VALIDATION REPORT

Piedade Usina Geradora de Energia S/A and Ecoinv Global Ltda.

Piedade Small Hydro Power Plant

SGS Climate Change Programme
SGS United Kingdom Ltd
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Date of Issue:	**Project Number:**
29-01-2009	CDM.VAL0826
Project Title:	
Piedade Small Hydro Power Plant CDM Project Activity.	
Organisation:	**Client:**
SGS United Kingdom Limited	Piedade Usina Geradora de Energia S/A
Publication of PDD for Stakeholders Consultation	
Commenting Period:	24/04/08 – 23/05/08
First PDD Version and Date:	Version 1, 28/11/2006
Final PDD Version and Date:	Version 8, 27/01/2009

Summary:

Piedade Usina Geradora de Energia S/A has commissioned SGS to perform the validation of the project: Piedade Small Hydro Power Plant CDM Project Activity.

Methodology used: ACM0002- Consolidated baseline methodology for grid-connected electricity generation from renewable sources.

Version and Date: version 7, 30/11/2007.

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 report is based on the findings of document reviews, the stakeholder consultation process and responses from the project participants to the findings raised in this report.

The report and the annexed validation describes a total of 9 findings which include:

- 5 Corrective Action Requests (CAR);
- 3 New Information Requests (NIR); and
- 1 FAR.

All findings (CARs and NIRs) were closed out satisfactorily. The baseline and monitoring methodology as mentioned in approved methodology adopted for the proposed project activity and meets the relevant UNFCCC requirements for the CDM and relevant host country criteria.
The SGS will request the registration of the Piedade Small Hydro Power Plant CDM Project Activity, once the written approval by the DNA of the participating Parties and the confirmation by the DNA of Brazil that the project assists in achieving sustainable development has been received.

Subject:

CDM Validation

Validation Team:

Fabian Gonçalves – Lead Assessor
Geisa Principe –Trainee Lead Assessor
Thaís Carvalho – Trainee Local Assessor

Technical Review:	**Trainee Technical Reviewer:**
Date: 21/10/2008 and 13/11/2008 Name: Aurea Nardelli	Name:

Authorised Signatory:

Name:
Date:

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Abbreviations

ACM	Approved Consolidated Methodology
ANEEL	Agencia Nacional de Energia Elétrica (Brazilian Agency of Power Electricity).
CAR	Corrective Action Request
CCEE	Camara de Comercio de Energia Elétrica
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
ER	Emissions Reduction
MP	Monitoring Plan
NIR	New Information Request
ONS	Operador Nacional do Sistema
PDD	Project design Document
PPA	Power Purchase Agreement
PP	Project Participants
SHPP	Small Hydro Power Plant
SGS	Société Générale de Surveillance
UNFCCC	United Nation Framework Convention on Climate Change
FAR	Forward Action Request

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Annexes:

1. Validation Opinion

SGS United Kingdom Ltd has been contracted by Piedade Usina Geradora de Energia S/A to perform a validation of the project: Piedade Small Hydro Power Plant CDM Project Activity in Brazil.

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism (CDM) 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 small hydro power plant to provide renewable electricity to the South-Southeast-Midwest 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 methodology ACM0002 version 7. 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 159,749 t of CO2e over a 7 year crediting period, averaging 22,821 t of CO2e annually. 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.

Signed on Behalf of the Validation Body by Authorized Signatory

Signature:

Name:

Date:

2. Introduction

2.1 Objective

Piedade Usina Geradora de Energia S/A has commissioned SGS to perform the validation of the project: Piedade Small Hydro Power Plant CDM Project Activity with regard to the relevant requirements for 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 criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

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 Piedade Small Hydro Power 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 Piedade Usina Geradora de Energia S/A and Ecoinv Global Ltda and two site visits were carried out, one on 17th December, 2007 in the Piedade's implementation site and another one on 20th December 2007 in the Piedade's office, where the details of the project activity were verified on-site. During the site visit, Piedade's staff and Ecoinv consultants were interviewed.

The project activity consists of the installation of a small hydroelectric power plant with total installed capacity of 16 MW and a reservoir of 1,5 km² (Ref.5), located in Piedade River, in the city of Monte Alegre de Minas, state of Minas Gerais, Brazil.

The project has the objective to provide renewable electricity from Piedade SHPP 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 non renewable sources from power plants connected to the interconnected system.

Total amount of emission reductions estimated for the first crediting period is 159,749 tCO_2e.

Baseline Scenario:

In the absence of the project activity the electricity should be generated by large hydro power and thermal generation to the grid.

With-project scenario:

The installation of a small hydroelectric plant to provide renewable electricity to the 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: job creation, increase in people's wages and royalties paid to the municipalities.

The environmental aspects of the SHPP were analyzed by the State Environmental Agency (FEAM) when it issued the licenses.

2.4 The Names and Roles of the Validation Team Members

Name	Role	Affiliate
Fabian Gonçalves	Lead Assessor	SGS Brazil
Geisa Principe	Trainee Lead Assessor	SGS Brazil
Thaís Carvalho	Trainee Local Assessor	SGS Brazil

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 documents. The assessment is performed by trained assessors using a validation protocol.

A site visit is usually required to verify assumptions in the baseline.

The site visit was carried out on 17th December, 2007 in the Piedade's implementation site and 20th December 2007 in Piedade's office. The project developers were interviewed by trainee Lead Assessor and trainee Local Assessor.

The documents and evidences were confirmed on site visit. The results of this local assessment are summarized in ANNEX 1 to this report.

3.2 Use of the Validation Protocol

The validation protocol used for the assessment is partly based on the templates of the IETA / World Bank Validation and Verification Manual and partly on the experience of SGS with the validation of CDM projects. 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.

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 provided in the table at the bottom of the checklist.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). New Information Request (NIR) is 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

In general, where insufficient or inaccurate information is available and clarification or new information is required the Assessor shall raise a **New Information Request (NIR)** specifying what additional information is required.

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

is issued, where:

I. mistakes have been made with a direct influence on project results;

II. validation protocol requirements have not been met; or

III. there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be verified.

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

Observations may be raised which are for the benefit of future projects and future verification or validation actors. These have no impact upon the completion of the validation or verification activity.

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex A.2). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

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.

4. Validation Findings

4.1 Participation Requirements

There is not Annex I Party involved at this time of the project activity.

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).

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

4.2 Project Design

The first PDD was published on 01/12/2006, when the project would fit in a small scale project (13 MW). Due to technical and operational issues the installed capacity of the project had to be modified, achieving the installed capacity for large scale projects. The project activity consists of the installation of a small hydroelectric power plant with total installed capacity of 16 MW a reservoir of 1,5 km² (Ref.5). The project activity will reduce emissions of greenhouse gas (GHG) as the result of the displacement of generation from fossil-fuel thermal plants that would have otherwise been delivered to the grid. The project is located in Piedade River, town of Monte Alegre de Minas in Minas Gerais State, latitude 18°41'04''S and longitude 49°01'28''W (Ref. 4)

The project design engineering follows the good practice applied in Brazil for small hydro power plant. It will apply Francis Turbine. As the project is being implemented, the descriptions of the equipments were checked during validation assessment through documents (Ref.9 and Ref.10).

The project assumes an operational lifetime of 30 years for the SHP. This exceeds the renewable crediting period of 7 years. The starting date of the crediting period is 1st January, 2009 or the date of registration, whichever is later.

4.3 Eligibility as a Small Scale Project

Not applicable.

4.4 Baseline Selection and Additionality

During the validation assessment the methodology and tool changed its versions and the PDD was re-submitted. In consequence the PDD was published for global stakeholder three times. The first PDD was published as a small scale project, the second as a large scale project using version 6 of ACM0002 and third time using version 7 of ACM0002.

The methodology applied to the project activity is "ACM0002 – Approved Consolidated baseline and monitoring methodology, version 7."

For calculation of the Emission Factor of the grid, it was applied the "Tool to calculate, scope the emission factor for an electricity system".

For the discussion of additionality, it was used the "Tool for demonstration and assessment of additionality, version 5.2" (refer to CAR 1 below).

The methodology is applicable to grid-connected renewable power generation project activities such as Piedade power plant. The project activity meets all criteria of applicability: a small hydropower plant with new reservoir and power density greater than 4W/m². The following criteria of applicability was discussed in the PDD and verified during site visit: the project activity encompasses the installation of one small hydro power with 16MW of installed capacity (Ref. 4), has a new reservoir of 1.5Km², with power density of 10.67 W/m². CAR 5 was raised to address that the section B.3 did not follow the requirement of the methodology which does not consider emission from reservoir (CH_4) when power density is greater then 10W/m^2. PDD version 6

was corrected and CAR 5 was closed out. The emission source in baseline is CO_2 emissions from electricity generation in fossil fuel fired power. In the project activity, project emission and leakage are not applicable and thus not considered.

The project spatial boundary encompasses the South-Southeast-Midwest interconnected grid and the river basin where the power plant facility is located.

CAR 1 was raised to address that the additionality tool used in the PDD version 6 was not the most recent one available. The current version of the additionality tool is 5.2, to be used with its annex "Guidance on the Assessment of Investment Analysis". Also, CAR 2 was raised to address that the worksheet and calculation to justify the step 2 of the tool (investment analysis) and sensitivity analysis were no provided. A summary of the worksheet and its data were not included in the PDD. To close out CAR 1 and CAR 2 the PP revised the PDD and provided the spreadsheets - PLANILHA FINANCEIRA - CRÉDITO DE CARBONOS v.2 (IRR Calculation-Ref.24); Custo de Capital – Piedade (WACC calculation-Ref.25) and Análise Sensibilidade-v.2 (sensitivity analysis-Ref.26). These were found correct.

The project developer selected the benchmark analysis for the assessment of additionality. The Internal Rate of Return (IRR) was used as a financial indicator for comparison. It was used the Weighted Average Capital Cost – WACC. The calculated WACC was 15.8% (Ref.25) and the IRR for the project is 11.68 % (Ref.24).

It was confirmed all values applied for WACC. The references were presented and verified by the validation team with support of a financial specialist.

- Kd = Cost of debt

The debt for the project corresponds 17.8% per year.

Interest tax of 1.48 p.m * 12 month = 17.8% (Ref. 15)

- t = Marginal corporate income tax corresponds 25% (Ref. 20- pag.10).
- Pd (debt as a percentage of total capitalization) of 76.64%.

  Expenses: R$ 62,758,000

  Financing: R$ 48,095,874

  Total: 76.6%

1 – Pd = 23.4% - own capital of R$ 14,661,000

Ref. 19 shows date about the value of financing and investment.

Confirmed International Equity Risk Premium of 8.66% p.a. (Ref. 21) and the 10-year BB Credit risk of 2.4% (date confirmed through website Itaú Bank). Confirmed Yield of Sovereign 20 year BB Debt of 13% (Ref.22).

Confirmed the Power Purchase Agreement (PPA) between Piedade Usina Geradora de Energia S/A and others 30 companies. All PPAs consider the price for energy of R$ 125.00MW/h (Ref.23a).

Also, there is a PPA which the energy will be sold in the Free Market of Energy of R$ 138.69MW. The contract was signed between Piedade Usina Geradora de Energia S/A and AUNDE Brasil Ltda (Ref.23b).

Capacity factor: this data is used to estimate the net energy to be generated during the year and consequently the expected CER. The capacity factor is 61.35 % (Ref. 19, pag. 5).

It was possible to re-calculate the internal rate of return of the project activity with data provided in the PDD and spreadsheets. The values obtained are consistent with spreadsheets and were lower than the benchmark.

According to the data provided by PP and assessed through documented evidence and spreadsheets, it was concluded that the project is not attractive for investors.

A sensitivity analysis was conducted altering some parameters as 10% increasing the project revenue and 10% reducing the project costs (Ref.26). The IRR calculated for these scenarios is still not financially attractive.

After sensitivity analysis the maximum IRR for the project activity is 13.32 %. This IRR is still lower than the Benchmark of 15.8% and so, it is not attractive.

The project participant decided to use the WACC based on international financing model where all assumptions used can be and were verified in the validation assessment.

It is important to explain that the WACC calculated is not an internal data of the company, but the WACC for the small hydro plant being analyzed, determined through publicly data that was verified by the validation team.

The starting date of the project activity mentioned in the PDD - 17/01/2007 - is the date when the Power Purchase Agreement related to the major part of energy of the plant was signed. This date was considered to be the date on which the project participant has committed to implement the project activity. As the starting date of the project activity is after the starting date of the validation process (01/12/2006-first PDD published), no previous CDM consideration is required to be presented.

NIR 3 was raised to address the following questions about the step 3 (barrier analysis):

- The PDD states that the sector regulation is important barrier mainly energy sector regulation in Brazil is under development since January 2002, in addition to that there are a few investments for energy private sector, also mention at beginning 1990, the energy sector had lack of investment from the Government, etc. Clarify what is the relation of this discussion with Piedade project.
- Concerning the Investment Barrier, the PP discuss that in Brazil, the energy sector requires high level of guarantees to finance projects under developing besides discuss to obtain a PPA is required a long-term financing from a bank and the lack commercial agreements from the energy buyers may influence the negotiation between the bank and the project developer. Provide evidences which financial barriers that the project faced.
- The PDD shows that the region where the project is located is isolated and undeveloped. And due to that, there is a lack of infrastructure, such as roads, reliable electricity supply, communication and transports". Generally it's necessary to develop some infrastructure to implement the project, especially hydro power plants. This is a natural condition of this kind of project but not a prevent condition. Further clarification is required regarding lack of infrastructure as a barrier.
- Regarding Institutional Barrier, the high volatility of the electricity price has contributed to the difficult the analysis of the market. Provide evidence that the project activity faces this barrier.

PP answered that "*the sector regulation is important because it can influence the decisions of investments in Brazil. Until now the country suffers with the uncertainty regarding the supply of electric energy and the situation described still applies. The investment barrier was taken out of the PDD and the infrastructure barrier was amended. References to the value spent with the improvement of access to the jobsite of the plant and photos of the site are attached. Relating to the institutional barrier, the project consists of generating energy. Hence, the volatility of prices shall be taken into account in investments decisions. Until today the volatility of energy prices can be observed and this also influences the project. More up-dated information of energy prices was added in the PDD*". NIR 3 remained outstanding to request that all information be evidenced and related to the project activity. In PDD version 7, PP applied just step 2 instead of step 3 and all the mentioned information was excluded from the PDD. As the additionality tool gives the option to choose the discussion using step 2 and/or step 3, the exclusion of the barrier analysis from the revised PDD was found acceptable. NIR 3 was closed out.

For the common practice analysis the information provided in the PDD was verified through the ANEEL website. The PDD includes a research of small hydro power plants in Brazil, which represents 1.98% of the installed capacity of the country. Verified that according to ANEEL – *Agência Nacional de Energia Elétrica* (Brazilian power regulatory agency), 50.3% of the projects approved between 1998-2008 are thermal power plants and 12.2 % are SHPPs. Related to the power plants that started operation between 2005-2007, from a total of 41 projects, 30 reveiced some kind of incentive (CDM or Proinfa), representing 73 % of the projects. With regards to installed potency, these 30 projects make up 90.6% of the total 573.93MW of energy produced by SHPPs. For the year 2007, when Piedade started to be constructed, 14 SHPs became operational, from this, 4 did not have incentives, this 4 plants represents only about 7.5% of the installed capacity in the year of 2007. In the state of Minas Gerais, where Piedade is located, one CDM SHPP started its operations in 2005, and no other plant started in 2006 and 2007.

For the subsystem where Piedade is connected to, the same occurred, 1 CDM SHPP became operational in 2007. The four remaining plants that start operation in 2007 are smaller than Piedade plant and can not be considered similar. The higher installed capacity is 5.5MW and Piedade has 16MW.
Therefore, the validation assessment concludes that the construction of SHPPs is not a common practice and incentives like PROINFA or CDM are necessary. Instead, large hydro power plants and thermal fossil fuel generation are common practice.

Considering the investment analysis, it was concluded that the project is not itself a baseline scenario. The investment analysis showed that the project has an IRR of 11.68% while the benchmark is 15.8 % p.a. Also, SHPP without financial incentives is not a common practice in the region where the project is installed.

4.5 Application of Baseline Methodology and Calculation of Emission Factors

According to the methodology "ACM0002, version 7" and "Tool to calculate the emission factor for an electricity system, EB35" the baseline scenario is:

"The electricity delivered to the grid by the project activity would have otherwise been generated by the operation of the grid-connected power plants and by the addition of the new generation sources, as EFy".

BEy=EGy*EFgrid,CM,y

All data used to calculate emission factor were derived from official source (ONS – Operador Nacional do Sistema). However, it was not used the most recent data available and CAR 7 was raised to address this issue. To close out CAR 7, the PDD and spreadsheets were updated using the years 2005, 2006 and 2007 (Ref.27) and were found correct. The calculated value of *ex-ante* emission factor is 0.2654 tCO2e/MWh. According to the selected methodology ACM0002 the baseline emission factor (EF_y) is achieved by calculating the "operating margin" (OM) and "build margin" (BM) as well as the "combined margin" (CM). The simple adjusted operating margin emission factor was selected to calculate the EF_{OM}.
According to the methodology, leakage is not applicable and project emissions should be considered when the power density is between 4 W/m^2 to 10 W/m^2. In the project activity, the power density is greater than 10 W/m^2 (10.67 W/m^2), so PE=0.

CAR 8 was raised to address that the section B.6.2 of the PDD was not completed according to the required by the methodology ACM0002 version 7. The parameters Cap_{BL} and A_{BL} are parameters that should be available at validation and the calculation of power density shall be presented in the PDD. To close out CAR 8 the PP included the parameters in the PDD version 7, as required by the methodology. Also the calculus of Power density was included in the revised PDD.

Regarding the ER calculations:

As described in the PDD and required by ACM0002, ER = EG_yx EF.

EF= 0.2654 tCO2/MWh.

Net quantity is the generated energy minus the energy consumed in the auxiliary systems. All sources of data and calculations are correctly described in the CER spreadsheet (Ref.16).

The calculation of emission reductions and related data are presented in the PDD and spreadsheet. The capacity factor (61.35%) was considered in the calculation of the electricity to be generated. This value was verified in the Financial Contract between Usina Geradora Piedade and Caixa Econômica Federal (Ref. 19, page 5).

The following parameters will be monitored:

- electricity supplied by the project activity to the grid;
- total electricity produced by the project activity, including the electricity supplied to the grid and supplied to internal loads;
- installed capacity after the implementation of the project activity;

- reservoir area

The monitoring plan presented in the PDD version 4 says that "The project will proceed with the necessary measures for the power control and monitoring". NIR 6 was raised to request PP to specify the procedures for positioning of monitoring equipment to guarantee the proper installation, for calibration and maintenance of monitoring equipment and the project performance reviews before data is submitted for verification. The project participants clarified that the project will follow the ONS procedures, an official entity that establishes the necessary requisites for the proper installation, calibration and maintenance of hydropower plants in the country. Also, as the project is still under construction, at the moment of validation there are not formal procedures established that can clearly provide information regarding the operation of the plant. NIR 6 was closed out as the revised PDD establishes that the procedures from a national entity will be followed. FAR 1 was raised asking to the PP to provide to the verification team:

- the description of authority and responsibility of project management;
- the authority and responsibility for registration, monitoring, measurement and reporting data;
- procedures for training of monitoring personnel
- procedure for archiving data for the crediting period +2 years; internal audits, review of data; emergency procedures (all procedures implemented for monitoring data to ensure the delivery of high quality data and compliance with the required by the methodology ACM002, version 7)

After closing out NIR 6, CAR 7 and CAR 8, the conclusion of validation assessment is that the methodology "ACM0002, version 7" and "Tool to calculate the emission factor for an electricity system, EB35" were correctly applied. FAR 1 should be verified during the initial verification of the project.

4.6 Choice of the Crediting Period

The different versions of the PDD published had different starting date of the project activity. After EB 41, NIR 4 was raised to request the starting date definition according to the clarified in this meeting: *"the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. This, for example, can be the date on which contracts have been signed for equipment or construction/operation services required for the project activity. Minor pre-project expenses, e.g. the contracting of services /payment of fees for feasibility studies or preliminary surveys, should not be considered in the determination of the start date as they do not necessarily indicate the commencement of implementation of the project".* To close out NIR 4, the starting date of the project activity was changed in the PDD version 7 and its evidence was provided (Ref.23). The starting date of 17/01/2007 is the date when the Power Purchase Agreement related to the major part of energy of the hydro was signed. This contract assumes that the SHP will be implemented. As the starting date is after validation, no CDM consideration needs to be presented.

The crediting period to the project activity is 7 years (renewable). The period will start on 1st September 2009 or the date of registration, which occurs later. The lifetime of the project (30 years) exceeds the crediting period.

4.7 Environmental Impacts

The environmental licenses are in compliance with Brazilian laws requirements. The environmental aspects of the SHP were analyzed by the State Environmental Agency (FEAM) when it issued the licenses:

- Installation license, Nº124/2006, issued on 13th November 2006, valid until 6th May 2007 – Fundação Estadual do Meio Ambiente (FEAM) – Minas Gerais. (Ref 14a)
- Installation license, Nº063/2007, issued on 24th April 2007, valid till 6th May 2010 – Fundação do Meio Ambiente (FEAM) – Minas Gerais. (Ref.14b)

The operation license was not issued yet. The operation license will be obtained after the pre-operational tests.

4.8 Local Stakeholder Comments

The local stakeholder consultation is required by Brazilian DNA. It is necessary to invite the relevant stakeholders, before the validation process starts. During the site visit documented evidences, indicating that consultation was carried out in July, 2007, were provided. Copies of the letters sent on July 5th 2007 to the stakeholders and receipts of mailing were available (Ref.17 and 18). The letters were sent in local language in the name of the project participants, requesting comments for the specific project in validation and the project can be requested through an electronic address. The following stakeholders were invited by letters to comment on the project:

-APAE de Monte Alegre de Minas (Associação de pais e amigos dos excepcionais) received on 10th July 2007;

-Secretaria de Meio Ambiente de Monte Alegre de Minas, received on 10th July 2007;

-Prefeitura de Monte Alegre de Minas, received on 10th July 2007;

-Ministério Público de Minas Gerais, received on 9th July 2007;

-Fundação Estadual do Meio Ambiente do Estado de Minas Gerais (FEAM), received on 9th July 2007;

-Fórum Brasileiro de ONGs e Movimentos Sociais Para o Desenvolvimento e Meio Ambiente (FBOMS), received on 9th July 2007;

-Câmara Municipal de Monte Alegre de Minas, received on 10th July 2007.

A suggestion to use Gold Standard or similar tools was received from FBMOS. No answer was required.

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

The Project Design Document version 6 for this project was made available on the SGS website http://cdm.unfccc.int/Projects/Validation/DB/NNVNVU3KIQLPU7XYZTSP4QM6RZ3G03/view.html and was open for comments from 24/04/2008 until 23/05/2008. Comments were invited through the UNFCCC CDM homepage. Two consultations were carried out before April 2008: The PDD version 1 was open for comments from 01/12/2006 until 30/12/2006 considering methodology AMS ID version 9; and the PDD version 2 was open for comments from 17/10/2007 until 15/11/2007 considering methodology ACM0002 version 6.

5.2 Compilation of all Comments Received

Comment Number	Date Received	Submitter	Comment
0			

5.3 Explanation of How Comments Have Been Taken into Account

No comments received in the global stakeholder consultation.

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
20/12/2007	Antonio C. F. Lambertini	Engineer/GLEP	Financial issues related to the project, environmental and quality management system; environmental impacts, technical issues, plant operation, project implementation, starting date.
17/12/2007 and 20/12/2007	Mônica Cristina Deganello	Manager of the project/GLEP	
20/12/2007	Osvaldo Yokomizo	Engineer/Collange	
20/12/2007	Jorge Sabur	Consultant/CGL	
20/12/2007	Irene Hahner	Cosultant/GLEP	
20/12/2007	Carlos André A. S. Lourenço	Director/Gomes Lourenço	
17/12/2007 and 20/12/2007	Ademar de Proença Filho	Consultant/Ecoinv	Validation process and findings. Technical issues, operational issues, monitoring plan, baseline emission factor.
17/12/2007 and 20/12/2007	Ana Paula Beber Veiga	Consultant/Ecoinv	

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 Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

/1/ Piedade Small Hydro Power Plant CDM Project Activity, version 1, 28/11/2006 (available for first global stakeholder consultation);
Version 2, 06/09/2007 (available for second global stakeholder consultation)
Version 3, 19/12/2007
Version 4, 16/01/2008
Version 5, 14/03/2008
Version 6, 18/04/2008 (available for the third global stakeholder consultation)
Version 7, 24/09/2008
Version 7.2, 17/11/2008
Version 8, 27/01/2009

/2/ Consolidated baseline methodology for grid-connected electricity generation from renewable sources – ACM 0002, version 7 – EB36.

/3a/ Tool to calculate the emission factor for an electricity system, version1 – EB35.

/3b/ Tool for the demonstration and assessment of additionality, version 5.

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):

/4/ ANEEL Resolution Nº 1086, issued on 16th October, 2007

/5/ ANEEL Despatch Nº 2.077, issued on 4th July 2007

/6/ Installation License OF/GAB/PRE/COPAM/Nº 72/2007, issued on 30th October/2007

/7/ Social Contract of the Piedade Usina Geradora Energia S.A

/8/ Contract between Piedade Usina Geradora and Ecoinvest, 13/10/2006.

/9/ Turbines specifications

/10/ Generators specifications

/11/ Environmental Impact study (Revisão do Estudo de Impacto Ambiental – EIA), COPAM process, Nº 01403/2002002/2002, issued in March 2007 by Limiar Engenharia Ambiental. Volum I, II and III

/12/ Environmental Impact Assessment (Relatório de Impacto Ambiental – RIMA), issued in May 2007 by Limiar Engenharia Ambiental.

/13/ Environmental Control Plan (Revisão do Plano de Controle Ambiental – PCA), issued in June 2007 by Limiar Engenharia Ambiental. Volum I and II

/14a/ Installation license, Nº124/2006, issued on 13th November 2006, valid until 6th May 2007 – Fundação Estadual do Meio Ambiente (FEAM) – Minas Gerais.

/14b/ Installation license, Nº063/2007, issued on 24th April 2007, valid till 6th May 2010 – Fundação do Meio Ambiente (FEAM) – Minas Gerais.

/15/ Email from Bradesco- interest tax

/16/ Piedade_Estimativa de Créditos_v.6 (Spreadsheet with CERs calculation)

/17/ Local stakeholder consultation - letters

/18/ Local stakeholder consultation - receipts

/19/ Financial contract between Usina Geradora Piedade and Caixa Econômica Federal, 20/12/2007

/20/ KPMG's Corporate Tax Survey 2006

/21/ Risk_Premiums_2006

/22/ Debt Report, Tesouro Nacional, May 2007

/23a/ Power Purchase agreement signed (evidence of starting date of the project activity), 17/01/2007

/23b/ Power Purchase agreement signed for the energy that will be sold in the Free Market of Energy, 03/07/2007.

/24/ Spreadsheet with the IRR calculation named: PLANILHA FINANCEIRA - CRÉDITO DE CARBONOS v.2

/25/ Spreadsheet with the WACC calculation named: Custo de Capital – Piedade

/26/ Spreadsheet with the sensitivity analysis named: Análise Sensibilidade_v.2

/27/ BR-Grid EF SSECO-2005 to 2007 ex ante-2008.04.24 (Spreadsheet with emission factor calculation)

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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 Piedade Small Hydro Power 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 16MW (is there a project description or a license issued by ANEEL where this capacity can be confirmed?).	Confirmed the installed capacity. It was presented the document ANEEL Resolution Nº 1086, issued on 16th October, 2007 (Ref.4) and ANEEL Despatch Nº 2.077, issued on 4th July 2007, which shows installed capacity (Ref 5).	Site visit Ref. 4 Ref. 5	Ok
Confirm the locality (river, coordinates etc). Inform details of evidences verified on-site.	The project is located in Piedade River, town of Monte Alegre de Minas in Minas Gerais State, latitude 18°41'04''S and longitude 49°01'28''W. The project locality is in accordance with document ANEEL Nº 1086 (Ref 4).	Site visit Ref. 4	Ok
Confirm the reservoir area of mentioned in the PDD = 1.5 km² (check the environmental license and studies; check maps or topographic maps of the dam).	The reservoir area is 1.5 Km^2, confirmed through the ANEEL Resolution, Nº 2077, 4th July 2007 (Ref 5).	Site visit Ref. 5	Ok

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
Give evidences of who is the responsible part of the project. For example, confirm if the Piedade Usina Geradora de Energia S/A name is shown in ANEEL licenses or environmental licenses.	The Piedade Usina Geradora de Energia S.A. is the owner of PCH Piedade. See document ANEEL Dispatch Nº 1086, issued on 16th October, 2007 (Ref 4).	Site visit Ref. 4	Ok
Confirm if Piedade Usina Geradora is shareholder of Construtora Gomes Lourenço.	The shareholder of Piedade Usina Geradora de Energia S.A. is Constrututora Gomes Lourenço. This information is evidenced in the Social Contract (Ref 7).	Site visit Ref. 7	Ok
Give evidences of who is the responsible part of the project. Verify: social contract of the Piedade Usina Geradora Energia S/Al that evidences that the company is formally constituted and that is the owner of the plant. Verify contract between Piedade Usina Geradora and Ecoinvest (evidencing that Ecoinvest is allowed and project participant).	- The responsible part of the project is Piedade Usina Geradora Energia S.A. See document ANEEL Dispatch Nº 1086, issued on 16th October, 2007 (Ref 4) and Installation License OF/GAB/PRE/COPAM/Nº 72/2007, issued on 30th October/2007 (Ref 6). - Verified the Social Contract of the Piedade Usina Geradora Energia S.A. (Ref 7) - The Piedade Usina Geradora de Energia S.A. is the owner of PCH Piedade. See document ANEEL Dispatch Nº 1086, issued on 16th October, 2007 (Ref 4). - As defined in the PDD, the Ecoinv Global Ltda. is a project participant (See Ref 8: Contract between Piedade Usina Geradora and Ecoinvest).	Site visit Ref. 4 Ref. 6 Ref. 7 Ref. 8	Ok

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
What is the capacity factor? How this value was obtained? Please provide evidences.	It was confirmed the capacity factor of 61.35%. See Financial Contract between Usina Geradora Piedade and Caixa Econômica Federal, pag.5 (Ref. 19).	Site visit Ref.19	OK
See the description of equipment. Check the documents which confirm the information provided in the PDD (generator, turbines, transmission line etc).	<u>Turbines (Ref. 9)</u> Type: Francis Manufacturer: Mecamidi Quantity: 2 units Power (MW): 8.247 <u>Generators (Ref 10)</u> Type: Synchronous Manufacturer: WEG Quantity: 2 units Nominal Power (MVA): 8.90 Voltage (KV): 6.9 There is no reference about the energy meters. The technical description will be available in the verification assessment.	Site visit Ref. 9 Ref. 10	OK

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
Verify the environmental licensing process. Check the environmental studies (if there is a PCA, a RAP and a PRAD or other study and plan required by environmental agency). Ask copies of the current license and record the details of all relevant documents verified during the audit.	Copies from EIA (Ref 11), RIMA (Ref 12) and PCA (Ref 13), were provided to validation team. Revised Environmental Impact study (Revisão do Estudo de Impacto Ambiental – EIA), COPAM process, Nº 01403/2002002/2002, issued in March 2007 by Limiar Engenharia Ambiental. Volum I, II and III (Ref. 11). Revised Environmental Impact Assessment (Relatório de Impacto Ambiental – RIMA), issued in May 2007 by Limiar Engenharia Ambiental (Ref.12). Revised Environmental Control Plan (Revisão do Plano de Controle Ambiental – PCA), issued in June 2007 by Limiar Engenharia Ambiental. Volum I and II (Ref.13). The operation license was not issued yet. The operation license will be obtained after pre-operational tests. The project is forecasted to start the operation at the beginning of 2009. **Environmental licenses:** Installation license, Nº124/2006, issued on 13th November 2006, valid until 6th May 2007 – Fundação Estadual do Meio Ambiente (FEAM) – Minas Gerais. (Ref 14a) Installation license, Nº063/2007, issued on 24th April 2007, valid till 6th May 2010 – Fundação do Meio Ambiente (FEAM) – Minas Gerais. (Ref.14b)	Site visit Ref.11 Ref.12 Ref.13 Ref.14a Ref.14b	Ok

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
Investment analysis: confirm the values applied for WACC calculation (see PDD page 10 and 11). ➢ Cost of debt of 17.8% a.a ➢ Pd of 76.6% ➢ International Market Risk Premium.	It was confirmed all values applied for WACC. The references were presented and verified by Team Validation. • Kd = Cost of debt The debt for the project corresponds 17.8% per year. Interest tax of 1.48 p.m * 12 month = 17.% (Ref. 15) • t= Marginal corporate income tax corresponds 25% (Ref. 20- pag.10). • Pd (debt as a percentage of total capitalization) of 76.6%. Expenses: R$ 62,758,000 Financing: R$ 48,095,874 Total: 76.6% **1 – Pd = 23.4% - own capital** of R$ 14,661,000 Ref. 19 shows date about the value of financing and investment. Confirmed International Equity Risk Premium of 8.66% p.a. Ref. 21.	Site visit Ref.15 Ref.19 Ref.20 Ref.21	Ok

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
➢ BB Credit Risk Premium over US Treasuries of 2.4%p.a. ➢ Yield of Sovereign 20year BB debt Ask copies of evidences (ex: spreadsheets, references etc).	10-year BB Credit risk of 2.4% (date confirmed through website Itaú bank). Confirmed Yield of Sovereign 20 year BB Debt of 13% (Ref.22).	Site visit Ref.22	Ok

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
Ask for the complete cash flow mentioned for IRR analysis and for the references related to the information provided in the page 11 and 12 page of PDD (related to the investment analysis: costs, tariffs, investments, operational costs, financial charges etc). Each value applied shall be confirmed and justified. Check assumptions and data. Verify the costs (investments and expenses) and the revenues of the project used for that cash flow. Ask for a copy of the cash flow (preferably an Excel spreadsheet, with data and formulas).	Confirmed the Power Purchase Agreement between Piedade Usina Geradora de Energia S/A and other 30 companies. All PPAs consider the price for energy of R$ 125.00MW/h (Ref.23). Also, there is a PPA which the energy will be sold in the Free Market of Energy of R$ 138.69MW. The contract was signed between Piedade Usina Geradora de Energia S/A and AUNDE Brasil Ltda (Ref.23b).	Ref. 23 Ref.23b	Ok

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
Verify evidences that the stakeholders mentioned as consulted were contacted. Is it possible to confirm the invitation by ARs? Are they covering the DNA requirements? Ask for copies of ARs.	Confirmed the AR's sent (July 2007) (Ref. 18) to the local stakeholders by local assessor during site visit. The communication used in the letter (Ref.17) included information relevant about the project and follows the requirements of Brazilian DNA. The letters were sent on July 5th 2007 to: -APAE de Monte Alegre de Minas (Associação de pais e amigos dos excepcionais) received on 10th July 2007; -Secretaria de Meio Ambiente de Monte Alegre de Minas, received on 10th July 2007; -Prefeitura de Monte Alegre de Minas, received on 10th July 2007; -Ministério Público de Minas Gerais, received on 9th July 2007; -Fundação Estadual do Meio Ambiente do Estado de Minas Gerais (FEAM), received on 9th July 2007; -Fórum Brasileiro de ONGs e Movimentos Sociais Para o Desenvolvimento e Meio Ambiente (FBOMS), received on 9th July 2007; -Câmara Municipal de Monte Alegre de Minas, received on 10th July 2007.	Ref.17 Ref.18	Ok
Confirm the letter and material sent to the stakeholders (language, media etc). Confirm the date when the stakeholders were contacted.	Letters sent on July 2007. The letters are in local language and contain information relevant about the project.	Ref.17	Ok

A.2 Annex 2: Validation Protocol

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

Requirement	Reference	Comments	Conclusion
1. All Parties (listed in Section A3 of the PDD) have ratified the Kyoto protocol and are allowed to participate in CDM projects	Marrakech Accords, CDM Modalities §30	There are two private entities involved in the project activity: • Piedade Usina Geradora de Energia S/A (Private Entity) • Ecoinv Global Ltda. (Private entity) The only Party involved in this project is Brazil, which has ratified the Kyoto Protocol in 23 August 2002. *http://maindb.unfccc.int/public/country.pl?country=BR*	Ok
2. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3 and be entered into voluntarily.	Marrakech Accords, CDM Modalities §29 and §30	No Annex 1 is included in this project.	Ok
3. 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	Marrakech Accords, CDM Modalities §29 and §30 Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a	No letter of approval was issued by Brazil (report should be sent to DNA)	Pending

Requirement	Reference	Comments	Conclusion
4. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Marrakech Accords, CDM Modalities, §40	The PDD available at: website: http://cdm.unfccc.int/Projects/Validation/DB/T50E2TBY7UTZ5KULKV9N94IA2FDGLX/view.html Period of consultation: 24/04/2008 to 23/05/2008. No comments were received.	Ok
5. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	PDD template version 03.1 was applied (current version). The project design document was completed in the current UNFCCC PDD template.	Ok
6. The project participants shall submit a letter on the modalities of communication (MoC) before submitting a request for registration	EB-09 F_CDM_REG form	Project Participant will provide the document after the validation approval.	Pending
7. For AR projects, the host country shall have issued a communication providing a single definition of minimum tree cover, minimum land area value and minimum tree height. Has such a letter been issued and are the definitions consistently applied throughout the PDD?		N/A	NA

Table 2 PDD

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A. General Description of Project Activity					
A.1. Project Title					
A.1.1. Does the used project title clearly enable to identify the unique CDM activity?	Ref.1	DR	Yes, the title "Piedade Small Hydro Power Plant CDM Project Activity" identifies the unique CDM project activity.	Ok	Ok
A.1.2. Are there an indication of a revision number and the date of the revision?	Ref.1	DR	Yes, PDD Version 07, 24/09/2008.	Ok	Ok
A.1.3. Is this in consistency with the time line of the project's history?	Ref.1	DR	Yes, the PDD version and date are correct.	Ok	Ok
A.2. Description of the Project Activity					
A.2.1. Is the description delivering a transparent overview of the project activities?	Ref.1	DR	Yes, the description is Ok. It consists of a new small-hydro power plant with 16 MW of installed capacity and a reservoir of 1.5 km².	Ok	Ok
A.2.2. Is all information provided in compliance with actual situation or planning?	Ref.1	DR Site visit	The information provided in section A.2 is in compliance with the observed during the site visit. The project is being implemented.	Ok	Ok
A.2.3. Is all information provided consistent with details provided in further chapters of the PDD?	Ref.1	DR	The information of the Section A.2 of the PDD is consistent with further chapters.	Ok	Ok

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

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.3. Project Participants					
A.3.1. Is the table required for the indication of project participants correctly applied?	A.3 Ref.4 Ref.7 Ref.8	DR	Yes. Brazil is the unique Party involved in the project. The project participants are two private entities: • Piedade Usina Geradora de Energia S/A (Private Entity). • Ecoinv Global Ltda. (Private Entity) The Party is not a project participant	Ok	Ok
A.3.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	A.3 Annex	DR	The description of annex 1 is consistent with the information described in section A.3 of the PDD.	Ok	Ok
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 identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)	A.4.1.4 Ref.4	DR	Coordinates of Piedade small hydro power plant are: latitude 18^{o}39'58''S longitude 49^{o}03'48''W The project locality is according to document ANEEL Nº 1086 (Ref 4).	Ok	Ok
A.4.2. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	A.4.1.4 Ref.4	DR	Piedade Usina Geradora de Energia possesses ownership and licenses which allow the implementation of the project activity. The Piedade Usina Geradora de Energia S.A. is the owner of PCH Piedade. Verified the document ANEEL Dispatch Nº 1086, issued on 16th October, 2007 (Ref 4).	Ok	Ok

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

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4.3. Is the category(ies) of the project activity correctly identified?	Ref.1	DR	Yes, scope 1 – Renewable energy	Ok	Ok
A.4.4. Does the project design engineering reflect current good practices?	Ref.1	DR	The project design engineering follows the good practice applied in Brazil. It will apply Francis Turbine.	Ok	Ok
A.4.5. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the greenhouse gas balance and is the explanation how the project will reduce greenhouse gas emission transparent and suitable?	A.2 Ref.5	DR	The information on section A.2 clearly describes how the project will reduce the GHG, by avoiding electricity generation by fossil fuel sources, which would be generating in the absence of the project. The installed capacity of the plant is 16 MW and the reservoir is 1.5 km², confirmed through the ANEEL Resolution, Nº 2077, 4th July 2007 (Ref 5).	Ok	Ok
A.4.6. Is all information provided in compliance with actual situation or planning as available by the project participants?	A.4.3 Ref.9 Ref.10	DR/ site visit	Yes, the technical description of section A.4.3 of the PDD was cross checked with the information seen by the local assessor in the site visit and spreadsheet of equipments (Ref.9 and Ref.10)	Ok	Ok
A.4.7. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	A.4.3 Ref.9 Ref.10	DR	The technology applied by the project activity follows the common practice of its sector.	Ok	Ok
A.4.8. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	Ref.1	DR	The project activity uses common technology applied in its sector and it's not likely to be substituted.	Ok	Ok
A.4.9. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	Ref.1	I	As the project activity will be part of plants operation, no specific training is required.	Ok	Ok

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

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4.10. Does the project make provisions for meeting training and maintenance needs?	Ref.1	I	The project is being implemented, at this phase no maintenance and training are schedule.	Ok	Ok
A.4.11. Is a schedule available on the implementation of the project and are there any risks for delays?	Ref.1	Site visit	No, the project is being implemented.	Ok	Ok
A.4.12. Is the table required for the indication of projected emission reductions correctly applied?	Ref.1	DR	Yes, the table is correctly applied, according to PDD template.	Ok	Ok
A.5. Public Funding					
A.5.1. Does the information on public funding provided conform with the actual situation or planning as presented by the project participants?	Ref.1	DR	No public funding is being used for the project activity.	Ok	Ok
A.5.2. Is all information provided consist with details provided by further chapters of the PDD (in particular annex 2)?	Ref.1	DR	No public funding is being used for the project activity.	Ok	Ok
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	Ref.1	DR	There is no Annex I Party participating in the project activity.	Ok	Ok

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

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B. Baseline and Monitoring Methodology					
B.1. Choice and Applicability					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	B.1 Ref.2 Ref.3	DR	The project activity uses the approved methodology ACM0002 version 7 (Ref.2), as correctly described in the PDD. The tool used was: "Tool to calculate the emission factor for an electricity system (EB35)" (Ref.3). The methodology and tool are current.	Ok	Ok
B.1.2. Is the baseline methodology the one deemed most applicable for this project?	B.1 Ref.2 Ref.5	DR	Yes. The methodology is applicable to grid-connected renewable power generation project activities such as Piedade power plant. The project activity meets all criteria of applicability: a small hydropower plant with new reservoir and power density greater than 4W/m².	Ok	Ok
B.1.3. Is the choice of the methodology correctly justified by the PDD and is the project in conformance with all applicability criteria of the applied methodology?	B.1 Ref.2 Ref.4 Ref.5	DR	The following criteria of applicability was discussed in the PDD and verified on site visit: • The project activity entails the installation of one small hydro power with 16MW of installed capacity (ref. 4). The project activity has a new reservoir of 1.5Km², with power density of 10.67 W/m², so the power density is greater than 10W/m²	Ok	Ok

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

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.2. Project Boundary					
B.2.1. Are all emission sources and gasses related to the baseline scenario, project scenario and leakage clearly identified and described in a complete manner?	B.3 Ref.2	DR	According to the methodology, when power density is greater then 10W/m^2 the emission from reservoir (CH_4) should not be considered as project emission. Section B.3 of PDD does not reflect this condition. CAR 5 was raised. In PDD version 6, table is correct applied. CAR 5 was closed out. The emission source in baseline is CO_2 emissions from electricity generation in fossil fuel fired power. In the project activity, project emission and leakage are not considered.	~~CAR 5~~	Ok
B.2.2. In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with EB guidance and the underlying methodology?	B.3 Annex 3	DR	Yes, South-Southeast-Midwest interconnected subsystem of the Brazilian grid.	Ok	Ok
B.2.3. Are the project's spatial boundaries (geographical) and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	B.4	DR	Yes, it encompasses the South-Southeast-Midwest interconnected grid and the river basin where the power plant facility is located.	Ok	Ok
B.3. Identification of the Baseline Scenario					
B.3.1. 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?	B.4 Ref.2 Ref.3	DR	Yes, it follows the required by the methodology and additionality tool.	Ok	Ok

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

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.3.2. Does the application consider 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??	B.4 B.5	DR	Yes. The following credible scenario were presented: • the project activity implemented without been registered as CDM; • continuation of electricity supplied by large hydropower with reservoirs and thermal power.	Ok	Ok
B.3.3. Is the choice of the baseline compatible with the available data?	B.4	DR	Yes.	Ok	Ok
B.3.4. Is conservativeness addressed in the way of identifying the baseline?	B.4	DR	Yes, the identification of baseline is conservative. In the absence of the project, electricity should be delivered by non-renewable sources from power plants.	Ok	Ok
B.3.5. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	B.4	DR	Yes, in the absence of the project activity the electricity would be supplied by large hydro plants and thermal plants connected to the same grid.	Ok	Ok
B.4. Additionality					
B.4.1. Does the PDD clearly demonstrate the additionality using the approach as given by the methodology and by following all the required steps?	B.5 Ref.3b	DR	See section B.4.2 below.	Ok	Ok

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

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.2. 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?	B.5 Ref.3b	DR	The Additionality tool used in the PDD version 6 is not the most recent one. The Additionality tool version 5.2 and its annex "Guidance on the Assessment of Investment Analysis" are the most recent documents available. CAR 1 was raised. It was not provided the worksheet and calculation to justify the step 2 and sensitivity analysis. A summary of the worksheet and its data were not included in the PDD. CAR 2 was raised. To close out CAR 1 and CAR 2, PDD version 7 and related spreadsheets were provided. Spreadsheets and PDD were found correct, according to the requirements of the additionality tool (version 5.02) and methodology.	~~CAR 1~~ ~~CAR 2~~	Ok Ok

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

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.3. Is the discussion on additionality and the evidence provided consistent with the starting date of the project If the project has started before the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity	B.5 C.1.1	DR	Starting date of the project activity defined in the PDD version 6 is not according to the clarified in the EB 41 *"the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. This, for example, can be the date on which contracts have been signed for equipment or construction/operation services required for the project activity. Minor pre-project expenses, e.g. the contracting of services /payment of fees for feasibility studies or preliminary surveys, should not be considered in the determination of the start date as they do not necessarily indicate the commencement of implementation of the project".* NIR 4 was raised. Starting date of the project activity was changed in the PDD version 7 and its evidence was provided. This contract assumes that the SHP will be implanted. As the starting date is after validation, no CDM consideration needs to be presented. NIR 4 was closed out.	~~NIR 4~~	Ok
B.4.4. Is the discussion on additionality consistent with the identification all potential realistic and credible baseline scenarios B.4.5. Do the identified alternative include technologies and practices that include outputs (e.g) cement or services comparable with the proposed CDM project activity	B.5 Ref.3b	DR	Yes, the additionality is consistent with the potential baseline scenarios.	Ok	Ok
B.4.6. If an investment analysis has been used, has it been shown that the proposed project activity is economically or financially less	B.5 Ref.3b	DR	The project developer selected the benchmark analysis for the assessment of additionality. The IRR was used as a financial indicator for	Ok	Ok

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Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
attractive than at least one other alternative without the revenue from the sale of CERs?	Ref.24 Ref.15 Ref.19 Ref.20 Ref.21 Ref.22 Ref.23a Ref.23b Ref.24 Ref.25 Ref.26		comparison. It was used the project's Weighted Average Capital Cost – WACC. The calculated WACC for the firm was 15.8% (Ref.25) and the IRR for the project is 11.68 % (Ref.24). It was confirmed all values applied for WACC. The references were presented and verified by Team Validation. • Kd = Cost of debt The debt for the project corresponds 17.8% per year. Interest tax of 1.48 p.m * 12 month = 17.8% (Ref. 15) • t= Marginal corporate income tax corresponds 25% (Ref. 20- pag.10). • Pd (debt as a percentage of total capitalization) of 76.6%. Expenses: R$ 62,758,000 Financing: R$ 48,095,874 Total: 76.6% **1 – Pd = 23.4% - own capital** of R$ 14,661,000 Ref. 19 shows date about the value of financing and investment. Confirmed International Equity Risk Premium of 8.66% p.a. Ref. 21 and the 10-year BB Credit risk of 2.4% (date confirmed through website Itaú bank).		

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
			Confirmed Yield of Sovereign 20 year BB Debt of 13% (Ref.22). Confirmed the Power Purchase Agreement between Piedade Usina Geradora de Energia S/A and others 30 companies. All PPAs consider the price for energy of R$ 125.00MW/h (Ref.23). Also, there is a PPA which the energy will be sold in the Free Market of Energy of R$ 138.69MW. The contract was signed between Piedade Usina Geradora de Energia S/A and AUNDE Brasil Ltda (Ref.23b). Capacity factor: this data is used to estimate the total energy to be generated during the year and consequently the expected CER. The capacity factor is approximately 61.35 % (Ref. 19, pag. 5). It was possible to re-calculate the internal rate of return of the project activity with data provided in the PDD and spreadsheets. The values obtained are consistent with spreadsheets, lower than the Benchmark. It was concluded that the project is not attractive for investors. A sensitivity analysis was conducted altering some parameters as project revenue and project costs (Ref.26). The IRR is still not financially attractive. After sensitivity analysis the maximum IRR for the project activity is 13.32 %. This IRR is still lower than the Benchmark of 15.8% is not		

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Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
			attractive.		
B.4.7. 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?	Ref.1	DR	NIR 3 was raised to address the following questions: • The PDD states that the sector regulation is important barrier mainly energy sector regulation in Brazil is under development since January 2002, in addition to that there are a few investments for energy private sector, also mention at beginning 1990, the energy sector had lack of investment from the Government, etc. Clarify what is the relation of this discussion with Piedade project. • Concerning the Investment Barrier, the PP discuss that in Brazil, the energy sector requires high level of guarantees to finance projects under developing besides discuss to obtain a PPA is required a long-term financing from a bank and the lack commercial agreements from the energy buyers may influence the negotiation between the bank and the project developer. Provide evidences which financial barriers that the project faced. • The PDD shows that the region where the project is located is isolated and undeveloped. And due to that, there is a lack of infrastructure, such as roads, reliable electricity supply, communication and transports". Generally it's necessary to develop	~~NIR 3~~	Ok

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
			some infrastructure to implement the project, especially hydro power plants. This is a natural condition of this kind of project but not a prevent condition. Further clarification is required regarding lack of infrastructure as a barrier. • Regarding Institutional Barrier, the high volatility of the electricity price has contributed to the difficult the analysis of the market. Provide evidence that the project activity faces this barrier. PP answered that "the sector regulation is important because it can influence the decisions of investments in Brazil. Until now the country suffers with the uncertainty regarding the supply of electric energy and the situation described still applies. The investment barrier was taken out of the PDD and the infrastructure barrier was amended. References to the value spent with the improvement of access to the jobsite of the plant and photos of the site are attached. Relating to the institutional barrier, the project consists of generating energy. Hence, the volatility of prices shall be taken into account in investments decisions. Until today the volatility of energy prices can be observed and this also influences the project. More up-dated information of energy prices was added in the PDD". NIR 3 remained opened to request that all information be evidenced and related to the project activity. In PDD version 7, PP applied		

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
			just step 2 instead of step 3 and all the mentioned information was excluded from the PDD. NIR 3 was closed out.		
B.4.8. Has it been shown that the project is not common practice?	B.5	DR	The PDD includes a research of small hydro power plants in Brazil, which represents 1.98% of the installed capacity of the country. According to ANEEL – *Agência Nacional de Energia Elétrica* (Brazilian power regulatory agency), 50.3% of the projects approved beteween 1998-2008 are thermal power plants and 12.2 % are SHPPs. Related to the power plants that started operation between 2005-2007, from a total of 41 projects, 30 reveiced some kind of incentive (CDM or Proinfa), representing 73 % of the projects. With regards to installed potency, these 30 projects make up 90.6% of the total 573.93MW of energy produced by SHPPs For the year 2007, when Piedade started to be constructed, 14 SHPs became operational, from this, 4 did not have incentives. In the state of Minas Gerais, where Piedade is located, 1 CDM SHPP started its operations. For the subsystem where Piedade is connected to, the same occurred, 1 CDM SHPP became operational in 2007. Therefore, the validation assessment concludes that the construction of SHPPs is not a common practice and incentives like PROINFA or CDM are necessary. Instead, large hydro power plants and thermal fossil fuel generation are common practice.	Ok	Ok

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Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.9. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario	B.5 Ref.25 Ref.25	DR	Considering both the investment analysis and barriers analysis, it was concluded that the project is not itself a baseline scenario. The invest analysis showed that the project has an IRR of 11.68% while the benchmark is 15.8 % p.a. Also, SHPP without financial incentives is not a common practice in the region where the project is installed.	Ok	Ok
B.5. Application of the Baseline Methodology					
B.5.1. Has the approved methodology been applied correctly for determining **baseline emissions**?	B.6 Ref.2 Ref.3a Ref.16 Ref.27	DR	Yes. The methodology "ACM0002, version 7" and "Tool to calculate the emission factor for an electricity system, EB35" were correctly used. See CAR 7 related to the emission factor **$BEy=EGy*EF_y$** EFy = 0.2654 tCO2e/MWh	See ~~CAR 7~~	Ok
B.5.2. Has the approved methodology been applied correctly for determining **project emissions**?	B.6.1 B.6.3 Ref.2	DR	Yes. According to the methodology ACM0002 and information provided during site visit the PE = 0 Installed capacity = 16 MW Reservoir area = 1.5 Km^2 Power density =10.67 MW/km^2 As the power density is higher than $10W/m^2$, the project emissions should not be considered.	Ok	Ok
B.5.3. Has the approved methodology been applied correctly for determining **leakage**?	B.6.1 B.6.3 Ref.2	DR	Leakage is not applicable.	Ok	Ok

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.5.4. Where applicable, has the approved methodology been applied correctly for the **direct calculation of emission reductions**	B.6 Ref.2	DR	Formulas and data presented in the PDD are correct. The calculation of emission reductions follows the methodology ACM0002 version 7.	Ok	Ok
B.5.5. Have all the methodological choices been explained, have they been properly justified and are they correct	B.6.1 B.6.3 Ref.2 Ref.3a Ref.15 Ref.16	DR	For the calculation of emission reductions, the ACM0002, version 7 and methodological tool (EB35) were correctly used. Regarding the ER calculations: As described in the PDD and required by ACM0002, ER = EG_yx EF See CAR 7 related to the emission factor. EF was calculated ex-ante, following the steps and formulas defined by ACM0002. The value obtained was 0.2654 tCO2/MWh. All sources of data and calculations are described in the references 15 and 16.	See ~~CAR 7~~	Ok
B.5.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	B.6.1 Ref.19	DR	Conservative values to estimate baseline GHG emission were used. The capacity factor (61.35 %) (Ref. 19, page 5) was considered in the calculation of the electricity to be generated. The uncertainties (hydrological or operational problems) are considered in the capacity factor defined. In the project activity, there are neither project emissions nor leakage.	Ok	Ok

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Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.6. Ex-ante Data and Parameters Used					
B.6.1. Are the data provided in compliance with the methodology?	B.6.2 B.6.3 Ref.2	DR	The section B.6.2 of the PDD is not completed according to the required by the methodology ACM0002 version 7. The parameters Cap_{BL} and A_{BL} are parameters that should be available at validation. Also the calculation of power density shall be presented in the PDD. CAR 8 was raised. To close out CAR 8 the PP included the parameters in the PDD version 7, as required by the methodology. Also the calculus of Power density was included in the revised PDD and its value is equal 10.67 W/m^2.	~~CAR 8~~	Ok
B.6.2. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	B.6.2 B.6.3	DR	Yes, all data of emission factor are derived from official source (ONS). However, data used to calculate emission factor are from the years 2004, 2005 and 2006. More recent data is available. CAR 7 was raised. To close out CAR 7, the PDD and spreadsheets were updated using the years 2005, 2006 and 2007. The calculated value of ex ante emission factor is 0.2654 tCO2e.	~~CAR 7~~	Ok
B.6.3. Is the vintage of the baseline data correct?	B.6.2 B.6.3	DR	See CAR 7 on section B.6.2 above.	See ~~CAR 7~~	Ok

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Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.7. Calculation of Emissions Reductions					
B.7.1. Has the approved methodology been applied correctly for determining **emission reductions**?	Ref.1 Ref.2	DR	Yes, as described in the PDD and required by ACM0002, ER = EG_y x EF See also comments about EF in the section B.6 above.	Ok	Ok
B.7.2. Are the emission reduction calculations documented in a complete and transparent manner?	Ref.1 Ref.2 Ref.16	DR	The equations are presented in the PDD. With the data provided in the PDD it's possible to reproduce the calculation. A spreadsheet with data and formula was provided during the validation and were found correct.	Ok	Ok
B.7.3. Have conservative assumptions been used to calculate emission reductions?	B.6.2 B.6.3 Ref.16	DR	Yes, data are from official sources and a capacity factor was used.	Ok	Ok
B.7.4. Is the projection based on provable input parameter?	B.6.3	DR	See Section B.6	Ok	Ok
B.7.5. Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	B.6.2 B.6.3 Ref.16	DR	Yes, the same procedure to calculate the estimate emissions reduction will be used during monitoring period.	Ok	Ok
B.7.6. Is the calculation of the emission reduction correct?	B.6.3	DR	Formulas to calculate emissions and emission reductions were checked and were found correct.	Ok	Ok

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Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.8. Emission Reductions					
B.8.1. Will the project result in fewer GHG emissions than the baseline scenario?	B.6.4	DR	Yes, the energy delivered to the grid will be generated by using renewable source (water) and in the baseline, the electricity would be supplied by large hydro plants and thermal plants.	Ok	Ok
B.8.2. Is the form/table required for the indication of projected emission reductions correctly applied?	B.6.4	DR	Yes, it follows the PDD template.	Ok	Ok
B.8.3. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	B.6.4	DR	No delays are expected.	Ok	Ok
B.9. Monitoring Methodology					
B.9.1. Does the monitoring methodology provide a consistent approach in the context of all parameter to be monitored and further information provided by the PDD? Are all parameters and data that is available at validation consistent with the approved methodology	B.7 Annex 4 Ref.2 Ref.3a	DR	Yes. The monitoring plan provided and Annex 4 follows the requirements of ACM0002 version 7 and methodological tool (EB35).	Ok	Ok
B.9.2. Does the monitoring methodology apply consistently the choice of the option selected for monitoring both of project and baseline emissions?	B.7 Annex 4 Ref.2	DR	Yes, in this project the PE is zero and the baseline emission is the grid emission factor. The EF is correctly applied, calculated *ex ante* and follows the required by ACM0002 version 7. See CAR 7 related to emission factor.	See ~~CAR 7~~	Ok

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Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.10. Data and Parameters Monitored					
B.10.1. Does the monitoring plan provide 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?	Ref.1	DR	The monitoring plan states that all data collected as part of the monitoring will be kept for two years after the end of the crediting period or the issuance of CERs, whichever occurs later. See FAR 1.	Ok	FAR1
B.10.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	Ref.1	DR	Yes, the monitored parameters are according to the required by the methodology: -EGy -TEGy -Cap_{PJ} -A_{PJ}	Ok	Ok
B.10.3. Will it be possible to determine the specified project GHG indicators?	Ref.1	DR	Yes, indicator in conformance with the requirements of ACM0002 version 7.	Ok	Ok
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?	Ref.1	DR	Yes, the information is sufficient to ensure the implementation of the monitoring plan. See FAR 1, regarding the monitoring plan.	Ok	FAR 1
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?	Ref.1	DR	Yes, the measures of energy delivered to the grid will be from energy meter or Project Sponsor internal control and cross check will be made using receipt of electricity purchase or evidences from CCEE – Câmara de Comercialização de Energia Elétrica, a Brazilian government entity which monitors the electricity on the national interconnected grid.	Ok	Ok

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Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.10.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	Ref.1	DR	Yes, see NIR 6 and FAR 1 related to the monitoring plan.	See ~~NIR 6~~	FAR 1
B.10.7. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	Ref.1	DR	PE = 0	Ok	Ok
B.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?	Ref.1	DR	Yes, procedures from ONS and CCEE will be followed and calibrated meter will be used. Also see NIR 6 and FAR 1 related to the monitoring plan.	See ~~NIR 6~~	FAR 1
B.11.2. Is the belonging determination of uncertainty levels done correctly for each ID in a correct and reliable manner?	Ref.1	DR	Yes, the level of uncertainty is low: -the electricity energy generated can be cross checked with official source -the data related to the emission factor comes from official source.	Ok	Ok
B.11.3. Are quality control procedures and quality assurance procedures sufficiently described to ensure the delivery of high quality data?	Ref.1	DR	See section B.11.1 above.	Ok	Ok
B.11.4. Is it ensured that data will be bound to national or internal reference standards?	Ref.1	DR	Yes. The monitoring data can be compared with official source.	Ok	Ok
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?	Ref.1	DR	Yes, the energy delivered to the grid will be cross checked with third party data.	Ok	Ok

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Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.12. Operational and Management Structure					
B.12.1. Is the authority and responsibility of project management clearly described?	Ref.1	DR Site visit	The monitoring plan states that the Piedade SHP is responsible for the project management. More details were not provided as the project is not operating yet. See FAR 1 below.	Ok	FAR 1
B.12.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	Ref.1	DR Site visit	The monitoring plan states that the Piedade SHP is responsible for organizing and training staff in the appropriate monitoring, measurement and reporting techniques according to the required by the equipments suppliers. However, as the project is still under construction, there are no documented procedures available. See FAR 1 below.	Ok	FAR 1
B.12.3. Are procedures identified for training of monitoring personnel?	Ref.1	DR Site visit	See Section B.12.2 above.	Ok	Ok
B.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?	Ref.1	DR	The monitoring plan in PDD version 4 says that "The project will proceed with the necessary measures for the power control and monitoring". Specify the procedures for positioning of monitoring equipment to guarantee the proper installation, for calibration and maintenance of monitoring equipment and the project performance reviews before data is submitted for verification. NIR 6 was raised. The project participants clarified that the project will follow the ONS procedures, an official entity that establishes the necessary requisites for the proper installation, calibration and maintenance	~~NIR 6~~	FAR1

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
			of hydropower Plants in the country. Also, as the project is still under construction, at the moment of validation there are not formal procedures established that can clearly provide information regarding the operation of the plant. NIR 6 was closed out as the revised PDD establishes that the procedures from a national entity will be followed. FAR 1 was open to request the PP to to provide to the verification team: • the description of authority and responsibility of project management; • the authority and responsibility for registration, monitoring, measurement and reporting data; • procedures for training of monitoring personnel • procedure for archiving data for the crediting period +2 years; internal audits, review of data; emergency procedures (all procedures implemented for monitoring data to ensure the delivery of high quality data and compliance with the required by the methodology ACM002, version 7)		
B.13.2. Does the monitoring plan completely describes all measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality?	Ref.1	DR	See NIR 6 above.	See ~~NIR 6~~	FAR 1

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.13.3. Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	Ref.1	DR	See NIR 6 above.	See ~~NIR 6~~	FAR 1
B.13.4. Are procedures identified for calibration of monitoring equipment?	Ref.1		See NIR 6 above.	See ~~NIR 6~~	FAR 1
B.13.5. Are procedures identified for maintenance of monitoring equipment and installations?	Ref.1	DR	See NIR 6 above.	See ~~NIR 6~~	FAR 1
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)	Ref.1	DR	See NIR 6 above.	See ~~NIR 6~~	FAR 1
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??	Ref.1	DR	See NIR 6 above.	See ~~NIR 6~~	FAR 1
B.13.8. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	Ref.1	DR	See NIR 6 above.	See ~~NIR 6~~	FAR 1
B.13.9. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	Ref.1	DR	See NIR 6 above.	See ~~NIR 6~~	FAR 1
B.14. Baseline Details					
B.14.1. Is there any indication of a date when determine the baseline?	Ref.1	DR	Yes, 24/09/2008.	Ok	Ok

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Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.14.2. Is this in consistency with the time line of the PDD history?	Ref.1	DR	Yes.	Ok	Ok
B.14.3. Is all data required provided in a complete manner by annex 3 of the PDD?	Ref.1	DR	Data from emission factor is presented in Annex 3.	Ok	Ok
C. **Duration of the Project / Crediting Period**					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	Ref.1	DR	See NIR 4 30 years is the operational expected lifetime for the small hydro plant (applicable lifetime for SHPs).	See ~~NIR 4~~	Ok
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)?	Ref.1	DR	Renewable crediting period (first crediting period 7 years).	Ok	Ok
C.1.3. Does the project's operational lifetime exceed the crediting period	Ref.1	DR	Yes, the life time of the SHP is greater than the crediting period.	Ok	Ok
D. Environmental Impacts					
D.1.1. Does the project comply with environmental legislation in the host country?	Ref.1	DR	Yes, the environmental licenses are in compliance with Brazilian laws requirements.	Ok	Ok

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Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
D.1.2. Has an analysis of the environmental impacts of the project activity been sufficiently described?	Ref.1 Ref.14a Ref.14b	DR	The environmental aspects of the SHP were analyzed by the State Environmental Agency (FEAM) when it issued the licenses: Installation license, Nº124/2006, issued on 13th November 2006, valid until 6th May 2007 – Fundação Estadual do Meio Ambiente (FEAM) – Minas Gerais. (Ref 14a) Installation license, Nº063/2007, issued on 24th April 2007, valid till 6th May 2010 – Fundação do Meio Ambiente (FEAM) – Minas Gerais. (Ref.14b) The operation license was not issued yet. The operation license will be obtained after pre-operational tests.	Ok	Ok
D.1.3. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	Ref.1 Ref.11 Ref.12 Ref.13	DR	Yes, the environmental agency required the environmental impact assessment in order to issue the installation license.	Ok	Ok
D.1.4. Will the project create any adverse environmental effects?	Ref.1 Ref.14a Ref.14b	DR	See D.1.2. Adverse environmental effects were considered by the environmental agency when issuing the applicable licenses.	Ok	Ok
D.1.5. Are transboundary environmental impacts considered in the analysis?	Ref.1 Ref.14a Ref.14b	DR	See D.1.2. Transboundary impacts were considered by the environmental agency.	Ok	Ok

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Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
D.1.6. Have identified environmental impacts been addressed in the project design?	Ref.1 Ref.14a Ref.14b	DR	See D.1.2. No significant environmental impact detected.	Ok	Ok
E. Stakeholder Comments					
E.1.1. Have relevant stakeholders been consulted?	Ref.1 Ref.17 Ref.18	DR	Yes, as listed in the PDD, section E.1.	Ok	Ok
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	Ref.1 Ref.17 Ref.18	DR	Yes, the letters were in local language. Copy of the letters and AR were provided.	Ok	Ok
E.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	Ref.1 Ref.17 Ref.18	DR	Yes, the stakeholder consultation process follows the Brazilian DNA Resolution No. 1, issued on September 11th, 2003 and Resolution nº 4, issued on December 06th 2006.	Ok	Ok
E.1.4. Is the undertaken stakeholder process described in a complete and transparent manner?	Ref.1 Ref.17 Ref.18	DR	Yes.	Ok	Ok
E.1.5. Is a summary of the stakeholder comments received provided?	Ref.1	DR	A suggestion to use Gold Standard or similar tools was received from FBMOS. No answer was required.	Ok	Ok
E.1.6. Has due account been taken of any stakeholder comments received?	Ref.1	DR	Not applicable.	Ok	Ok

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References

Reference ID	Title / Description	Comments
/3/	Piedade Small Hydro Power Plant CDM Project Activity, version 1, 28/11/2006(available for global stakeholder consultation); version 2, 06/09/2007 (available for global stakeholder consultation); version 3, 19/12/2007; version 4, 16/01/2008; version 5, 14/03/2008; version 6, 18/04/2008 (available for global stakeholder consultation); version 7, 24/09/2008; version 7.2, 17/11/2008; version 8, 27/01-2009.	PDD
/2/	Consolidated baseline methodology for grid-connected electricity generation from renewable sources – ACM 0002, version 7 – EB36.	Methodology
/3a/	Tool to calculate the emission factor for an electricity system, version1 – EB35.	Tool to calculate the emission factor for an electricity system, version1 – EB35.
/3b/	Tool for the demonstration and assessment of additionality, version 5.	Tool for the demonstration and assessment of additionality, version 5.
/4/	ANEEL Resolution Nº 1086, issued on 16th October, 2007	ANEEL Resolution Nº 1086, issued on 16th October, 2007
/5/	ANEEL Despatch Nº 2.077, issued on 4th July 2007	ANEEL Despatch Nº 2.077, issued on 4th July 2007
/6/	Installation License OF/GAB/PRE/COPAM/Nº 72/2007, issued on 30th October/2007	Installation license
/7/	Social Contract of the Piedade Usina Geradora Energia S.A	Social contract
/8/	Contract between Piedade Usina Geradora and Ecoinvest	Contract between Piedade Usina Geradora and Ecoinvest
/9/	Turbines specifications	Turbines specifications
/10/	Generators specifications	Generators specifications
/11/	Environmental Impact study (Revisão do Estudo de Impacto Ambiental – EIA), COPAM process, Nº 01403/2002002/2002, issued on March 2007 by Limiar Engenharia Ambiental. Volum I, II and III	Environmental impact study
/12/	Environmental Impact Assessment (Relatório de Impacto Ambiental – RIMA), issued on May 2007 by Limiar Engenharia Ambiental.	Environmental impact assessment

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Reference ID	Title / Description	Comments
/13/	Environmental Control Plan (Revisão do Plano de Controle Ambiental – PCA), issued on June 2007 by Limiar Engenharia Ambiental. Volum I and II	Environmental control plan
/14a/	Installation license, Nº124/2006, issued on 13th November 2006, valid until 6th May 2007 – Fundação Estadual do Meio Ambiente (FEAM) – Minas Gerais.	Installation license
/14b/	Installation license, Nº063/2007, issued on 24th April 2007, valid till 6th May 2010 – Fundação do Meio Ambiente (FEAM) – Minas Gerais.	Installation license
/15/	Email from Bradesco- interest tax	Email from Bradesco- interest tax
/16/	Piedade_Estimativa de Créditos_v.6 (Spreadsheet with CERs calculation)	CER spreadsheet
/17/	AR consultation-letters	AR consultation-letters
/18/	AR consultation- receipt	AR consultation- receipt
/19/	Financial contratct between Usina Geradora Piedade and Caixa Econômica Federal	Used for check the Capacity factor
/20/	KPMG's Corporate Tax Survey 2006	Reference of Marginal corporate
/21/	Risk_Premiums_2006	Risk_Premiums_2006
/22/	Debt Report, Tesouro Nacional, May 2007	Reference of yield of sovereign
/23a/	Power Purchase agreement signed	Evidence of starting date of the project activity
/23b/	Power Purchase agreement signed for the energy that will be sold in the Free Market of Energy	Power Purchase agreement signed for the energy that will be sold in the Free Market of Energy
/24/	Spreadsheet with the IRR calculation named: PLANILHA FINANCEIRA - CRÉDITO DE CARBONOS v.2	Spreadsheet with the IRR calculation named: PLANILHA FINANCEIRA - CRÉDITO DE CARBONOS v.2
/25/	Spreadsheet with the WACC calculation named: Custo de Capital – Piedade	Spreadsheet with the WACC calculation named: Custo de Capital – Piedade
/26/	Spreadsheet with the sensitivity analysis named: Análise Sensibilidade_v.2	Spreadsheet with the sensitivity analysis named: Análise Sensibilidade_v.2

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

Reference ID	Title / Description	Comments
/27/	BR-Grid EF SSECO-2005 to 2007 ex ante-2008.04.24	Spreadsheet with emission factor calculation

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

A.3 Annex 3: Overview of Findings

Findings Overview

Findings from validation of Piedade Small Hydro Power Plant CDM Project Activity.
Each Table below represents a finding from the validation assessment. The findings are numbered consecutively, approximately in the order that they have been identified.
Description of Table:

Type	Findings are either New Information Requests (NIR) or Corrective Action Requests (CAR). CARs are items that must be addressed before a project can receive a recommendation for registration. NIRs may lead to the raising of CARs. Observations are included at the end and may or may not be addressed. They are primarily to act as signposts for the verifying DOE.
Issue	Details the content of the finding
Ref	Refers to the item number in the Validation Protocol
Response	Please insert response to finding, starting with the date of entry.

Rows for comments and further response will be appended to the table until the Findings has been addressed to the satisfaction of the Lead Assessor.
Please Note: This is an open list and more findings may be added as validation progresses.

Date:	20/08/2008			Raised by:	Geisa Principe/ Thaís Carvalho/Fabian Gonçalves		
No.:	1	Type:	CAR	Issue:	Additionality tool	Ref.:	B.4.2
Lead Assessor Comment:					Date: 20/08/2008		
The Additionality tool used in the PDD version 6 is not the most recent one. The Additionality tool version 5.2 and its annex “Guidance on the Assessment of Investment Analysis” are the most recent documents available.							
Project Participant Response:					Date: 24/09/2008		
The PDD was amended to mention the most recent version of the tool. Moreover the cash flow of the project as well as the sensitivity analysis were revised according to the guidance.							
Acceptance and Close out by Lead Assessor:					Date: 06/10/2008		
Information Provided: Revised PDD Information Verified: Additionality analysis					Verified Document Reference: PDD Version 7		
Reasoning for not acceptance or acceptance and close out: PDD was revised and it is in accordance with the requirements of the most recent additionality tool available (version 5.2).CAR 1 was closed out.							

Date:	04/01/2008			Raised by:	Geisa Principe/ Thaís Carvalho/Fabian Gonçalves		
No.:	2	Type:	CAR	Issue:	Sensitivity Analysis	Ref.:	B.4.2
Lead Assessor Comment:					Date: 04/01/2008		
It was not provided the worksheet and calculation to justify the step 2 and sensitivity analysis. A summary of the worksheet and its data were not included in the PDD.							
Project Participant Response:					Date: 18/01/2008		

Please see attached the following files:

- spreadsheet with the IRR calculation named: PLANILHA FINANCEIRA - CRÉDITO DE CARBONOS;
- spreadsheet with the WACC calculation named: Custo de Capital - Piedade
- spreadsheet with the sensitivity analysis named: Análise Sensibilidade

All the information mentioned in step 2 refers to the numbers provided in these files.
24/09/2008 - The information submitted previously was revised to reflect the provisions of the "Guidance on the Assessment of Investment Analysis". The PDD was also amended. Please refer to the seventh version of the PDD and to the spreadsheets: "PLANILHA FINANCEIRA - CRÉDITO DE CARBONOS_v.2" and "Análise Sensibilidade_v.2".

Acceptance and Close out by Lead Assessor:	Date: 06/10/2008
Information Provided: Revised PDD and related documents Information Verified: Spreadsheets and revised PDD were checked.	Verified Document Reference: -PDD revised - PLANILHA FINANCEIRA - CRÉDITO DE CARBONOS v.2 (IRR Calculation-Ref.24); -Custo de Capital – Piedade (WACC calculation-Ref.25)) - Análise Sensibilidade-v.2 (sensitivity analysis-Ref.26);
Reasoning for not acceptance or acceptance and close out: PDD was revised and related spreadsheets were found to be correct. CAR 2 was closed out.	

Date:	04/01/2008			Raised by:	Geisa Principe/ Thaís Carvalho/Fabian Gonçalves		
No.:	3	Type:	NIR	Issue :	Barriers analysis	Ref.:	B.4.7

Lead Assessor Comment:	Date: 04/01/2008
The PDD states that the sector regulation is important barrier mainly energy sector regulation in Brazil is under development since January 2002, in addition to that there are a few investments for energy private sector, also mention at beginning 1990, the energy sector had lack of investment from the Government, etc. Clarify what is the relation of this discussion with Piedade project. Concerning the Investment Barrier, the PP discuss that in Brazil, the energy sector requires high level of guarantees to finance projects under developing besides discuss to obtain a PPA is required a long-term financing from a bank and the lack commercial agreements from the energy buyers may influence the negotiation between the bank and the project developer. Provide evidences which financial barriers that the project faced. The PDD shows that the region where the project is located is isolated and undeveloped. And due to that, there is a lack of infrastructure, such as roads, reliable electricity supply, communication and transports". Generally it's necessary to develop some infrastructure to implement the project, especially hydro power plants. This is a natural condition of this kind of project but not a prevent condition. Further clarification is required regarding lack of infrastructure as a barrier. Regarding Institutional Barrier, the high volatility of the electricity price has contributed to the difficult the analysis of the market. Provide evidence that the project activity faces this barrier.	
Project Participant Response:	Date: 18/01/2008

The sector regulation is important because it can influence the decisions of investments in Brazil. Until now the country suffers with the uncertainty regarding the supply of electric energy and the situation described still applies. The investment barrier was taken out of the PDD and the infrastructure barrier was amended. References to the value spent with the improvement of access to the jobsite of the plant and photos of the site are attached. Relating to the institutional barrier, the project consists of generating energy. Hence, the volatility of prices shall be taken into account in investments decisions. Until today the volatility of energy prices can be observed and this also influences the project. More up-dated information of energy prices was added in the PDD. **24/09/2008 –** Additionality in PDD version 7 is assed applying step 2 instead of step 3. All the mentioned information was excluded from the PDD.

Acceptance and Close out by Lead Assessor:	Date: 25/09/2008
Information Provided: PDD version 7. Information Verified: Revised PDD.	Verified Document Reference: Revised PDD
Reasoning for not acceptance or acceptance and close out: The barrier not applied to the project (investment barrier) was excluded from the PDD. Also relevant information was added in the others barriers. When using barrier analysis, all information should be evidenced and related to the project activity. NIR 3 remains outstanding. **25/09/2008**: PP excluded the barrier analysis from the PDD version 7. NIR 3 was closed out.	

Date:	20/08/2008			Raised by:	Geisa Principe/ Thaís Carvalho/Fabian Gonçalves		
No.:	4	Type:	NIR	Issue:	Starting date of the project activity	Ref.:	B.4.3

Lead Assessor Comment:	Date: 20/08/2008
Starting date of the project activity defined in the PDD version 6 is not according to the clarified in the EB 41 “the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. This, for example, can be the date on which contracts have been signed for equipment or construction/operation services required for the project activity. Minor pre-project expenses, e.g. the contracting of services /payment of fees for feasibility studies or preliminary surveys, should not be considered in the determination of the start date as they do not necessarily indicate the commencement of implementation of the project”.	

Project Participant Response:	Date: 24/09/2008
The starting date of the project activity was altered to 17/01/2007. This was the date when the Power Purchase Agreement related to the major part of energy of the hydro was signed.	

Acceptance and Close out by Lead Assessor:	Date: 25/09/2008
Information Provided: Revised PDD and evidence of the starting date. Information Verified: Starting date presented in the revised PDD and its evidence	Verified Document Reference: PDD version 7 Power Purchase agreement signed (Ref.23)
Reasoning for not acceptance or acceptance and close out: Starting date of the project activity was changed in the PDD version 7 and its evidence was provided. This contract assumes that the SHP will be implanted. As the starting date is after validation, no CDM consideration needs to be presented. NIR 4 was closed out.	

Date:	04/03/2008			Raised by:	Geisa Principe/ Thaís Carvalho/Fabian Gonçalves		
No.:	5	Type:	CAR	Issue:	Sources and gases included in the project boundary	Ref.:	B.2.1

Lead Assessor Comment:	Date: 04/03/2008
According to the methodology ACM0002, version 6, in the section B.3 of the PDD, the emission from reservoir (CH_4) should not be included in the table presented, because the power density of the project is greater than 10 W/m^2.	

Project Participant Response:	Date: 14/03/2008
The referred table was corrected. Please refer to fifth version of the PDD.	
Acceptance and Close out by Lead Assessor:	Date: 25/04/2008
Information Provided: Revised PDD Information Verified: Section B.3 of PDD version 5.	Verified Document Reference: PDD version 5.
Reasoning for not acceptance or acceptance and close out: PDD version 5 presents the description of the sources and gases included in the project boundary according to the required by the methodology. CAR 5 was closed out.	

Date:	04/03/2008			Raised by:	Geisa Principe/ Thaís Carvalho/Fabian Gonçalves		
No.:	6	Type:	NIR	Issue :	Monitoring plan	Ref.:	B.13.1
Lead Assessor Comment:					Date: 04/03/2008		
The monitoring plan says that “The project will proceed with the necessary measures for the power control and monitoring”. Specify the procedures for positioning of monitoring equipment to guarantee the proper installation, for calibration and maintenance of monitoring equipment and the project performance reviews before data is submitted for verification.							
Project Participant Response:					Date: 14/03/2008		
The project is still under construction and until the moment there aren’t formal procedures established that can clearly provide information regarding the operation of the plant. Nevertheless, the National Operator of the System (a governmental entity) establishes the necessary requisites for the proper installation, calibration and maintenance of hydropower Plants in the country. This includes a list with the characteristics that the energy meters shall have, the procedures to monitor the energy generated to the plant and calibrate the equipments used among others. The information is public available at ONS’s website and the Project Participants are required to ensure that this specifications are going to be followed. Hence project participants believe that there is no need to further specify the procedures.							
Acceptance and Close out by Lead Assessor:					Date: 25/04/2008		
Information Provided: The project participants clarified that the procedures from ONS (governmental agency) will be followed. This information was added in the PDD version 5. Information Verified: Revised PDD, project participants response and ONS web site (http://www.ons.org.br/procedimentos/index.aspx).					Verified Document Reference: Project participant response to the NIR and revised PDD.		
Reasoning for not acceptance or acceptance and close out: The revised PDD establishes that the procedures from a national entity will be followed. NIR 6 was closed out and FAR 1 was open (See FAR 1 bellow).							

Date:	20/08/2008			Raised by:	Geisa Principe/ Thaís Carvalho/Fabian Gonçalves		
No.:	7	Type:	CAR	Issue :	Emission factor	Ref.:	B.6.2
Lead Assessor Comment:					Date: 20/08/2008		
Data used to calculated emission factor are from the years 2004, 2005 and 2006. More recent data is available.							
Project Participant Response:					Date: 24/09/2008		
The emission factor was revised. The spreadsheet with the calculation of the emission factor and the revised CERs calculation were submitted to the DOE.							
Acceptance and Close out by Lead Assessor:					Date: 25/09/2008		

Information Provided: Revised PDD and spreadsheets Information Verified: Emission factor calculations, emission reduction calculations and revised PDD	Verified Document Reference: PDD version 7 (Ref.1) BR-Grid EF SSECO-2005 to 2007 ex ante-2008.04.24 (Ref.27) Piedade_Estimativa de Créditos_v.6 (Ref.16)
Reasoning for not acceptance or acceptance and close out: PDD and spreadsheets were updated using the years 2005, 2006 and 2007. The new value of emission factor is 0.2654 tCO2e. CAR 7 was closed out.	

Date:	20/08/2008			Raised by:	Geisa Principe/ Thaís Carvalho/Fabian Gonçalves		
No.:	8	Type:	CAR	Issue :	Data and parameters available at validation.	Ref.:	B.6.1
Lead Assessor Comment:					Date: 20/08/2008		
The section B.6.2 of the PDD is not completed according to the required by the methodology ACM0002 version 7. The parameters Cap_{BL} and A_{BL} are parameters that should be available at validation. Also the calculation of power density shall be presented in the PDD.							
Project Participant Response:					Date: 24/09/2008		
The mentioned parameters were included in section B.6.2. and the calculation of the power density was included in section B.6.1. of the seventh version of the PDD.							
Acceptance and Close out by Lead Assessor:					Date: 25/09/2008		
Information Provided: Revised PDD Information Verified: Data and parameters available at validation						Verified Document Reference: PDD version 7	
Reasoning for not acceptance or acceptance and close out: The parameters were included in PDD version 7, as required by the methodology. Also the calculus of Power density was included in the revised PDD and its value is equal 10.67 W/m^2. CAR 8 was closed out.							

Date:	20/08/2008			Raised by:	Geisa Principe/ Thaís Carvalho/Fabian Gonçalves		
No.:	1	Type:	FAR	Issue :	Monitoring procedures	Ref.:	
Lead Assessor Comment:					Date: 20/08/2008		
It is requested to the PP to provide to the verification team: • the description of authority and responsibility of project management; • the authority and responsibility for registration, monitoring, measurement and reporting data; • procedures for training of monitoring personnel • procedure for archiving data for the crediting period +2 years; internal audits, review of data; emergency procedures (all procedures implemented for monitoring data to ensure the delivery of high quality data and compliance with the required by the methodology ACM002, version 7)							
Project Participant Response:					Date:		
Acceptance and Close out by Lead Assessor:					Date:		
Information Provided: Information Verified:						Verified Document Reference:	

Reasoning for not acceptance or acceptance and close out:

Annex 4: Team Members Statements of Competency

Statement of Competence

Name:Geisa Principe SGS Affiliate:SGS Brazil

Status

- Product Co-ordinator	☐	
- Operations Co-ordinator		☐
- Technical Reviewer	☐	
- Expert	☒	

	Validation	Verification
- Local Assessor	☒	☒
- Lead Assessor	☐	☐
- Assessor / Trainee Lead Assessor	☒	☒

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	☒	
2. Energy Distribution	☐	
3. Energy Demand	☐	
4. Manufacturing	☐	
5. Chemical Industry	☐	
6. Construction	☐	
7. Transport	☐	
8. Mining/Mineral Production	☐	
9. Metal Production	☐	
10. Fugitive Emissions from Fuels (solid,oil and gas)		☐
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride		☐

12. Solvent Use ☐
13. Waste Handling and Disposal ☐
14. Afforestation and Reforestation ☐
15. Agriculture ☐

Approved Member of Staff by Siddharth Yadav Date: 22/08/2007

Statement of Competence

Name:Fabian Goncalves SGS Affiliate:SGS Brazil

Status

- Product Co-ordinator ☒
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☐

	Validation	Verification
- Local Assessor	☒	☒
- Lead Assessor	☒	☒
- Assessor / Trainee Lead Assessor	☒	☒

Scopes of Expertise

1. Energy Industries (renewable / non-renewable) ☒
2. Energy Distribution ☐
3. Energy Demand ☐
4. Manufacturing ☒
5. Chemical Industry ☐
6. Construction ☐
7. Transport ☐
8. Mining/Mineral Production ☐
9. Metal Production ☐
10. Fugitive Emissions from Fuels (solid,oil and gas) ☐
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride ☐
12. Solvent Use ☐

13. Waste Handling and Disposal	☒
14. Afforestation and Reforestation	☐
15. Agriculture	☐

Approved Member of Staff by Siddharth Yadav Date: 18/10/2007