

CDM Project Activity Registration and Validation Report Form (By submitting this form, designated operational entity confirms that the proposed CDM project activity meets all validation and registration requirements and thereby requests its registration)

Section 1: Request for registration				
Name of the designated operational entity (DOE) submitting this form	SGS United Kingdom Ltd.			
Title of the proposed CDM project activity (Section A.2 of the attached CDM-PDD) submitted for registration	Atiaia Energia S/A – Buriti and Canoa Quebrada Small Hydropower Plants.			
Project participants (Name(s))	Pouso Alto Energia S/A (private entity/Brazil) Amper Energia S/A (private entity/Brazil) Ecoinvest Carbon (private entity/Brazil) IFC-Netherlands Carbon Facility (INCaF) (Private/ Netherlands)			
Sector in which project activity falls	1 Energy industries(renewable / non-renewable sources)			
Is the proposed project activity a small-sc activity?	all-scale Yes / <u>No</u>			
Section	n 2: Valid	ation report		
List of documents to be attached to this validation report (please check mark) <i>:</i>				
(please check mark):				
\boxtimes Information on when and how the above validation report is made publicly available.				

Banking information on the payment of the non-reimbursable registration fee A statement signed by all project participants stipulating the modalities of communicating with the Executive Board and the secretariat in particular with regard to instructions regarding allocations of CERs at issuance allocations of CERs at issuance. **Executive Summary and Introduction, including** Description of the proposed CDM project activity Scope of validation process (include all documentation that has been reviewed and name • persons that have been interviewed as part of the validation, as applicable) DOE Validation team (list of all persons involved in the validation, describing functions assumed in the validation) Description of the proposed CDM project activity This report summarizes the results of the validation of the Atiaia Energia S/A – Buriti and Canoa Quebrada Small Hydropower Plants 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 Canoa Quebrada 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. ICAL S.A. (Indústria, Comércio e Administração) is a holding that controls the two project companies: 1) Pouso Alto Energia S/A, that is the owner of SHP Buriti 2) Amper Energia S/A, that is the owner of SHP Canoa Quebrada. ICAL S.A. is going through a societal restructuring, after which the two project companies will be controlled 100% by Atiaia Energia S.A., a new holding company owned by ICAL, Koblitz S/A and members of Cornélio Brennand family. The project activity consists of 58 MW installed capacity divided into two small hydropower plants (SHP): SHP Buriti (30 MW) and SHP Canoa Quebrada (28 MW). The plants are installed in the Midwest region of Brazil and are connected to the interconnected grid South-Southeast-Midwest. Buriti and Canoa Quebrada facilities are run-of-river plants and have minimum diversion dams, which store water to generate electricity for short periods of time. Both comply 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 km² SHP Canoa Quebrada: - Located in Lucas de Rio Verde and Sorriso, Mato Grosso (MT). - Installed capacity: 28 MW - Reservoir: 10.5 km² Total amount of emission reductions estimated for the first crediting period is 825,627 t CO₂ 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 2 hydropower run-of-river plants with capacity of 58 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 dams and reservoir size. With the use of run-of-river hydropower facilities 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, including: the preliminary license (Licença Prévia or LP), the construction license (Licença de Instalação or LI); and the operating license (Licenca de Operação or LO).

The plants obtained the preliminary and construction licenses. The preliminary licenses were issued by the Mato Grosso and Mato Grosso do Sul environmental agencies, SEMA - Secretaria Estadual do *Meio Ambiente do Mato Grosso* and 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, project sponsors prepared Environmental Control Plans and Basic Environmental Project which were approved by SEMA and IMAP. These plans include 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 run-of-river plants provide local distributed generation, in contrast with the business as usual large hydropower and natural gas fired plants. These small hydropower projects provide 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.

Scope

The scope of the validation is the independent and objective review of the project design document, the baseline study and monitoring plan and other relevant documents of the Atiaia Energia S/A – Buriti and Canoa Quebrada Small Hydropower Plants project. The information in these documents is reviewed against the criteria defined in the Marrakech Accords (Decision 17) and the Kyoto Protocol (Article 12) and subsequent guidance from the CDM Executive Board.

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.

Overview of documentation that has been reviewed and names of persons that have been interviewed as part of the validation

Please refer to Annex 3.

DOE Validation team

Name	Role
Áurea Nardelli	Team leader / lead assessor
Fabian Gonçalves	Local assessor
Irma Lubrecht	Technical reviewer

Description of methodology for carrying out validation

- Review of CDM-PDD and additional documentation attached to it
- Assessment against CDM requirements (e.g. by use of a validation protocol)
- Report of findings by the DOE, e.g. by use of type of findings (e.g. corrective action requests, clarifications or observations). Please explain the way findings are "labelled" during validation.
- Include statements or assessments in the section "Conclusions, final comments and validation opinion" below.

Review of CDM-PDD and additional documentation

The validation was performed primarily as a document review of the publicly available project documents (see Annex 2 for the list of documents). The assessment was carried out by trained assessors using a customised validation protocol.

A site visit was required to verify assumptions in the baseline. Additional information was required to complete the validation, which was obtained through telephone, e-mail and face-to-face interviews with the project developers and their consultants. These were performed by local assessor from the SGS Brazil. The results of the site visit carried out in SHP Canoa Quebrada on 30th March, 2006 are summarized in Annex 6 to this report.

Assessment against CDM requirements

In order to ensure transparency, a validation protocol was customised for the project. The protocol shows requirements, means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- it organises, details and clarifies the requirements 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 Me	eans of	Comment	Draft and/or Final
ver	rification (MoV)		Conclusion
ver	rification (MoV)		Conclusion

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linked to checklist	the checklist	elaborate and	provided (OK), or a	
questions the project	question is	discuss the	Corrective Action	
should meet.	investigated.	checklist	Request (CAR) due to	
	Examples of	question and/or	non-compliance with the	
	means of	the	checklist question (See	
	verification are	conformance to	below). New	
	document review	the question. It	Information Request	
	(DR) or interview	is further used	(NIR) is used when the	
	(I). N/A means not	to explain the	validation team has	
	applicable.	conclusions	identified a need for	
		reached.	further clarification.	

The completed validation protocol for this project is attached as Annex 4 to this report.

Report of findings and use of type of findings.

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

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 that requires the Project Developer to do something (for example correct something in the PDD) the Assessor shall raise a **Corrective Action Request (CAR)**.

Observations may also 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 5). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

For this project, the Corrective Action Requests (CAR) and New Information Request (NIR) were closed out through communication between validation team and Atiaia staff and the consultant. Changes to the project design were necessary to clarify the issues raised.

Explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations;

- Description of how and when the PDD was made publicly available
- Description of how comments were received and made publicly available
- Explanation of how due account has been taken of comments received
- Compilation of all comments received (Identify the submitter)

In accordance with the CDM modalities and procedures, the project design document of this proposed CDM project activity has been made publicly available and comments have been invited from Parties, stakeholders and UNFCCC accredited non-governmental organizations. This process is described in Annex 1 to this report, which is available as a separate document.

No comment was received.

Conclusions, final comments and validation opinion

- Provide conclusions on each requirement under paragraph 37 of the CDM modalities and procedures, describing how these requirements have been meet. This shall include assessments and findings (e.g. corrective action requests, clarifications or observations) in relation to each requirement, including a confirmation that all issues raised have been addressed to the satisfaction of the DOE.
- Final comments and validation opinion

Participation requirements

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

At time of the draft 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.

Netherlands is listed as Annex 1 Party. Netherlands has ratified the Kyoto Protocol on 31st May 2002.

At time of the draft validation, no Letter of Approval from the Annex 1 country had been provided.

Baseline and monitoring methodology

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 19th May, 2006).

The project consists of run-of-river small-hydro power plants. The project boundaries are defined by the emissions targeted or directly affected by the project activities. 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 all plants are connected to this grid and baseline calculations use the electric generation data from this region. The project boundary is acceptable.

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).

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 tCO₂e/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 0.2637 tCO₂/MWh. CAR 5 was closed out.

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

Based on the hydropower technology, the project emissions (PE_y) are zero.

Considering that the project emissions and leakage are zero, the emission reductions by the project activity (ER_v) during a given year y are the product of the baseline emissions factor (EF_v) , in

 tCO_2e/MWh) times the electricity supplied by the project to the grid (*EG_y*, in MWh).

Additionality

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.

It was verified that the investment barrier is not the most important barrier, once the project received subsidised funds from BDNES (with interest rate lower than the rate of the market). 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 barrier analysis demonstrated that with absence of the incentive created by the CDM, this project would not be the most attractive scenario.

Monitoring plan

During the draft 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 companies ENERSUL (for PCH Buriti) and CEMAT (for PCH Canoa Quebrada) 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 SHPPs, energy producers and energy distributors will sign an agreement to cover each side's responsibilities. SHPPs' 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 management system presented to close out CAR 1 should be effectively implemented as planned, before the starting date of the crediting period. - CAR 4: No procedures were identified for calibration and maintenance of monitoring equipment.

To close CAR 4, it was informed that the energy distribution companies ENERSUL (for PCH Buriti) and CEMAT (for PCH Canoa Quebrada) 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 meters are specified by the energy distribution companies and approved by ONS (national agency). For SHP Buriti, the energy meter will be a Q 1000, manufactured by Schlumberger; for SHP Canoa Quebrada, a ION 8300 manufactured by Power Measurement. The SHPs have 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 substations. This meter stores power data, which can be verified both by the SHPs and the local distributors. The measurements are controlled in real time by the SHPs. Measurement data is compared between the meters at the output of the generators and the meter in the substations, 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 (version 6) 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 informed 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 version 6 of 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 (version 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 Amper Energia, the company that controls SHP Canoa Quebrada, and Pouso Alto Energia, the company that controls SHP Buriti, have hired expert companies to execute their environmental programs. The hired companies keep an environment engineer full time in the plants, and the programs included in the Environmental Basic Program are being executed by the SHPs' 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.

During the site visit, the above-mentioned information was verified through document review, interviews and local observation. It was also verified that the analysis of the environmental impacts of the project activity was sufficiently described in the documents related to EIA of both SHPs (EIA PCH Canoa Quebrada, April 2001 and 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 each plant. CAR 3 was closed out.

Comments by local stakeholders

Local stakeholders have been invited by letters to comment on the Atiaia Energia S/A – Buriti and Canoa Quebrada Small Hydropower Plants Project.

The invitation was sent to specific stakeholders, considered representative of the general public, as defined in the Resolution n° 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)
- Prefeitura de Lucas do Rio Verde (Lucas do Rio Verde City Hall)
- Câmara Municipal de Lucas do Rio Verde (Lucas do Rio Verde Municipal Chamber)
- Secretaria do Desenvolvimento, Agricultura e Meio Ambiente de Lucas do Rio Verde (Lucas do Rio Verde Development, Agriculture and Environmental Agency)
- COOAGRIL- Cooperativa Agropecuária e Industrial Luverdense (Agricultural Cooperative of Lucas do Rio Verde)
- Prefeitura de Sorriso (Sorriso City Hall)
- Câmara Municipal de Sorriso (Municipal Chamber of Sorriso)
- Secretaria de Agricultura e Meio Ambiente de Sorriso (Sorriso Agriculture and Environmental Agency)
- Associação de Sorriso (Local community association)
- Fundação Estadual do Meio Ambiente de Mato Grosso (Mato Grosso Environmental Agency)
- SEMA Secretaria de Estado do Meio Ambiente do Mato Grosso do Sul (Mato Grosso do Sul Environmental Agency)
- Ministério Público do Mato Grosso (State Attorney for the Public Interest of the State of Mato Grosso)
- 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.

Other requirements

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 19th 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 as 1st May 2005 and starting date of the first credit period as 1st October 2006. CAR 10 was closed out.

Final comments and validation opinion

Steps have been taken to close out 10 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.

The Validation Opinion is based on the current and emerging rules surrounding Article 12 of the Kyoto Protocol.

The DOE declares herewith that in undertaking the validation of this proposed CDM project activity it has no financial interest related to the proposed CDM project activity and that undertaking such a validation does not constitute a conflict of interest which is incompatible with the role of a DOE under the CDM.

By submitting this validation report, the DOE confirms that all validation requirements are met. Name of authorized officer signing for the DOE	The SGS will request the registration of the Atiaia Energia S/A – Buriti and Canoa Quebrada Small Hydropower Plants Project as a CDM project activity once the written approval by the DNA of the participating Parties and the confirmation by the DN/ of Brazil that the project assists in achieving sustainable development has been received.			
Date and signature for the DOE				
Section below to be filled by UNFCCC secretariat				
Date when the form is received at UNFCCC secretariat				
Date at which the registration fee has been received				

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Date at which registration shall be deemed final		
Date of request for review, if applicable		
Date and number of registration	Date	Number