built in the state of Minas Gerais, Brazil in the previous period of decision making.

Based on the evidence provided and in the discussion made in the common practice section of the PDD version 06, the DOE conclude that the proposed project activity cannot be considered the business-as-usual scenario in the country and the **CAR#10** was closed out.

Based on the criteria approach applied by the PP in the section B.5 of the PDD version 06, there is no similar project widely used as common practice in the geographical location of the proposed project activity. Also the implementation of thermal power plant in the country is increasing because according to the auction ANEEL 002/2005, 22/12/2005 (ref. 36) for this project and other auctions occurred in the following years (ref. 46) approximately 60% of the new generation until 2016 comes from thermal plants.

4.7 Application of Baseline Methodology and Calculation of Emission Factors

4.7.1 Application of the Baseline Methodology

The methodology applied in the project activity, to calculate the baseline emissions, was the ACM0002 version 10, following the statement "*Baseline emissions include only CO2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology*

assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:"

Baseline Emission

$$BE_y = EG_{PJ,y} \cdot EF_{grid,CM,y} \quad \textbf{Equation 1}$$

Where,

BE_y = Baseline emissions in year *y* (tCO_2/yr);

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year *y* (MWh/yr);

$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year *y* calculated using the latest version of the "*Tool to calculate the emission factor for an electricity system*" (tCO_2/MWh).

Calculation of $EG_{PJ,y}$,

It is different for_echanic_dfield plants, (b) retrofits and replacements, and (c) capacity additions, as stated in the ACM0002 version 10, page 08.

The project activity falls into the option (a) Greenfield plants, because it was installed at a site where no electricity generation occurred previously, and so the calculation of $EG_{PJ,y}$ was done as follows:

$$EG_{PJ,y} = EG_{facility,y} \quad \textbf{Equation 2}$$

Where,

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year *y* (MWh/yr);

$EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y* (MWh/yr)

Calculation of the baseline emission factor of the grid ($EF_{grid,CM,y}$)

It is calculated using the methodological tool "*Tool to calculate the emission factor for an electricity system*", in its most recent version.

According to this tool, the PP correctly applied in the section B.6.1 of the PDD version 06 the following six steps for the baseline calculation:

ST–P 1 - Identify the relevant electric power system.

ST–P 2 - Select an operating margin (OM) method.

ST–P 3 - Calculate the operating margin emission factor according to the selected method.

The dispatch data analysis OM emission factor ($EF_{grid,OM-DD,y}$) is determined based on the power units that are actually dispatched at the margin during each hour *h* where the project is displacing electricity. This approach is not applicable to historical data and, thus, requires annual monitoring of $EF_{grid,OM-DD,y}$.

It will be calculated using the below formulae:

$$EF_{grid,OM-DD,y} = \frac{\sum_{h} EG_{PJ,h} \cdot EF_{EL,DD,h}}{EG_{PJ,y}}$$

Equation 3

Where,

$EF_{grid,OM-DD,y}$ = Dispatch data analysis operating margin CO_2 emission factor in year *y* (tCO_2/MWh);

$EG_{PJ,h}$ = Electricity displaced by the project activity in hour *h* of the year *y* (MWh);

$EF_{EL,DD,h}$ = CO_2 emission factor for power units in the top of the dispatch order in hour *h* in year *y* (tCO_2/MWh);

$EG_{PJ,y}$ = Total electricity displaced by the project activity in year *y* (MWh);

h = Hours in year *y* in which the project activity is displacing grid electricity;

y = Year in which the project activity is displacing grid electricity.

As mentioned above, the host country's DNA will provide the EF of the grid in order to PP to calculate the operating margin emission factor.

ST–P 4 - Identify the cohort of power units to be included in the build margin (BM).

ST–P 5 - Calculate the build margin emission factor.

ST–P 6 - Calculate the combined margin (CM) emissions factor.

The Brazilian DNA made available the operating and the building margin emission factor calculated using option c – Dispatch data analysis OM. More information of the methods applied can be obtained in the DNA's website (http://www.mct.gov.br/index.php/content/view/4016.html) and vintage will be used in the project activity.

Hence, this data will be updated annually applying the number published by the Brazilian DNA. For estimative purposes, the data of the most recent year available in the DNA website was be used.

To calculate the emission factor of the interconnected Brazilian grid, STEP 6 above, the PP applied correctly the equation 4 below with its respective values. Where the weights w_{OM} and w_{BM}, by default, are 50% (i.e., $w_{OM} = w_{OM} = 0.5$).

$$EF_y = w_{OM} \cdot EF_{OM,y} + w_{BM} \cdot EF_{BM,y}$$

Equation 4

The formulae and values applied were cross-checked by the DOE and considered correct based on the methodology approach and DNA official data published for CDM activities purposes.

Project Emission

The methodology applied in the project activity, to calculate the baseline emissions, was the ACM0002 version 10 (Ref.2), following the statement "*For most renewable power generation project activities, PEy = 0. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:*"

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Equation 5

Where,

PE_y = Project emissions in year y (tCO2e/yr);

$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (tCO2/yr);

$PE_{GP,y}$ = Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO2e/yr);

$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (tCO2e/yr)

Emissions from Fossil Fuel Combustion ($PE_{FF,y} = 0$)

The calculation of this source of emission is not applicable. In accordance with the methodology only geothermal and solar thermal project activities must consider this source of emission.

Emissions of non-condensable gases from the operation of geothermal power plants ($PE_{GP,y} = 0$)

The calculation of this source of emission is not applicable. This source of emissions is only considered for geothermal project activities.

Emissions from water reservoirs of hydro power plants ($PE_{HP,y}$)

New hydro electric power projects resulting in new reservoirs, shall account for CH4 and CO2 emissions from reservoirs, estimated as foll:

- **a)** if the power density (*PD*) of power plant is greater than 4 W/m^2 and less than or equal to 10 W/m^2:

$$PE_y = \frac{EF_{Res} \times TEG_y}{1000}$$ **Equation 6**

Where,

PEy = Emission from reservoir expressed as tCO_2e/year.

EF_{Res} = is the default emission factor for emissions from reservoirs, and the default value as perEB23 is 90 Kg CO_2e/MWh.

TEG_y = Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (MWh).

b) If power density (*PD*) of the project is greater than 10W/m^2, PEy = 0.

The power density of the project activity is calculated as follows:

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}}$$ **Equation 7**

Where,

PD = Power density of the project activity, in W/m^2.

Cap_{PJ} = Installed capacity of the hydro power plant after the implementation of the project activity (W).

Cap_{BL} = Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero.

A_{PJ} = Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m^2).

A_{BL} = Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m^2). For new reservoirs, this value is zero.

This is a new project activity and so the parameters Cap_{BL} and A_{BL} has their value equal to zero (0).

The Area of the reservoir (A_{PJ}) of the project activity is 16.06 km^2 and the installed capacity of the hydro power plant (Cap_{PJ}) is equal to 140MW.
The DOE checked the calculation of the Project Emissions and as the Power Density (W/m^2) of the project activity has the value of 8.72 W/m^2, the option (a) above was correctly applied by the PP.

Leakage Emission

According to the methodology applied, ACM0002 version 10: "*no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, and transport). These emissions sources are neglected*"

The PP stated the sentence above in the correct section of the PDD version 04 and the DOE confirmed it as applicable to the project.

Direct Calculation of Emission

According to the methodology applied, ACM0002 version 10:

Emission Reductions

$$ER_y = BE_y - PE_y \qquad \textbf{Equation 8}$$

Where,

ER_y = Emission reductions in year y (t CO_2e/yr);

BE_y = Baseline emissions in year y (t CO_2e/yr);

PE_y = Project emissions in year y (t CO_2e/yr);

The formulae of Emission Reductions presented above and the formulae/data which it is dependent of, were correctly applied by the PP, as verified. Also, the Emission Factor (EF) will be calculated *ex-post* as the methodology states to be done.

The choices the PP made along the development and calculation of baseline emissions, project emissi_echaniakege and emissions reductions were according to the methodology and to the project activity and they were correct properly justified. All the uncertainties in the project activity were address and does not represent impact in the calculation, because the calibration of equipments and use of official data in the ex-post calculation.

4.7.2 Ex-ante Data and Parameters Used

All the data provided were cross-checked with the methodology, tools and its sources to ensure the compliance with the ACM0002 version 10.

The most important data for the project activity are:

- the Emission Factor of the Brazilian grid ($EF_{grid,CM,y}$) is official data from the DNA;
- the emissions from water reservoirs of hydropower plants ($PE_{HP,y}$) is a Default value from the methodology;

Other values applied, as the Load Factor of the HPP, were based on reliable evidences (ANEEL).

The installed capacity and assured energy are described in the section A.4.2. The assured energy of the plant is equal to 80.2 $MW_{average}$/year as established by the Ministry of Mines and Energy and described in the public concession contract (ref. 7).

The ex-ante plant load factor is defined as the ratio between the assured energy and total installed capacity of the plant, is 0.57. The plant load factor is specific for the Hydro plant Baguari approved by the Ministry of Mines and Energy and clearly meets the requirements set out in EB48 Annex 11 (Guidelines for the reporting and validation of plant load factors).

All parameters above were cross-checked by the DOE to proof their veracity and reliability to calculate the ER of the project activity. All values used in the PDD were considered reasonable in the context of the proposed CDM project activity.

The only 2 parameters involved in the project activity, which will not be monitored, are expressed in the section B.5.2, Annex A.2, as:

GWP_{CH4} = Global warming potential of methane valid for the relevant commitment period (tCO2e/tCH4), this value is 21 (IPCC source)

Cap_{BL} = Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero.

A_{BL} = Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m^2). For new reservoirs, this value is zero.

Considering the fact that it is a new project activity, the values of 2 last parameters presented above were correctly stated as being null (zero).

4.7.3 Calculation of Emission Reductions

During desk review, the spreadsheet containing the ER calculation was not available for the DOE to make the necessary assessment and the **CL#18** was raised for the PP to provide it.

To close out the CL#18, the PP provided the spreadsheet named “UHEBaguari_CERs calculation_v.3-English” (Ref.11) and the DOE assessed it to check its accuracy and conservativeness.

It was possible to conclude that: the methodology ACM0002 (Ref.2) was correctly applied for determining the emission reductions, including the choices that the methodology and the tool to calculate the EF (Ref.4) allows the PP to do. **CL#18** was closed out.

Due to the change of the starting date of the crediting period, the spreadsheet mentioned above was updated to its version 4 (Ref.11) and assessed again by the DOE to verify its accuracy and conservativeness, it was verified that the spreadsheet (Ref.11) was correctly updated by the PP.

The projection of ER is based on the same procedures as used for later monitoring with the exception that “ex-post” values of EF (Emission Factor from the grid) and EG (Energy Generated). The calculation of ER was replicated using the formulae of the methodology ACM0002 version 10 (Ref.2) applied by the PP and the spreadsheet of ER (Ref.11) and verified as correct.

See sections B.1.1 and B.5.1 to B.5.6, Annex A.2, for more detailed information about the equations and the approaches applied in the project activity.

4.7.4 Emission Reductions

It was possible to verify the PP correctly applied the table of ERs in the sections A.4.4 and B.6.4 of the PDD version 06 (Ref.1). The projection starts on 1st January 2010 as well the starting date of the first crediting period, which is 7 years (renewable). The total emission reductions from the project are estimated to be 450,613 tCO2e over a 7 years crediting period, averaging 64,373 tCO2e annually for the crediting period during 01 January 2010 to 31 December 2016.

4.8 Application of Monitoring Methodology and Monitoring Plan

The monitoring methodology applied in the project activity, which was based on the ACM0002 v.10 (Ref.2), presents 3 options to calculate the baseline emissions and the correct choice (a) was applied (see section B.5.1). Also, the tool (Ref.4) applied the same choice used by the Brazilian DNA to calculate the Emission Factor of the grid (EF). To calculate the project emissions, the emissions from water reservoirs of hydro power plants ($PE_{HP,j}$) were calculated due to the fact the power density of the UHE Baguari is 8.72 W/m^2, which was found to have value between 4 $W/m^2$and 10 W/m^2 (see section B.5.2 – Annex A.2). Leakage is not applicable to the project activity (see section B.5.3 – Annex A.2).

The PP started the section B.7.1, Data and parameters monitored, stating that *"Data monitored and required for verification and issuance will be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later."* The DOE cross-checked this information with the ACM0002 version 06 to 10 and it is according to the methodology applied.

The data and parameters available in the validation (A_{BL}, Cap_{BL} and GWP_{CH4}) will not be monitored during the crediting period, stated in the section B.6.2 of the PDD version 06, are applied incompliance with the ACM0002 v.10 and are consistent through out the PDD including their sources and calculations.

The monitoring plan of the project activity, described in the section B.7.2 of the PDD version 06, is in compliance with the methodology applied ACM0002 v.10 (Ref.2) and all parameters were correctly identified in the section B.7.1 of the PDD version 06.

The collection and archiving of data were also described, for each monitored parameter, and satisfy the methodology's requirements. The parameters necessary to be monitored are:

- ***$EG_{PJ,y}$*** = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year *y* (MWh/yr);

The measurement of this parameter will be carried out by energy meters installed at the substation. Energy metering QA/QC procedures are explained in Annex 4 (the equipments used have by legal requirements extremely low level of uncertainty). Measured each 15 minutes and monthly consolidated. Electricity generation by the plant as published by the Electric Power Commercialization Chamber (from the Portuguese *Câmara de Comercialização de Energia Elétrica* – CCEE) will be used to cross check project participant's information.

- ***$EF_{grid,CM,y}$*** = Combined margin CO_2 emission factor for grid connected power generation in year *y* calculated using the latest version of the "*Tool to calculate the emission factor for an electricity system*" (tCO_2/MWh).

The selected option to calculate the operating margin made by the Brazilian DNA was the dispatch analysis which does not permit the vintage of *ex-ante* calculation of the emission factor. Hence, this value will be calculated annually applying the numbers published by the Brazilian DNA and following the steps provided in the "Tool to calculate the emission factor for an electricity system".

- ***TEG_y*** = Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (MWh).

Total electricity produced by the project activity. Double checked by internal control. Hourly measurement and monthly recording. Energy metering QA/QC procedures are explained in the PDD section B.7.2 (the equipments used have by legal requirements extremely low level of uncertainty).

- ***Cap_{PJ}*** = Installed capacity of the hydro power plant after the implementation of the project activity (W).

Modifications of the installed capacity of the plant are to be made by the manufacturer of the equipment and if this is done the description of the equipment's tag will be up-dated. In Brazil the installed capacity of hydropower plant is determined and authorized by the competent regulatory agency and publicly available.

- A_{PJ} = Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m^2).

Measured from topographical surveys, maps, satellite pictures, etc. The area of the reservoir can be determined depending on the reservoir level. Hydropower plants dispatched by ONS have to monitor their reservoir level. In Brazil, every modification at hydropower plants has to be authorized and be publicly available by the regulatory agency.

The DOE analyzed all monitored parameters, cited above, taking into account the content of each line of each table of Data/Parameter applied by ACM0002 v.10, in the section B.7.1 of the PDD version 06:

- the data unit,
- the description,
- the source of data to be used,
- the Value of data applied for the purpose of calculating expected emission reductions in section B.5,
- the Description of measurement methods and procedures to be applied,
- QA/QC procedures to be applied,
- Any comment.

The conclusion was that they reach the requirements of the methodology and are described sufficiently to ensure correct measurement. The GHG indicators, which are the parameters available and the monitored parameters, were applied according to the methodology ACM0002 version 10 and the EF tool (Ref.4) (refer to sections B.5, B.9 and B.10.1 – Annex A.2).

The main project GHG indicators were identified by the DOE as being the parameters $EG_{PJ,y}$, TEG_y (measured by calibrated energy meters) and $EF_{grid,CM,y}$ (published by the Brazilian DNA).

The version 06 of the PDD contains QC/QA for the data applied in the ER calculation, but the DOE understand it is not enough to guarantee the reliability of data. During the validation process, the PP did not present a monitoring procedure to evidence monitoring reliability, the DOE understand it is necessary and the **FAR#20** was raised.

The data measurement needed will follow the national calibration standard required by the ONS (National System Operator) and the emission factor will be provided annually by the Brazilian DNA.

There is no evidence of the possibility of conflict of interest to happen in the estimation of emission reductions due to the implementation of a Control System to measure the electricity generated by the plant and make the compilation of the data collected.

As PP stated in the section B.7.2 of the PDD version 06: “The Consórcio UHE Baguari will also be responsible for the maintenance of the equipments’ monitoring, for dealing with possible monitoring data adjustments and uncertainties, for review of reported results/data, for internal audits of GHG project compliance with operational requirements and for corrective actions. Yet, it is also responsible for the project management, as well as for organising and training of the staff in the appropriate monitoring, measurement and reporting techniques.”

Based the statement above, the DOE concludes that the authority and responsibility of project management is the role of the PP “Consórcio UHE Baguari”, as well as the authority and responsibility for registration, monitoring, measurement and reporting.

The monitoring plan will be implemented by the PP with no difficulty due to the fact the main parameters of the project activity (EG and TEG) would be monitored with or without the CDM project activity. Another important parameter, the EF, is calculated and published by the Brazilian DNA and are reliable for the purposes of CDM activities.

The PP states in the section B.8 of the PDD versions 01 to 06 that the baseline was completed on 30th July 2007. The timeline analysed is consistent because the version 01 of the PDD presents the date of 31st October 2007 and it was published for the first time on 2nd November 2007.

The Annex 03 of the PDD version 05 contains additional information about the interconnected Brazilian electricity system, which comprehend the five geographical macro-regions of the country (North, Northeast,

South, Southeast and Midwest). Brazilian DNA determined it through its Resolution nr. 8 dated 26th May, 2008 (Ref.44) <http://www.mct.gov.br/index.php/content/view/3881.html

4.9 Duration of the Project Activity and Crediting Period

The starting date of the project activity was 15th August 2006, which is the date of the concession contract to explore for 35 years the hydraulic potential of the Doce River was signed between the PP and the Brazilian Government (Ref.7).

The operational lifetime of the project activity declared by the client, 34 years, was accepted by the DOE as similar to the period of concession received by PP to explore the hydraulic potential of the River (35 years) due to the fact there is no historical cases in Brazil of projects that stopped operating before the end of concession and sometimes the concession is renewed only applying a retrofit or substitution of main equipments.

The operational lifetime exceed the first crediting period of the project activity, which is 7 years (renewable).

Based on the EB49 Annex 22, the project starting date indicates it is an existing project activity.

4.10 Environmental Impacts

In Brazil for any project to get started and eventually become operational, the project must obtain three environmental licenses from the states environmental agency and each one can not be obtained before the previous license:

- LAP, Preliminary Environmental License
- LAI, Environmental Installation License
- LAO, Environmental Operational License.

The environmental aspects of the project activity, including relevant documentation (Ref.35) such as the PCA (Environmental Control Plan) and the EIA (Environmental Impact Assessment), were analyzed by the Environmental Agency when it issued the licenses. The DOE verified the Preliminary License (LAP) nº 156 (Ref.9a) dated 29/10/2004, the Installation License (LAI) nº 173 (Ref.9b) dated 15/12/2006, issued by FEAM (State Environmental Agency), the Protocol for the Operational License issuance (Ref.9c) and the Operational License (LAO) nº 230455/2009 (Ref.9d) dated 05/06/2009. All licenses presented by the PP were considered reliable and represent compliance with legislation.

The PP provided the EIA and the PCA (Ref.35) covering all relevant aspect that relates direct or indirectly to impacts of the project activity and it was cross-checked by the DOE with external sources, confirming its reliability. The environmental impacts identified in such studies were addressed in the environmental plans and conditions were defined by the Environmental Agency, which is the governmental organization responsible to verify the impacts and implementation of plans during the validity of the licenses.

4.11 Local Stakeholder Comments

According to DNA Resolution nº 7, 5th March 2008 (Ref.44b) (art.3, 2º para., item IV): Community Associations whose purposes are direct or indirectly related to project activity shall received letters of invitation for comments.

PP addressed invitations to Escola Municipal Ramiro de Souza Monteiro (municipal school) in Alpercata city, Escola Municipal Alda Fernandes Govéia (municipal school) in Fernandes Tourinho city, Escola Municipal Jair Fernandes de Melo (municipal school) in Iapu city, Escola Municipal Waldemiro Barrei (municipal school) in Periquito and Escola Estadual José Severino (state school) in Sobrália.

A school can not be considered a Community Association neither an interested part of the project activity. There is no evidence that PP sent invitation for comments to the community associations whose purposes are direct and indirect related to project activity. **CAR#13** was raised.

To close out the CAR#13, PP sent letters to other local community associations of the cities affected by the project activity on February 20th, 2009 (Ref.38). No comments were received from them.

Copies of the letters and the confirmation receipt were provided to the DOE and they were verified to check the authenticity of the receipts (ARs) (Ref.26) and the Letters (Ref.38), which were sent to the Community Associations in the project activity area, were according to the Brazilian DNA resolution nº 7 (Ref.44b) and the **CAR#13** was closed out.

The letters of invitation were sent to:

- Community Associations of each municipality involved in project activity;
    - Rural Workers Union of Governador Valadares and Region including Alpercata (Ref.38a);
    - Rural Workers Union of Fernandes Tourinho (Ref.38b);
    - Rural Workers Union of Iapu (Ref.38c);
    - Rural Workers Union of Periquito (Ref.38d);
    - Rural Workers Union of Sobralia (Ref.38e);
- City Hall of each municipality involved in project activity;
- Secretary of Environmental of each municipality involved in project activity;
- City Council of each municipality involved in project activity;
- State and Federal Attorney;
- State Environmental Agency (FEAM);
- Brazilian Forum of NGO's.

Cross-checking the local stakeholder consultation process made by the PP against the resolution /44b/ which establishes how it has to be done, the DOE concluded it reached the requirements.

The DOE analyzed the letters sent to local stakeholders and the media used to invite comments by the local stakeholders followed the Brazilian DNA resolution nº 7 (Ref.44b), which states in the Art.3, Paragraph 5º, item I to III, the letter of local stakeholders must inform:

- the name and the type of activity developed under CDM ;

- the website address with the last version available of the PDD in the local language (Portuguese) and the description of how the project activity contributes to sustainable development ;

- formal address to the stakeholders with no internet access to make the solicitation of a printed version.

The PP received 2 comments from local stakeholders, which were related in the section E.2 of the PDD v.06:

The first came from the Brazilian Forum of NGO's, on 18/12/2007, saying that they approve the transparency of the CDM validation process and suggested to evaluate the project under the Gold Standard system to ensure the social sustainable development is achieved by the project activity (Ref.26).

The second came from the Minas Gerais State Attorney for the Public Interest, on 12/05/2008, asking for a description of the project activity; the expected schedule for its development; and whether the company possessed other similar projects being developed in the region.

In the section E.3 of the PDD version 06, the PP took the comments into account and replied as following:

> *"Comment 1: Project Participants consider that requests made by the Brazilian Government are sufficient to be used as sustainable indicators which are attended by this CDM project activity;"*
>
> *"Comment 2: Project Participants responded that the project consisted in the construction of an hydroelectric power plant that had the right to claim for carbon credits once it is a renewable source of energy that displaces energy that would be generated by fossil fuel sources; project participants expected that the CDM project activity would be registered by the end of 2009; and that neither of the project participants had other similar projects being developed in the region."*

The letters (Ref.26) sent to the local stakeholders mentioned above were supplied to the DOE and verified.

5. Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

5.1 Description of how and when the PDD was made publicly available

Firstly, the PDD of this project was made available on the SGS website http://cdm.unfccc.int/Projects/Validation/DB/HEVYC7QTGIZG2T6PI1U278XDMGRKHQ/view.html and was open for comments from 02 November 07 until 01 December 07.

For the second time, the PDD of this project was made available on the SGS website http://cdm.unfccc.int/Projects/Validation/DB/LQVXLU4N4C7UUWLNQLT9QSC9Q9YWZY/view.html and was open for comments from 28 January 09 until 26 February 09.

Comments were invited through the UNFCCC CDM homepage.

5.2 Compilation of all comments received

Comment Number	Date Received	Submitter	Comment
0			None

5.3 Explanation of how comments have been taken into account

No comments were received until the end of this report.

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
28th and 29th May 2008	Eduardo Aguiar de Moura	Administrative / Financial Coordinator	Investment Analysis and Financial Documentation related to the project activity
	Luciano Fernandes Santos	Accounting Analist	
	Ademar de Proença Filho	Consultant	PDD development, Project data, local stakeholder
	Luis Carlos Amarilho	Director Presidente – UHE Baguari	Environmental license, EIA, Project data, monitoring

7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM PDD, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

/1/–	1a - PDD_UHE Baguari_version 01 – published for stakeholders consultation on 02/11/2007 1b - PDD_UHE Baguari_version 02 1c - PDD_UHE Baguari_version 03 – published for stakeholders consultation on 29/01/2009 1d - PDD_UHE Baguari_version 04 1e - PDD_UHE Baguari_version 05 1f - PDD_UHE Baguari_version 06 (final version)
/2/	Methodology ACM0002_v.10
/3/	"Tool for demonstration and assessment of additionality" version 05.2 (EB39_Annex10)
/4/	"Tool to calculate the emission factor for an electricity system" version 01.1 (EB35_Annex12)
/5/	LoA
/6/	MoC

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

/7/	Agreement of Concession UHE Baguari
/8/	Total Investment Spreadsheet
/9a/–LAP - UHE Baguari	
/9b/–LAI - UHE Baguari	
/9c/	LAO Prot–col - UHE_Baguari
/9d/–LAO - UHE Baguari	
/10/	Auxiliary System UHE Baguari_2007.03.08
/11/	UHEBaguari_CERs calculation_v.4-English
/12a/	Constitution Contract UHE Baguari_2006.01.25
/12b/	CNPJ Ecoinv_2004.11.12
/13a/	2ª Meeting Notes_2006.03.07
/13b/	5ª Meeting of Baguari Commission_2006.06.06
/13c/	Meeting of Baguari Comission_2006.07.14
/13d/	CDM Presentation_2006.07.14
/14/	Electric equipment (specification)_2007.02.26
/15/	Substation (specification)_2007.01.15
/16/	Line transmission_2006.07.17
/17/	Ele–t_echaniccanic (specification)_2007.02.13–
/18/	Illumination system (specification)_2007.03.09
/19/	Definition of run-of-river page 17

/20/	Electromecanic specification_2007.02.21
/21/	Implementation cont–act - Baguari_2007.03.26
/22/	Civil construction (specification)_2006.12.01
/23/	Specification of the turbine_2007.03.09
/24/	Specification of the generator_2007.03.09
/25a/	Annex III- Consolidated Commercial Proposal_2007.02.26
/25b/	Annex–III - Consolidated Commercial Proposal_2007.02.26
/26/	AR sent to Local Stakeholders
/27/	Schedule of Implementation
/28/	Financiamento_BNDES_2007.12.20
/29/	ANEEL Dispatch nº 1143_2008.03.20
/30/	25_Relatório_de_Progresso_ANEEL_2009.01.01
/31/	UHE_Baguari_Cash Flow_v.5
/31a/	Financial analysis supporting documents
/32/	Common practice UHE Baguari – BIG
/33/	Rosa–L P - Energia na contramão
/34/	Decreto 2003_(PIE e APE)_arquivos
/35/	PCA and EIA RIMA
/36/	Auction Report UHE and UTE_2005.12.22
/37/	CDM Consideration Documents
/38/	Letters Local Stkholders
/39/	Relatorio WACC versão 06_12
/40/	WACC_Sector
/41/	Constrct. costs estimation_1998
/42/	Law of PIE and APE_1996.09.10
/43/	Vazão Baguari
/44a/	Resolution –º 1 - DNA_2003.09.11–
/44b/	Resolution –º 7 - DNA_2008.03.05–
/44c/	Resolution –º 8 - DNA (Grid)_2008.05.26–
/45/	Tool to determine the remaining lifetime of equipment (EB50_Annex15)
/46/	Information regarding electricity Auctions (07/04/2010)

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A.1 Annex 1: Local Assessment

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document for Baguari Hydropower Plant CDM Project Activity. It serves as a "**reality check**" on the project that is completed by a local assessor from SGS *Brazil*

Issue	**Findings**	**Source/Means of Verification**	**Further Action / Clarification / Information Required?**
Confirm the installed capacity informed in the PDD 140MW (is there a project description or a license issued by ANEEL where this capacity can be confirmed?).	It was confirmed through the presentation of the technical equipments evidences and the ANEEL Dispatch nº 1143	/23 /24/ /29/	No
Confirm the locality (river, coordinates etc). Inform details of evidences verified on-site.	See CAR#12 – Annex A.3		CAR#12
Confirm if the project activity is a run-of-river hydropower.	See CL#01 – Annex A.3		CL#01
Gives evidences of the operational schedule.	The implantation timeline was provided.	/21/	No
Give evidences who are Shareholders of the UHE Baguari.	The evidence of the shaholders was provided though the "Constitution Contract of UHE Baguari" which states the partners of the Consorcio UHE Baguari.	/12a/	No
Verify contact between UHE Baguari and Ecoinvest, evidencing that Ecoinvest is project participant.	It was verified and is according to the PDD version 01.	/12b/ /37/	No

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
Verify and register the equipments installed in the plant. Ask copy of the calibration certificate for the energy metering.	During site visit held on 28th May 2008 was observed that the plant is under construction. The infrastructure was being implemented and equipments were not installed yet. To confirm the details of the equipments, the PP provided the equipments purchase agreement (contrato de compra dos equipamentos): - Turbines type Bulb Klapan (4 x 35.90MW) (Ref.23). - Generator type Bulb (4x 39,04 MVA), 128.57rpm - Energy meters Error band: < 1% according to National Standard NBR 14519	/14 – 18/ /20 – 24/	No
Ask for evidence of the ensured energy and the capacity factor of 0.57. How was obtained the value of 702,552MW/h (PDD, page 25).	The estimation of the electricity generation was obtained by: Ensured energy established by ANEEL (Ref. 30 page 17) of 80.2MW. Installed capacity of 140MW (Ref.29) **Capacity factor = 80.2MW/140MW = 0.57** Energy generation = installed capacity * capacity factor * 24 hours * days of operation (365 days)	/29/ /30/	No

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
Confirm the reservoir area of 16.06Km² and its power density of 8.72W/m2.	According to ANEEL dispatch, nº 1.143 issued on 20 March 2008, stated that the reservoir area of 14.16Km² (Ref. 29), however this parameter is constantly being updated due to it is under construction. The most recent report sent ANNEL nº01/09 – Report of progress (Relatório de progresso – Consórcio UHE Baguari Ref. 30 – page 16) states that the reservoir area is 16.06Km². The power density was calculated (Ref. 31) as per ACM0002, version 8: PD = installed capacity of the plant / reservoir area PD = 140MW/16.06Km² = **8.72W/m²** As the power density is greater than 4W/m² and less than or equal to 10W/m², the project emission shall be accounted.	/29/ /30/ /31/	No

A.2 Annex 2: Validation Checklist

Table 1 Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website)

Requirement	Reference	Comments	Conclusion/CARs/CLs
1. All Parties involved have approved the project activity 1.1. Has the DNA of each Party involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval which confirms 1.1.1. The country is a Party to the Kyoto Protocol 1.1.2. Participation is Voluntary 1.1.3. The Host Party confirming that the proposed CDM project activity contributes to sustainable development of the country Non-Annex 1 Party shall submit a letter of approval 1.1.4. It refers to the precise proposed CDM project activity title in the PDD being submitted for registration	Annex 3, Clean Development Mechanism, Validation and Verification Manual, Version 01 (from this point forwarded referenced as VVM) - 49a-d /54a-b/125 Paragraph 37 CDM Modalities and procedures	Brasil is listed as a non-Annex-I Party. Brasil that has ratified the protocol on 23rd August 2003 and is allowed to participate in CDM projects. http://maindb.unfccc.int/public/country.pl?country=BR – Brasil There is no letter of approval from DNA Brazil at this phase (just after submission of validation report).	Pending

2. Please indicate the project participants listed in the PDD and check with which of these project participants does SGS have a contract for the projects validation	Para 37 CDM M & P Para 7 EB 50 Annex 48	Project participants listed in the PDD version 6: - Ecopart Assessoria em Negócios Empresariais Ltda. - Consórcio UHE Baguari The contract was signed with Ecoinvest Carbon Brasil Ltda that is the came company of Ecopart (the name changed but the company remains the same).	Y
2.1 If the project participant(s) listed in the PDD published at international stakeholder consultation are not included in the PDD submitted with request for registration, a letter should be obtained from the withdrawn project participant(s) confirming its voluntary withdrawal from the proposed project activity.	EB 30 Para. 41. EB50 Annex 48 Para. 8	The project participants listed in the PDD published at international stakeholder consultation are the same in the PDD that will be submitted with request for registration. The name of Ecoinvest Carbon Brasil Ltda changed to Ecopart Assessoria em Negócios Empresariais Ltda but the company is the same.	Y
Confirm while submitting a request for registration – all of the project participants with a contractual relationship are still listed in the PDD.	EB50 Annex 48 Para.7-9	Pending LoA and request for registration	Pending
Project participants who are listed in the PDD (submitted for global stakeholder consultation) but who do not have a contractual relationship with SGS for the purposes of the validation activity may be removed from the PDD which is submitted for registration	EB50 Annex 48 Para.7-9	Not applicable.	Y
SGS may restart the validation activity through the new or revised contract with a different set of project participants by; a. Indicating that the first validation contract has been terminated and; b. Republishing the PDD or revised PDD for global stakeholder consultation.	EB50 Annex 48 Para.7-9 (If applicable)	Not applicable.	Y
The letter/s of approval are unconditional with respect to 1.1.1 to 1.1.4 above	VVM Para. 49/54	Pending LoA.	Pending

3. If the project participant(s) listed in the PDD published at international stakeholder consultation are not included in the PDD submitted with request for registration, a letter should be obtained from the withdrawn project participant(s) confirming its voluntary withdrawal from the proposed project activity.	EB 30 Para. 41.	No letter of withdrawn is needed because PPs keep being the same.	Yes
4. The letter/s of approval are unconditional with respect to 1.1.1 to 1.1.4 above	VVM Para. 49/54	LoA is Pending.	Pending
5. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	VVM Para. 54 Marrakech Accords, CDM Modalities §29 and §30 Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a	No Annex 1 Party is involved in this project at this stage.	Yes
6. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for a minimum of 30 days, and the project design document and comments have been made publicly available	VVM Para. 128 Marrakech Accords, CDM Modalities, §40	PDD publicly available: 02 November 07 to 01 December 07 http://cdm.unfccc.int/Projects/Validation/DB/HEVYC7QTGIZG2T6PI1U278XDMGRKHQ/view.html PDD publicly available: 28 January 09 to 26 February 09 http://cdm.unfccc.int/Projects/Validation/DB/LQVXLU4N4C7UUWLNQLT9QSC9Q9YWZY/view.html No comments were received.	Yes

7. The project design document is in accordance with the applicable CDM requirements for completing PDDs.	VVM Para. 57 Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	Yes, it is according to the CDM-PDD template (version 3) in effect since 28 July 2006.	Yes

Table 2PDD

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
General Description of Project Activity				
A.1. Project Title				
A.1.1. Does the used project title clearly enable the reader to identify the unique CDM activity?	VVM Para.56 PDD A.1	DR	Yes, the title "Baguari Hydropower Plant CDM Project Activity" clearly identifies the CDM project activity.	Yes
A.1.2. Is there an indication of a revision number and the date of the revision?	VVM Para.56 PDD A.1	DR	Validation desk study: PDD version number 01, dated 31/10/2007 At the final validation: PDD version number 06, dated 22/09/2009.	Yes
A.2. Description of the Project Activity				
A.2.1. Does the description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements accurately?	VVM Para.59 PDD section A.2 see also A.4, A.4.3 and B.3 /29/	DR	The project activity is a run-of-river hydropower plant with a total installed capacity of 140 MW, located in Fernandes Tourinho, Sobrália, Governador Valadares, Periquito, Iapu and Alpercata cities, state of Minas Gerais, Southeast region of Brazil. The primary objective of the project activity is to help Brazil to meet its raising demand for energy and to improve the supply of electricity contributing to the environmental, social and economic sustainability of the country. The PDD states clearly the technology applied and that the project's activity will reduce GHG emissions substituting partially fossil fuel generated electricity by renewable energy sources. The PP stated that the project activity is a hydropower "run-of-river" plant and in the first version of the PDD it was not provided accurate evidences of it because in the Reference 29, issued by the ANEEL (*Brazilian Regulatory Agency of the Energy sector*) in March 2008, the reservoir area was cited as 14.16 km^2 and in the PDD version 01 it was cited as 16.06 km^2. The **CL#01** was raised to clarify which area was correct and if the project activity is a run-of-river power plant or not.	~~**CL#01**~~ Yes

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			The PP then presented an ANEEL Report of Progress /30/, dated January 2009, which states the reservoir area as 16.06 km^2. As in both cases the power density would be between 4 and 10 MW/km^2, the most recent document was accepted. The evidences provided by the PP in the PDD version 05 about the definition of "run-of-river" (PDD page 6) and the comparison with the UHE Baguari were confirmed by the assessment team and **CL#01** was closed out.	
A.2.2. Does the information provide the reader with a clear understanding of the proposed CDM activity?	VVM Para.60 PDD section A.2, A.4, A.4.3 and B.3 /1/ /14 – 18/ /20/ /23 – 24/ /29/ /30/	DR	Referred to Guidelines for completing the PDD, version 07, section 4.3 (EB41 Annex 12), the description of the project activity, in the section A.4.3 of the PDD, should include the scenario existing prior to the start of the implementation of the project activity, a list of the equipments and system that will be installed, etc. As the PDD version 03 has a lack of information and details of the technology to be employed, **CAR#14** was raised. To close out the CAR#14, PP stated in the Annex 3 below that: "*Before the implementation of the project activity, no electricity was generated in the place where the plant is located and all the electricity was supplied by plants connected to the grid. This information as well as a list of the equipments that will be used in the Hydroelectric Power Plant was included in the fourth version of the PDD*". Also, the PP provided the specification of the equipment which will be employed in the project activity and made changes in the respective section of the PDD version 04. The DOE assessed the information and cross-checked with other documentation provided by the PP about the installed potency /30/ to guarantee the transparency of the statements of the technology employed in the project activity. **CAR#14** was closed out. See item A.2.1 for more information.	~~**CAR#14**~~ Yes
A.2.3. Is all information provided consistent and in compliance with the actual situation or planning?	VVM Para.64 PDD section A.2, A.4, A.4.3 and B.3 /1/	DR SV I	The description of section A.2 of the PDD was cross-checked with the information verified by the local assessor during the site visit.	Yes

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
A.2.4. Is all information provided consistent with details provided in further chapters of the PDD?	VVM Para.64 PDD section A.2 /1/	DR	The DOE could not confirm the bibliography (PDD, version 3 – Annex 5) and footnotes because a complete reference was not available. **CAR#15** was raised. To close out CAR#15 all the references mentioned in the PDD were revised by the PP in order to provide to the auditor the correct information. The assessment team verified the PDD versions 04, 05 and 06, including its footnote links and bibliography. The links of the bibliography and footnotes were working properly and the bibliography was evaluated. **CAR#15** was closed out. The information provided is consistent with details provided in further chapters of the PDD about the proposed project activity, which is a new hydro power plant.	~~**CAR#15**~~ Yes
A.3. Project Participants				
A.3.1. Is the table required for the indication of project participants correctly applied?	VVM Para. 51 PDD section A.3 /12b/ /37/	DR	Yes. Consórcio UHE Baguari and Ecoinvest Carbon Brasil Ltda are the project participants in the PDD version 1. The project participant *Ecoinvest Carbon Brasil Ltda* changed its name twice during the validation process, first to *Ecoinv Global Lt*da and in the PDD version 06 the company's name is *Ecopart Assessoria em Negócios Empresariais Ltda*. However, the registration number of the company kept unchanged (Ecoinv and Ecopart is the same company).	Yes
A.3.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular Annex 1)?	VVM Para. 51 PDD section A.3 /12a - b/	DR I	The information provided about the PP is consistent in the sections A.3, Annex 1 and in the evidences provided to ensure the project ownership.	Yes
A.4. Technical Description of the Project Activity				
A.4.1. Does the information provided on the location of the project activity allow for a clear	VVM Para.64 PDD section A.4 /1/	DR	The project location described in the PDD, version 03, does not correspond on the location of UHE Baguari. The installation license and EIA/RIMA state that project activity is located on Fernando Tourinho, Governador Valadares, Periquito, Sobrália, Iapu, and Alpercata cities, while the PDD mentions	~~**CL#12**~~

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)	/rdtec website/		Fernandes Tourinho, Sobrália, Governador Valadares e Periquito cities. **CL#12** was raised. The inconsistency of cities was solved due to the presence of the municipality of Iapu in the Environmental License issued by the State Regulatory Agency /9/ and in the PCA and EIA RIMA /35/ provided by the PP and so the cities cited in the PDD version 04 were considered correct and **CL#12** was closed. After the closure of the CL#12, the DOE verified that the project activity is located among Fernandes Tourinho, Sobrália, Governador Valadares, Periquito, Iapu and Alpercata cities, in the state of Minas Gerais, Brazil, as stated in the section A.4.1 of the PDD version 04. The geographical coordinates were in decimal points (Latitude: 19° 01' 20"S / Longitude: 42° 07' 26"W) and were checked, as correctly applied, in the following website: http://www.rdtec.com.br/.	Yes
A.4.2. Does the proposed CDM project activity involve the alteration of existing installations or process?	VVM Para.64 PDD section A.4 /7/ /9/	DR SV	No, it is a new hydro power plant.	Yes
A.4.3. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	VVM Para.64 PDD section A.4 /7/ /12a – b/	DR I	Yes, the PP possesses a concession given by the Ministry of Mines and Energy of Brazil /7/ allowing them to implement the HPP Baguari in the designated location and explore its hydraulic potential for 35 years.	Yes
A.4.4. Is the category(ies) of the project activity correctly identified?	VVM Para.64 PDD section A.4 /2/	DR	Yes, the project activity was identified in the section A.4.2 as being from the Sectoral Scope: 1 – Energy industries (renewable - / non-renewable sources).	Yes
A.4.5. Is all information provided in compliance with actual	VVM Para.64	DR	Yes, the schedule of implementation is in accordance with the actual situation,	

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
situation or planning as available by the project participants?	PDD section A.4 /9/ /21/	SV I	which is to finalize and to start operation on December 2010.	Yes
A.4.6. Is the table required for the indication of projected emission reductions correctly applied?	VVM Para.64 PDD section A.4 /11/	DR	Yes, the tables of ER in the sections A.4.4 and B.6.4 of the PDD version 6 /1/ were correctly applied and the emissions reductions stated on it are consistent with the ERs calculation Spreadsheet /11/.	Yes
A.5. Public Funding				
A.5.1. Does the information on public funding provided conform to the actual situation or planning as presented by the project participants?	PDD section A.4.5 /7/	DR I	There is no public funding involved in the project activity.	Yes
A.5.2. Is all information provided consistent with details provided by further chapters of the PDD (in particular annex 2)?	PDD section A.4.5	DR	There is no public funding involved in the project activity.	Yes
A.5.3. In case of public funding from Annex I Parties is it confirmed that such funding does not result in a diversion of official development assistance	PDD section A.4.5	DR	Not applicable.	Yes
Baseline and Monitoring Methodology				
A.6. Choice and Applicability				
A.6.1. Is the baseline	VVM Para.68	DR	The baseline methodology applied initially was the ACM0002, version 06, valid	

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
methodology previously approved by the CDM Methodology Panel?	PDD section B.1 /1/ /2/		from 19th May 2006 onwards. The baseline methodology ACM0002 version 06 expired and the **CAR#11** was raised for the PP to make the corrective actions about the changes that the PDD version 01 have had to incorporate the new tools and definitions of the version 07. The PDD version 03 was re-published for global stakeholder consultation on 28th January 2009 for thirty (30) days with the version 08 of the ACM0002. The chronology of updates which the methodology ACM0002 suffered is expressed below, with timeline and main changes on it. **Version 10 – Approved on EB 47, Annex 7** 28 May 2009 The revision expands the applicability of the methodology to project activities that retrofit or replace renewable energy power generation units, to restore the installed power generation capacity to or above its original level. This revision includes the required provisions in the (i) definitions, (ii) baseline identification, and (iii) baseline emissions sections, in order to allow these types of project activities, as well as (iv) editorial changes in order to improve the overall clarity of the approved methodology. **Version 09 – Approved on EB 45, Annex 10** 13 February 2009 Inclusion of project emissions for operation of solar power plant and backup power generation of all the renewable energy plants. **Version 08 – Approved on EB 44, Annex 12** 28 November 2008 Incorporate changes in equation 9 of baseline emissions to account for the cases where the expansion of existing capacity of plant takes place as an additional energy generation unit is installed under CDM project activity. **Version 07 – Approved EB 36, Annex 11** 30 November 2007	~~**CAR#11**~~ Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			• General editorial revision of the methodology to put it in the new format; • Inclusion of the "Tool to calculate the emission factor for an electricity system"; • Inclusion of the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion"; • Inclusion of the definitions for power plant/unit, installed power generation capacity, electricity capacity addition, modification and retrofit, net electricity generation and grid/project electricity system; • Editorial revisions of the applicability conditions to clarify: o That the methodology is applicable only to electricity capacity additions; o The requirements for hydro power plants in terms of reservoir and power density; o The minimum vintage of baseline data that has to be available; o That the methodology is not applicable to biomass power plants and to hydro power plants with power density less than 4W/m2. • Inclusion of an equation to calculate the power density of hydro power plants; • Deletion of the parameters related to emissions associated with well testing in case of geothermal power plants, as those parameters were not necessary in the methodology. **Version 06 – Approved on EB 24, Annex 7** 19 May 2006 • Revision of the applicability conditions to include hydro power plants with new reservoirs that have power density greater than 4 W/m2 and inclusion of the equation to calculate the emissions from the reservoir in the emissions reductions section; • Revision of the baseline section to allow ex-ante calculation of the simple OM, simple-adjusted OM and average OM emission factors; • Inclusion of the clarification that the choice between ex-ante and expost vintage for calculation of the build margin and the operating margin should be specified in the PDD and cannot be changed during the crediting period; • Inclusion of guidance and clarifications on the selection of alternative weights for the calculation of the combined margin. The assessment team closed out the **CAR#11** and even tough it was necessary	

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<tr><th>Checklist Question</th><th>Ref. ID</th><th>MoV*</th><th>Comments</th><th>Conclusion, CAR/CLs</th></tr>
<tr><td></td><td></td><td></td><td>to update the methodology twice again (PDD version 06 uses the ACM0002 v.10), there was no need of PDD re-publication because the changes in the methodology did not impact the project activity.</td><td></td></tr>
<tr><td>A.6.2. Has the methodology (incl. the tools) been altered from the original version as referenced in the PDD?</td><td>VVM Para.69
PDD section B (B.1-B.2)
/2/
/3/</td><td>DR</td><td>Both the methodology applied in the PDD version 01, ACM0002 (version 06) /2/, and the “Tool for the demonstration and assessment of additionality” /3/ (version 03) had to be updated in the PDD from the original due to the release of a more actual version.
CAR#11 (section B.1.1) and CAR#02 was raised.
The table below presents the revisions which the Tool /3/ had during the validation process of the project activity:
Version Date Nature of Revision
<table>
<tr><td>05.2</td><td>26 August 2008</td><td>Updated with version 2 of the annex “Guidance on the assessment of investment analysis”.</td></tr>
<tr><td>05.1</td><td>25 July 2008</td><td>Addition of the “Guidance on the assessment of investment analysis” as an annex to the Additionality Tool.</td></tr>
<tr><td>05</td><td>EB 39, Annex 10
16 May 2008</td><td>• Changes in scope and applicability.
• Clarity in the conditions under which different aproaches, provided in Step 2: Investment analysis can be applied.
• Clarity in the appropriate choice of the benchmark for the assessment of additionality using benchmark analysis.
• Footnote 6 deleted.</td></tr>
<tr><td>04</td><td>EB 36, Annex 16
30 November 2007</td><td>Footnote 7 revised.</td></tr>
<tr><td>03</td><td>EB 29, Annex 05
16 February 2007</td><td>• Removed Step-0 and Step-5 from Tool and other small changes done.
• The tool is aligned with combined tool.</td></tr>
</table></td><td><s>CAR#02</s>
Yes</td></tr>
</table>

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			Once the PDD was corrected by the PP with the addition of the "Tool to calculate the emission factor for an electricity system" (version 01) and new version of the ACM0002 (version 10) /2/, and the "Tool for the demonstration and assessment of additionality" /3/ (version 05.2), CAR#11 and **CAR#02** were closed out.	
A.6.3. Is the selected approved methodology applicable to the project activity in the PDD?	VVM Para.75/66a /68/73 PDD (B.1-B.2) /2/ /7/ /30/	DR SV I	Yes, the methodology applied (ACM0002) is applicable and was correctly applied to the project activity, which is a hydropower plant connected to the Brazilian grid. It was verified that the project activity consists of "*a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield)*" (case a). Also, the UHE Baguari is a new hydro power plant with power density greater than 4 W/m^2. The applicability of the case a, cited above, was cross-checked during site visit and the power density was calculated, and confirmed as higher than 4 W/m^2 (8,72 W/m^2), based on the evidences provided by the PP.	Yes
A.6.4. Is the discussion in the PDD in conformance with all applicability criteria of the applied methodology?	VVM 75/66b/68 PDD (B.1-B.2) /2/	DR	Yes, refer to section B.1.3.	Yes.
A.7. Project Boundary				
A.7.1. Are all emission sources and gases related to the baseline scenario, project scenario and leakage clearly identified and described in a complete and transparent manner? Is there information on GHG emissions in proposed CDM project activity boundary as a	VVM P.79/76 /67a PDD section B.3 /2/ /23/ /24/ /29/ /30/	DR SV	Yes, all the emissions related to the project activity are clearly identified and are: • Baseline: CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the Project Activity. • Project Activity: CH_4 emissions from reservoir are accounted as project emissions once power density of the plant is between 4 and 10 W/m^2. Through the equipments /23, 24/ and other project documentation /29, 30/, it was verified that the HPP has the capacity of 140MW and 16.06Km^2 of reservoir area. As the power density is 8.72 W/m^2 , the project activity has to take into consideration the CH_4 emissions from decomposition in the reservoir (see	Yes

Checklist Question		Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
	result of the implementation of the proposed CDM project activity which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.			CL#01-Annex A.3). No leakage is expected.	
A.7.2.	In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with the tool to calculate emission factor of electricity system version 2 (wherever applicable) and the underlying methodology?	VVM Para.79 PDD section B.3 EB 50 Annex 14 /2/ /4/	DR	Yes, the electricity generated by the project activity will replace fossil fuel electricity from the Brazilian interconnected grid as defined on May 26th, 2008 by the Brazilian Designated National Authority Resolution nr 8 defining the Brazilian Interconnected Grid as a single system comprising the fifth macro-regions of the country (http://www.mct.gov.br/upd_blob/0024/24719.pdf) and it is according to the methodology ACM0002, version 10, applied. Also, the "Tool to calculate the emission factor for an electricity system" (version 01.1) (http://cdm.unfccc.int/Reference/tools/index.html) was correctly applied for the emission factor calculation and used data from official source.	Yes
A.7.3.	Does the project boundary include the physical delineation of the proposed CDM project activity?	VVM Para. 78/79 PDD (B.3-A.4.3)	DR SV	Yes, it was checked during Site Visit and the physical project boundary of the project activity and its geographical location.	Yes
A.7.4.	Are the project's geographical boundaries and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	VVM Para. 76/79 PDD (A.4.3-B.3) /2/	DR	Yes, all components of the project activity and its boundaries are defined in the PDD version 05 as: the reservoir, the power house, the substation and the interconnected national grid, including all GHGs required by the methodology (Figure 3 of the PDD).	Yes

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
A.8. Identification of the Baseline Scenario				
A.8.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology and is the application of the methodology and the discussion and determination of the chosen baseline transparent?	VVM 67b80/82/86 PDD (B.4-B.5) /2/ /3/	DR I	Due to the necessity of use in the methodology ACM0002, the PP applied the tool for demonstration and assessment of additionality (version 04 and later 05.2) to demonstrate additionality in the project activity. Initially a **CAR#03** was open to correct the Step 1: Identification of the alternatives to the project activity consistent with laws and regulations, more specifically the Sub-steps 1a and 1b, which had a lack of information to underlie the alternatives. The explanation given by the PP in the Section B.5 of the PDD version 04 was according to the reference Tool. It was verified that the only two alternatives for the current project activity were correctly identified by the PP in the PDD version 04 (Sub-step 1a). Also, the discussion about the consistency with mandatory laws and regulations (Sub-step 1b) was properly addressed and specific information of the Regulatory Agencies in the host country was added, so **CAR#03** was closed out.	~~**CAR#03**~~ Yes
A.8.2. Are all tools/procedures in the methodology correctly applied to identify the most reasonable baseline scenario? This includes all potential realistic and credible baseline scenarios in the discussion taking into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	VVM Para. 81/82/86a-d/83/84 PDD (B.4-B.5) /2/ /3/ /4/	DR	The methodology ACM0002 version 06 expired during the validation process and the PDD was revised and republished (see section B.1.1. and B.1.2 and/or CAR#02 and CAR#11 - Annex A.3). After the addition of the information, provided by the PP, in the PDD (version 05) in the section B.5, all the tools and procedures have been correctly applied, including their versions of: - the methodology ACM0002 (version 10), - the "Tool to calculate the emission factor for an electricity system" (version 01.1), - the "Tool for the demonstration and assessment of additionality" (version 5.2). The PP presented only 2 realistic alternatives to the project activity and the argument was the fact that the 2 companies which are the Project Participants: "Ecopart Assessoria em Negócios Empresariais Ltda." is the CDM project	Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			developer and do not invest in the construction and operation of Power Plants and the "Consórcio UHE Baguari" is a special purpose company set up specifically to construct and operate HPP Baguari. Based on the statements above, the only realistic alternatives to the project activity, identified by the PP in the PDD version 05, are: • Continuation of the present scenario, with the supply of electricity from the Brazilian interconnected grid. • The implementation of the project without incentives from the CDM. The DOE considered that the alternatives are reliable (CAR#03 section B.3.1).	
A.8.3. Is the choice of the baseline compatible with the available data?	VVM 86b-c/95 PDD (B.4-B.5) /2/ /4/ /44/	DR I SV	Yes, the data available is compatible with the methodology.	Yes
A.8.4. Is conservativeness addressed in the way of identifying the baseline?	VVM Para.90 PDD (B.4-B.5) /2/ /4/	DR	Yes, the unique parameter that had to be calculated was the Emission Factor from the Brazilian interconnected grid. It was done correctly following the tool /4/ mentioned above in the section B.3.2 and in public official data /44/.	Yes
A.8.5. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	VVM Para.90/91 PDD (B.4-B.5) /2/ /3/	DR	Yes, the baseline scenario selected is, as stated in the section B.5, the continuation of the present scenario, with the supply of electricity from the Brazilian interconnected grid.	Yes
A.8.6. Is there a verifiable description of the	VVM Para.86e/85	DR	The baseline scenario is the actual situation scenario in Brazil, which is the presence of large hydro power plants, with power density, and increasingly	

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
baseline scenario? Does this include a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity?	PDD (B.4-B.5) /2/ /3/		thermal power plants based on natural gas, which together represent the majority of the electricity generation installed capacity.	Yes
A.9. Additionality				
A.9.1. Does the PDD clearly demonstrate the additionality using the approach as specified in the methodology and by following all the required steps?	VVM Para.67d/95 PDD (B.1/B.4/B.5) /2/	DR	Refer to section B.4.2.	Yes
A.9.2. In case of using the additionality tool: Is the 'Additionality Tool' used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a transparent manner?	PDD sections (B.1-B.4-B.5) /2/ /3/ /8/ /21/ /22/ /25a/ /25b/ /31/ /32/	DR SV I	The version 01 of the PDD applied the methodology ACM0002 version 06 and the "Tool for the demonstration and assessment of additionality" version 03. In the last version of the PDD (version 06), the PP applies the ACM0002 version 10 and the "Tool for the demonstration and assessment of additionality" version 05.2, which are the most actual versions of these documents (refer to CAR#02 and CAR#11 – Annex A.3). ***Step 1: Identification of alternatives to the project activity consistent with current laws and regulations*** For detailed information about the Step 1, refer to sections B.3.1 and B.3.2. ***STEP 2: Investment analysis*** ***Sub-step 2a: Determine appropriate analysis method*** The investment analysis method chosen by PP was the option III, benchmark analysis.	~~CL#04~~ ~~CAR#05~~ ~~CL#06~~ ~~CAR#07~~ ~~CAR#09~~

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
	/34/ /39/		***Sub-step 2b: Option III. Benchmark analysis*** The PDD refers to another financial indicator (Proinfa) of 14.98%, which indicates the minimum attractiveness tax to implement an energy project. PP should include the reference in the PDD and provide evidences to the DOE. CAR#16 was raised. As the financial indicator of 14.98% related to "Proinfa" was not necessary, it was excluded from the PDD version 4 and no explanation is needed to be given about it. CAR#16 was closed out. The weighted-average cost of capital (WACC) presented in the PDD did not correspond to the WACC used to UHE Baguari project activity. The WACC given was considered for another project activity. PP would demonstrate the WACC used when the decision was taken to proceed with the project activity. CAR#17 was raised. The weighted-average cost of capital (WACC) is the rate used to discount business cash flows and takes into consideration the cost of debt and the cost of equity of a typical investor in the sector of the project activity. The WACC considers that shareholders expect compensation towards the projected risk of investing resources in a specific sector or industry in a particular country. The WACC calculation was based on parameters that are standard in the market, considers the specific characteristics of the project type, and is not linked to the subjective profitability expectation or risk profile of this particular project developer. The WACC calculated for the sector is 12.41%. CAR#17 was closed out (refer to CAR#17 for more detail). ***Sub-step 2c: Calculation and comparison of financial indicators*** CL#19 was raised to provide the cash-flow spreadsheet with formulas and source of data used. The cash flow spreadsheet and WACC calculation was provided with formulas. With the spreadsheets it was possible to verify how the IRR and WACC were calculated. CL#19 was closed out. The project IRR is 10.95%. With this IRR the proposed project activity	~~CAR#10~~ ~~CAR#16~~ ~~CAR#17~~ ~~CL#19~~ Yes

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demonstrates that the IRR of the project without considering CERs revenues is lower than the WACC of the sector 12.41%.
Sub-step 2d: Sensitivity analysis (only applicable to Options II and III)
The sensitivity analysis was made according to the "Guidance on the Assessment of Investment Analysis" (EB 41, Annex 45), considering variables that constitute more than 20% of either total project costs or total project revenues. Variations was done increasing project's revenues (sale of electricity), increasing energy generation by the plant (load factor variation), reducing investment expenses, and reducing operation and maintenance costs.
<table>
<tr><th>Baguari Project</th><th>IRR (%)</th><th>WACC (%)</th></tr>
<tr><td>Original IRR</td><td>10.95</td><td rowspan="5">12.41</td></tr>
<tr><td>Tariff increase (+10%)</td><td>12.33</td></tr>
<tr><td>Energy Generation/load factor increase (+10%)</td><td>12.28</td></tr>
<tr><td>Cost reduction (-10%)</td><td>11.18</td></tr>
<tr><td>Investment reduction (-10%)</td><td>12.16</td></tr>
</table>
STEP 3: Barrier analysis
The Step 3 of the tool was not applied correctly in the PDD version 01 and the CL#04, CAR#05, CL#06 and the CAR#07 were raised.
To close out the findings cited above, the PP opted by the exclusion of the Step 3: Barrier Analysis from the section B.5 of the PDD version 02.
As the "Tool for the demonstration and assessment of additionality" version 05.2, page 5, states that PP could :
"Proceed to Step 2 (Investment analysis) or Step 3 (Barrier analysis). (Project
</td><td></td></tr>
</table>

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			participants may also select to complete both Steps 2 and 3.)". The assessment team accepted the exclusion of the Step 3 from the PDD version 02 and the **CL#04, CAR#05, CL#06** and the **CAR#07** were closed out. ***STEP 4: Common practice analysis*** ***Sub-step 4a: Analyze other activities similar to the proposed project activity*** The Sub-step 4a was not discussed in PDD version 01 and the **CAR#09** was raised for the PP to add the pertinent information. The PP made alterations in the sub-sequent versions of the PDD but the due to the lack of accurate information or inconsistency of data, the CAR#09 remained outstanding until the version 06 of the PDD, when the PP divided clearly the criteria and the steps undertaken to demonstrate the project activity was not a common practice. As stated above, the criteria of analysis in the sub-step 4a of the PDD version 06 was summarized below, as follows: v. <u>Country/region</u> The approach made by the PP was that Brazil has an extension of 8,514,876.599 square kilometres and 6 distinct climate regions. These varieties of climate have influence in the technical aspects related to a hydropower projects and so just the state of Minas Gerais, where the UHE Baguari is located. vi. <u>Scale</u> According to the Brazilian regulations, large scale hydropower plants are defined as plants with an installed capacity greater than 30MW, as it was verified in the ANEEL Ordinance #652, but due to the great difference amongs HPPs, only plants with installed capacity 50% lower and 50% higher than UHE Baguari project activity were analyzed, in the case, UHEs with between 70 and 210 MW of installed capacity.	

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			vii. Same environment with respect to regulatory framework It is known in Brazil that until the beginning of the 1990's, the energy sector was composed almost only by state-owned companies. In 2003, the recently elected government decided to fully review the electricity market institutional framework in order to boost investments in the electric energy sector. Market rules were changed and new institutions were created such as Energetic Research Company and the Chamber for the Commercialization of Electric Power. The new structure, cited above, was approved by the House of Representatives and published on 15th March 2004 and it was taken into account the new regulatory framework and it was considered only the projects for which the decision making process happened after March of 2004. viii. Same environment with respect to investment climate, access to technology and financing This part of the common practice analysis uses part of the criteria " I " because depending on the project location, differences related to the technical aspects of hydropower plants projects have influence in their implementation. These technical differences have an influence in the investment of a project. Furthermore, the PP states that "as financial information of similar projects is not accessible for PPs, these projects should be excluded from this analysis following the additionality tool. However, PPs decided to do their reasonable comparison for the purpose of common practice analysis". As the criteria presented by the PP considers all the criteria stated by the additionality tool /3/ and the discussion of them are compatible with the Brazilian regional reality in the project activity field, the assessment team closed out the **CAR#09**. ***Sub-step 4b: Discuss any similar Options that are occurring*** Concerning Sub step 4b, it was not presented the scenario of similar options that are occurring in Brazil. It was not possible to confirm which similar activities comparing to Baguari project was occurring in PDD version 01. **CAR#10** was	

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			raised. To close out CAR#10, the PP revised the section B.5 of the third version of the PDD, dated 22/01/2009, but it was not included all the reference links in the respective section and the CAR#10 remained open. The exact reference of information used in Sub-step 4a and 4b was included in version 4 of the PDD, but the DOE considered that the approach used by the PP did not reach the additionality due to the fact it was not possible to evaluate if the comparison made among UHEs were appropriate and the CAR#10 remained open. The PDD version 06 approached the common practice analysis regionally and considered the appropriate steps of the most recent version of the additionality tool /3/, which is the version 05.2 (see CAR#09 for details) and based on the information and evidence provided /32/, the DOE concludes that there are no other similar UHE which is comparable to the UHE Baguari which were built in the state of Minas Gerais, Brazil in the previous period of decision making. Based in the evidence provided and in the discussion made in the common practice section of the PDD version 06, the DOE concluded that the project activity cannot be considered the business-as-usual scenario in the country and the **CAR#10** was closed out.	
A.9.3. Has all information been backed up with references, sources and certification? Is the data presented credible and reliable with complete transparency to all available data and documentation?	VVM 93/91 PDD Sect. B.5	DR I	The documentation provided by the PP to underlie the demonstration of additionality was accessed by the DOE and are credible according to the VVM requirements (EB44 Annex 3). For details, refer to "Ref. ID column" of the section B.4.2. Also the links containing the data available in the internet, which was related to the project activity, were provided and accessed to check their authenticity.	Yes
A.9.4. Is the discussion on additionality and the evidence provided	VVM Para.102b PDD Sect. B.5	DR	According to the Guidelines on the demonstration and assessment of prior consideration of the CDM (version 03) released in the EB49 – Annex 22, the "*Proposed project activities with a start date before 2 August 2008, for which the*	~~**CL#08**~~

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
consistent with the starting date of the project? If the project activity start date is prior to the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity?	/7/ /9/ /13a-d/ /22/ /25a-b/ /28/ /37/		*start date is prior to the date of publication of the PDD for global stakeholder consultation, are required to demonstrate that the CDM was seriously considered in the decision to implement the project activity*". During the desk review stage, the DOE raised the **CL#08** to address PP to provide evidence of the CDM consideration prior to the implementation of the project activity. To close out the CL#08, PP included additional information in the section B.5 of the PDD version 04 and provided evidences of what they had done through out the timeline prior and following the starting date of the project activity. The DOE, based on the requirement above, made the assessment of the project activity to ensure the PP considered CDM on the decision making and the following dates and actions were chronologically analyzed: • **<u>07/03/2006</u> – UHE Baguari Board Meeting Minute** /13a/ • **<u>05/06/2006</u> – UHE Baguari Board Meeting Minute** /13b/ • **<u>14/07/2006</u> – UHE Baguari Board Meeting Minute including a Presentation of CDM rules and potential projects** Date when the Board evaluated CDM incentives to the project activity and presented a study of viability of the UHE Baguari /13c, d/. • **<u>15/08/2006</u> – Consession Signature (Starting date of the project activity)** Date the concession contract to explore for 35 years the hydraulic potencial of the Doce River was signed between the PP and the Brazilian Government /7/; • **<u>15/12/2006</u> – Environmental License issue** Date the construction license was issued by the environmental agency of Minas Gerais State (FEAM) /9/; • **<u>26/02/2007</u> – Major equipment orders**	Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			Date when the supply contract of the major equipments was signed between PP and the construction company /25 a, 25b/; • **15/05/2007 – Start of the construction** Date when the civil works started on this date /22/; • **20/12/2007 – Financial loan contract** Date when the major shareholder signed the contract with the financing institution (Brazilian Bank of National Development) /28/. The starting date of the project activity, 15 August 2006, was considered correct by the DOE as it was the date which the contract was signed for the concession to implement the project activity. As the break of the contract would generate penalties to the PP and so it would be very unlikely to happen, as demonstrated clearly in the section C.1 of the PDD version 06. Other actions were taken before the beginning of the project activity and anticipating the validation process, and they were stated by the PP in the section B.5 of PDD version 06, as presented below /37/: • Commercial proposal from the Consultancy Ecopart (formally Ecoinvest) sent to Neoenergia on August 23rd, 2006; • Contact with the DOE "Det Norske Veritas" on June/July 2006; • Participation of Neoenergia in a CDM market training carried out by Fundação Educacional Charles Darwin at Neoenergia office on July 6th and 7th, 2006. Considering all the evidences provided by the PP relating to the prior consideration of CDM in the decision making process, the DOE understand that there is a concise timeline of real actions undertaken by the PP to implement the project activity as CDM. **CL#08** was closed out.	
A.9.5. For an existing project activity with a start date before 2 August 2008, for	EB 49, Annex 22	DR I	As the project activity was an existing project activity, the DOE analysed the documentation related to the CDM consideration and concluded it was authentic and reliable.	Yes

	Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
	which the start date is prior to the date of publication of the PDD for global stakeholder consultation, is the real documented evidence for an assessment of real and continuing actions available for validation and is this evidence authentic?			Also, the DOE followed the guidance to assess of real and continuing actions and verified that *"there is less than 2 years of a gap between the documented evidence the DOE shall conclude that continuing and real actions were taken to secure CDM status for the project activity"*. Refer to section B.4.4.	
A.9.6.	If an investment analysis has been used, has it been shown that the proposed project activity is economically or financially less attractive than at least one other alternative without the revenue from the sale of CERs?	VVM Para. 106, 107, 109 112a-c PDD Section B.5	DR	An investment analysis was used to demonstrate additionality and as commeted by the DOE's Financial Expert, the project: Refer to section B.4.2.	Yes
A.9.7.	If a benchmark is used, is it ensured that it is selected in accordance with the requirements of the tool /methodology and it represents standard returns in the market (not linked to the subjective profitability expectation or risk profile of a particular project developer).	VVM Para. 110 PDD Section B.5	DR	Refer to section B.4.2.	Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
A.9.8. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project activity but would not have prevented the implementation of at least one of the alternatives?	VVM Para. 114 115a-b /116 PDD Section B.5	DR	The PDD version applied Barrier Analysis, but the PP changed the demonstration of additionality to use Financial Analysis and the Barrier Analysis was not applied. Refer to section B.4.2 for more details.	Yes
A.9.9. Have the 'guidelines for objective demonstration and assessment of barriers' been followed? Have all applicable steps been considered and substantiated with objective evidence?	EB 50 Annex 13	DR	Not applicable, the additionality was demonstrated through the use of Financial Analysis.	Y
A.9.10. Is the discussion on additionality consistent with the identification of all plausible and credible baseline scenarios?	VVM Para.105 PDD B.5 /3/	DR	There was only 2 alternative scenarios presented by the PP for the proposed project activity and the discussion among them was done correctly by the PP. Refer to section B.3.1 and B.3.2 for more details.	Yes
A.9.11. Do the identified baseline scenarios include technologies and practices that include outputs or services comparable with the proposed CDM project activity? Do they also abide by the same	VVM Para. 105 PDD A.4.3/B.5	DR	The technologies applied in the project activity were included in the section A.4.3 of the PDD version 01 and improved in the PDD version 06 due to the need of better explanation on how the Brazilian Regulatory Agency (ANEEL) regulates and allows the implementation of Electricity Production projects in Brazil. The alternative scenarios presented by the PP were under the same laws and regulations. Refer to section B.3.1 and B.3.2 for details.	Yes

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
applicable laws and legislations?				
A.9.12. Has it been shown that the project is not common practice?	VVM 119a-b PDD Section B.5	DR	Yes, as explained in section B.4.2. the proposed project activity is not a common practice.	Yes
A.9.13. What are the key distinctions between the project activity and any similar projects that are widely used as common practice?	VVM 118, 119c/d PDD Section B.5	DR	Based on the criteria approach applied by the PP in the section B.5 of the PDD version 06, there is no similar project widely used as common practice in the geographical location of the project activity. Refer to section B.4.2 for more details.	Yes
A.10. Application of the Baseline Methodology				
A.10.1. Has the approved methodology been applied correctly for determining **baseline emissions**?	VVM Para. 91d PDD Section B (B.6.1 -B.71) /2/ /4/ Brazilian DNA website	DR	The methodology applied in the project activity, to calculate the baseline emissions, was the ACM0002 version 10, following the statement "*Baseline emissions include only CO2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:*" **Baseline Emissions** $BE_y = EG_{PJ,y} \cdot EF_{grid,CM,y}$ **Equation 4** Where, BE_y = Baseline emissions in year *y* (tCO_2/yr); $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year *y*	Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			(MWh/yr); $EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year *y* calculated using the latest version of the "*Tool to calculate the emission factor for an electricity system*" (tCO_2/MWh). <u>Calculation of $EG_{PJ,y}$:</u> It is different for (a) greenfield plants, (b) retrofits and replacements, and (c) capacity additions, as stated in the ACM0002 version 10, page 08. The project activity falls into the option (a) Greenfield plants, because it was installed at a site where no electricity generation occurred previously, and so the calculation of $EG_{PJ,y}$ was done as follows: $EG_{PJ,\,y} = EG_{facility,y}$ **Equation 5** Where, $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year *y* (MWh/yr); $EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y* (MWh/yr) <u>Calculation of the baseline emission factor of the grid ($EF_{grid,CM,y}$)</u> It is calculated using the methodological tool "*Tool to calculate the emission factor for an electricity system*", in its most recent version. According to this tool, the PP correctly applied in the section B.6.1 of the PDD version 06 the following six steps for the baseline calculation:	

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			STEP 1 - Identify the relevant electric power system. STEP 2 - Select an operating margin (OM) method. STEP 3 - Calculate the operating margin emission factor according to the selected method. STEP 4 - Identify the cohort of power units to be included in the build margin (BM). STEP 5 - Calculate the build margin emission factor. STEP 6 - Calculate the combined margin (CM) emissions factor. The Brazilian DNA made available the operating and the building margin emission factor calculated using option c – Dispatch data analysis OM. More information of the methods applied can be obtained in the DNA's website (http://www.mct.gov.br/index.php/content/view/4016.html). Hence, this data will be updated annually applying the number published by the Brazilian DNA. For estimative purposes, the data of the most recent year available in the DNA website was be used. To calculate the emission factor of the interconnected Brazilian grid, STEP 6 above, the PP applied correctly the equation 4 below with its respective values. Where the weights w_{OM} and w_{BM}, by default, are 50% (i.e., $w_{OM} = w_{OM} = 0.5$). $EF_y = w_{OM} \cdot EF_{OM,y} + w_{BM} \cdot EF_{BM,y}$ **Equation 6** The formulae and values applied were cross-checked by the DOE (through the DNA website) and considered correct based on the methodology approach and DNA official data published for CDM activities purposes.	

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
A.10.2. Has the approved methodology been applied correctly for determining **project emissions**?	VVM Para. 90/91d PDD Section B (B.6.2-B.71) /2/	DR	The methodology applied in the project activity, to calculate the baseline emissions, was the ACM0002 version 10, following the statement "*For most renewable power generation project activities, PEy = 0. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:*" **Project Emissions** $PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$ **Equation 7** Where, PE_y = Project emissions in year y (tCO2e/yr); $PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (tCO2/yr); $PE_{GP,y}$ = Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO2e/yr); $PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (tCO2e/yr) <u>Emissions from Fossil Fuel Combustion ($PE_{FF,y} = 0$)</u> The calculation of this source of emission is not applicable. In accordance with the methodology only geothermal and solar thermal project activities must consider this source of emission. <u>Emissions of non-condensable gases from the operation of geothermal power plants ($PE_{GP,y} = 0$)</u> The calculation of this source of emission is not applicable. This source of	Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			emissions is only considered for geothermal project activities. Emissions from water reservoirs of hydro power plants ($PE_{HP,y}$) New hydro electric power projects resulting in new reservoirs, shall account for CH4 and CO2 emissions from reservoirs, estimated as follows: **a)** if the power density (*PD*) of power plant is greater than 4 W/m^2 and less than or equal to 10 W/m^2: $$PE_y = \frac{EF_{Res} \times TEG_y}{1000}$$ **Equation 8** Where, *PEy* = Emission from reservoir expressed as tCO_2e/year. EF_{Res} = is the default emission factor for emissions from reservoirs, and the default value as perEB23 is 90 Kg CO_2e/MWh. TEG_y = Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (MWh). **b)** If power density (*PD*) of the project is greater than 10W/m^2, PEy = 0. The power density of the project activity is calculated as follows: $$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}}$$ **Equation 9** Where,	

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			PD = Power density of the project activity, in W/m^2. Cap_{PJ} = Installed capacity of the hydro power plant after the implementation of the project activity (W). Cap_{BL} = Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero. A_{PJ} = Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m^2). A_{BL} = Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m^2). For new reservoirs, this value is zero. This is a new project activity and so the parameters Cap_{BL} and A_{BL} has their value equal to zero (0). The Area of the reservoir (A_{PJ}) of the project activity is 16.06 km^2 and the installed capacity of the hydro power plant (Cap_{PJ}) is equal to 140MW. The DOE checked the calculation of the Project Emissions and as the Power Density (Watts/m^2) of the project activity has the value of 8.72 W/m^2, the option (a) above was correctly applied by the PP.	
A.10.3. Has the approved methodology been applied correctly for determining **leakage**?	VVM Para. 91d PDD Section B (B.6.2 -B.71) /2/	DR	According to the methodology applied, ACM0002 version 10: "*no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, and transport). These emissions sources are neglected".* The PP stated the sentence above in the correct section of the PDD version 04 and the DOE confirmed it as applicable to the project.	Yes
A.10.4. Where applicable, has the approved	VVM Para 88/91d PDD Section B	DR	According to the methodology applied, ACM0002 version 10:	Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
methodology been applied correctly for the **direct calculation of emission reductions?**	(B.6.2 -B.71)		**Emission Reductions** $ER_y = BE_y - PE_y$ **Equation 8** Where, ER_y = Emission reductions in year y (t CO_2e/yr); BE_y = Baseline emissions in year y (t CO_2e/yr); PE_y = Project emissions in year y (t CO_2e/yr); The formulae of Emission Reductions presented above and the formulae/data which it is dependent of, were correctly applied by the PP, as verified. Also, the Emission Factor (EF) will be calculated *ex-post* as the methodology states to be done.	
A.10.5. Where there is an option between different equations or parameters, has the methodological choices for the project been explained, have they been properly justified and are they correct?	VVM Para.89/90/91 PDD Section B (B.6.2 -B.71) /2/ /4/	DR	The choices the PP made along the development and calculation of baseline emissions, project emissions, leakage and emissions reductions were according to the methodology and to the project activity and they were correct properly justified.	Yes
A.10.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	PDD Sections B.5 /2/ /4/	DR	All the uncertainties in the project activity were addressed and do not represent impact in the calculation, because of calibration of equipments and use of official data in the ex-post calculation.	Yes
A.11. Ex-ante Data and Parameters Used				
A.11.1. Are the data provided in	VVM Para.	DR	Yes, all the data provided were cross-checked with the methodology, tools and its	

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
compliance with the methodology?	91/67c PDD Section B.6.3-B.6.4		sources to ensure the compliance with the ACM0002.	Yes
A.11.2. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	VVM Para. 91a-b PDD Section B.6.3/B.6.4 /2/ /4/	DR	The most important data for the project activity are: - the Emission Factor of the Brazilian grid ($EF_{grid,CM,y}$) is official data from the DNA; - the emissions from water reservoirs of hydro power plants ($PE_{HP,y}$) is a Default value from the methodology; Other values applied, as the Load Factor of the Hidropower plant, are based on reliable evidences. All parameters above were cross-checked by the DOE to proof their veracity and reliability to calculate the ER of the project activity.	Yes
A.11.3. Is the vintage of the baseline data correct?	PDD Section B.6.3/B.6.4	DR	Yes. Refer to section B.5.1 for more details.	Yes
A.11.4. Is all the data appropriate and correctly applied to the CDM project activity?	VVM Para.91c PDD Section B.6.3/B.6.4	DR	All values used in the PDD were considered reasonable in the context of the proposed CDM project activity. See section B.5.1, B.6.1 and B.6.2 for more details.	Yes
A.11.5. Are data and parameters that are not being monitored and remained fixed throughout the crediting period appropriately assessed, correct, and will they result in conservative estimates?	VVM Para. 90 PDD Section B.6.3/B.6.4 /2/	DR SV	Yes. The only 2 parameters involved in the project activity which will not be monitored are expressed in the section B.5.2 as: GWP_{CH4} = Global warming potential of methane valid for the relevant commitment period (tCO2e/tCH4), this value is 21 (IPCC source) Cap_{BL} = Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero. A_{BL} = Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m^2). For new	Yes

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			reservoirs, this value is zero. Considering the fact that it is a new project activity, the values of both parameters were correctly stated as being null (zero).	
A.11.6. Is sampling approach used for any parameters?	EB 50 Annex 30 Para. 30	DR	Considering the fact that it is a new project activity, the values of both ex-ante parameters were correctly stated as being null (zero).	Y
A.11.7. Where applicable, the plant load factor shall be defined ex-ante in the CDM-PDD according to one of the following three options: (a) (a) The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval; (b) The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)	EB 48 Annex 11	DR	The assured energy of the plant is equal to 80.2 $MW_{average}$/year as established by the Ministry of Mines and Energy and described in the public concession contract (ref. 7). The ex-ante plant load factor is defined as the ratio between the assured energy and total installed capacity of the plant, is 0.57. The plant load factor is specific for the Hydro plant Baguari approved by the Ministry of Mines and Energy and clearly meets the requirements set out in EB48 Annex 11 (Guidelines for the reporting and validation of plant load factors).	Y
7. Calculation of Emissions Reductions				
B.7.1 Has the approved methodology been applied correctly for determining **emission reductions**?	VVM Para. 91d PDD Section A.4.4 / B.6 /2/ /4/ /11/	DR	During desk review, the spreadsheet containing the ER calculation was not available for the DOE to make the necessary assessment and the **CL#18** was raised for the PP to provide it. To close out the CL#18, the PP provided the spreadsheet named "UHEBaguari_CERs calculation_v.3-English" /11/ and the DOE assessed it to check its accuracy and conservativeness. It was possible to conclude that: the methodology ACM0002 /2/ was correctly	~~**CL#18**~~ Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			applied for determining the emission reductions, including the choices that the methodology and the tool to calculate the EF /4/ allow the PP to do. **CL#18** was closed out. Due to the change of the starting date of the crediting period, the spreadsheet mentioned above was updated to its version 4 /11/ and assessed again by the DOE to verify its accuracy and conservativeness, it was verified that the spreadsheet was correctly updated by the PP. Refer to sections B.1.1 and B.5.1 to B.5.6 for more details.	
B.7.2 Are the emission reduction calculations documented in a complete and transparent manner?	VVM Para. 91e PDD B.6 /2/ /4/	DR	Yes. The values and formulae applied in the ER calculation were transparently presented by the PP, including their sequence, and the evidences provided were according to the data of the PDD version 01.	Yes
B.7.3 Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	PDD Section B.6 /2/ /4/	DR	Yes. The projection of ER is based on the same procedures as used for later monitoring with the exception that “ex-post” values of EF (Emission Factor from the grid) and EG (Energy Generated) will be used.	Yes
B.7.4 Is the calculation of the emission reduction correct?	VVM Para. 91e PDD B.6 /2/ /4/ /11/	DR	The calculation of ER was replicated using the formulae of the methodology ACM0002 version 10 /2/ applied by the PP and the spreadsheet of ER /11/ and verified as correct. Refer to sections B.5.1 to B.5.6 for more detailed information about the equations and the approaches applied in the project activity.	Yes
8. Emission Reductions				
B.8.1 Is the form/table required for the indication of projected emission reductions correctly applied?	PDD Section A.4.4 / B.6	DR	Yes. See section A.4.6 for details.	Yes

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
B.8.2 Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	PDD Section A.4.4 / B.6	DR	Yes, the project is following its timeline of implementation. The starting date of the crediting period was delayed due to the validation process, but it is according to the EB requirements.	Yes
9. Monitoring Methodology				
B.9.1 Does the monitoring methodology provide a consistent approach in the context of all parameters to be monitored and further information provided by the PDD? Are all parameters and data that are available at validation consistent with the approved methodology. Has this data been interpreted and applied correctly?	VVM Para. 67e PDD B.7-B.8 Annex 4	DR	The section B.7.1, Data and parameters monitored, stating that *"Data monitored and required for verification and issuance will be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later."* The DOE cross-checked this information with the ACM0002 version 06 to 10 and it is according to the methodology applied. The data and parameters available in the validation (A_{BL}, Cap_{BL} and GWP_{CH4}) and the parameters that the PP will monitor during the crediting period are applied in compliance with the ACM0002 v.10 and are consistent through out the PDD including their sources and calculations.	Yes
B.9.2 Does the monitoring methodology apply consistently the choice of the option selected for monitoring both of project and baseline emissions?	PDD Section B Annex 4 /2/ /4/	DR	The monitoring methodology applied in the project activity, which was based on the ACM0002 v.10 /2/, presents 3 options to calculate the baseline emissions and the correct choice (a) was applied (see section B.5.1). Also, the tool /4/ applied the same choice used by the Brazilian DNA to calculate the Emission Factor of the grid (EF). To calculate the project emissions, the emissions from water reservoirs of hydro power plants ($PE_{HP,j}$) were calculated due to the fact that the power density of the UHE Baguari is 8.72 W/m^2, which was found to have value between 4 W/m^{2}and 10 W/m^2 (see section B.5.2).	Yes
10. Data and Parameters Monitored				
B.10.1 Does the monitoring plan in the PDD comply with the	VVM Para.	DR	The monitoring plan of the project activity, described in the section B.7.2 of the	Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
approved methodology provided for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?	91a/91d/121/79 PDD B.7 /2/ /4/		PDD version 06, is in compliance with the methodology applied ACM0002 v.10 /2/ (see B.9.1 and B.9.2) and all parameters were correctly identified in the section B.7.1 of the PDD version 06. The collection and archiving of data were also described, for each monitored parameter, and satisfy the methodology's requirements. The parameters necessary to be monitored are: • $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year *y* (MWh/yr); The measurement of this parameter will be carried out by energy meters installed at the substation. Energy metering QA/QC procedures are explained in Annex 4 (the equipments used have by legal requirements extremely low level of uncertainty). Measured each 15 minutes and monthly consolidated. Electricity generation by the plant as published by the Electric Power Commercialization Chamber (from the Portuguese *Câmara de Comercialização de Energia Elétrica* – CCEE) will be used to cross check project participant's information. • $EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year *y* calculated using the latest version of the "*Tool to calculate the emission factor for an electricity system*" (tCO_2/MWh). The selected option to calculate the operating margin made by the Brazilian DNA was the dispatch analysis which does not permit the vintage of *ex-ante* calculation of the emission factor. Hence, this value will be calculated annually applying the numbers published by the Brazilian DNA and following the steps provided in the "Tool to calculate the emission factor for an electricity system". • TEG_y = Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads,	

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			in year y (MWh). Total electricity produced by the project activity. Double checked by internal control. Hourly measurement and monthly recording. Energy metering QA/QC procedures are explained in section B.7.2 (the equipments used have by legal requirements extremely low level of uncertainty). • Cap_{PJ} = Installed capacity of the hydro power plant after the implementation of the project activity (W). Modifications of the installed capacity of the plant are to be made by the manufacturer of the equipment and if this is done the description of the equipment's tag will be up-dated. In Brazil the installed capacity of hydropower plant is determined and authorized by the competent regulatory agency and publicly available. • A_{PJ} = Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m^2). Measured from topographical surveys, maps, satellite pictures, etc. The area of the reservoir can be determined depending on the reservoir level. Hydropower plants dispatched by ONS have to monitor their reservoir level. In Brazil, every modification at hydropower plants has to be authorized and be publicly available by the regulatory agency. The DOE analyzed all monitored parameters, cited above, taking into account the content of each line of each table of Data/Parameter applied by ACM0002 v.10, in the section B.7.1 of the PDD version 06: - the data unit, - the description, - the source of data to be used,	

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			- the Value of data applied for the purpose of calculating expected emission reductions in section B.5, - the Description of measurement methods and procedures to be applied, - QA/QC procedures to be applied, - Any comment. The conclusion was that they meet the requirements of the methodology and are described sufficiently to ensure correct measurement.	
B.10.2 Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	PDD Section B.7-B.7.2/B.6.2 /2/ /4/	DR	The GHG indicators, which are the parameters available and the monitored parameters, were applied according to the methodology ACM0002 version 10 and the EF tool /4/ (see sections B.5, B.9 and B.10.1).	Yes
B.10.3 Will it be possible to determine the specified project GHG indicators?	PDD Section B.6.2-B.8 /2/ /4/	DR	The main project GHG indicators were identified by the DOE as being the parameters $\boldsymbol{EG_{PJ,y}}$, $\boldsymbol{TEG_y}$ (measured by calibrated energy meters) and $\boldsymbol{EF_{grid,CM,y}}$ (published by the Brazilian DNA).	Yes
B.10.4 Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	PDD Section B.6.2-B.7.1 /2/ /4/	DR	Yes, refer to section B.10.1.	Yes
B.10.5 Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?	PDD Section B.6.2-B.7.1 /2/ /4/	DR	Yes, refer to section B.10.1.	Yes
B.10.6 Is the monitoring	PDD Section B.5-	DR	Yes, refer to section B.10.1.	

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	B.7.2 /2/			Yes
B.10.7 Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	PDD Section B.6.2-B.7.1 /2/	DR	Yes, the formula used was clearly indicated (refer to sections B.5.2 and B.10.1).	Yes
11. Quality Control (QC) and Quality Assurance (QA) Procedures				
B.11.1 Is the selection of data undergoing quality control and quality assurance procedures complete?	VVM Para. 121 PDD B.6.2-B.7.1 /2/	DR	The version 06 of the PDD contains QC/QA for the main data applied in the ER calculation, but the DOE understand it is not enough to guarantee the reliability of data and as during the validation process, the PP did not present a monitoring procedure to evidence monitoring reliability, the DOE understand it is extremely necessary and the **FAR#20** was raised. The monitoring procedure have to contain information about at least the following topics: - QA/QC - Training Responsibility and Recording - Calibration of monitoring equipments - Maintenance of monitoring equipments and installation - Day-to-day records handling - Dealing with possible monitoring data adjustments and missing data data in case of monitoring problems - Internal audits of GHG project compliance with operational requirements - Project performance reviews before submission	**FAR#20** Yes

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			Refer to section B.10.1 for QA/QC information.	
B.11.2 Is the belonging determination of uncertainty levels done correctly for each ID in a correct and reliable manner?	PDD Inc. B.4/B.7.2 Annex 4 /2/ /4/	DR	Refer to section B.10.1 for information uncertainty levels.	Yes
B.11.3 Are quality control procedures and quality assurance procedures sufficiently described to ensure the delivery of high quality data?	VVM Para 121 /2/ /4/	DR	Refer to section B.11.1 or Annex 3 (FAR#20).	Yes
B.11.4 Is it ensured that data will be bound to national or internal reference standards?	VVM Para.86d /2/ /4/	DR	The data measurement needed will follow the national calibration standard required by the ONS (National System Operator) and the emission factor will be provided annually by the Brazilian DNA. Refer to section B.10.1.	Yes
B.11.5 Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	VVM Para. 19 /2/ /4/	DR I	There is no evidence of the possibility of conflict of interest to happen in the estimation of emission reductions (see section B.10.1 and B.11.3-4) due to the implementation of a Control System to measure the electricity generated by the plant and make the compilation of the data collected.	Yes
12. Operational and Management Structure				
B.12.1 Is the authority and responsibility of project management clearly described?	PDD Section B.8 Annex 4	DR I	Yes, the PP stated in the section B.7.2 of the PDD version 06 that: "The Consórcio UHE Baguari will also be responsible for the maintenance of the equipments' monitoring, for dealing with possible monitoring data adjustments and uncertainties, for review of reported results/data, for internal audits of GHG project compliance with operational requirements and for corrective actions. Yet, it is also responsible for the project management, as well as for organising and	Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			training of the staff in the appropriate monitoring, measurement and reporting techniques." Based the statement above, the DOE concludes that the authority and responsibility of project management is the role of the PP "Consórcio UHE Baguari", as well as the authority and responsibility for registration, monitoring, measurement and reporting.	
B.12.2 Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD Section B.8 Annex 4	DR	Yes, refer to section B.12.1.	Yes
B.12.3 Are procedures identified for training of monitoring personnel?	PDD B.8 Annex 4	DR	Refer to section B.11.1 or Annex 3 (FAR#20).	Yes
13. Monitoring Plan (Annex 4)				
B.13.1 Is the monitoring plan developed in a project specific manner clearly addressing the unique features of the CDM activity?	VVM Para 122a /2/ /4/	DR	Yes, the monitoring plan addresses the needed parameters to control the data collection of the project activity.	Yes
B.13.2 Does the monitoring plan completely describe all measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality?	VVM Para 122b /2/ /4/	DR	Refer to section B.10.1.	Yes
B.13.3 Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	VVM Para 122b	DR	Refer to section B.10.1.	Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
B.13.4 Are procedures identified for calibration of monitoring equipment?	VVM Para. 122a-c /2/	DR	Refer to section B.11.1 or Annex 3 (FAR#20).	Yes
B.13.5 Are procedures identified for maintenance of monitoring equipment and installations?	VVM Para. 122a-c	DR	Refer to section B.11.1 or Annex 3 (FAR#20).	Yes
B.13.6 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	VVM Para. 122a-c	DR	Refer to section B.11.1 or Annex 3 (FAR#20).	Yes
B.13.7 Are procedures identified for dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems?	VVM Para. 122a-c	DR	Refer toe section B.11.1 or Annex 3 (FAR#20).	Yes
B.13.8 Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	VVM Para.122a-c	DR	Refer to section B.11.1 or Annex 3 (FAR#20).	Yes
B.13.9 Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	VVM Para. 122a-c	DR	Refer to section B.11.1 or Annex 3 (FAR#20).	Yes
B.13.10 Describe the ability of the project participants to implement the monitoring plan.	VVM Para. 122c	DR	The monitoring plan will be implemented by the PP with no difficulty due to the fact the main parameters of the project activity (EG and TEG) would be monitored with or without the CDM proposed project activity. Another important parameter, the EF, is calculated and published by the Brazilian DNA and are reliable for the purposes of CDM activities.	Yes

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			Refer to section B.10.1 for Data / Parameters information.	
14. Baseline Details				
B.14.1 Is there any indication of a date when determining the baseline?	PDD Section B.8 Annex 3	DR	The PP states in the section B.8 of the PDD versions 01 to 08 that the baseline was completed on 30th July 2007.	Yes
B.14.2 Is this consistent with the time line of the PDD history?	Also see revision history of the PDD	DR	Yes, the timeline is consistent because the version 01 of the PDD presents the date of 31st October 2007 and it was published for the first time on 2nd November 2007.	Yes
B.14.3 Is all data required provided in a complete manner by annex 3 of the PDD?	PDD Annex 3 /44/	DR	*The Annex 03 of the PDD version 05 contains additional information about the interconnected Brazilian electricity system, which comprehend the five geographical macro-regions of the country (North, Northeast, South, Southeast and Midwest).* *Brazilian DNA determined it through its Resolution nr. 8 dated 26th May, 2008 /44/ <http://www.mct.gov.br/index.php/content/view/3881.html>.*	Yes
B.14.4. What is the documented crediting period of the project? Is this inline with available data?		DR	According to the PDD version 6 the crediting period is renewable with the first 7 years crediting period envisioned to start on 01/01/2010 or on the date of registration whichever occurs later.	Y
B.14.5. In cases where the methodology specifies, has the '*Tool to determine the remaining lifetime of equipment'* been correctly applied?	EB 50 Annex 15	DR	Not applicable.	Y
B.14.6. In cases where the *'Tool to determine the remaining lifetime of equipment'* has been used the project participants may use one of the following options to determine the remaining lifetime of the equipment:	EB 50 Annex 15	SV/DR	Not applicable the proposed project activity is a new hydro power plant.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
(a) Use manufacturer's information on the technical lifetime of equipment and compare to the date of first commissioning; (b) Obtain an expert evaluation; (c) Use default values.				
C. Duration of the Project / Crediting Period				
C.1.1 Are the project's starting date and operational lifetime clearly defined and reasonable?	VVM Para. 102a-c PDD Section C.1.1/C.1.2 /7/ /45/	DR I	Yes, the starting date of the project activity was 15th August 2006, which is the date the concession contract to explore for 35 years the hydraulic potential of the Doce River signed between the PP and the Brazilian Government /7/. The operational lifetime of this project activity was accepted by the DOE as the period of concession (35 years) due to the fact there is no historical case in Brazil of projects that stopped operating before the end of concession and sometimes the concession is renewed only applying a retrofit or substitution of main equipments.	Yes
C.1.2 Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	VVM Para 102a PDD Section C.2/C.2.1/C.2.2	DR	Yes, the crediting period of the project activity is 7 years (renewable).	Yes
C.1.3 Does the project's operational lifetime exceed the crediting period	VVM Para. 102a PDD Section	DR	Yes. The operational lifetime exceed the first crediting period. See section C.1.1.	Yes

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
	C.1.2/C.2.1.1/C.2.1.2			
C.1.4 Does the start date indicate whether this is a new project activity or a pre-existing project activity?	VVM Para. 102a/ 98 PDD Section C.1.1/C.2.1.1	DR	Based on the EB49 Annex 22, the project starting date indicates it is a new project activity. Refer to section B.4.5 and B.4.6 for more details.	Yes
D. Environmental Impacts				
D.1.1 Does the project comply with environmental legislation in the host country?	VVM Para.131 PDD section D /9/ /35/	DR	In Brazil for any project to get started and eventually become operational, the project must obtain three environmental licenses from the states environmental agency and each one can not be obtained before the previous license: • LAP, Preliminary Environmental License • LAI, Environmental Installation License • LAO, Environmental Operational License. The environmental aspects of the project activity, including relevant documentation /35/ such as the PCA (Environmental Control Plan) and the EIA (Environmental Impact Assessment), were analyzed by the Environmental Agencies when the licenses were issued. The DOE verified the Preliminary License (LAP) nº 156 /9a/ dated 29/10/2007, the Installation License (LAI) nº 173 /9b/ dated 15/12/2006, issued by FEAM (State Environmental Agency), the Protocol for the Operational License issuance /9c/ and the Operational License (LAO) nº 230455/2009 /9d/ dated 05/06/2009. All licenses presented by the PP were considered reliable and in compliance with legislation.	Yes
D.1.2 Has an analysis of the environmental impacts of the project activity been sufficiently described?	VVM Para.131 PDD section D /35/	DR	Yes, the PP provided the EIA /35/ and the PCA /35/ covering all relevant aspect that relates to direct or indirect impacts of the project activity and it was checked by the DOE with the information provided in the section D of the PDD version 06 and external sources, confirming its reliability.	Yes

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
D.1.3 Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	VVM Para.131 PDD section D	DR	Refer to section D.1.1 and D.1.2.	Yes
D.1.4 Will the project create any adverse environmental effects?	VVM Para.131 PDD section D	DR	The environmental impacts identified in such studies were addressed in the environmental plans and conditions were defined by the Environmental Agency, which is the governmental organization responsible to verify the impacts and implementation of plans during the validity of the licenses.	Yes
D.1.5 Are trans-boundary environmental impacts considered in the analysis?	VVM Para.131 PDD D	DR	Refer to section D.1.1 and D.1.2.	Yes
D.1.6 Have identified environmental impacts been addressed in the project design?	VVM Para. 131 PDD D	DR	The environmental impacts identified in such studies were addressed in the environmental plans and conditions were defined by the Environmental Agency, which is the governmental organization responsible to verify the impacts and implementation of plans during the validity of the licenses. Refer to section D.1.1 and D.1.2.	Yes
E. Stakeholder Comments				
E.1.1 Have relevant stakeholders been consulted?	VVM Para.128a PDD E.1 /26/ /35/ /44b/	DR	According to DNA Resolution nº 7 of 5 March 2008 /44b/ (art.3, 2º para., item IV): Community Associations whose purposes are direct or indirectly related to project activity shall received letters of invitation for comments. PP addressed invitations to Escola Municipal Ramiro de Souza Monteiro (municipal school) in Alpercata city, Escola Municipal Alda Fernandes Govéia (municipal school) in Fernandes Tourinho city, Escola Municipal Jair Fernandes de Melo (municipal school) in Iapu city, Escola Municipal Waldemiro Barrei (municipal school) in Periquito and Escola Estadual José Severino (state school) in Sobrália. A school can not be considered a Community Association neither an interested part of the project activity. PP must send the invitation for comments to the community associations whose purposes are direct and indirect related to project	Yes

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

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			activity. **CAR#13** was raised. To close out the CAR#13, PP sent letters to other local community associations of the cities affected by the project activity on February 20th, 2009 /38/. No comments were received from them. Copies of the letters and the confirmation receipt were provided to the DOE and they were verified to check the authenticity of the receipts (ARs) /26/ and the Letters /38/. which were sent to the Community Associations in the project activity area were according to the Brazilian DNA resolution nº 7 /44b/ and the **CAR#13** was closed out. The letters of invitation were sent to: • City Hall of each municipality involved in project activity; • Secretary of Environmental of each municipality involved in project activity; • City Council of each municipality involved in project activity; • Community Associations of each municipality involved in project activity; • State and Federal Attorney; • State Environmental Agency (FEAM); • Brazilian Forum of NGO's. Cross-checking the local stakeholder consultation process made by the PP against the resolution /44b/ which establishes how it has to be done, the DOE concluded that meets the requirements.	
E.1.2 Have appropriate media been used to invite comments by local stakeholders?	VVM Para.128a PDD E.1 /44b/	DR	Yes, the media used to invite comments by the local stakeholders followed the Brazilian DNA resolution nº 7 /44b/, which states in the Art.3, Paragraph 5º, item I to III, the letter of local stakeholders must inform: - the name and the type of activity developed under CDM ; - the website address with the last version available of the PDD in the local language (Portuguese) and the description of how the project activity contributes	Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			to sustainable development ; - formal address to the stakeholders with no internet access to make the solicitation of a printed version. The DOE verified and concluded that the media used was according to the DNA requirements.	
E.1.3 Is the undertaken stakeholder process described in a complete and transparent manner?	VVM Para.128b PDD E.1	DR	Refer to section E.1.1.	Yes
E.1.4 Is a summary of the stakeholder comments received provided?	VVM Para.128b PDD E.2 /26/	DR	The PP received 2 comments from local stakeholders: The first came from the Brazilian Forum of NGO's, on 18/12/2007, saying that they approve the transparency of the CDM validation process and suggested to evaluate the project under the Gold Standard system to ensure the social sustainable development is achieved by the project activity /26/. The second came from the Minas Gerais State Attorney for the Public Interest, on 12/05/2008, asking for a description of the project activity; the expected schedule for its development; and whether the company possessed other similar projects being developed in the region.	Yes
E.1.5 Has due account been taken of any stakeholder comments received?	VVM Para.128b PDD E.3	DR	In the section E.3 of the PDD version 06, the PP took the comments into account and replied it as follows: *"Comment 1: Project Participants consider that requests made by the Brazilian Government are sufficient to be used as sustainable indicators which are attended by this CDM project activity;* *Comment 2: Project Participants responded that the project consisted in the construction of an hydroelectric power plant that had the right to claim for carbon credits once it is a renewable source of energy that displaces energy that would be generated by fossil fuel sources; project participants expected that the CDM project activity would be registered by the end of 2009; and that neither of the project participants had other similar projects being developed*	Yes

Checklist Question	Ref. ID	MoV*	Comments	Conclusion, CAR/CLs
			in the region." Copies of the letters /26/ sent to the local stakeholders mentioned above were supplied to the DOE and verified.	

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

A.3 Annex 3: Overview of Findings

Findings Overview Summary

	CARs	CLs	FARs
Total Number raised	13	6	1

Deadline for submission of Response by Client[1]*: 06/03/2009*

Date:	24-01-2008		Raised by:	Geisa Principe / Fabian Gonçalves	
Type:	CL	Number:	01	Reference:	A.2.1 – Annex A.2

Lead Assessor Comment:

Page 3 of the PDD mentions that The Baguari project is an hydropower run-of-river, however the page 6 says the reservoir size is of 16.06Km2.
Please, clarify if the project activity is a run-of-river or not.

Project Participant Response: **Date:** *20/07/2008*

Considering the definition provided by Eletrobrás and WCD (see page 6), run-of-river project projects are those "where the river's dry season flow rate is the same or higher than the minimum required for the turbines". Provided that, UHE Baguari can be considered a run-of-river project once its dry season average flow rate (327.43 m^3/s) is higher than what is required by the turbines (224.40 m^3/s).
Answer 06.03.2009
Baguari is a run-of-river once its reservoir has a limited capacity to storage water, which is 1.23 day. The details on this categorization of the plant are included in the PDD, section A.4. The storage capacity of the reservoir in terms of days was estimated in the same spreadsheet used to calculate the emission reductions of the project activity. Evidence about the average flow rate of the river can be obtained in the Construction Progress Report sent to ANEEL.
Though the reservoir size is described in the Environmental Impact Assessment and in the Basic Project (ANEEL Despatch nr. 1143 dated 20 March 2008, available at http://www.aneel.gov.br/cedoc/dsp20081143.pdf) been equal to 14.16 km^2, its area has been measured more precisely and this value was revised to 16.06 km^2 as described in the PDD. It is worth mentioning that both EIA and Basic Project are developed in the early stages of the project and this parameter among others is constantly revised. Hence, the most up-dated value must be used.

Documentation Provided by Project Participant:

No evidences were provided to SGS.

i. For the calculation of the storage capacity of the reservoir please refer to the calculations made in CERs calculation spreadsheet named "*UHEBaguari_Cálculos_v.3-English*" in the sheet called "*Dados de vazão*";

ii. The average flow rate of the river where the plant is located is available in UHE Baguari's Construction Progress Report. Please referrer to page 15 of the electronic file named "*25_Relatório_de_Progresso_ANEEL_Janeiro_2009*" dated January, 2009;

iii. The most up-dated reservoir size is available in UHE Baguari's Construction Progress Report. Please referrer to page 16 of the electronic file named "*25_Relatório_de_Progresso_ANEEL_Janeiro_2009*" dated January, 2009;

Information Verified by Lead Assessor:

02/02/2009
According to EIA (UHE Baguari -Estudo de Impacto Ambiental), VBAG/MA.00/RT the reservoir size is of 14.20Km². This value is different from the PDD.
13/05/2009
ANEEL Dispatch nº 143 issued on 20 March 2008.
ANNEL nº01/09 – Report of progress (Relatório de progresso – Consórcio UHE Baguari Ref. 30 – page 16)

Reasoning for not Acceptance or Acceptance and Close Out:

According to ANEEL dispatch, nº 1.143 issued on 20 March 2008, stated that the reservoir area of 14.16Km² (Ref. 29), however this parameter is constantly been updated due to it is under construction.

[1] Response to all findings with relevant associated documentation to be sent to SGS in one submission.

The most recent report sent ANNEL nº01/09 – Report of progress (Relatório de progresso –Consórcio UHE Baguari Ref. 30 – page 16) states that the reservoir area is 16.06Km². The calculations made in CERs calculation spreadsheet named "UHEBaguari_Cálculos_v.3" in the sheet called "Rivers's flow data" for evidencing that the project activity is run-of-river were based in the average monthly flow of the river from 1931 to 2004 (Ref.30) and they are consistent with the evidences provided and with the PDD version 05. CL#01 was closed out.
Acceptance and Close out by Lead Assessor: **Date:** 13/05/2009

Date:	24-01-2008		Raised by:	Geisa Principe / Fabian Gonçalves	
Type:	CAR	Number:	02	Reference:	B.1.2 – Annex A.2
Lead Assessor Comment:					
The PDD version 1 is using the version 3 of the Tool. To use the most recent version of the "Tool".					
Project Participant Response:			**Date:** *20/03/2008*		
PDD were reviewed (version 2) in order to use the most recent version of Additionality Tool (version 4). *Answer 06.03.2009* Version 4 of the PDD already uses version 5.2 of the tool.					
Documentation Provided by Project Participant:					
PPs understand that no evidences have to be sent to the DOE, except the revised PDD, version 4.					
Information Verified by Lead Assessor:					
PDD version 4 and Additionality Tool version 5.2.					
Reasoning for not Acceptance or Acceptance and Close Out:					
29/05/2009 – Leandro Silva The most recent version of the Additionality tool was applied and so the CAR#02 was closed out.					
Acceptance and Close out by Lead Assessor:			**Date:** 29/05/2009		

Date:	24-01-2008		Raised by:	Geisa Principe / Fabian Gonçalves	
Type:	CAR	Number:	03	Reference:	B.3.1 – Annex A.2
Lead Assessor Comment:					
The PDD version 1, sub step 1a did not discuss all alternatives to the project activity. According to "Tool" – Sub- step 1a, the alternatives are: The proposed project activity undertaken without being registered as a CDM project activity; Other realistic and credible alternative scenario(s) to the proposed CDM project activity scenario that deliver outputs and on services (e.g. electricity, heat or cement) with comparable quality, properties and application areas, taking into account, where relevant, examples of scenarios identified in the underlying methodology; If applicable, continuation of the current situation (no project activity or other alternatives undertaken). Please include and discuss those alternatives to the project activity.					
Project Participant Response:			**Date:** *16/07/2008*		
Since Ecoinvest Carbon Brasil Ltda. do not invest in Power Plants and Consórcio UHE Baguari is a Special Purpose Company, there are only two scenarios based on the nature of the companies: develop the project as a CDM project or not. *Answer 06.03.2009* The PDD was revised to include the above information which explains why other scenarios than the proposed project activity with and without CDM incentives are not being considered. Please refer to the fourth version of the PDD where the justification presented above was included in section B.5.					
Documentation Provided by Project Participant:					
PPs understand that no evidences have to be sent to the DOE, except the revised PDD, version 4.					
Information Verified by Lead Assessor:					
It was verified the PDD version 04 and the "Tool for the demonstration and assessment of additionality".					
Reasoning for not Acceptance or Acceptance and Close Out:					
13/05/2009 – Leandro Silva The explanation given by the PP, and cited above, was included in the Section B.5 of the PDD version 04 and it is according to the reference Tool. It was verified that the only two alternatives for the current project activity were correctly identified by the PP in the PDD version 04. Also, the discussion about the consistency with mandatory laws and regulations (Sub-step 1b) was properly addressed and specific information of the regulations in the host country added so the CAR#03 was closed out.					

Acceptance and Close out by Lead Assessor:	**Date:** 13/05/2009

Date:	24-01-2008		Raised by:	Geisa Principe / Fabian Gonçalves	
Type:	CL	Number:	04	Reference:	B.4.2 – Annex A.2
Lead Assessor Comment:					
The discussion of the step 3 in PDD version 1 is project specific. The Tool requests that the project activity determine barriers that prevent the implementation of the project. Even that of Energy sector had faced instability in the period of 2000 to 2004; many hydro powers were built in Brazil without considering CDM. Please explain clearly how UHE Baguari faced this barrier. Present the specific discussion with evidences.					
Project Participant Response:			**Date:** *20/03/2008*		
Considering that the main argument to demonstrate the additionality is based on a low Internal Rate of Return of the project, PDD was reviewed (version 2) to use the financial analysis (sub-step 2 of Additionality Tool).					
Documentation Provided by Project Participant:					
Revised PDD, version 3.					
Information Verified by Lead Assessor:					
Barrier analysis was replaced by financial analysis.					
Reasoning for not Acceptance or Acceptance and Close Out:					
09/02/2009 – Leandro Silva Barriers analysis was excluded of the PDD, version 3. CL#04 was closed out.					
Acceptance and Close out by Lead Assessor:			**Date:** 09/02/2009		

Date:	31-01-2008		Raised by:	Geisa Principe / Fabian Gonçalves	
Type:	CAR	Number:	05	Reference:	B.4.2 – Annex A.2
Lead Assessor Comment:					
Regarding Investment barrier, it was not possible to identify the project activity under this scenario. The barrier should prevent the project activity and the discussion presented should be specific for the project activity and not a general context in the country. The PDD discuss SELIC rate in period of 1999 and 2001. The discussion should be in accordance with project timeline.					
Project Participant Response:			**Date:** *20/03/2008*		
Considering that the main argument to demonstrate the additionality is based on a low Internal Rate of Return of the project, PDD was reviewed (version 2) to use the financial analysis (sub-step 2 of Additionality Tool).					
Documentation Provided by Project Participant:					
Revised PDD, version 3.					
Information Verified by Lead Assessor:					
Barrier analysis was replaced by financial analysis.					
Reasoning for not Acceptance or Acceptance and Close Out:					
Barriers analysis was excluded of the PDD, version 3. CL#05 was closed out.					
Acceptance and Close out by Lead Assessor:			**Date:** 09/02/2009		

Date:	24-01-2008		Raised by:	Geisa Principe / Fabian Gonçalves	
Type:	CL	Number:	06	Reference:	B.4.2 – Annex A.2
Lead Assessor Comment:					
The PDD, version 1 says: “region where the project is located is isolated and underdeveloped .There is a lack of infrastructure, such roads, reliable electricity supply, and communication and transports….” Please, give pictures and evidences to prove the lack of infrastructure in the region. Which “facilities” were developed by project activity?					
Project Participant Response:			**Date:** 01/09/2008		
Considering that the main argument to demonstrate the additionality is based on a low Internal Rate of Return of the project, PDD was reviewed (version 2) to use the financial analysis (sub-step 2 of Additionality Tool).					
Documentation Provided by Project Participant:					
Revised PDD, version 3.					
Information Verified by Lead Assessor:					
Barrier analysis was replaced by financial analysis.					

Reasoning for not Acceptance or Acceptance and Close Out:	
Barriers analysis was excluded of the PDD, version 3. CL#06 was closed out.	
Acceptance and Close out by Lead Assessor:	**Date:** 09/02/2009

Date:	30-01-2008		Raised by:	Geisa Principe / Fabian Gonçalves		
Type:	CAR	Number:	07		Reference:	B.4.2 – Annex A.2
Lead Assessor Comment:						
Regarding Institutional Barrier: besides of change in market of electricity in Brazil, many projects were implemented without CDM incentives. Please, discuss how this barrier would prevent the implementation of the project activity.						
Project Participant Response:				**Date:** *01/09/2008*		
Considering that the main argument to demonstrate the additionality is based on a low Internal Rate of Return of the project, PDD was reviewed (version 2) to use the financial analysis (sub-step 2 of Additionality Tool).						
Documentation Provided by Project Participant:						
Revised PDD, version 3.						
Information Verified by Lead Assessor:						
Barrier analysis was replaced by financial analysis.						
Reasoning for not Acceptance or Acceptance and Close Out:						
Barriers analysis was excluded of the PDD, version 3. CAR#07 was closed out.						
Acceptance and Close out by Lead Assessor:				**Date:** 09/02/2009		

Date:	31-01-2008		Raised by:	Geisa Principe / Fabian Gonçalves		
Type:	CL	Number:	08		Reference:	B.4.4 – Annex A.2
Lead Assessor Comment:						
Please, give evidence of the CDM consideration to the implementation of the project activity.						
Project Participant Response:				**Date:** *01/09/2008*		
The 5th minute of the meeting, signed on June 6th, 2006, mention that the project considered the carbon credits as important revenue to the project. The auction (occurred on December 16th, 2005), because of the entire process uncertainties, can not be considered a real action of the project. The fact that UHE Baguari could have left the auction process at any time, by just liquidating the guarantee given (what represents less than 0,001 percent of the project total investment), disqualify the understanding that it is the financial closure of the project. Even if we understand that this answer is not acceptable, another reasonable motivation to enter into an auction without qualify it as a financial closure is that an auction aggregate value to the project, so it can be sold for a higher price to investors. If any of those clear justifications had changed the understanding suggested on the CAR, then the concept that the process has no effect until the conclusive decision must be accepted. In another words, for financial closure purposes, nothing on the auction process matters except the signature of the contract (occurred on August 26th, 2006). Until then, the auction can be easily canceled by the ANEEL without having to give any explanations to the participants. Anyway, what needs to be clarified, in order to avoid misunderstandings, is that the auction process or its result can not be considered as financial closures. Differently, when the project receives financing, we have a better, but not conclusive, evidence that a real action of the project activity begins has being taken. The fact that the project owner has received money to invest on it demonstrates that intention to develop the project exists. So, the reasonable moment to consider as the financial closure is at the answer approving the concession of financing to the project (occurred on May 31st, 2007). *Answer 06.03.2009* As discussed above the Power Purchase Agreement was signed on August 26th, 2006 and once between the action and signature of the contract the Consortium had the possibility of quitting the offer, the starting date must be considered the signature of the contract. This is also considered the “point of no return” once the penalties involved in opening the contract were too high. A description on how the starting date of project activity was determined was included in section C.1.1 of the fourth version of the PDD. Also in section B.5 of the fourth version of the PDD a discussion about the evidences of CDM consideration was included. Attached are the documents cited above and in the PDD.						
Documentation Provided by Project Participant:						
i. Ecoinvest proposal dated August 23rd, 2006;						

ii. *Minutes of Neoenergia Group's Board Meeting held on July 14th, 2006 as well as the presentation related;* iii. *Contact with Det Norske Veritas – DNV's representative in June 2006;* iv. *Contract for the participation of Neoenergia in CDM market training carried out by Fundação Educacional Charles Darwin at Neoenergia office on July 6th and 7th, 2006;* v. *E-mails about the opportunities of CDM between Neoenergia and Ecoinvest.*
Information Verified by Lead Assessor:
It was verified the Ref.13a to 13d (Meetings and presentations of the UHE Baguari Board) and the Ref.37 - CDM Consideration Folder (including some of the documentation cited above).
Reasoning for not Acceptance or Acceptance and Close Out:
06/08/2008 According to Guidelines, item B.5 "if the starting date of the project activity is before the date of validation, provide evidences that the incentive from the CDM was seriously considered in the decision to proceed with the project activity". During the site visit a minute to a meeting carried out by the consortium, "Consórcio UHE Baguari", on June 2006, was presented as the date of consideration of CDM. Also at the site visit the person responsible for the "Consórcio UHE Baguari", Luiz Carlos Amarilho, was interviewed and he stated that the company went to the auction, carried out by ANEEL, with a minimum acceptable value (predetermined by a financial analysis) for the energy that they would provide. He added that if the minimum acceptable value was breached by another company, the consortium representatives were not to go ahead with lower bids. Since "Consórcio UHE Baguari" won the auction of the 16/12/2005 (see link http://www.aneel.gov.br/aplicacoes/editais_geracao/documentos_editais.cfm?IdProgramaEdital=50#) it is evident that their minimum acceptable value was obtained then. This can therefore be considered a financial closure. According to the definition given in the EB33 paragraph 76 the starting date of the project activity is "the earliest of the dates at which the implementation or construction or real action of the project activity begins" A financial closure is considered a real action in the context of a project activity, and since this comes before the construction permit (or 'Licença de Instalação') which is considered to be evidence of start of implementation (dated on December 15th 2006), the earliest of the dates is the real action, that is the financial closure. The CL#08 remains open. 29/05/2009 – Leandro Silva The DOE understood that the "Agreement of Concession UHE Baguari" /7/ can be considered the project starting date stated because it represents *"the date on which the project participant has committed to expenditures to the implementation or related to the construction of the project activity"* as defined by the EB in the meeting 41. The PPs demonstrated that CDM revenues were considered before the start of the project implementation through the minute of 2 meetings of the Board of Directors, dated 06/06/2006 /13b/ and 14/07/2006 /13c/, and real actions were taken by the PP as evidenced by the contacts made with the DNV (Brazilian DOE), with CDM consultants as Ecoinvest Carbon and MaxAmbiental, and the participation of Neoenergia in a CDM market training on July 6th and 7th, 2006 (evidenced by the contract between the PP and a specialized training foundation). The evidences cited in this paragraph are grouped in the Reference 13 and 37. The DOE understand the project activity complies with the EB49 Annex 22 and CL#08 was closed out.
Acceptance and Close out by Lead Assessor: **Date:** 28/09/2009

Date:	31-01-2008		Raised by:	Geisa Principe / Fabian Gonçalves	
Type:	CAR	Number:	09	Reference:	B.4.2 – Annex A.2
Lead Assessor Comment:					
The Sub-step 4a was not discussed in PDD. Please revise the PDD.					
Project Participant Response:			**Date:** *21/01/2009*		
The requested information was included in the second version of the PDD. *Answer 06.03.2009* The third version of the PDD, dated 22/01/2009 already contained the requested information. The exact reference of information used in Sub-step 4a was included in version 4 of the PDD. *Answer 22.09.2009* The common practice analysis was revised. Please refer to version 6 of the PDD.					

Documentation Provided by Project Participant:
PPs understand that no evidences have to be sent to the DOE, except the revised PDD version 4 once all the links to the information used are cited in the document. Nevertheless, to facilitate the analysis by the auditor, the spreadsheet containing the modified information from ANEEL is attached (electronic file named *"Análise prática comum - BIG_v.2"*, sheets "*sub-step4a*" and "*sub-step4b*"). *Answer 22.09.2009* "UHEBaguari_PDD_2009.09.22.docx" is attached to this response.
Information Verified by Lead Assessor:
The evidence "Análise prática comum - BIG_v.2" and the links and footnotes of the PDD version 4 were verified to confirm their veracity. 28/09/2009 – Leandro Salvatico Silva It was verified the explanations and the links in the section B.5 of the PDD version 06.
Reasoning for not Acceptance or Acceptance and Close Out:
Most HPPs constructed in Brazil used CDM incentives to become feasible and the only 2 which did not apply for CERs are HPPs partially owned by companies that uses the generated electricity for self-consumption (Ref.32 and 34). In the page 15 of the PDD version 5, the PP states that *"it is not reasonable to assume that all small hydropower projects are comparable"*, but the project activity is not considered a small HPP, based on the Brazilian regulations, due to its potency to be higher than 30MW. Also, the PP considered for the common practice analysis the year 2008, in the PDD version 5, but the decision of constructing this UHE was taken in 2006. CAR#09 was remains open. 28/09/2009 – Leandro Silva The common practice information requested to be added in the Sub-step 1a was added correctly by the PP in the PDD version 06, which separated the information into different criteria in order to choose the projects that can be considered similar to UHE Baguari according to the tool /3/. The additionality tool express that: *"projects are considered similar if they are in the same country/region and/or rely on a broadly similar technology, are of a similar scale, and take place in a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc".* The criteria chosen by the PP and cited above were: ix. Country/region x. Scale xi. Same environment with respect to regulatory framework xii. Same environment with respect to investment climate, access to technology and financing The reasons of choosing each criteria were explained with details and the DOE evaluated the application of them to the referred project activity (more information at section B.4.2, B.4.11 and B.4.12 – Annex A.2), CAR#09 was closed out.
Acceptance and Close out by Lead Assessor: **Date:** 29/09/2009

Date:	31-01-2008		Raised by:	Geisa Principe / Fabian Gonçalves	
Type:	CAR	Number:	10	Reference:	B.4.2 – Annex A.2
Lead Assessor Comment:					
Concerning Sub step 4b: it was not presented the scenario of similar options that are occurring in Brazil. It was not possible to confirm which similar activities comparing to Baguari project is occurring.					
Project Participant Response:			**Date:** *21/01/2009*		
The requested information was included in the second version of the PDD. *Answer 06.03.2009* The third version of the PDD, dated 22/01/2009 already contained the requested information. The exact reference of information used in Sub-step 4a was included in version 4 of the PDD. *Answer 22.09.2009* The common practice analysis was completely revised. HPP Capim Branco I and II that were considered previously were disregarded since their concession contract was signed before 2004, when energy market regulatory framework was completely reformulated. Please refer to version 6 of the PDD for details. However it is important to clarify some aspects of the previously discussion. Different from what was stated by the DOE, companies participating in HPPs Capim Branco I and II are not simultaneously APE (Self-consumption producer) and PIE (Independent producer) in relation to these two					

plants (the only ones that could be comparable to the proposed project activity). These plants, similarly to the proposed project activity, were built by a consortium. However, the authorization to explore hydropower potential is issued by the regulatory agency separately for each company of the consortium. Hence, they are either APE or PIE.
What was meant was that the majority of the shares of these consortiums (Capim Branco I and II) are possessed by companies authorized to generate energy as Self Consumption Energy Producer. Under this modality, when the plant became operational, all energy produced by them (proportionally rated between the participants of the consortium) generally is going to be consumed by industries owned by these same companies which will pay a reduced price for electricity. Hence, in the decision making process to build the plant the incentives regarding reducing their production costs is also taken into account.
Hence, the most important shareholders of consortiums have other incentives to build the plants. This was the reason they were excluded from the common practice analysis. Therefore, despite of this revision, Project Participants consider that the discussion presented previously would still valid.

Documentation Provided by Project Participant:

PPs understand that no evidences have to be sent to the DOE, except the revised PDD once all the links to the information used are cited in the document. Nevertheless, to facilitate the analysis by the auditor, the following archives are provided:

i. *Spreadsheet containing the modified information from ANEEL is attached* (electronic file named *"Análise prática comum - BIG_v.2"*, sheets "*Em operação*", "*Em construção and* "*Outorgados*"");

ii. Electronic file named *"Lei PIE e APE" which consists of the Brazilian Law establishing the differences between* Self Consumption Energy Producer (from the Portuguese *Auto Produtor de Energia - APE*) and Independent Energy Producer (form the Portuguese *Produtor Independente de Energia – IPE*);

iii. Electronic file named *"Rosa, L.P. - Energia na contramão"* which is the article mentioned in sub-step 4b;

iv. Electronic file named "UHEBaguari_PDD_2009.09.22.docx".

Information Verified by Lead Assessor:

The information provided by the PP cited above and the PDD version 4.
28/03/2009 – Leandro Silva
It was verified the links in the section B.5 of the PDD version 04 and the evidences cited above.
28/09/2009 – Leandro Silva
It was verified the explanations and the links in the section B.5 of the PDD version 06, cited above.

Reasoning for not Acceptance or Acceptance and Close Out:

10/03/2009 – Leandro Silva
The links related to the references which the PDD version 4 was based were working properly and directing to the relevant information concerning the Sub-step 4b.
However, the discussion of the sub-step 4b needs to be improved because as just 62% of the HPPs Capim Branco I and II, applied in the sub-step 4a, are owned by self-consumption companies and the other 38% are owned by companies which will sell their electricity to the grid.
Checking their status in the Brazilian National Agency of Energy (ANEEL) the DOE found that they are simultaneously APE (Self-consumption producer) and PIE (Independent producer).
http://www.aneel.gov.br/area.cfm?idArea=15&idPerfil=2
This HPP status can not give structure for the PP's argumentation on the discussion of any similar options that are occurring in Brazil in the respective section of the PDD. CAR#10 remains open.
28/09/2009 – Leandro Silva
The answer given above by the PP on 22.09.2009 was not considered because the common practice presented in the version 04 of the PDD did not reach the additionality due to the fact it was not possible to evaluate if the comparison made among UHEs were appropriate and the PP did not provided the evidences to propitiate it, as explained above.
However, the PDD version 06 approached the common practice analysis regionally and considering the appropriate steps of the most recent version of the additionality tool /3/, which is the version 05.2 (see CAR#09 for details) and based on the information and evidence provided /32/, the DOE concludes that there are no similar UHE which is comparable to the UHE Baguari which were built in the state of Minas Gerais, Brazil in the previous period of decision making.
Based in the evidence provided and in the discussion made in the common practice section of the PDD version 06, the DOE conclude that the project activity cannot be considered the business-as-usual scenario in the country and the CAR#10 was closed out.

Acceptance and Close out by Lead Assessor:	**Date:** 29/05/2009

Date:	21-01-2009		Raised by:	Geisa Principe	
Type:	CAR	Number:	11	Reference:	B.1.1 – Annex A.2
Lead Assessor Comment:					
ACM0002, version 6 had expired. The PDD shall be updated according to the most recent version of the methodology.					
Project Participant Response:			**Date:** 06/03/2009		
The PDD was revised to up-date the version of ACM0002 methodology used. The fourth version of the document now applies version 8 of the methodology,					
Documentation Provided by Project Participant:					
PPs understand that no evidences have to be sent to the DOE, except the revised PDD, version 4.					
Information Verified by Lead Assessor:					
It was verified the PDD version 5.					
Reasoning for not Acceptance or Acceptance and Close Out:			**Date:** 29/05/2009		
The PDD was updated to the version 5 and actually is applying the methodology ACM0002 version 10. CAR#11 was closed out.					
Acceptance and Close out by Lead Assessor:			**Date:** 29/05/2009		

Date:	31-01-2009		Raised by:	Geisa Principe	
Type:	CL	Number:	12	Reference:	A.4.1 – Annex A.2
Lead Assessor Comment:					
The project location described in the PDD, version 3 does not reflect the exact location of UHE Baguari. The installation license and EIA/RIMA state that project activity is located on Fernando Tourinho, Governador Valadares, Periquito, Sobrália, Iapu, and Alpercata cities, while the PDD mentions Fernandes Tourinho, Sobrália, Governador Valadares e Periquito cities. Also, provide evidence of the geographic coordinates to clarify this issue.					
Project Participant Response:			**Date:** *06/03/2009*		
Iapu and Alpercata cities were included in the description of project's location. The geographic coordinates are evidenced by ANEEL Dispatch nr. 1143 dated 20 March 2008, available at http://www.aneel.gov.br/cedoc/dsp20081143.pdf					
Documentation Provided by Project Participant:					
The ANEEL Resolution mentioned in Project Participants' answer dated 06/03/2009, in PDF format. The file is named "*ANEEL Dispatch nº 1143*".					
Information Verified by Lead Assessor:					
The PDD, version 05, the Ref.29 - ANEEL Dispatch nº 1143 and the Ref.9 - Environmental License Nº 173.					
Reasoning for not Acceptance or Acceptance and Close Out:					
30/05/2009 – Leandro Silva and Geisa Principe The inconsistency of which cities should be included in the project location was solved due to the presence of municipality of Iapu in the Environmental License issued by the State Regulatory Agency /9/ and in the PCA and EIA RIMA /35/ and so the cities cited in the PDD version 04 were considered correct. CL#12 was closed.					
Acceptance and Close out by Lead Assessor:			**Date:** 30/05/2009		

Date:	31-01-2009		Raised by:	Geisa Principe / Leandro Silva	
Type:	CAR	Number:	13	Reference:	E.1 – Annex A.2
Lead Assessor Comment:					

According to DNA Resolution nº 7 of 5 March 2008 (art.3, 2º para., item IV): Community Associations whose purposes are direct or indirectly related to project activity shall received letters of invitation for comments.

PP addressed invitations to Escola Municipal Ramiro de Souza Monteiro (municipal school) in Alpercata city, Escola Municipal Alda Fernandes Govéia (municipal school) in Fernandes Tourinho city, Escola Municipal Jair Fernandes de Melo (municipal school) in Iapu city, Escola Municipal Waldemiro Barrei (municipal school) in Periquito and Escola Estadual José Severino (state school) in Sobrália.

A school can not be considered a Community Association neither an interested part of the project activity. PP must send the invitation for comments to the community associations whose purposes are direct and indirect related to project activity.
The DOE could not confirm that Community association of Governador Valadares received the invitation for comment. A copy of the invitation shall be provided.

Project Participant Response:	**Date:** 06/03/2009

On February 20th, 2009 letters were sent to other local community associations of the cities affected by the project activity. No comments were received until the moment. Copies of the letters and the confirmation receipt were provided to the DOE.

Documentation Provided by Project Participant:

As mentioned in the project participants answer copies of the letters and the confirmation receipt were provided to the DOE. The names of the electronic files that have to be assessed are:

i. *Baguari_ARs_Associações Comunitárias_ 2009.02.09;*

ii. *UHE_Baguari_CCC_Associações Comunitárias_2009.02.09-PDF*

Information Verified by Lead Assessor:

Ref.26 - AR sent to Local Stakeholders of Community Associations in the project location.
Ref.38 - Letters Local Stkholders

Reasoning for not Acceptance or Acceptance and Close Out:

The ARs and the Letters /26/ which were sent to the Community Associations in the project activity area were according to the Brazilian DNA resolution nº 7 /44b/. The other entities specified in the resolution /44b/ also received the letter of invitation for comments /38/ and the CAR#13 was closed out.

Acceptance and Close out by Lead Assessor:	**Date:** 30/05/2009

Date:	05-02-2009		Raised by:	Geisa Principe		
Type:	CAR	Number:	14		Reference:	A.2.2 – Annex A.2

Lead Assessor Comment:

As referred to Guidelines for completing the PDD, version 07, section 4.3 (EB41 Annex 12) the description of the project activity, in the section A.4.3 of the PDD, should include the scenario existing prior to the start of the implementation of the project activity, a list of the equipments and system that will be installed, etc.
In the PDD version 03 is missing information and details of the technology to be employed.

Project Participant Response:	**Date:** 06/03/2009

Before the implementation of the project activity, no electricity was generated in the place where the plant is located and all the electricity was supplied by plants connected to the grid. This information as well as a list of the equipments that will be used in the Hydroelectric Power Plant was included in the fourth version of the PDD.

Documentation Provided by Project Participant:

i. To assess the power of the turbines, please refer to the Electro-mechanical Specification of the Engineering Procurement and Construction (EPC) Contract, electronic file named "*P01-Item%202-01-01-Turbina%20-p1*", dated 09/03/2007, page 13;

ii. To assess the power of the generators, please refer to the Electro-mechanical Specification of the Engineering Procurement and Construction (EPC) Contract, electronic file named "*P02-Item%202-01-Gerador*", dated 07/03/2007, page 7 and 8 (multiply the Nominal Power in kVA (39040 kVA) by the Nominal Power Factor (0.90) for the Power in kW as expressed in the PDD);

iii. The assured energy, the capacity factor of the plant and the reservoir size are available in UHE Baguari's Construction Progress Report. Please referrer to page 16 of the electronic file named "*25_Relatório_de_Progresso_ANEEL_Janeiro_2009*" dated January, 2009.

Information Verified by Lead Assessor:	
It was verified the PDD version 04 and the documentation cited above specifying the equipments employed in the project activity.	
Reasoning for not Acceptance or Acceptance and Close Out:	
29/05/2009 – Leandro Silva and Geisa Principe The requested information was included in section A.4.3 of the PDD version 04 and it is according to the specification of the equipments and with the Report of Progress sent to the National Agency (ANEEL). CAR#14 was closed out.	
Acceptance and Close out by Lead Assessor:	**Date:** 29/05/2009

Date:	05-02-2009		Raised by:	Geisa Principe	
Type:	CAR	Number:	15	Reference:	A.2.4 – Annex A.2
Lead Assessor Comment:					
The auditor cannot confirm the bibliography (PDD, version 3 – Annex 5) and footnote because the complete reference is not available.					
Project Participant Response:			**Date:** *06/03/2009*		
All the references mentioned in the PDD were revised in order to provide the auditor the correct information. Please refer to the forth version of the document.					
Documentation Provided by Project Participant:					
PPs understand that no evidences have to be sent to the DOE, except the revised PDD version 4 once the exact links were added.					
Information Verified by Lead Assessor:					
PDD versions 04, 05 and 06, and its footnote links.					
Reasoning for not Acceptance or Acceptance and Close Out:					
The links of the bibliography and footnotes were revised by the PP and the CAR#15 was closed out.					
Acceptance and Close out by Lead Assessor:			**Date:** 29/05/2009		

Date:	06-02-2009		Raised by:	Geisa Principe	
Type:	CAR	Number:	16	Reference:	B.4.2 – Annex 2
Lead Assessor Comment:					
The PDD refers to another financial indicator (Proinfa) of 14.98%, which indicates the minimum attractiveness tax to implement an energy project. PP should include the reference in the PDD and provide evidences to the DOE.					
Project Participant Response:			**Date:** 06/03/2009		
This financial indicator will be excluded from the analysis once the Proinfa program only refers to the implementation of alternative sources of energy. In case of hydro power generation only Small Hydro Power Plants could apply, that is not the case of the proposed project activity.					
Documentation Provided by Project Participant:					
No documentation is provided because the information mentioned in the earlier versions was excluded from the revised version of the PDD, version 4.					
Information Verified by Lead Assessor:					
PDD version 4.					
Reasoning for not Acceptance or Acceptance and Close Out:					
29/05/2009 – Leandro Silva As the financial indicator of 14.98% related to “Proinfa” was not necessary, it was excluded from the PDD version 4 and no explanation is needed to be given about it. CAR#16 was closed out.					
Acceptance and Close out by Lead Assessor:			**Date:** 29/05/2009		

Date:	06-02-2009		Raised by:	Geisa Principe / Leandro Salvatico Silva	
Type:	CAR	Number:	17	Reference:	B.4.2 – Annex 2
Lead Assessor Comment:					
The weighted-average cost of capital (WACC) presented in the PDD did not correspond to the WACC used to UHE Baguari project activity. The WACC given was considered for another project activity. PP would demonstrate the WACC used when the decision was taken to proceed with the project activity.					

Project Participant Response:	**Date:** 06/03/2009

The WACC used as a benchmark was used by Neoenergia, the major shareholder of the consortium. All step 2 uses data from Neoenergia because if this company decided not to carry out the project it would not have been built. This information was explicitly mentioned in the forth version of the PDD.
Answer 22/09/2009
According to the additionality tool the benchmark analysis shall apply parameters that are standard in the market. The previous version of the PDD used a benchmark developed by the major shareholder of the consortium which wasn't in agreement with the provision of this tool. Therefore, this section was revised. Please refer to version 6 of the PDD. The appropriate benchmark which has been considered is the WACC of the sector of electric generation in Brazil.

Documentation Provided by Project Participant:

Electronic documents containing all the necessary information to validate the benchmark used are a WORD file explaining all the assumptions named "Relatorio WACC versão 06_12" and a spreadsheet with the calculation named "WACC".
Due to the financial analysis revision the following electronic files are attached:

I. *"UHE_Baguari_Cash Flow_v.6 ";*

II. *"Baguari_calculo wacc_Sector";*

III. "UHEBaguari_PDD_2009.09.22.docx".

Information Verified by Lead Assessor:

Baguari WACC sector and PDD version 6.

Reasoning for not Acceptance or Acceptance and Close Out:

The benchmark selected for the analysis was the WACC - weighted average cost of capital, which is in accordance with the "Guidance of investment analysis", paragraph 12.
The detailed calculation of WACC (calculated as 12.41%) was verified (ref. 40 of the validation report) during the validation process. Assumptions, values and equations were checked and documented copies were provided to DOE and mentioned in the reference list of the validation report. The assessment team verified the assumptions and calculation of each component of the equation. The values used in the project were based in parameters observed in global financial markets. These parameters are based on available data that was confirmed by the validation team (BNDES quotations, emerging markets bond index). The calculation of WACC was provided.
- Cost of equity 35%:
Rf – Risk free = 5.41% (Treasury Bonds Index - 10-year http://finance.yahoo.com/q?s=%5ETNX)
Unlevered Beta = 0.410 (ref. 40)
Levered Beta = 0.913 (ref. 40)
Market Premium = 6.53% (ref. 40, Value of T.bonds)
Country Risk = 5.39% (J.P.Morgan - http://www.acionista.com.br/graficos_comparativos/risco_brasil_mensal.htm)
Currency Risk = 2.0% (considered in the electricity sector in Brazil, Nota Técnica no 164/2006-SRE/ANEEL)
Rn – Expected Return (nominal) = 18.76% (Calculated based on the values above)
P - American Inflation = 2.17% (ref. 40, http://data.bls.gov/cgi-bin/surveymost)
Re - Expected Return (real) = 16.24% (Calculated (1+Rn)/(1+P)-1)

- Cost of Debt 65%(http://inter.bndes.gov.br/english/conditions.asp):
Fc - BNDES Financial Cost – TJLP = 9.75% (http://inter.bndes.gov.br/english/tjlp.asp)
Ff - BNDES Fee = 2.5% (http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Relacao_Com_Investidores/Relatorio_Anual/RelAnual2007.html)
Fr – Credit Risk Rate = 2.5% (http://inter.bndes.gov.br/english/finem.asp)
Cost of Debt (nominal) = 15.31% (calculated based on the values above)
Expected Inflation = 4.5% (http://www.bcb.gov.br/pec/metas/InflationTargetingTable.pdf)
Cost of Debt (real) = 10.34% (calculated)
WACC (without taxes) = 12.41%
The use of the WACC as a benchmark is considered suitable to CDM projects in Brazil. Several approaches are being used in CDM projects in Brazil, and the WACC being the most commonly used in recent projects. Recent similar CDM projects in Brazil were analyzed through the Brazilian DNA website

(http://www.mct.gov.br/index.php/content/view/57967.html) and among eight hydro power plant projects with LoA issued by the Brazilian DNA in 2008-2009, six projects used WACC as a benchmark. CAR#17 was closed out.
Acceptance and Close out by Lead Assessor: **Date:** 27/11/2009

Date:	06-02-2009		Raised by:	Geisa Principe	
Type:	CAR	Number:	18	Reference:	B.7.1 – Annex A.2
Lead Assessor Comment:					
Provide evidences of the emission reduction calculation.					
Project Participant Response:			**Date:** 06/03/2009		
The spreadsheet containing the estimative of the emission reductions achieved as a consequence of the implementation of the project activity is attached.					
Documentation Provided by Project Participant:					
The calculation of the Emission Reductions by the proposed project activity can be assessed in the Excel spreadsheet named "UHEBaguari_CERs calculation_v.3-English" in the sheet "RCEs"					
Information Verified by Lead Assessor:					
It was verified the spreadsheet "UHEBaguari_CERs calculation_v.3-English"					
Reasoning for not Acceptance or Acceptance and Close Out:					
29/05/2009 – Leandro Silva The calculation of the emission reduction is according to the data, formulae and equations from the ACM0002 and tools used in the PDD for this purpose. CAR#18 was closed out. Due to the change of the starting date of the crediting period, the spreadsheet mentioned above was updated to its version 4 and assessed by the DOE to verify its accuracy, it was verified it was correctly updated.					
Acceptance and Close out by Lead Assessor:			**Date:** 29/05/2009		

Date:	06-02-2009		Raised by:	Geisa Principe	
Type:	CL	Number:	19	Reference:	B.4.2 – Annex A.2
Lead Assessor Comment:					
Provide the cash-flow spreadsheet with formulas and source of data used.					
Project Participant Response:			**Date:** 06.03.2009		
Follows attached the cash-flow spreadsheet with the details that were asked by the DOE. In addition, it is also attached the spreadsheet with the calculation of the WACC and a file with all the assumptions made in the calculation of the benchmark.					
Documentation Provided by Project Participant:					
All the information requested above is presented in the spreadsheet named ""UHE_Baguari_Cash Flow_v.6 ", and "Baguari_calculo wacc_Sector"					
Information Verified by Lead Assessor:					
Cash flow spreadsheet, WACC spreadsheet and PDD version 6.					
Reasoning for not Acceptance or Acceptance and Close Out:					
The cash flow spreadsheet and WACC calculation was provided with formulas. With the spreadsheets it was possible to verify how the IRR and WACC were calculated. CL#19 was closed out.					
Acceptance and Close out by Lead Assessor:			**Date:** 27/11/2009		

Date:	30-05-2009		Raised by:	Fabian Goncalves / Leandro Silva	
Type:	FAR	Number:	20	Reference:	B.10.1 – Annex A.2
Lead Assessor Comment:					
The PDD version 04 presents the description of the monitoring plan and the parameters included on it are in compliance with the ACM0002 version 10. However the PP did not present a monitoring procedure neither in the Annex 4 nor in a separated document. A complete monitoring procedure must be elaborated by the PP and presented to the DOE by the time of the first verification to close out this finding, including at least the topics cited below: - QA/QC - Training Responsibility and Recording					

- Calibration of monitoring equipments
- Maintenance of monitoring equipments and installation
- Day-to-day records handling
- Dealing with possible monitoring data adjustments and missing data data in case of monitoring problems
- Internal audits of GHG project compliance with operational requirements
- Project performance reviews before submission

A.4 Annex 4: Team Members Statements of Competency

Statement of Competence

Name: Goncalves, Fabian. SGS Affiliate: SGS Brazil

Status

-	Lead Assessor	x	-	Expert	
-	Assessor	x	-	Financial Expert	
-	Local Assessor	x	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)
Sub scope(s):

2. Energy Distribution
Sub scope(s):

3. Energy Demand
Sub scope(s):

4. Manufacturing
Sub scope(s):

5. Chemical Industry
Sub scope(s):

6. Construction
Sub scope(s):

7. Transport
Sub scope(s):

8. Mining/Mineral Production
Sub scope(s):

9. Metal Production
Sub scope(s):

10. Fugitive Emissions from Fuels (solid, oil and gas)
Sub scope(s):

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Sub scope(s):

12. Solvent Use
Sub scope(s):

13. Waste Handling and Disposal
Sub scope(s):

14. Afforestation and Reforestation
Sub scope(s):

15. Agriculture
Sub scope(s):

Approved Member of Staff by: Siddharth Yadav Date: 25/10/2009

Statement of Competence

Name: Engelbrecht, Lucas SGS Affiliate: SGS Brazil

Status

-	Lead Assessor		-	Expert	
-	Assessor		-	Financial Expert	
-	Local Assessor	x	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)
Sub scope(s):

2. Energy Distribution
Sub scope(s):

3. Energy Demand
Sub scope(s):

4. Manufacturing
Sub scope(s):

5. Chemical Industry
Sub scope(s):

6. Construction
Sub scope(s):

7. Transport
Sub scope(s):

8. Mining/Mineral Production
Sub scope(s):

9. Metal Production
Sub scope(s):

10. Fugitive Emissions from Fuels (solid, oil and gas)
Sub scope(s):

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Sub scope(s):

12. Solvent Use
Sub scope(s):

13. Waste Handling and Disposal
Sub scope(s):

14. Afforestation and Reforestation
Sub scope(s):

15. Agriculture
Sub scope(s):

Approved Member of Staff by: Siddharth Yadav Date: 05/10/2009

Statement of Competence

Name: Sun, Joe SGS Affiliate: SGS China

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	x	-	Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable) **x**
Sub scope(s): Hydro, Wind

2. Energy Distribution
Sub scope(s):

3. Energy Demand
Sub scope(s):

4. Manufacturing
Sub scope(s):

5. Chemical Industry
Sub scope(s):

6. Construction
Sub scope(s):

7. Transport
Sub scope(s):

8. Mining/Mineral Production
Sub scope(s):

9. Metal Production
Sub scope(s):

10. Fugitive Emissions from Fuels (solid, oil and gas)
Sub scope(s):

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Sub scope(s):

12. Solvent Use
Sub scope(s):

13. Waste Handling and Disposal
Sub scope(s):

14. Afforestation and Reforestation
Sub scope(s):

15. Agriculture
Sub scope(s):

Approved Member of Staff by: Siddharth Yadav Date: 04/11/2009

Name: Santos, Roberto

Status

-	Lead Assessor		-	Expert	
-	Assessor		-	Financial Expert	x
-	Local Assessor		-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)
Sub scope(s):

2. Energy Distribution
Sub scope(s):

3. Energy Demand
Sub scope(s):

4. Manufacturing
Sub scope(s):

5. Chemical Industry
Sub scope(s):

6. Construction
Sub scope(s):

7. Transport
Sub scope(s): Transport

8. Mining/Mineral Production
Sub scope(s):

9. Metal Production
Sub scope(s):

10. Fugitive Emissions from Fuels (solid, oil and gas)
Sub scope(s):

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Sub scope(s):

12. Solvent Use
Sub scope(s):

13. Waste Handling and Disposal
Sub scope(s):

14. Afforestation and Reforestation
Sub scope(s):

15. Agriculture
Sub scope(s):

Approved Member of Staff by: Siddharth Yadav Date: 20/01/2010