CDM.Val0353

1/16



# **VALIDATION REPORT**

### Pouso Alto Energia S/A.

Amper Energia S/A.

Rio do Sangue Energia S/A.

Paranatinga Energia S/A.

Rio Água Clara Energia Ltda.

## Atiaia – Buriti Small Hydropower Plant

SGS Climate Change Programme SGS United Kingdom Ltd SGS House 217-221 London Road Camberley Surrey GU15 3EY United Kingdom

SGS United Kingdom Ltd |SGS House, 217-221 London Road, Camberley, Surrey GU15 3EY Tel +44 (0)1276 697810 Fax +44 (0)1276 697888 Registered in England No. 1193985 Rossmore Business Park, Ellesmere Port, Cheshire CH65 3EN www.sgs.com



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Plant	_
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03	POUSO ALTO ENERGIA S/A.
	AMPER ENERGIA S/A.
	RIO DO SANGUE ENERGIA S/A.
	PARANATINGA ENERGIA S/A.
	RIO ÁGUA CLARA ENERGIA LTDA.

#### Summary

SGS has performed a validation of the project: Atiaia – Buriti Small Hydropower Plant. The Validation was performed on the basis of the UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting. Using a risk based approach, the review of the project design documentation and the subsequent follow-up interviews have provided SGS with sufficient evidence to determine the fulfilment of the stated criteria.

The project activity consists of the installation of small hydropower plant with reservoir with capacity of 30 MW. It will result in GHG emissions reductions avoiding the dispatch of same amount of energy produced by fossil-fuelled thermal plants to the grid.

Total amount of emission reductions estimated for the first crediting period is 447,987tCO<sub>2</sub> e.

The Letter of Approval from the Government of Brazil was issued on 21 December 2006.

Subject.:		
CDM validation		Indexing terms
Work carried out by		
Áurea Nardelli, Fabian Gonçalves, Irma		
Lubrecht.		
Technical review		
Irma Lubrecht		No distribution without permission from the
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#### Abbreviations

AM	Approved Methodology
CAR	Corrective Action Request
CER	Certified Emission Reduction
DNA	Designated National Authority
MP	Monitoring Plan
NIR	New Information Request
PDD	Project design Document
SGS	Société Générale de Surveillance
EF	Emission Factor

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#### 1. Introduction

#### 1.1 Objective

The POUSO ALTO ENERGIA S/A; AMPER ENERGIA S/A; RIO DO SANGUE ENERGIA S/A; PARANATINGA ENERGIA S/A; RIO ÁGUA CLARA ENERGIA LTDA.have commissioned SGS to perform the validation of the project: Atiaia – Buriti Small Hydropower Plant 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.

#### 1.2 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.

#### 1.3 GHG Project Description

This report summarizes the results of the validation of the Atiaia – Buriti Small Hydropower Plant project, performed on the basis of UNFCCC criteria. The validation has been performed as a desk review of the project documents presented by Atiaia Energia S/A and a site visit to Small Hydro Power Plant, located in Lucas do Rio Verde and Sorriso, Mato Grosso, Brazil. During site visit, Atiaia's managers and Ecoinvest consultant were interviewed.

SHP Buriti is owned by Pouso Alto Energia S/A, controlled 100% by Atiaia Energia S.A. Atiaia Energia S.A. is a sub-holding company created between the association of Koblitz and the Cornélio Brennand Group. In the future, Pouso Alto Energia S/A will change its name for Rio Sucuriú Energia Ltda., obeying the legislation in force and all the necessary requirements to this alteration.

The project activity consists of 30 MW installed capacity. The plant is installed in the Midwest region of Brazil and is connected to the interconnected grid South-Southeast-Midwest.

A Buriti facility is small hydropower with reservoir, which store water to generate electricity for short periods of time. The plant complies with the Brazilian legal criteria to define small hydropower plant.

SHP Buriti: - Located in Chapadão do Sul and Água Clara, Mato Grosso do Sul (MS).

- Installed capacity: 30 MW
- Reservoir 0.38 km<sup>2</sup>



Total amount of emission reductions estimated for the first crediting period is 447,987 t CO<sub>2</sub> e

#### Baseline Scenario:

No investment in clean power generation; electricity generation from fossil-fuel thermal plants that would have otherwise dispatched to the grid.

#### With-project scenario:

The project activity consists of the installation of small hydropower plant with reservoir with capacity of 30 MW. It will result in GHG emissions reductions avoiding the dispatch of same amount of energy produced by fossil-fuelled thermal plants to the grid.

#### Leakage:

No leakage is anticipated.

#### Environmental and social impacts:

The environmental impact of the project activity is considered small considering the host country definition of small-hydro plants, given the small dam and reservoir size. With the use of small hydropower facility to generate electricity for local use and for delivery to the grid, the project displaces part of the electricity derived from diesel, a finite fossil fuel, and gives less incentive for the construction of large hydro plants which can have major environmental and social impacts.

Regarding the compliance with environmental legislation of the host country, the project sponsors are required to obtain the environmental licenses defined by the Brazilian environmental regulation. The plant obtained the preliminary and construction licenses. The preliminary licenses were issued by the Mato Grosso do Sul environmental agencies, IMAP - *Secretaria de Estado de Meio Ambiente e Recursos Hídricos do Estado de Mato Grosso do Sul.* The project has also been reviewed under "IFC's Environmental & Social Guidelines and Safeguards Policies" (1998) and the "World Commission on Dams Guidelines for Good Practice" (2000). The results of this assessment were summarized in the PDD.

In order to implement measures to mitigate adverse impacts identified in the Environmental Impact Assessment, it was prepared Environmental Control Plans and Basic Environmental Project which were approved by IMAP. This plan includes actions for flora and fauna studies, environmental education, water resources monitoring, restoration of degraded areas, social communication and others.

Regarding social and economic impacts, small hydropower plant with reservoir can provide local distributed generation, in contrast with the business as usual large hydropower and natural gas fired plants. This small hydropower project provides site specific reliability, transmission and distribution benefits.

It is expected that the project activity will contribute to improve the supply of electricity, while contributing to the environmental, social and economic sustainability.



Name	Role
Aurea Nardelli	Lead Assessor
Fabian Gonçalves	Local Assessor
Irma Lubrecht	Technical reviewer

#### 1.4 The names and roles of the validation team members

#### 2. Methodology

#### 2.1 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. Additional information can be required to complete the validation, which may be obtained from public sources or through telephone and face-to-face interviews with key stakeholders (including the project developers and Government and NGO representatives in the host country). These may be undertaken by the local SGS affiliate. The results of this local assessment are summarized in Annex 1 to this report.

#### 2.2 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	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements are linked to checklist questions the project should meet.	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 2 to this report

#### 2.3 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.

**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 3). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

#### 2.4 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.

#### 3. Determination Findings

#### 3.1 Participation requirements

Brazil is listed as the host Party. Brazil has ratified the Kyoto Protocol on 23<sup>rd</sup> August 2002 (<u>http://unfccc.int/files/essential\_background/kyoto\_protocol/application/pdf/kpstats.pdf</u>).

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 has received and analyzed the validation report.

The Letter of approval was issued on 21 December 2006.

#### 3.2 Baseline selection and additionality

The methodology applied to this Project Activity is: ACM0002 – "Consolidated baseline methodology for grid-connected electricity generation from renewable sources/ Consolidated monitoring



methodology for grid-connected electricity generation from renewable sources" (version 06, issued on 19<sup>th</sup> May, 2006).

The project consists of a small-hydro power plant with reservoir. The project boundaries are defined by the emissions targeted or directly affected by the project activity. It encompasses the physical, geographical site of the hydropower generation and the interconnected grid. The baseline calculation boundary is covered by the South-Southeast-Midwest integrated electric grid and the plant is connected to this grid and baseline calculations use the electric generation data from this region. The project boundary is acceptable.

During the validation process, the PDD was revised to use the latest version of ACM 0002 (version 6). The methodology is applicable to grid-connected renewable power generation project activities which include among other conditions "new hydro electric power projects with reservoirs having power densities (installed power generation capacity divided by the surface area at full reservoir level) greater than 4 W/m<sup>2</sup>."

The original PDD (version 1 to 6) had included two plants. One plant (Canoa Quebrada) was excluded because has a power density less than 4 W/m<sup>2</sup>. It is not acceptable by ACM0002. CAR 11 was raised. To close out CAR 11, the PDD was revised to be in compliance with ACM0002 version 6. The plant Canoa Quebrada was excluded of the project.

The project emissions should be determined in accordance with the methodology described. Version 6 of the ACM0002 requires that the PE should be calculated from the "power density". No reference about this was included in the PDD. PE is dependent on the reservoir area and capacity installed of the plant. These parameters are used for "Power density" calculation. No information about reservoir area is included in Section D of the PDD. CAR 12 was raised.

Information about PE calculation and demonstration why PE=zero was provided in the revised PDD. "According to ACM0002 (version 6), new hydro electric power projects with reservoirs, shall account for project emissions. For SHP Buritis, considering the capacity of the project: 30MW and area of reservoir: 0.38 Km2, the power density = 30/0.38 = 78.95 W/m2. If power density of the project is greater than 10W/m2,

PEy = 0". CAR 12 was closed out.

The project does not create any leakage as defined in the methodology.

Considering that the project emissions and leakage are zero, the emission reductions by the project activity  $(ER_y)$  during a given year y are the product of the baseline emissions factor  $(EF_y)$ , in tCO<sub>2</sub>e/MWh) times the electricity supplied by the project to the grid  $(EG_y)$ , in MWh).

As required in the ACM 0002, the project demonstrated additionality using the "Tool for the demonstration and assessment of additionality". The relevant information for this analysis was presented in the PDD. The step 0 and step 2 were not applicable to the project.

The discussion on the additionality was not clear (mainly about the investment barrier); transparent evidence related to the IRR analysis was not provided during the desk study. NIR 2 was raised. To clarify NIR 2, spreadsheets were sent to the validator, which presents data and formulas to demonstrate how IRR was determined. The assumptions and data presented in the analysis were acceptable.

It was verified that the investment barrier was not the most important barrier, once the project received subsidised funds from BDNES (with interest rate lower than the rate of the market). Information about PROINFA mentioned in the PDD is publicly available.

PDD Section B.3 was revised to clarify that some barriers that are common to the Brazilian context



were not faced by Atiaia. NIR 2 was closed out.

The institutional barrier and the common practice analysis were also discussed in the PDD. The references mentioned and the websites listed as sources of information and data were verified. The barrier analysis demonstrated that with absence of the incentive created by the CDM; this project would not be the most attractive scenario.

The alternative to the project activity is the continuation of the current (previous) situation of electricity supplied by large hydro and thermal power stations – or by Diesel oil, in the case of isolated systems (it was verified that the project activity is not the business as usual in the country).

As an alternative for the group company is the investment in other opportunities, like the financial market or in other traditional industrial areas of the group.

#### 3.3 Application of Baseline methodology and calculation of emission factors

As defined in the ACM0002, the baseline emission factor is calculated as a combined margin, consisting of the combination of operating margin and the build margin factors. The calculation of the emission factor of Brazilian South-Southeast-Midwest grid is based on data from the National Electric System Operator (ONS – Operador Nacional do Sistema Elétrico).

For the first crediting period, the emission factor EFOM, was calculated *ex*-ante. Detailed baseline information was presented during validation assessment and is provided in Annex 3 of the PDD.

During the desk review, it was identified a mistake in the figures presented for calculation of the baseline emission factor ( $EF_y$ ). The value of  $EF_{BM,2004}$  was informed as 0.1045 tCO<sub>2</sub>e/MWh, but the  $EF_{BM,2004}$  used in the equation 11 as 0.0962, see PDD, version 5, page 41). CAR 5 was raised. It was revised in the PDD (version 6). The correct value for both cases is 0.0962. The emission factor calculated was 0.2647 tCO<sub>2</sub>/MWh. CAR 5 was closed out.

#### 3.4 Application of Monitoring methodology and Monitoring Plan

During the validation, it was verified that the monitoring plan did not cover all requirements of the ACM0002 and of good monitoring practices. Issues were raised, as described below:

- CAR 1: The operational and management structure to be implemented was not described in details in the PDD (see section D.4 and Monitoring plan). It was lacking information about authority and responsibility, about monitoring and reporting procedures, internal reviews and training.

To close out CAR 1, it was informed that the SHPs will work with a local manager, who has operational and managerial knowledge and 3 maintenance technicians (2 responsible for electromechanical tasks and 1 for general services). All the operations will be centralized in Cuiabá – Mato Grosso, in the *Centro de Operação do Sistema – "COS"* (System Operation Center), which will operate and plan the maintenance of the SHPs. "COS" personnel includes: 1 director, 1 maintenance coordinator engineer, 1 operation coordinator engineer, 1 administrative coordinator and 5 system operators (shift work, 24 hours a day). All the procedures will be done by telecommand from COS in Cuiabá, and in the SHPs the local manager is capable of operating the whole plant, in case of communications failure with COS, as stated in Annex 4.

Energy distribution company ENERSUL (for PCH Buriti) will be responsible for dealing with possible monitoring data adjustments and uncertainties, for review of reported results/data, for internal audits of GHG project compliance with operational requirements and for corrective actions.



Approximately 120 days before the beginning of the commercial operation of the SHP, energy producer and energy distributor will sign an agreement to cover each side's responsibilities. SHP' technicians will be trained on the use of monitoring equipment according to the specifications of this agreement and the recommendations of the equipments' manufacturers.

The PDD, Annex 4 was revised to describe the operational and management structure of the project. CAR 1 was closed out and an observation was raised: The procedures should be clearly described and the operational and maintenance manual should be prepared and implemented until the start up of the plant. Personnel involved in monitoring activities should be trained on the procedures.

- CAR 4: No procedures were identified for calibration and maintenance of monitoring equipment.

To close CAR 4, it was informed that the energy distribution company ENERSUL (for PCH Buriti) will be responsible for the calibration and maintenance of the monitoring equipment. The Annex 4 of the PDD was updated with this information. It was also described in the PDD (version 6) that the energy meter are specified by the energy distribution company and approved by ONS (national agency). For SHP Buriti, the energy meter will be a Q 1000, manufactured by Schlumberger. The SHP has an individual meter per generator, whose measurement is done locally or remotely, in the *Centro de Operação do Sistema – COS* (Systems Operation Center), in Cuiabá. There is also a meter in the substation. This meter stores power data, which can be verified both by the SHP and the local distributor. The measurement is controlled in real time by the SHP. Measurement data is compared between the meter at the output of the generators and the meter in the substation, so any problems can be detected (like water shortage, materials inside the turbines, meter inaccuracy, etc).

- CAR 7: It was verified that the QA/QC provided in the PDD did not comply with that are required in the ACM0002.

To close out this finding, the PDD was revised to present the correct information.

- CAR 8: As defined by methodology and in the Guidelines for completing the PDD, data shall be archived for 2 years following the end of the crediting period. The PDD (Section D) did not inform the correct period. It was informed that "*Data will be archived during the credit period according to internal procedures*".

To close out CAR 8, it was verified that the revised PDD included in Section D the correct period for data storage.

Considering that the CARs raised were adequately addressed, the validation team accepted the monitoring plan described in the PDD.

Observation: The plant is not in operation yet. As described in the PDD, the energy distribution company will be responsible for dealing with possible monitoring data adjustments and uncertainties, for review of reported results/data, for internal audits of GHG project compliance with operational requirements and for corrective actions. It was also informed during the site visit, the project managers will prepare the Operation and Maintenance Manual for the SHP.

The procedures should be clearly described and the operational and maintenance manual should be prepared and implemented until the start up of the plant. Personnel involved in monitoring activities should be trained on the procedures.

#### 3.5 Project design



The PDD should address all the specific requirements under each header of the PDD template. Some issues were raised during the document review relate to editorial requirements and completeness of the PDD:

- CAR 6: PDD, Section D - incorrect information under header D.4. The monitoring parameter Electricity generation of the Project delivered to grid (EGy) (page. 34) should be included under D.2.1.3 "Relevant data necessary for determining the baseline of anthropogenic emissions by sources of GHGs within the project boundary and how such data will be collected and archived" (page 28-29, PDD version 5). The document was revised and the latest PDD (version 6) presented the correct information. CAR 6 was closed out.

- CAR 9: There was a mistake/inconsistency in the references mentioned in the PDD regarding the version/year of ACM0002. It was informed in page 29 the version 2004, in page 30 it was informed year 2002 and in the Annex 5 informed 2004. The correct year is 2006. The PDD was revised to close out this CAR. The methodology used in the PDD (version 6) as the latest version of ACM0002 (version 6, issued on 19<sup>th</sup> May 2006). CAR 9 was closed out.

- CAR 10: The dates should be state in the following format: (DD/MM/YYYY). Dates of the starting of the project activity and the starting of the credit period were not complete, it was informed only the month and year, May 2005 and January 2007 respectively. There was inconsistent information along the PDD. For the credits estimative, it was informed that the starting date will be in October 2006 and in Section C it was informed January 2007. To close out CAR 10, PDD was revised. Starting date of the project activity was informed and confirmed as 19th July 2005 and starting date of the first credit period as 15<sup>th</sup> January 2007. CAR 10 was closed out.

- CAR 13: Section E.6 of the PDD: to present the correct table, according PDD template. Verified that the revised PDD (version 8) presents the correct table (section E.6). CAR 13 was closed out.

#### 3.6 Environmental Impacts

During the desk study, it was verified that the PDD did not present a plan for monitoring sustainable development indicators/ environmental Impacts and CAR 3 was raised.

It was informed that Pouso Alto Energia, the company that controls SHP Buriti, have hired expert company to execute their environmental programs. The hired company keeps an environment engineer full time in the plant, and the programs included in the Environmental Basic Program are being executed by the SHP personnel. After the beginning of the commercial operations, restoration of degraded areas and of permanent preservation areas will be done according to the legal requirements. Studies done during the design phase of the project have identified the environmental and social impacts and indicated the mitigation measures to be adopted during the construction phase. A team of environment experts will monitor the compliance with the environmental agencies' regulations.

It was verified that the analysis of the environmental impacts of the project activity was sufficiently described in the documents related to EIA of SHP (EIA PCH Buriti, May, 2002). The environmental effects were identified in the EIA and mitigating measures were defined for address adverse impacts. In addition, the documented evidences that the project is in compliance with legal requirements were verified.

Detailed information regarding the environmental programmes and monitoring plan were included in the PDD (Annex 4). Reasonable environmental indicators were defined to be monitored as part of the Environmental Program of the plant. CAR 3 was closed out.

#### 3.7 Local stakeholder comments

Local stakeholders have been invited by letters to comment on the Atiaia - Buriti Small Hydropower



#### Plant Project.

The invitation was sent to specific stakeholders, considered representative of the general public, as defined in the Resolution  $n^{\circ}1$  of the DNA. The following stakeholders were contacted:

- Prefeitura de Água Clara (Água Clara City Hall)
- Câmara Municipal de Água Clara (Municipal Chamber of Água Clara)
- Secretaria do Meio Ambiente de Água Clara (Local Environmental Agency of Água Clara)
- Associação de Pouso Alto (Local community association)
- Prefeitura de Chapadão do Sul (Chapadão do Sul City Hall)
- Câmara Municipal de Chapadão do Sul (Municipal Chamber of Chapadão do Sul)
- Secretaria do Meio Ambiente de Chapadão do Sul (Local Environmental Agency of Chapadão do Sul)
- Associação da Pedra Branca (Local community association)
- SEMA Secretaria de Estado do Meio Ambiente do Mato Grosso do Sul (Mato Grosso do Sul Environmental Agency)
- *Ministério Público do Mato Grosso do Sul* (State Attorney for the Public Interest of the State of Mato Grosso do Sul)
- Fórum Brasileiro de ONGs e Movimentos Sociais para o Desenvolvimento e Meio Ambiente (Brazilian Forum of NGOs and Social Movements for the Development and Environment)

Copies of the letters sent to stakeholders and records of receiving were verified (formal records from the post office).

During the consultation period, one comment was received from FBOMS, suggesting the use of Gold Standard or similar tools for monitoring of environmental/social indicator. The project participants considered that the requirements of Brazilian Government are sufficient to be used as sustainable indicators which are attended by the project activity.

#### 4. 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.

#### 4.1 Description of how and when the PDD was made publicly available

The PDD and the monitoring plan for this project were made available on the SGS website <u>http://cdm.unfccc.int/Projects/Validation/DB/NKSQQI77SRXGU79UYBN6K7NH8ZJ9ST/view.html</u> and were open for comments from 12-01-2006 until 10-02-2006. Comments were invited through the UNFCCC CDM homepage

#### 4.2 Compilation of all comments received

Comment number	Date received	Submitter	Comment

SGS United Kingdom Ltd SGS House, 217-221 London Road, Camberley, Surrey GU15 3EY Tel +44 (0)1276 697810 Fax +44 (0)1276 697888 Registered in England No. 1193985 Rossmore Business Park, Ellesmere Port, Cheshire CH65 3EN www.sgs.com



No comments were received during the 30 days commenting period.

#### 4.3 Explanation of how comments have been taken into account

No comments were received.

#### 5. Validation opinion

Steps have been taken to close out 13 Findings. The observation raised does not preclude the validation of the project, but should be considered as an opportunity for improvement for the verification process.

SGS has performed a validation of the project: Atiaia – Buriti Small Hydropower Plant. The Validation was performed on the basis of the UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting. Using a risk based approach, the review of the project design documentation and the subsequent follow-up interviews have provided SGS with sufficient evidence to determine the fulfilment of the stated criteria.

By the displacement of fossil fuels by renewable energy sources in the generation of electricity, the project results in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change. A review of the barriers presented, specially lack of infrastructure, the project is not a common practice in Brazil, demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. If the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions.

The validation is based on the information made available to SGS and the engagement conditions detailed in the report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence SGS can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

#### 6. List of persons interviewed

Date	Name	Position	Short description of subject discussed
30/03/2006	Manuel Gonçalves Martins	Director	Project management
30/03/2006	Roberto Juliano B. Sena	ENVIRONMENTAL COORDINATOR	Environmental licenses and environmental programmes.
30/03/2006	Sergio Posternak	Administrative Manager	Operational issues relate to SHP.
30/03/2006	Décio A.	ENGINEER	Technical issues, maps.



Date	Name	Position	Short description of subject discussed
	Peterondini		
30/03/2006	Melissa Hirschheimer	CDM CONSULTANT	PDD developing, monitoring plan, baseline study.
30/03/2006	Manuel F. Advinicula	Environmental Supervisor	Environmental licenses.

#### 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/ Project Design Document, Atiaia Energia S/A Buriti and Canoa Quebrada Small Hydropower Plants, version 1 (06/01/2006); version 2 (16/03/2006); version 3 (31/03/2006); version 4, (07/04/2006), version 5 (15/05/2006), version 6 (23/05/2006), version 7 (24/08/2006), version 8 (30/08/2006), version 9 (10/10/2006); version 10 (25/06/2007).
- /2/ Approved consolidated baseline and monitoring methodology ACM0002 Consolidated baseline and monitoring methodology for grid-connected electricity generation from renewable sources, version 06, 19 May 2006.
- /3/ Tool for the demonstration and assessment of additionality, version 2, 28 November 2005.

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):

- /3/ EIA PCH Buriti, PCH BURITI MEIO AMBIENTE ESTUDO DE IMPACTO AMBIENTAL
  EIA/RIMA 8681/00-6B-RL-0001-A 27 MAIO 2002; 8681/00-6B-RL-0002-A 27 MAIO 2002, Engemix. Environmental impact assessment.
- /4/ Environmental authorization n° 551/2005, 04/07/2005 issued by SEMA.
- /5/ Installation license n° 006/2005, 15/12/2005 issued by IMAP.
- /6/ Ofício 369/2006-SCG-ANEEL Grant hydro resources, PCH Buriti. Authorization to utilize water resources.
- /7/ Resolution ANEEL n° 35, 31/01/2005 PCH Buriti. Authorization for independent energy producer issued by National agency of energy.
- /8/ Verified the PPA signed between Eletrobrás and BSB Energética, 13/04/2005. Power purchase agreement.
- /9/ Spreadsheet PCH Buriti 08/12/2005 (Excel file). Financial study considering CERs and without CERs.

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