



VALIDATION REPORT DESENVIX S.A.

VALIDATION OF THE PASSOS MAIA CDM PROJECT

REPORT NO. BRAZIL-VAL/ 03690/2010-SPL
REVISION No. 03.2

BUREAU VERITAS CERTIFICATION

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Date of first issue: 01/09/2011	Organizational unit: Bureau Veritas Certification Holding SAS
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Summary:

Bureau Veritas Certification has made the validation of the PASSOS MAIA CDM PROJECT of DESENVIX S.A. located in the Municipality of Passos Maia, State of Santa Catarina, Brazil, on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology ACM0002 version 12.1.0 and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

The changes from version 03.1 to version 03 of this Validation Report are due to the "Request For Registration Incomplete for "Passos Maia CDM Project." - Ref No. 6331" issued by the UNFCCC Secretariat on 06/08/2012 and the review of the common practice analysis which has been based on the "tool for demonstration and assessment of additionality version 06.0.0). Likewise, the changes from version 3.1 to version 3.2 of the Report are due to the "Request For Registration Incomplete for "Passos Maia CDM Project." - Ref No. 6331" issued by the UNFCCC Secretariat on 16/10/2012.

Report No.: BRAZIL-VAL/ 03690/2010-SPL	Subject Group: CDM
Project title: PASSOS MAIA CDM PROJECT	
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Date of this revision: 26/10/2012	Rev. No.: 03.2
Number of pages: 216	

Indexing terms

Work approved by:

Flavio Gomes

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Table of Contents	Page
1 INTRODUCTION	5
1.1 Objective	5
1.2 Scope	5
1.3 Validation team	5
2 METHODOLOGY	6
2.1 Review of Documents	6
2.2 Follow-up Interviews	7
2.3 Resolution of Clarification and Corrective Action Requests	7
2.4 Internal Technical Review	8
3 VALIDATION CONCLUSIONS	8
3.1 Approval (49-50)	9
3.2 Participation (54)	9
3.3 Project design document (57)	9
3.4 Changes in the Project Activity	9
3.5 Project description (64)	10
3.6 Baseline and monitoring methodology	11
3.6.1 General requirement (76-77)	11
3.6.2 Project boundary (80)	14
3.6.3 Baseline identification (87-88)	15
3.6.4 Algorithms and/or formulae used to determine emission reductions (92-93)	16
3.7 Additionality of a project activity (97)	20
3.7.1 Prior consideration of the clean development mechanism (104)	21
3.7.1.1 Historical information on project timeline	21
3.7.2 Identification of alternatives (107)	22
3.7.3 Investment analysis (114)	22
3.7.4 Barrier analysis (118)	33
3.7.5 Common practice analysis (121)	34
3.8 Monitoring plan (124)	36
3.9 Sustainable development (127)	37
3.10 Local stakeholder consultation (130)	37
3.11 Environmental impacts (133)	38
4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS	39
5 VALIDATION OPINION	40



6	REFERENCES	41
7	CURRICULA VITAE OF THE DOE'S VALIDATION TEAM MEMBERS	45
	APPENDIX A: COMPANY CDM PROJECT VALIDATION PROTOCOL.....	46



List of Abbreviations:

- A/R: Evidence of receipt of letters sent through the postal service (from the Portuguese: Aviso de Recebimento)
- ANEEL BIG: ANEEL's Databank on Energy Generation (from the Portuguese: Banco de Informações de Geração)
- ANEEL: Brazilian National Agency for Electric Energy (from the Portuguese: Agência Nacional de Energia Elétrica)
- CCEE: Electric Power Commercialization Chamber (from the Portuguese: Câmara de Comercialização de Energia Elétrica).
- LI: Second Environmental License – Installation License (from the Portuguese: Licença de Instalação)
- LO: Third Environmental License – Operation License (from the Portuguese: Licença de Operação)
- LP: First Environmental License – Previous License (from the Portuguese: Licença Prévia)
- MME: Brazilian Ministry of Mines and Energy (from the Portuguese: Ministério de Minas e Energia).
- ONS: National System Operator (from the Portuguese: Operador Nacional do Sistema).
- PROINFA: Federal Government's Program that Incentives Alternative Sources of Energy (from the Portuguese: Programa de Incentivo às Fontes Alternativas de Energia Elétrica)
- SIN – Brazilian National Interconnected Electricity System (from the Portuguese: Sistema Interligado Nacional)
- TUSD – Usage Charge of the Distribution System (from the Portuguese: Tarifa de Uso do Sistema de Distribuição)



1 INTRODUCTION

DESENVIX S.A. has commissioned Bureau Veritas Certification to validate its CDM project PASSOS MAIA CDM PROJECT (hereafter called “the project”) at the Municipality of Passos Maia, State of Santa Catarina, Brazil.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third party assessment of 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 a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2 Scope

The validation scope 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.

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 Validation team

The validation team consists of the following personnel:

FUNCTION	NAME	CODE HOLDER*	TASK PERFORMED
Lead Verifier	Marco Prauchner	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input checked="" type="checkbox"/> RI
GHG Verifier	Guilherme Lefèvre	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input checked="" type="checkbox"/> RI



Financial Specialist	Bernardo Lima	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input checked="" type="checkbox"/> RI
Internal Technical Reviewer (ITR)	Rubens Ferreira	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> DR <input type="checkbox"/> SV <input checked="" type="checkbox"/> RI

*DR = Document Review; SV = Site Visit; RI = Report issuance

2 METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the version 01.2 of the Clean Development Mechanism Validation and Verification Manual, issued by the Executive Board at its 55th meeting on 30/07/2010 **/XI/**. The protocol shows, in a transparent manner, criteria (requirements), means of validation and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The completed validation protocol is enclosed in Appendix A to this report.

2.1 Review of Documents

The Project Design Document (PDD) submitted by DESENVIX S.A. and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (CDM-PDD), approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, DESENVIX S.A. revised the PDD and resubmitted it on 25/07/2011.

The validation findings presented in this report relate to the project as described in the PDD version 04.2 **/37/**.

2.2 Follow-up Interviews

On 19/10/2010 (visit to PP's head office) and 26/10/2010 (visit to construction site) Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of the two project participants (please refer to Table 1 below) were interviewed (see References for the names of the persons interviewed). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Passos Maia Energética S.A. ¹ (Project Participant)	<ul style="list-style-type: none"> ➤ Project background information, ➤ Project technology, operation, maintenance and monitoring capability, ➤ Project monitoring and management plan, ➤ Stakeholder consultation process, ➤ Project status, ➤ Environmental aspects / impacts and licenses.
Enerbio Consultoria Ltda-Me (Project Participant)	<ul style="list-style-type: none"> ➤ Project description, ➤ Technology used, ➤ Project category, ➤ Baseline and Additionality, ➤ Monitoring Plan, ➤ Emission Reduction Calculation, ➤ Environmental aspects / impacts and licenses.

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the project design.

Corrective Action Requests (CAR) is issued, where:

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

The validation team may also use the term Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

¹ Passos Maia Energética S.A is a specific purpose company, constituted to build and operate the Project Activity. Passos Maia Energética S.A has as shareholders the companies Desenvix S.A and Adami S.A Madeiras.



To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix A.

2.4 Internal Technical Review

The validation report underwent an Internal Technical Review (ITR) before requesting registration of the project activity.

The ITR is an independent process performed to examine thoroughly that the process of validation has been carried out in conformance with the requirements of the validation scheme as well as internal Bureau Veritas Certification procedures.

The Lead Verifier provides a copy of the validation report to the reviewer, including any necessary validation documentation. The reviewer reviews the submitted documentation for conformance with the validation scheme. This will be a comprehensive review of all documentation generated during the validation process.

When performing an Internal Technical Review, the reviewer ensures that:

The validation activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.

The review encompasses all aspects related to the project which includes project design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the project participant as well as the project activity, review of the stakeholder comments and responses, closure of CARs, CLs and FARs during the validation exercise, review of sample documents.

The reviewer compiles clarification questions for the Lead Verifier and Validation Team and discusses these matters with Lead Verifier.

After the agreement of the responses on the 'Clarification Request' from the Lead Verifier as well as the PP(s) the finalized validation report is accepted for further processing such as uploading on the UNFCCC webpage.

3 VALIDATION CONCLUSIONS

In the following sections, the conclusions of the validation are stated.



The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Validation Protocol in Appendix A.

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in 48 Corrective Action Requests (CARs) and 25 Clarification Requests (CLs).

The CARs and CLs were closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

The number between brackets at the end of each section correspond to the VVM paragraph

3.1 Approval (49-50)

The participation for each project participant has not been approved yet by a Party of the Kyoto Protocol.

3.2 Participation (54)

The participation for each project participant has not been approved yet by a Party of the Kyoto Protocol. Please, refer to section 3.1 of this Validation Report.

3.3 Project design document (57)

The validation team hereby confirms that the PDD complies with the latest forms of the guidance documents for completion of PDD:

- Clean Development Mechanism - Project Design Document Form (CDM-PDD), version 03.0 *II*.
- Guidelines for completing the Project Design Document (CDM-PDD) and the Proposed New Baseline and Monitoring Methodologies (CDM-NM), Version 07.0 *III*.

3.4 Changes in the Project Activity

As was observed by the validation team through documentation analysis and during site visits held on 19/10/2010 (project participant's head office) and 26/10/2010 (construction site), the project is being implemented in accordance with the descriptions provided in the webhosted PDD. However, the following minor change was identified:

- According to the last version of the PDD (version 04.2) the Small Hydro Power Plant (SHP) "Passos Maia" changed its name during



the validation procedure to “SHP Victor Baptista Adami”. This change in name was approved by ANEEL on 03/06/2011 /11/. The CDM Project activity will, however, not change its name (PASSOS MAIA CDM PROJECT), seeing that Project Participant is called Passos Maia Energética S.A. and seeing that the SHP is located in the Municipality of Passos Maia.

- PPs updated “Tool for the demonstration and assessment of additionality” to latest version 06.0.0.

All the other changes that have been made to the different versions of the PDD during the Validation Process, from the webhosted PDD version 1 /1/ to the final PDD version 04.2, have been supported by CARs and CLs opened by the DOE and have already been discussed in the Validation Protocol.

3.5 Project description (64)

The project consists of the construction and operation of a small hydropower plant in the Santa Catarina State in Brazil. The hydropower plant is called SHP Victor Baptista Adami and its exact location is 26° 42' 12" S and 51° 55' 7 W (Location Power House – according to document /8/).

The Plant has an installed capacity of 25 MW, with 2 turbine/generator units and a reservoir area of 1.75 km². With a Plant Load Factor (PLF) of 0.57, the Plant has an average electricity generating capacity of 14.3 MW.

The PLF has been determined using option b) as defined in the Guidelines for the reporting and validation of plant load factors (version 01.0), EB 48 Report, Annex 11 /III/: “The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)”, according to evidence:

- Consolidated Basic Engineering Project, prepared by third party engineering company, where the PLF of 0.57 (on page 96) is defined /7/.

It's important to observe that this Consolidated Basic Engineering Project has been presented to the Brazilian National Agency for Electric Energy (ANEEL) and has been approved by ANEEL through Resolution 2,300 of 10/05/2011 /10/.

The DOE validated the accuracy and completeness of the project description contained in the PDD version 04.2 by:

- An analysis of documents related to the project activity, and their respective crosscheck with the PDD information: /7/, /8/ and /9/.



- A site visit and interviews with PP and consultant held on 19/10/2010 (project participant's head office) and 26/10/2010 (construction site).
- An analysis of official background documents related to the project activity: /10/, /11/, /12/, /13/ /14/ and /15/.

The DOE hereby confirms that the project description in PDD version 04.2 is accurate and complete in all respects and that there are no changes to the project activity/design or boundary as compared to the webhosted PDD, except those changes mentioned in Section 3.4 above and changes that have been supported by CARs and CLs opened by the DOE, which have already been discussed in the Validation Protocol

3.6 Baseline and monitoring methodology

3.6.1 General requirement (76-77)

The steps taken to assess the relevant information contained in the PDD against each applicability condition are described below.

The project applies the approved baseline methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", Version 12.1.0 *IV*.

The applied baseline methodology is justified as it has been demonstrated that the project activity ensures that:

Applicability conditions ACM0002v12.1.0:

1. This methodology is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s):

Option (a) above applies: the project activity comprises the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operating prior to the implementation of the project activity (greenfield plant). The PDD version 04.2 correctly states: "The Passos Maia CDM Project (hereafter called Passos Maia Project) consists on the supply of clean hydroelectric energy to the Brazilian National Interconnected System (SIN) through the implantation and operation of the Small Hydro Power Plant (SHP) Victor Baptista Adami, with 25 MW of installed capacity". The DOE was able to validate this through a site visit



to the construction site (26/10/2010) and by analyzing project activity related documents: /3/, /7/, /8/ and /9/, /10/ and /11/.

2. The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit:

The PDD version 04.2 states: “The Passos Maia CDM Project (hereafter called Passos Maia Project) consists on the supply of clean hydroelectric energy to the Brazilian National Interconnected System (SIN) through the implantation and operation of the Small Hydro Power Plant (SHP) Victor Baptista Adami”. The DOE was able to validate that the project activity is the installation of a new hydro power plants through a site visit to the construction site (26/10/2010) and by analyzing project activity related documents: and by analyzing project activity related documents: /3/, /7/, /8/ and /9/, /10/ and /11/.

3. In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects which use Option 2: on page 11 of the methodology to calculate the parameter $EG_{PJ,y}$): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity:

No capacity addition, retrofits or replacements will be carried out, seeing that the project activity is the installation of a *new* hydro power plant. Please refer to applicability conditions 1 and 2 above for an explanation regarding how the DOE was able to validate that the Project activity comprised the installation of a new grid-connected renewable power plant.

4. In case of hydro power plants, one of the following conditions must apply:

- The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; or
- The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions



section of the methodology ACM0002 version 12.1.0, is greater than 4 W/m^2 ; or

- The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section of the methodology ACM0002 version 12.1.0, is greater than 4 W/m^2 .

The third option above applies: The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section of the methodology ACM0002 version 12.1.0, is greater than 4 W/m^2 . The DOE was able to validate that the hydro power plant results in new reservoir through a site visit to the construction site and by analysis project related documents: /7/, /8/, /9/ and /10/. To validate that the power density of the project is greater than 4 W/m^2 , the DOE analyzed equation 01 of the PDD version 04.2, together with the following documents: /07/, /08/ and /10/.

The methodology is not applicable to the following:

1. Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site:

The PDD version 04.2 states that the project does not involve switching from fossil fuels to renewable energy sources at the site of the project activity. Please refer to applicability conditions 1 and 2 above for an explanation regarding how the DOE was able to validate that a new SHP will be constructed, and, therefore, no fossil fuel switch is involved.

2. Biomass fired power plants;

The PDD version 04.2 states that no biomass will be fired. Please refer to applicability conditions 1 and 2 above for an explanation regarding how the DOE was able to validate that a new SHP will be constructed and therefore no biomass will be fired.

3. Hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m^2 .

Please refer to applicability condition 4 above.

Applicability conditions of the Tool to calculate the emission factor for an electricity system version 02.1.0 /V/:



1. This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity, i.e. where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).

The PDD version 04.2 uses the Tool to calculate the emission factor for an electricity system version 02.1.0. The DOE validated that the project activity will supply electricity to a grid, by analysis of project activity related documents: /07/, /09/, /10/ and /16/.

Applicability conditions of the Tool for the demonstration and assessment of additionality” (Version 06.0.0) /VI/:

1. The document provides a general framework for demonstrating and assessing additionality and is applicable to a wide range of project types. Some project types may require adjustments to this general framework.

The PDD version 04.2 uses the Tool for the demonstration and assessment of additionality” (Version 06.0.0). The DOE validated the applicability of this Tool by analyzing the UNFCCC website at: <http://cdm.unfccc.int/methodologies/DB/C505BVV9P8VSNNV3LTK1BP3OR24Y5L> (wherein it is stated that the additionality of projects using the ACM0002v12.1.0 methodology shall be demonstrated and assessed using the Tool for the demonstration and assessment of additionality).

The DOE hereby confirms that the selected baseline and monitoring methodology ACM0002 Version 12.1.0 is previously approved by the CDM Executive Board, and is applicable to the project activity, which, complies with all the applicability conditions therein.

The DOE hereby confirms that, as a result of the implementation of the proposed CDM project activity, there are no greenhouse gas emissions occurring within the proposed CDM project activity boundary, as a result of the implementation of the proposed CDM project activity, which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.

3.6.2 Project boundary (80)

According to the applicable methodology (ACM0002 v.12.1.0), the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plants are connected to.



According to Section B.3 of the PDD version 04.2, the project boundary comprises the SHP Victor Baptista Adami and all the power plants physically connected to the CDM project electricity system. This system has been defined in the PDD as the Brazilian National Interconnected Electricity System (SIN).

Also, the PDD version 04.2 contains a table where the greenhouse gases and emission sources included in or excluded from the project boundary are shown.

The DOE validated the project boundary by:

a) The DOE was able to validate that the definition of the project boundary in the PDD is in accordance with the relevant methodology through: Brazilian DNA resolution nr. 08, which defines the Brazilian National Interconnected Electricity System (SIN) as the electricity system for CDM projects in Brazil (**/17/**). According to step 1 of the latest version of the Tool to calculate the emission factor for an electricity system (**/V/**), if the DNA of the host country has published a delineation of the project electricity and connected electricity systems, these delineations should be used.

Also, the DOE was able to validate that the Project's SHP will be physically connected to the project electricity system (the Brazilian SIN), through document analysis of PDD related documents **/07/**, **/09/**, **/10/** and **/16/**.

In addition, the DOE was able to validate that the greenhouse gases and emission sources included in or excluded from the project boundary are in accordance with the delineations of the relevant methodology (ACM0002 v12.1.0) through document analysis of PDD related documents: **/3/**, **/7/**, **/8/** and **/9/**, **/10/** and **/11/**.

b) Also, through a site visit, that took place on 19/10/2010 (visit to PP's head office) and 26/10/2010 (visit to construction site), the DOE was able to validate that the project boundary is in accordance with the relevant methodology, by observing the constructions and by interviewing PP's staff.

Based on the above assessment, the DOE hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity.

3.6.3 Baseline identification (87-88)

The steps taken to assess the requirement given in paragraph 81 and 82 of the VVM are described below:



The project activity comprises the installation of a new grid-connected renewable power plant. Consequently, according to the relevant methodology, the baseline scenario is as following:

“Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the Tool to calculate the emission factor for an electricity system.”

The PDD version 04.2 correctly identifies the baseline scenarios as presented above. The relevant grid is the Brazilian National Interconnected Electricity System (SIN), as prescribed by the Brazilian DNA in its resolution nr 08: **/17/**.

As methodology ACM0002 (version 12.1.0) prescribes the baseline scenario and no further analysis is required, there is no need to take steps to identify the baseline scenarios.

Based on the above assessment, the DOE hereby confirms that:

- (a) All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- (c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- (d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
- (e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

3.6.4 Algorithms and/or formulae used to determine emission reductions (92-93)

The steps taken to assess the requirement outlined in paragraph 89 the VVM are described below:

Project emissions:

Project emissions need to be calculated in accordance with equation (1) of the relevant methodology (ACM0002v12.1.0):

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

Where:

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

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

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

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

According to ACM0002v12.1.0, the only possible source of project emissions for hydro power plants are emissions from reservoir ($PE_{HP,y}$). These emissions from reservoir are calculated in accordance with the following two options:

(a) If the power density of the project activity (PD) is greater than 4 W/m² and less than or equal to 10 W/m²:

$$PE_{HP,y} = \frac{EF_{Res} * TEG_y}{1000}$$

Where:

$PE_{HP,y}$ = Project emissions from water reservoirs (tCO₂e/yr)

EF_{Res} = Default emission factor for emissions from reservoirs of hydro power plants in year y (kgCO₂e/MWh)

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

(b) If the power density of the project activity (PD) is greater than 10 W/m²:

$$PE_{HP,y} = 0$$

Power density (PD) needs to be calculated in accordance with equation (5) of ACM0002v12.1.0:

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

Where:

PD = Power density of the project activity (W/m²)

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



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

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

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

The PDD version 04.2 calculates project's power density: 14.3 W/m^2 .

The DOE was able to validate the above mentioned PD values through analyzing the following documents in conjunction with equation (5) of ACM0002v12.1.0 and equation (1) of the PDD version 04.2: Installed capacity and reservoir area (needed to calculate PD) are described consistently in the following documents: **/07/**, **/08/**, **/10/** and **/15/**.

Seeing that the DOE was able to validate that the PD of the SHP is greater than 10 W/m^2 , option (b) above applies and, therefore, $PE_{HP,y} = 0$. Consequently, PE_y is also zero and no project emissions need to be accounted for.

Baseline emissions:

Baseline emissions need to be calculated in accordance with equation (6) of the relevant methodology (ACM0002v12.1.0):

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

Where:

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

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

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

If the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, then:

$$EG_{PJ,y} = EG_{facility,y}$$

Where:



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

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

In the calculation spreadsheet (**/04/**) and in the PDD version 04.2, PP calculates $EG_{facility,y}$ as the expected net electricity generation supplied by the project plants to the grid in year y (MWh/yr): 125,268 MWh/yr.

The PDD version 04.2 presents the above mentioned values, by multiplying the hours in a year (8,760 hours) with the power plant's average electricity generating capacity (14.3 MW). The DOE was able to validate the 14.3 MW values with **/7/**, **/8/** and **/10/**.

The $EF_{grid,CM,y}$ value presented in the PDD version 04.2 is 0.1635 tCO₂/MWh. This number has been calculated in accordance with the latest version of the Tool to calculate the emission factor for an electricity system (**/V/**), with Operating Margin and Build Margin Emission factors calculated by the Brazilian DNA (0.2476 tCO₂/MWh for OM Emission factor 2009 and 0.0794 tCO₂/MWh for BM Emission factor 2009, according to evidence **/04/** and **/18/**). The 2009 values are also available at the website of the Brazilian DNA:

<http://www.mct.gov.br/index.php/content/view/303076.html#ancora> (accessed on 30/08/2011).

The DOE confirms that all choices made in the PDD version 04.2 to calculate $EF_{grid,CM,y}$ have been justified adequately and have been presented in accordance with the Tool to calculate the emission factor for an electricity system (**/V/**).

The latest values made available by the Brazilian DNA are from 2009 and those numbers have been used by PP to calculate the Combined Margin CO₂ emission factor of the relevant grid. The DOE was able to validate this 0.1635 tCO₂/MWh figure with document **/18/**.

Leakage:

According to ACM0002v12.1.0, no leakage emissions need to be considered. The PDD version 04.2 correctly describes that no leakage needs to be considered.

Emission reductions:

Emission reductions are calculated in accordance with equation (11) of the relevant methodology (ACM0002v12.1.0):



$$ER_y = BE_y - PE_y$$

Where:

ER_y = Emission reductions in year y (t CO₂e/yr)

BE_y = Baseline emissions in year y (t CO₂/yr)

PE_y = Project emissions in year y (t CO₂e/yr)

Seeing that project emissions is zero, $ER_y = BE_y$. See above how the DOE was able to validate the BE_y values presented in the PDD version 04.2.

Based on the above assessment, the DOE hereby confirms that:

- (a) All assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- (b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD;
- (c) All values used in the PDD are considered reasonable in the context of the proposed CDM project activity;
- (d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

3.7 Additionality of a project activity (97)

The steps taken and sources of information used, to cross-check the information contained in the PDD on this matter are described below:

To demonstrate the additionality of the Project, the PDD has correctly applied the “Tool for the demonstration and assessment of additionality” (Version 06.0.0) /**VI**/. PP uses an investment analysis to determine that the project is additional. No Barrier Analysis was presented. The details of the DOE’s assessment on the Project additionality are described in the Sections 3.7.2 to 3.7.5 below.

The DOE has analyzed the evidenced provided by PP during the validation process, and the sources of information used by the DOE to cross-check the information contained in the PDD were the Investment and Sensitive Analysis Spreadsheet version 2 /**06**/ and other related documents, as can be observed in items 3.7.2 to 3.7.5.

Details on the assessment of the investment and common practice analysis, the authenticity of the documentation and data used are described in Section 3.7.3 and 3.7.5.



3.7.1 Prior consideration of the clean development mechanism (104)

The DOE validated the project activity start date provided in the PDD version 04.2: 21/12/2009, being the date of signing of contract between PP and the company responsible for the construction of the Project's SHP /09/.

The DOE has validated the starting date of the project activity on 21/12/2009, as being the "earliest date at which either the implementation or construction or real action of a project activity begins", according to the Glossary of CDM terms, version 05 /VII/. In this particular case, the first "real action" was the contract signing on 21/12/2009.

Seeing that the starting date of the project activity is after the 2nd of August 08, the assessment of the Prior Consideration of the project activity "PASSOS MAIA CDM PROJECT" was conducted in accordance with paragraphs 2-4 of the Guidelines on the demonstration and assessment of prior consideration of the CDM (version 04) /VIII/:

- PP informed the Host Party by letters on the 13th of April 2010 /20/, /21/ and /22/. The DOE cross-checked this information by analysing copies of letter from DNA acknowledging the receipt of PP's letter (letter from DNA dated 16th of April 2010): /23/.
- Consulting the UNFCCC website, whereby the DOE confirms that the UNFCCC secretariat received the information sent by PP on the 13th of April 2010:

http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html (accessed on 30/08/2011).

The DOE hereby confirms that the Brazilian DNA and the UNFCCC were informed in writing of the commencement of the project activity and of their intention to seek CDM status within six months of the project activity start date. PP has act in accordance to the requirements of the Guidelines on the demonstration and assessment of prior consideration of the CDM (version 04) /VIII/. Therefore, the DOE was able to validate PP's prior consideration in accordance with VVM paragraph 101.

Based on the above assessment, the DOE hereby confirms that the proposed CDM project activity complies with the requirements of the latest version of the Guidance on prior consideration of CDM.

3.7.1.1 Historical information on project timeline

The main historical information of the project is:



- PDD uploading on the UNFCCC website for global stakeholders comments: from 20 Oct 10 - 18 Nov 10
- Project Starting Date: 21 of December 2009
- DNA prior consideration communication: 13th of April 2009
- UNFCCC prior consideration communication: 13th of April 2009

3.7.2 Identification of alternatives (107)

The DOE considers the listed alternatives to be credible and complete.

3.7.3 Investment analysis (114)

The project proponent decided to use the “Tool for the demonstration and assessment of additionality” version 06.0.0 **/VI/**, which refers to the “Guidelines on the assessment of investment analysis” version 5 **/IX/** and, therefore, these guidelines were used in the following analysis.

Validation Team adopted a five steps strategy to confirm the veracity of the conclusion drawn by the project developer:

- a) Evaluating the appropriateness of the benchmark applied for the type of financial indicator presented;
- b) Conducting an assessment of parameters and assumptions used in calculating the financial indicator and determining the accuracy and suitability of parameters and cross-checking the parameters against third-party or publicly available sources;
- c) Reviewing annual financial reports related to the project participant;
- d) Assessing the correctness of computations carried out and documented; and
- e) Subjecting the critical assumptions of the project activity to reasonable variations to determine under what conditions variations in the result would occur, and the likelihood of these conditions.

- a) Suitability of financial indicator and benchmark:

Financial indicator: The project participant has chosen equity IRR to demonstrate the additionality of the project. additionality Tool (Ver. 06.0.0) permits the use of financial indicator, IRR, for demonstrating the additionality using benchmark analysis. The tool permits the use of either project IRR or equity IRR. Since the project developer is demonstrating the financial unattractiveness of the project, equity IRR is appropriate, as it is often used by the project developers to make a decision on investing in the project. As such, the selection of equity IRR as financial indicator to demonstrate the additionality of the project is appropriate conforms to the additionality Tool.



Benchmark: In order to calculate the project benchmark it was adopted equation 3 of the option 4B of the draft “Draft tool to determine the weighted average cost of capital (WACC)” (*/X/*) which was considered reasonable by the validation team because the additionality tool (ver.06.0.0) states that the discount rates and benchmarks shall be derived from “Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data;”, among others. The paragraph 5 states “When applying Option II or Option III, the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. Only in the particular case where the project activity can be implemented by the project participant, the specific financial/economic situation of the company undertaking the project activity can be considered.”

The project participant has chosen a government bond increased by a suitable risk premium as a benchmark to assess the financial attractiveness of the project activity to demonstrate additionality.

Rf = 3.36%; Average rate of return of U.S. Treasury bond (T-bond) of 30 years in the past 3 years (2007, 2008 and 2009) prior the preparation of the PDD.

ERP = 7.50%; risk premium in Brazil, based on data from Moody's, as calculated by professor Aswath Damodaran.

PE = 4.1%; Global equity risk premium²

Benchmark (cost of equity) in nominal terms: $3.36\% + 7.50\% + 4.1\% = 14.96\%$

As the cash flow was calculated in real terms, inflation³ (2.70%) was subtracted.

Benchmark (cost of equity) in real terms: 11.93%

BVC agrees with all the data used in benchmark calculations and would like to point out that they were clearly presented, available to consult and correct.

b) Description of the parameters and assumptions used in the investment analysis, description of the means of validation and the procedures to cross-check the parameters against third-party or publicly available sources.

²The worldwide equity premium: a smaller puzzle Elroy Dimson, Paul Marsh and Mike Stautun of London Business School, which is indicated in “Draft tool to determine the weighted average cost of capital (WACC)”.

³Available at: [ftp://ftp.bls.gov/pub/special.requests/cpi/cpi.txt](http://ftp.bls.gov/pub/special.requests/cpi/cpi.txt).

All the sources of input values were described by the PP in PDD version 04.2 pages 15, 16 and 17, which were considered valid and appropriate by the validation team.

The input values applied in the PDD were compared with similar project activities registered as CDM projects in Brazil. Similar projects were considered greenfield hydro power plants registered at the UNFCCC, with installed capacities between 12.5 and 37.5 MW (+/-50% range).

The validation team has excluded from the analysis the project activities, which did not demonstrate additionality through investment analysis, as the input values are not publicly available. Also, not all data from the projects' investment analysis are publicly available.

The main input values from similar project activities registered as CDM projects and from the proposed project activity are as follows:

Table A: Input values applied in similar CDM project activities in Brazil (Source: UNFCCC/CDM Project database⁴ and UNEP-Risoe CDM Pipeline⁵)

CDM Ref#	CDM Project Title	Hydro Power Plant	Capacity (MW)	Fixed investment costs (1,000 BRL)	Investment /capacity (1,000 BRL / MW)	Net electricity generation (MWh/yr)	O&M costs/year/ investment costs (%)	Electricity price (BRL/MWh)
519	Passo do Meio, Salto Natal, Pedrinho I, Granada, Ponte and Salto Corgão Small Hydroelectric Power Plants - Brascan Energética S.A. Project Activity	Salto Natal	15.1	-	-	79,712.00	-	R\$115.00
		Granada	16.2	-	-	63,771.00	-	R\$132.00
		Pedrinho I	16.4	-	-	74,284.00	-	R\$115.00
		Ponte	24.3	-	-	125,986.00	-	R\$132.00
		Salto Corgão	27.0	-	-	169,689.00	-	R\$120.00
		Passo do Meio	29.2	-	-	156,204.00	-	R\$108.00
520	Cachoeira Encoberta and Triunfo Small Hydroelectric Power Plants	Cachoeira Encoberta	22.7	-	-	89,414.00	-	R\$132.00
		Triunfo	24.4	-	-	101,273.00	-	R\$132.00

⁴ <http://cdm.unfccc.int/Projects/projsearch.html>

⁵ <http://www.cdmpipeline.org/>

VALIDATION REPORT


**BUREAU
VERITAS**

530	Araputanga Centrais ELétricas S. A. - ARAPUCCEL - Small Hydroelectric Power Plants Project	Antonio Brennand	21.96	52,078.00	2,371.49	171,521.00	4.99%	R\$99.31
		Ombreiras	26.1	-	-	183,960.00	-	-
		Indiavaí	28.0	-	-	233,454.00	-	-
667	Braço Norte III Small Hydro Plant	Braço Norte III Small Hydro Plant	14.2	49,415.00	3,489.76	75,000.00	1%	R\$115.00
668	Braço Norte IV Small Hydro Plant	Braço Norte IV Small Hydro Plant	14.0	49,416.00	3,529.71	85,000.00	1%	R\$120.00
809	Garganta da Jararaca Small Hydroelectric Power Plant (SHP)	Garganta da Jararaca Small Hydroelectric Power Plant (SHP)	29.3	116,280.86	3,968.63	190,000.00	4.00%	R\$120.48
891	Atiaia – Buriti Small Hydropower Plant.	Atiaia – Buriti Small Hydropower Plant	30.0	97,320.00	3,244.00	241,776.00	4.54%	R\$129.51
1146	Alto Benedito Novo Small Hydroelectric Project	Alto Benedito Novo Small Hydroelectric Project	15.0	-	-	73,584.00	-	-
1317	Paraíso Small Hydropower Plant – PCH Paraíso	Paraíso Small Hydropower Plant – PCH Paraíso	21.6	-	-	116,078.00	-	R\$96.74
1342	Sao Joao hydro power plant	Sao Joao hydro power plant	25.0	83,820.00	3,352.80	123,516.00	-	R\$127.00
1843	Primavera Small Hydroelectric Project	Primavera Small Hydroelectric Project	19.2	55,401.00	2,886.67	101,612.00	-	R\$76.00
1999	Piabanha River Hydroelectric Plants	Posse	15.8	-	-	-	-	-
		Sao Sebastiao	17.2	-	-	-	-	-
		Monte Alegre	18.6	-	-	-	-	-
2500	CDM Project of Moinho and Barracão Small Hydropower Plant	Moinho	13.7	70,040.00	5,112.41	61,407.00	-	R\$135.00
		Barracão (12 MW - excluded)	-	-	-	-	-	-
2606	Piedade Small Hydro Power Plant CDM Project Activity	Piedade Small Hydro Power Plant CDM Project Activity	16.0	62,758.00	3,922.38	85,988.00	1.27%	-
2793	Santana I SHP CDM Project (JUN 1118)	Santana I SHP CDM Project (JUN 1118)	14.8	41,696.90	2,825.38	76,391.00	4.17%	R\$158.00
3002	São Domingos II	São Domingos II	24.3	98,082.00	4,036.30	197,435.00	-	R\$117.00

VALIDATION REPORT

BUREAU
VERITAS

	Hydroelectric Project	Hydroelectric Project						
3316	Queluz and Lavrinhas Renewable Energy Project	Queluz	30.0	158,226.00	5,274.20	187,464.00	1.58%	R\$146.00
		Lavrinha	30.0	153,456.00	5,115.20	187,464.00	1.63%	R\$146.00
3486	Goiania, Pedra do Garrafão, Pirapetinga and Sítio Grande Small Hydropower Plants Project Activity	Pirapetinga	15.7	-	-	100,690.00	-	-
		Pedra do Garrafão	16.5	-	-	98,938.00	-	-
		Sítio Grande	25.0	-	-	171,723.00	-	-
		Goiania	27.0	-	-	149,539.00	-	-
3669	Rodeio Bonito Small Hydro Power Project	Rodeio Bonito Small Hydro Power Project	14.6	57,418.00	3,922.80	77,059.00	3.12%	R\$135.00
3895	Power generation from renewable sources – Arvoredo and Varginha Small Hydropower Plants	Arvoredo	13.0	91,252.00	7,019.38	65,768.00	1.83%	R\$142.50
		Varginha (9 MW - excluded)	-	-	-	-	-	-
4676	Malagone SHP CDM Project, Minas Gerais, Brazil (JUN1122)	Malagone SHP CDM Project, Minas Gerais, Brazil (JUN1122)	19.0	92,137.02	4,849.32	88,563.60	1.27%	R\$169.10
4788	Cachoeirao CDM Project (JUN1092)	Cachoeirao CDM Project (JUN1092)	28.1	103,959.00	3,706.20	143,401.00	1.30%	R\$140.00
4937	Anhanguera Hydro Power Project	Anhanguera Hydro Power Project	22.5	78,258.00	3,478.13	105,032.00	-	R\$140.00
4996	Pampeana and Terra Santa Small Hydropower Plants Project Activity	Terra Santa	27.4	119,350.50	4,355.86	194,735.00	-	R\$109.89
		Pampeana	28.0	107,699.90	3,846.43	196,487.00	-	R\$109.89
Average			21.45	86,903.21	4,015.35	128,997.74	2.44%	R\$125.66
Project Activity		Passos Maia	25.0	127,500.00	5,100.00	125,268.00	2.00%	R\$144.00⁶

Further, the validation team has assessed the assumptions and input values applied as follows:

⁶ The sales price considered in PDD varies along the years. R\$144.00 is the average considered for comparison.



Input Values/Assumptions	Value	Means of validation
Total Investment	BRL127.5 million	<p>It was cross-checked by using third parties available sources. All input values have been cross-checked by the Eletrobras⁷ budget for the Passos Maia project /35/ (from December 2009).</p> <p>Furthermore, the validation team has compared the total investment per MW installed assumed in the PDD against similar project activities implemented in Brazil. The list of similar project activities is presented in the table A above and the DOE has crosschecked the project activities against UNFCCC website ("project activities search")⁸.</p> <p>As table A above indicates, the range of investment costs/MW installed is 2,371.49 – 7,019.38 (1,000 R\$/MW). For the purposed project activity, the value is 5,100 (1,000 R\$/MW), which is included in the range and slightly above the average.</p> <p>Thus, the investment cost is appropriate and suitable.</p> <p>It is important to highlight that all the information used in the financial analysis as provided in the PDD was available at the time of investment decision.</p>
O&M costs	2% of total investment	<p>It was cross-checked by using a third party available source and by comparing with others similar registered projects. The validation team cross-checked this assumption with the "Manual of guidelines for SHP Eletrobras" (from 1999) /33/ which stated that the O&M costs vary up to 5% of the total investment. Conservatively, this cost has been estimated as 2% of the total yearly investment.</p> <p>Although the document is from 1999, "Eletrobras Guidelines for SPHs" is a valid document to guide entrepreneurs that will invest in SHPs in Brazil used until current days and can be found in the Eletrobras website⁹. Since the source of the information provided by PP is publicly available and from</p>

⁷ Eletrobras is the leader of a system consisting of six subsidiary companies, six distribution companies, the Electric Power Research Centre (Eletrobras Cepel) and Eletrobras Participações S.A. (Eletrobras Eletropar). The Brazilian federal government is the majority stockholder (Source: <http://www.eletrobras.com/elb/data/Pages/LUMIS482AEFCFENIE.htm>)

⁸ <http://cdm.unfccc.int/Projects/projsearch.html> accessed on October 19th, 2012

⁹ <http://www.eletrobras.com/ELB/data/Pages/LUMIS4AB3DA57PTBRIE.htm>



		<p>a company controlled by the Brazilian Government, DOE accepts the value and considers the input valid.</p> <p>The validation team also cross-checked the O&M costs comparing against similar registered CDM project activities implemented in Brazil. The list of similar project activities is presented in the table A above and the DOE has crosschecked the project activities against UNFCCC website ("project activities search")¹⁰.</p> <p>As table A above indicates that the range of O&M costs as % of total investment is 1% to 4.99%.</p> <p>For the purposed project activity, the value is 2% of total investment, which is included in the range and is also below the average of the similar projects (2.44% - see table A).</p> <p>Thus, the investment cost is appropriate. It is important to highlight that all the information used in the financial analysis as provided in the PDD was available at the time of investment decision.</p> <p>So, as the O&M costs of this project are around 2%, it is below the average of similar projects (table A) and below the 5% indication of Eletrobras. Therefore, the validation team agreed with the suitability and appropriateness of the referred input value. Hence, O&M costs considered are conservative.</p>
Sales price or energy price	Variable	<p>It was cross-checked by using a third party available source. The validation team cross-checked the referred input value with the power purchase agreement established with CEMIG /16/ (from December 14th 2009):</p> <p>BRL 160.00/MWh between 2012 and 2015; BRL 159.00 / MWh in 2016; and BRL 140.00/MWh after 2016.</p> <p>Since the evidence used to validate this input value refers to a contractual arrangement between PP and a third party (CEMIG) and seeing that the DOE had access to a copy of the signed contract (/16/), Bureau Veritas Certification was able to confirm the suitability of this input value.</p> <p>Also, the average sales price of energy for this project activity is BRL 144.00/MWh. This is higher than the average</p>

¹⁰<http://cdm.unfccc.int/Projects/projsearch.html> accessed on October 19th, 2012



		sales price of energy of similar CDM projects included in table A above (BRL 125/MWh). Therefore, the DOE concludes that, in terms of additionality demonstration, the value used by PP can be considered conservative and suitable.
PLF	0.57	<p>It was cross-checked by using a third party available source. The validation team cross-checked the referred input value with the Consolidated Basic Engineering Project, prepared by third party engineering company, where the PLF of 0.57 (on page 96) is defined /7/.</p> <p>It's important to observe that this Consolidated Basic Engineering Project has been presented to the Brazilian National Agency for Electric Energy (ANEEL) and has been approved by ANEEL through Resolution 2,300 of 10/05/2011 /10/.</p>
Equity/ Debt ratio		<p>It was crosschecked by using third party available source: BNDES website, the National Bank of Economic and Social Development.¹¹</p> <p>Since the source of information is a publicly available source and from a government company, DOE accepts the value and considers the input valid.</p>
Interest Rate	9.90%	<p>It was crosschecked by using third party available source: BNDES website.¹²</p> <p>Interest rate is composed by both TJLP = 6% as per BNDES website¹³; Basic risk spread from BNDES =0,9%; 3% of risk spread.</p> <p>Since the source of information is a publicly available source and from a government company, DOE accepts the value and considers the input valid.</p>
TUSD	BRL 2.24/kw/month (Tarifa de Uso do	<p>It was cross-checked by using third party available source. In accordance with ANEEL resolution # 826 from 2009 /34/.</p> <p>Thus, R\$ 2.24 x 25,000 KW = R\$ 56,000.00</p>

¹¹http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Apoio_Financeiro/Produtos/FINEM/energias_alternativas.html

¹²http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Apoio_Financeiro/Produtos/FINEM/energias_alternativas.html

¹³http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Apoio_Financeiro/Custos_Financeiros/Taxa_de_Juros_de_Longo_Prazo_TJLP/index.html



	Sistema de Distribuição, in English: Distribution System Usage Rate)	<p>R\$ 56,000.00 x 12 = R\$ 672,000.00</p> <p>The value was considered suitable as it was established by law.</p>
ANEEL Inspection Fee	BRL 335.42 per installed kW	<p>It was cross-checked by using third party available source. The input value follows the ANEEL dispatch 4,778 December, 2008 /50/ (from December 23th 2008). TFSEE = R\$335.42</p> <p>Considering the inputs: Nominal Capacity Installed: 25,000KW TFSEE = R\$335.42 Plugging in the formula: $25,000 \times 0.5\% \times 335.42 =$ R\$41,927.50/ year</p> <p>Since the source of the information provided by PP is publicly available and from a government agency, DOE accepts the value and considers the input valid.</p> <p>The value was considered suitable as it was established by law.</p>
CCEE Tax	25% of Inspection Fee	<p>It was cross-checked by using third party available source. This expense is defined by the National Electrical Energy Commercial Chamber (CCEE) and it is known only when operations start. The contribution is used to cover the CCEE expenses and are paid by the associates. It varies depending on the number of associates each year, but experience shows that 25% of ANEEL taxes is being applied. The details on the contribution is detailed in ANEEL web site¹⁴.</p> <p>Since the source of the information provided by PP is publicly available and from a government agency, DOE accepts the value and considers the input valid.</p> <p>The value was considered suitable as it was established by law.</p>

¹⁴ http://www.aneel.gov.br/aplicacoes/consulta_publica/documentos/NT_SEM_069_Instaura%C3%A7%C3%A3o_CP_PdC_NSC_L.pdf



Operation Insurance	BRL 100,000/year (0.07% of the investment)	<p>The validation team cross-checked the Operation Insurance costs comparing against three actual registered project activities implemented in Brazil (Project #4937; Project #4676 and Project #2375). The operation insurance varies from 0.30% to 1.69%. Since the insurance costs for this project activity is 0.07% of the investment, though considered conservative, DOE accepts the value and consider the input valid.</p> <p>The DOE also compared the value (BRL 100,000/year) with the actual insurance contract between PP and insurance company, signed after the project's investment decision date (/51/). The value of the contract is BRL 112,000/year, which is very closed to the value of BRL 100,000/year used in the financial analysis included in the PDD.</p>
PIS	PIS = 3% of gross operation revenue	<p>As stated on Brazilian Secretariat of Federal Revenue¹⁵. Brazilian Law no 9,718 from November 27th, 1998.</p> <p>Since the source of the information provided by PP is publicly available and a National Law, DOE accepts the value and considers the input valid.</p>
COFINS	COFINS = 0.65% of gross operation revenue	<p>As stated on Brazilian Secretariat of Federal Revenue¹⁶. Brazilian Law no 9,718 from November 27th, 1998.</p> <p>Since the source of the information provided by PP is publicly available and a National Law, DOE accepts the value and considers the input valid.</p>
Income Taxes	25% of 8% of the gross operation revenue	<p>Brazilian Law no 8,981 from January 20th, 1995.¹⁷</p> <p>Since the source of the information provided by PP is publicly available and a National Law, DOE accepts the value and considers the input valid.</p>

¹⁵ <http://www.receita.fazenda.gov.br/PessoaJuridica/PisPasepCofins/RegIncidencia.htm>

¹⁶ <http://www.receita.fazenda.gov.br/PessoaJuridica/PisPasepCofins/RegIncidencia.htm>

¹⁷ http://www.planalto.gov.br/ccivil_03/leis/L8981.htm



Social Contribution	9% to 12% of the gross operational revenue	<p>Brazilian Law no 7,689 from December 15th, 1988¹⁸ and Temporary Measure 2,158 from August 24th 2001¹⁹.</p> <p>Since the source of the information provided by PP is publicly available and a National Law, DOE accepts the value and considers the input valid.</p>
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Depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, was added back to net profits for the purpose of calculating the equity IRR. Taxation was not included as an expense in the IRR calculation.

Input values used in all investment analysis were valid and applicable at the time of the investment decision taken by the project participant. The validation team validated the timing of the investment decision and the consistency and appropriateness of the input values with this timing. Also it were validated that the listed input values had been consistently applied in all calculations. Project participants supplied spreadsheets versions of all investment analysis. All formulas used in this analysis were readable and all relevant cells were viewable and unprotected.

c) Assessment of correctness of computation: BVC checked all formulas in all spreadsheets presented by the project proponent. The assessment involves checking the data input taken from quotation/documents, adoption of correct accounting principle and arithmetical accuracy. BVC checked the quotation/ documents and ensured that right input has been taken in the project cost and projections. The accounting principles adopted for computing depreciation, tax, costs are found to be in order. The arithmetical accuracy is also found to be correct. The principle adopted by the project participant for computing IRR is in conformity with the "Guidance on the Assessment of Investment Analysis" issued by EB 62 annex 5. Based on the above, the IRR of the project was lower in contrast to the benchmarks. However, the conclusion was checked by subjecting the critical assumptions to reasonable variations.

d) Sensitivity analysis: The Guidance on Assessment of Investment Analysis requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the critical assumptions to a reasonable variation ($\pm 10\%$). To confirm how solid the investment analysis is, project participants presented a sensitivity analysis varying

¹⁸ planalto.gov.br/ccivil_03/leis/L7689.htm

¹⁹ http://www.planalto.gov.br/ccivil_03/mpv/2158-35.htm



the most important parameters for the cash flow: (i) the tariff, (ii) total investment, (iii) PLF, (iv) O&M costs and (v) Loan cost.

The sensitivity analysis confirmed that the project activity is not financially attractive once the project internal rate of return is lower than the benchmark in all scenarios analysed. Sensitivity analysis is available in table 09, at page 17 and 18 of PDD.

Also, the DOE wants to highlight that:

UNFCCC published version 05 of the guidance of the investment analysis where an approximate expected return on equity for different project types and host countries is published. These values can also be used as default values. The expected return on equity for electricity projects in Brazil, in real terms, is 11.75% accordingly this guidance. As this is an indication provided by UNFCCC, it was also added to the PDD, despite being published after the PDD publication.

Conclusion:

Project IRRs: 8.82%

PDD's Benchmark – 11.93%

UNFCCC default Benchmark – 11.75%

Based on the foregoing, BVC has concluded that the project activity faces investment barrier in as much as the IRR is less than the benchmark return and will continue to remain additional even under most optimistic conditions (based on sensitivity analysis), and thus the validation team has arrived at the conclusion that the project activity is additional and is not a business-as-usual case. The CDM registration would help PP in overcoming the barrier identified above.

CLs BQA 1 and 2 and CARs BQA 1 to 6 were issued and they have been satisfactorily solved and closed. Refer to Appendix A.

The DOE, based on the assessment result by the financial expert engaged, hereby confirms that the underlying assumptions are appropriate and the financial calculations are correct.

3.7.4 Barrier analysis (118)

No Barrier analysis was presented in the PDD version 04.2.



Common practice analysis (121)

Step 4 of the Additionality analysis in the PDD version 04.2 has been prepared according to paragraphs 6(b) and 47 of the last version of the “Tool for demonstration and assessment of Additionality” (Version 06.0.0):

Step 1: Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity:

The range (+ - 50% of installed capacity) was considered as 12.5 MW to 37.5. MW since total installed capacity is of 25 MW. Total of plants within the range is 281. PPs used the official source as ANEEL (National Electricity Agency) to retrieve data for all power plants /Ref 38/.

Step 2: In the applicable geographical area, identify all plants that deliver the same output or capacity, within the applicable output range calculated in Step 1, as the proposed project activity and have started commercial operation before the start date of the project. Note their number N_{all} . Registered CDM project activities and projects activities undergoing validation shall not be included in this step:

- Output: the tool requires project participants to identify in the geographical area, within the range above, plants that started commercial operation before the start date of the project activity (i.e. 21/12/2009). Projects registered under the CDM or under ongoing validation must be excluded from this total. Out of 281, 77 plants are CDM projects (registered or under validation – <http://cdm.unfccc.int/>) and 31 started commercial operation after 21/12/2009 /Ref 40/ and /Ref 41/.

Therefore, $N_{all} = 281 - 77$ (cdm projects) – 31 (operations starting after 21/12/2009) = 173.

$N_{all} = 173$

Step 3: Within plants identified in Step 2, identify those that apply technologies different that the technology applied in the proposed project activity. Note their number N_{diff} :

Under Step 3, different technologies were considered the ones with: (i) different energy source/fuel; (ii) different promotional policies and (iii) different legal regulation, following tool requirements, in comparison to “Passos Maia CDM project” technology.

- (i) Different energy source/fuel: Out of the 173 plants previously indicated as N_{all} , 87 plants present different energy source (thermal and wind) /Ref 38/. Thus, 86 plants are considered as hydro plants. For this project, there are two types of hydro plants being considered, regarding their installed capacities. ANEEL classifies as small hydro plants, plants that operate within the range from 1 MW to 30 MW. Those plants are called PCHs (which in Portuguese means pequenas centrais hidrelétricas, which means small hydro plants). Plants which installed capacity are higher than 30 MW are called UHE, which means



in Portuguese, Unidade Hidrelétrica de Energia (in English, HPP, hydro power plant) as demonstrated by table 10 in PDD version 04.2 /Ref 43/.

- (ii) Different promotional policies: according to the tool, investment climate is one of the factors that can be used to indicate the similarities and differences between the projects. Within the range of 12.5 to 37.5 MW, there are 40 projects that relied on incentives from PROINFA. PROINFA is a federal government program that defines attractive feed-in-tariffs for investments in non-conventional renewable energies such as biomass, small hydropower and wind energy /Ref 42/. Besides the attractive feed-in-tariffs, the PROINFA offers a special financing package from BNDES and a 20 year Power Purchase Agreement (PPA) with Eletrobrás, a state-owned company. It is worth noting that “Passos Maia CDM Project” did not rely on PROINFA incentives.
- (iii) Different legal regulation: according to the tool, another way of showing similarities and differences between the projects would be to compare the environment with respect to regulatory framework. In this case, PPs used three different examples of regulatory situations where “Passos Maia CDM Project” differentiates from the rest of units. First, as mentioned above, hydro power plants, according to the National Electricity Agency, are considered SMALL if they fall within the range from 1 MW to 30 MW /Ref 43/ (which is different from the UNFCCC definition of small scale power plants). All plants which installed capacity is above 30 MW are considered large hydro power plants. Therefore, large power plants are considered to have a different technology than small hydro power plants, in this context, since they are under different regulations and have different definitions of installed capacity. In this case, 36 hydro power plants are different in comparison to Passos Maia. Secondly, in 2004, Brazilian electricity sector had a new model of electricity regulations being established /Refs 44, 45 and 46/. This model presented relevant differences in terms of structure mainly and therefore, plants that were operating before 2004, are being considered as having a different technology than the one being analyzed here. In the moment the PDD was written, there were five plants which started operations before 2004 and for this reason, were considered as different /Ref 41/. At last, three power plants (Nova Maurício, João Barasuol and Salto Mauá) are self-producers and don't dispatch energy to grid. For this reason, they were also considered as presenting a different technology compared to the plant being analysed here /Refs 47, 48 and 49/.

Given the clarifications above:

$N_{diff} = 87$ (thermal and energy sources) + 40 (PROINFA) + 36 (larger than 30 MW) + 5 (before the new model from 2004) + 3 (self-producers) = 171.

$N_{diff} = 171$



Step 4: Calculate factor $F=1-N_{\text{diff}}/N_{\text{all}}$ representing the share of plants using technology similar to the technology used in the proposed project activity in all plants that deliver the same output or capacity as the proposed project activity:

Seeing the above, $F = 1 - (171/173) = 0.01$ and project is, therefore, not common practice.

PP has provided a spreadsheet /Ref-24/ with the complete common practice analysis as described above.

Bureau Veritas Certification hereby confirms that the proposed CDM project activity is not common practice.

In conclusion, as demonstrated in accordance with the “Tool for the demonstration and assessment of Additionality”, the proposed CDM project activity is additional.

3.8 Monitoring plan (124)

The DOE hereby confirms that the monitoring plan complies with the requirements of the methodology.

The steps taken to assess whether the monitoring arrangements described in the monitoring plan are feasible within the project design are described below.

The Project uses the methodology ACM0002 Consolidated baseline methodology for grid-connected electricity generation from renewable sources, version 12.1.0. The project involves the installation of a new grid connected small hydro power plant.

The Combined Margin emission factor will be determined ex-post, based on the most recent information available. This data will be obtained from the Brazilian DNA, which calculates the Operating Margin and Build Margin emission factors in accordance with the latest version of the Tool to calculate the emission factor for an electricity system.

In accordance to the monitoring plan, the main parameter that will be monitored is the quantity of net electricity generation supplied by the project plant/unit to the grid in year y, measured continuously by the power plant's two meters, one principal and other rear (in case the principal meter fails), located in the Substation “Palma”, owned by COPEL (Electricity company of Paraná State - COPEL), located in the municipality of Palmas in Paraná State. The measurement will be continuously done and recorded monthly.

In the PDD version 04.2, PP describes that meters calibration will follow “ONS Procedure - Sub module 12.3”. This was checked by the DOE at:



http://www.ons.org.br/download/procedimentos/modulos/Modulo_12/Submodulo%2012.3_Rev_1.1.pdf (accessed on 05/09/2011).

The information will be crosschecked using records of sold energy, produced by the CCEE - Electric Power Commercialization Chamber. CCEE is the independent agency that manages the commercialization of energy in Brazil and keeps the official records for sold energy. If necessary, the information of electricity generation can also be checked with the sales invoices.

Operational management for the Project is comprehensively detailed in the PDD. It includes description of the responsibility, meters location, process description, data collection procedures, data storage procedures and emission reduction calculation procedures. These are all elements which ensure that the monitoring plan will be followed during the operation of the Project.

The DOE hereby confirms that the project participants are able to implement the monitoring plan.

3.9 Sustainable development (127)

The host Party's DNA confirmed the contribution of the project to the sustainable development of the host Party. Refer to item 3.1 of this report.

3.10 Local stakeholder consultation (130)

The steps taken to assess the adequacy of the local stakeholder consultation are described below.

PP has invited local stakeholders to comment on the project activity. According to the PDD version 04.2, letters were sent to:

- Passos Maia City Hall
- Passos Maia City Assembly
- Passos Maia Commercial and Industrial Association
- FATMA- Santa Catarina Environmental Foundation
- Agriculture Municipal Secretary
- State of Santa Catarina Attorney of Public Interest
- Federal Attorney of Public Interest
- Brazilian Forum of NGO's and Social Movements for the Environmental and Development – FBOMS



Copy of the letters sent to local stakeholders and evidence of receipt (A/R – provided by the National Postal Service) were given to the DOE during site visit **/30/**.

Also, the PDD was put online at www.enerbio-rs.com.br. Local Stakeholders were also given the opportunity to comment through e-mail and through conventional mail.

Analyzing the letters sent to local stakeholders, the DOE could validate that the project activity is described in a manner, which allows the local stakeholders to understand the project activity.

Also, the DOE was able to validate that PP has invited comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity, seeing that the letters asking for comments were sent to all the local stakeholders prescribed by the second paragraph of article 3 of the Brazilian DNA's Resolution 7: http://www.mct.gov.br/upd_blob/0023/23744.pdf (Accessed on 30/08/2011).

Reasonable time was given to local stakeholders to respond to invitations to comment on the project: letters were sent to local stakeholders on the 24/09/2010 and the validation started on 20/10/2010. So, PP complies with the Brazilian DNA's Resolution 7: http://www.mct.gov.br/upd_blob/0023/23744.pdf (Accessed on 30/08/2011), which states that letters to local stakeholders should be sent at least 15 days before the start of validation.

The DOE hereby confirms that the process of local stakeholder consultation is observed to be adequate.

3.11 Environmental impacts (133)

The project participants have undertaken an analysis of environmental impacts and an environmental impact assessment was prepared in accordance with procedures as required by the host Party.

According to Brazilian legislation, there are three environmental licenses needed. First the LP (Previous License), then the LI (Installation License), and last the LO (Operating License). The project activity has obtained the first two. The second licenses (LI) is described in the PDD:

- Installation Environmental License (LI) – nr. 011/2010/GELRH, Signed on: 24/08/2010. Valid for 16 months. **/15/**.



The last one (LO) can be requested only after the end of the construction of the SHP.

Programs and actions will be carried out to minimize the impact of the SHP construction and operation. These actions were needed after the Environmental Impact Analysis (EIA) identified the possible environmental impacts caused by SHP. The DOE received a copy of the EIA during site visit /31/: A copy of the Environmental Impact Study was presented to the DOE during site visit:

- Estudo de Impacto Ambiental - Implantação da Pequena Central Hidrelétrica – PCH Passos Maia, produced by: Terra - Consultoria em Engenharia e Meio Ambiente Ltda. (date: August 2007). It contains:

01. Justification
02. Objectives
03. General Description of Enterprise
04. Institutional and Legal Aspects
05. Technological Alternatives and Location
06. Impact Areas
07. Methodology
08. Environmental Diagnosis
09. Integrated Analysis
10. Prognosis
11. Control Programs and Environmental Monitoring Programs

Some of the programs that will be developed to minimize the project's impact are described in Section D.2 of the PDD version 04.2. A complete list was provided to the DOE: "Report – Environmental Programs Description" /32/. By analyzing the Project's EIA /31/, together with /32/, /14/ and /15/, the DOE was able to validate that and environmental impact assessment has been carried out in accordance with procedures as required by the host Party.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD using methodology ACM0002 ver. 12 was webhosted on the UNFCCC for global stakeholders comments as per CDM requirements. The project was webhosted from 20 Oct 10 - 18 Nov 10.



No comments were received.

5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the PASSOS MAIA CDM PROJECT in Brazil. The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

Project participant/s used the latest tool for demonstration of the Additionality. In line with this tool, the PDD provides an investment analysis to determine that the project activity itself is not the baseline scenario.

By the construction of a small hydro power plant of 25 MW of installed capacity, renewable energy will be delivered to the Brazilian national electricity grid, and the project is likely to result in reductions of GHG emissions partially. An investment analysis 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. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The review of the project design documentation (version 04.2) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria. Bureau Veritas Certification thus requests registration of 'project title' as CDM project activity.

The project will use a renewable crediting period of 7 years.

The estimation of overall emission reductions is **143,353 tCO₂e** or an average of **20,479 tCO₂e/year**.



6 REFERENCES

Category 1 Documents:

Documents provided by Type the name of the company that relate directly to the GHG components of the project.

- /1/ PDD version 1 – Global Stakeholder Consultation – dated 27/09/2010
- /2/ PDD version 2 – dated 14/04/2011
- /3/ PDD version 3 – dated 25/07/2011
- /4/ CERs calculation spreadsheet version 1 – dated 27/09/2010
- /5/ Investment and sensitive analysis spreadsheet version 1 – dated 27/09/2010
- /6/ Investment and sensitive analysis spreadsheet version 2 – dated 14/04/2011
- /7/ Consolidated Basic Engineering Project - 1165/00-10-RL-0001-1 – dated 15/03/2010.
- /8/ Technical chart – signed by responsible engineer – contains main technical characteristics of the SHP – dated 27/09/2010
- /9/ EPC Contract – Construction of the SHP- signed on 21/12/2009
- /10/ ANEEL Resolution 2,300 of 10/05/2011 – Approval of Consolidated Basic Engineering Project
- /11/ ANEEL Resolution 2,363 of 03/06/2011 – Approval of change of SHP's name to "SHP Victor Baptista Adami".
- /12/ ANEEL Resolution 1,880 of 07/04/2009 – Authorizes Passos Maia Energética S.A. to explore the hydraulic potential of the Project's SHP
- /13/ ANEEL Resolution 2,385 of 11/05/2010 – Includes Desenvix as one of the owners of the Project's SHP.
- /14/ Project's First Environmental license: LP – Previous License nr. 303/2003, dated 19/09/2003
- /15/ Project's Second Environmental license: LI – Installation License nr. 011/2010/GELRH, dated 24/08/2010
- /16/ Power Purchase Agreement – CRD/2009 – signed on 14/12/2009
- /17/ Brazilian DNA Resolution nr. 08 of 26/05/2008
- /18/ Brazilian DNA website figures for OM and BM emission factors values for 2009 (latest available) accessed at: <http://www.mct.gov.br/index.php/content/view/303076.html#ancora> (on 30.08.2011)
- /19/ PROINFA Law – 40,438 of 2002
- /20/ Prior Consideration letter sent to Brazilian DNA, dated 13/04/2010
- /21/ Prior Consideration form in Portuguese
- /22/ Prior Consideration form in English
- /23/ Letter from Brazilian DNA acknowledging the receipt of Prior Consideration letter (evidence 20), dated 16/04/2010,
- /24/ Common Practice spreadsheet – dated 08/08/2012
- /25/ Request for review (common practice evidence +-50% range) (17/12/2008)
- /26/ Print Screen ANEEL site dated 25/01/2011 – 388 SHPs operation in Brazil
- /27/ SHPs starting date chronogram – ANEEL excel sheet from website of ANEEL
- /28/ PROINFA contracts PDF from Eletrobras website



- /29/ SHP Jorge Dreher evidence
- /30/ Copy of letters sent to local stakeholders for the local stakeholders' consultation process – Including evidence of receipt of letters lent by the postal service (A/R).
- /31/ EIA – SHP Passos Maia – dated August 2007 – Prepared by Terra Consultoria em Engenharia e Meio Ambiente
- /32/ Report – Environmental Programs Description – not dated
- /33/ Manual of guidelines for SHP by Eletrobras
- /34/ ANEEL resolution nr. 826 from 2009
- /35/ Eletrobras budget for the Passos Maia project from December 2009
- /36/ PDD version 04 – dated 02/04/2012
 - /36/ a. PDD version 04.1– dated 02/04/2012
- /37/ PDD version 04.2 – dated 02/04/2012
- /38/ ANEEL - Banco de Informações de Geração – BIG (from the Portuguese, Generation Database), available at:
<http://www.aneel.gov.br/aplicacoes/capacidadebrasil/capacidadebrasil.asp>
- /39/ UNFCCC website: <http://cdm.unfccc.int/>
- /40/ ANEEL - Fiscalização dos serviços de geração (from the Portuguese, Generation services supervision), available at:
<http://www.aneel.gov.br/area.cfm?idArea=37&idPerfil=2>
- /41/ ANEEL - Atlas de energia elétrica do Brasil, 2002. Available at:
http://www.aneel.gov.br/arquivos/pdf/livro_atlas.pdf
- /42/ Ministry of Mines and Energy/PROINFA, available at:
<http://www.mme.gov.br/programas/proinfa>
- /43/ ANEEL – PCHs (small hydro power plants), available at:
<http://www.aneel.gov.br/68.htm>
- /44/ Moody's Global Infrastructure. August 2008. Regulatory environment improves for Brazilian electric utilities. Available at:
www.moody.com
- /45/ Law number 10,847 that authorizes the creation of the Energetic Research Company (regarding the new model after 2004), available at:
<http://www.aneel.gov.br/cedoc/lei200410847.pdf>
- /46/ Law number 10,848 that clarifies about energy commercialization and other aspects (regarding the new model after 2004), available at:
<http://www.aneel.gov.br/cedoc/blei200410848.pdf>
- /47/ ANEEL - BIG – Resumo do empreendimento (entrepreneur's summary), available at:
<http://www.aneel.gov.br/aplicacoes/empreendimento/ResumoUsina.asp?lboxUsina=2654:Salto%20Mau%C3%A1>
- /48/ ANEEL - BIG – Resumo do empreendimento (entrepreneur's summary), available at:
<http://www.aneel.gov.br/aplicacoes/empreendimento/ResumoUsina.asp?lboxUsina=27722:Nova%20Maur%C3%ADcio>
- /49/ ANEEL - BIG – Resumo do empreendimento (entrepreneur's summary), available at:
[http://www.aneel.gov.br/aplicacoes/empreendimento/resumousina.asp?lboxusina=28231:jos%c3%a9%20barasuol%20\(ex.%20linha%203%20leste\)](http://www.aneel.gov.br/aplicacoes/empreendimento/resumousina.asp?lboxusina=28231:jos%c3%a9%20barasuol%20(ex.%20linha%203%20leste))



- /50/ ANEEL dispatch 4,778 December, 2008 **/35/** (from December 23th 2008).
/51/ Operational insurance – contract number 162 – 29/03/2012.

Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents.

- I. Clean Development Mechanism - Project Design Document form (CDM-PDD) version 03.0 - in effect as of: 28 July 2006
- II. Guidelines for completing the Project Design Document (CDM-PDD) and the Proposed New Baseline and Monitoring Methodologies (CDM-NM), Version 07.0, EB 41, ANNEX 12.
- III. Guidelines for the reporting and validation of plant load factors (Version 01.0).
- IV. Approved consolidated baseline and monitoring methodology ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", Version 12.1.0. "
- V. Tool to calculate the emission factor for an electricity system, Version 02.1.0"
- VI. Tool for the demonstration and assessment of Additionality" (Version 06.0.0)
- VII. Glossary of CDM Terms, version 05.
- VIII. Guidelines on the demonstration and assessment of prior consideration of the CDM (version 04).
- IX. Guidelines on the assessment of investment analysis (Version 5)
- X. Draft tool to determine the weighted average cost of capital (WACC) (Version 01)
- XI. Clean Development Mechanism - Validation And Verification Manual (Version 01.2)



Persons interviewed:

List persons interviewed during the validation or persons that contributed with other information that are not included in the documents listed above.

- /1/ Eduardo Baltar (Enerbio Consultoria Ltda - ME)
- /2/ Filipe Koefender (Desenvix S.A.)
- /3/ Marcelo dos Santos (Desenvix S.A.)
- /4/ Liu Ming (Desenvix S.A.)
- /5/ Nicolau Sarda (Desenvix S.A.)
- /6/ Wagner Balistrino (Desenvix S.A.)
- /7/ Antenor Zimmermann (Desenvix S.A.)
- /8/ Marcos Krieger (Desenvix S.A.)
- /9/ Michel Belleboni (Enerbio Consultoria Ltda - ME)

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7 CURRICULA VITAE OF THE DOE'S VALIDATION TEAM MEMBERS

Bureau Veritas Certification – Lead Verifier

Marco Prauchner – is graduated in Mechanical Engineering with experience in Quality and Environmental management in mechanical, plastic and chemical industries. He is ISO 9001:2008 and ISO 14001:2004 Lead Auditor and has also experience in the implementation of Environmental Management Systems. Marco is qualified as Lead Verifier GHG – Green House Gases.

Bureau Veritas Certification – GHG Verifier

Guilherme Lefèvre – is graduated in Law with experience in GHG Programs, both compulsory and voluntary. Guilherme has vast experience in the development and analysis of CDM, VCS, Social Carbon and CCBS projects. He is currently enrolled at the post-graduate environmental science program of the São Paulo University. Guilherme trained as a lead auditor in the fields of environment (ISO 14001) and GHG – Green House Gas.

Bureau Veritas Certification – Financial Specialist

Bernardo Lima - is graduated in Business Administration with a very expressive experience in valuation of new projects in the electrical and technology sectors; Equity analyst with focus on the consumer staples, consumer discretionary, technology and telecommunications sectors for many companies in Brazil.

Bureau Veritas Certification – Internal Technical Reviewer

Rubens Ferreira – Is graduated in Chemical Engineering with experience in Quality and Environmental management in glass industries. He is ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 Lead Auditor and has also experience in the implementation of Environmental Management Systems. Rubens is qualified as Lead Verifier GHG – Green House Gases.

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APPENDIX A: COMPANY CDM PROJECT VALIDATION PROTOCOL

VALIDATION PROTOCOL

**Table 1 Validation requirements based on the Clean Development Mechanism Validation and Verification Manual
(Version 01.2)**

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
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**BUREAU
VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
1. Approval			COUNTRY A (Brazil)	COUNTRY B (insert the country name)		
a. Have all Parties involved approved the project activity?	VVM	44	Please refer to item (1.b) below	Not applicable	OK	OK
b. Has the DNA of each Party indicated as being involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval? (If yes, provide the reference of the letter of approval, any supporting documentation, and specify if the letter was received from the project participant or directly from the DNA)	VVM	45	The final decision from the Brazilian DNA will be available only after its first ordinary meeting, after the receiving of all the required documents necessary for evaluation, including this validation report, according to Article 6 of the Resolution number 1 of the Brazilian DNA: CIMGC – Comissão Interministerial de Mudança Global do Clima. (http://www.mct.gov.br/upd_blob/0023/23433.pdf (accessed on 21/10/2010).	Not applicable	OK	OK
c. Does the letter of approval from DNA of each Party involved:	VVM	45			OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
i. confirm that the Party is a Party of the Kyoto Protocol?	VVM	45.a	Please refer to item (1.b) above.	Not applicable	OK	OK
ii. confirm that participation is voluntary?	VVM	45.b	Please refer to item (1.b) above.	Not applicable	OK	OK
iii. confirm that, in the case of the host Party, the proposed CDM project activity contributes to the sustainable development of the country?	VVM	45.c	Please refer to item (1.b) above.	Not applicable	OK	OK
iv. Refers to the precise proposed CDM project activity title in the PDD being submitted for registration?	VVM	45.d	Please refer to item (1.b) above.	Not applicable	OK	OK
d. Is(are) the letter(s) of approval unconditional with respect to (i) to (iv) above?	VVM	46	Please refer to item (1.b) above.	Not applicable	OK	OK
e. Has(ve) the letter(s) of approval been issued by the respective Party's designated national authority (DNA) and is valid for the CDM project activity under validation?	VVM	47	Please refer to item (1.b) above.	Not applicable	OK	OK
f. Is there doubt with respect to the authenticity of the letter of approval?	VVM	48	Please refer to item (1.b) above.	Not applicable	OK	OK
g. If yes, was verified with the DNA that the letter of approval is authentic?	VVM	48	Please refer to item (1.b) above.	Not applicable	OK	OK
2. Participation			PP1 (Passos Maia Energética S.A.)	PP2 (Enerbio Consultoria Ltda - ME)		
a. Have all project participants been listed in a consistent manner in the project documentation?	VVM	51	Yes, project participant is: Passos Maia Energética. (Private)	Yes, project participant is: Enerbio Consultoria Ltda – ME (Private)	OK	OK


**BUREAU
VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
b. Has the participation of the project participants in the project activity been approved by a Party to the Kyoto Protocol?	VVM	51	Please refer to item (1.b) above.	Please refer to item (1.b) above.	OK	OK
c. Are the project participants listed in tabular form in section A.3 of the PDD?	VVM	52	Yes, the project participants are listed in tabular form. Please refer to item (2.a) above.	Yes, the project participants are listed in tabular form. Please refer to item (2.a) above.	OK	OK
d. Is the information in section A.3 consistent with the contact details provided in annex 1 of the PDD?	VVM	52	The information in Section A.3 is consistent with the contact details in Annex 1 of the PDD.	The information in Section A.3 is consistent with the contact details in Annex 1 of the PDD	OK	OK
e. Has the participation of each of the project participants been approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve participation? (Provide reference of the approval document for each of the project participants)	VVM	52	Please refer to item (1.b) above.	Please refer to item (1.b) above.	OK	OK
f. Are any entities other than those approved as project participants included in these sections of the PDD?	VVM	52	No. See also item (1.b) above.		OK	OK
g. Has the approval of participation issued from the relevant DNA?	VVM	53	Please refer to item (1.b) above.	Please refer to item (1.b) above.	OK	OK
h. Is there doubt with respect to (g) above?	VVM	53	Please refer to item (1.b) above.	Please refer to item (1.b) above.	OK	OK
i. If yes, was verified with the DNA that the approval of participation is valid for the proposed CDM project participant?	VVM	53	Please refer to item (1.b) above.	Please refer to item (1.b) above.	OK	OK



**BUREAU
VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
3. Project design document					
a. Is the PDD used as a basis for validation prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website?	VVM	55	<p>The template used for preparing the PDD is the latest template: Version 03.0, EB 25, and Annex 15.</p> <p>See Section 3 below for discussions regarding the concordance of the PDD with the applicable guidance (GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07).</p>	OK	OK
b. Is the PDD in accordance with the applicable CDM requirements for completing the PDD?	VVM	56	Please refer to Section 3 below.	OK	OK
c. In CDM-PDD section A.1 are the following provided?	EB 41	Ann 12		OK	OK
i. Title of project	EB 41	Ann 12	Title: Passos Maia CDM Project.	OK	OK
ii. Current version number and date of document	EB 41	Ann 12	<p>PDD Version number: 1.</p> <p>Date: September 27th, 2010.</p>	OK	OK
d. In CDM-PDD section A.2 are following provided (max. one page)?	EB 41	Ann 12			
i. A brief description of the project activity covering purpose which includes the scenario existing prior to the start of project, project	EB 41	Ann 12	<p>The following information is provided in the PDD:</p> <p>Scenario Existing prior to the start of project:</p>	CAR 01 CAR 02	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
scenario and baseline scenario			<p>See the description of the Baseline scenario below.</p> <p>Project scenario:</p> <p>“The Passos Maia CDM Project (hereafter called Passos Maia Project) consists on the supply of clean hydroelectric energy to the Brazilian National Interconnected System (SIN) through the implantation and operation of the Small Hydro Power Plant (SHP) Passos Maia, located in the state of Santa Catarina, Southern Region of Brazil, using a small reservoir, with low environmental impact.”</p> <p>CAR 01: In Section A.2 of the PDD (version 1), no technical description is given regarding the installed capacity and the size of the reservoir area, as described in Section A.4.3 of the PDD. This is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p> <p>Baseline scenario:</p> <p>“The baseline scenario is the same scenario</p>		



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VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>existing before starting the project activity implementation because the electricity feed into the grid by the project would be generated from another manner by the operation of another Power Plant connected to the grid and by the addition of new generation sources, as said in the combined margin described in the Tool to calculate the emission factor for an electric system.”</p> <p>CAR 02: In Section A.2 of the PDD (version 1), the baseline scenario is not described in accordance with the relevant methodology. Moreover, the electricity that will be supplied to the grid by the project would not be generated by the operation of <u>another power plant</u> connected to the grid and the addition of new sources, but by the operation of grid-connected <u>power plants</u> and the addition of new sources. The description of the baseline scenario is, therefore, not in accordance with the ACM0002: “CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES” VERSION 12.</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. Explanation on how the GHG emission reductions are effected	EB 41	Ann 12	<p>The following information is provided in the PDD:</p> <p>“The project activity reduces the emissions of greenhouse gases (GHG), avoiding the generation of electricity through sources of fossil fuels with consequent CO2 emissions, which would be produced if the project would not exist. In the absence of the project activity, the presence of thermoelectric plants in the National Interconnected System would cause GHG emissions.”</p>	OK	OK
iii. The PP's vies on the contribution of project activity to sustainable development	EB 41	Ann 12	<p>(a) Prevent the emission of greenhouse gases to the atmosphere and preserve, therefore, the environment for future generations.</p> <p>(b) Generate jobs and stimulate local and national economy.</p> <p>(c) Invest in environmental programs and actions.</p> <p>(d) Provided the necessary improvements to ensure the permanent traffic by roads nearby.</p> <p>(e) Push the local and regional tourism because the reservoir will offer new leisure and recreation options for the region population.</p>	OK	OK
iv. Are there any changes/modifications compared	EB	Ann	No. During site visit held on the 26 th of October	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
to the webhosted PDD?	41	12	2010, the DOE could assess that the construction of the small hydropower plant is being carried out in accordance to the description provided in the webhosted PDD.		
e. In CDM-PDD section A.3 are following provided in the tabular format?	EB 41	Ann 12	Yes, all information is given in a tabular form. See below:	OK	OK
i. List of project participants and parties	EB 41	Ann 12	<p>List of project participants and parties:</p> <p>Yes, project participants are:</p> <ol style="list-style-type: none"> Passos Maia Energética. (Private) Enerbio Consultoria Ltda – ME (Private). 	OK	OK
ii. Identification of Host Party			Brazil: Party (host)	OK	OK
iii. Indication whether the Party wishes to be considered as project participant	EB 41	Ann 12	<p>The Party (Brazil) does not wish to be considered as project participant</p> <p>CAR 03: In Section A.3 of the PDD version 1, the third column of table 1 suggests there are two Parties involves. However, only one Party (Brazil) is involved. This is not in accordance with GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM),</p>	CAR 03	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			VERSION 07.		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
f. In CDM-PDD section A.4.1 are following provided?	EB 41	Ann 12		OK	OK
i. Technical description, location, host party(ies) and address as required	EB 41	Ann 12	Host: Brazil Region: South State: Santa Catarina. Municipalities: Passos Maia.	OK	OK
ii. Detailed physical location with unique identification of the project activity (eg. Longitude/latitude) – not to exceed one page	EB 41	Ann 12	According to the PDD: “The powerhouse of SHP Passos Maia is located on Chapecó River, on the Uruguai River Basin, in the municipality of Passos Maia, State of Santa Catarina, South Region of Brazil, on coordinates 26°37'54" South Latitude and 49°36'35" West Longitude.” CAR 04: The geographic coordinates provided in Section A.4.1.4 do not indicate a position located in the municipality of Passos Maia. PP also provides: Table 2 – Socio-Economical indicators of municipalities where the Power Plant is located (source: Instituto Brasileiro de Geografia e Estatística (IBGE): http://www.ibge.gov.br/cidadesat/topwindow.htm?1 – crosschecked by DOE on 21.10.2010).	CAR 04	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
iii. Are there any changes/modifications compared to the webhosted PDD?	EB 41	Ann 12	No. During site visit held on the 26 th of October 2010, the DOE could assess that the construction of the small hydropower plant is being carried out in accordance to the description provided in the webhosted PDD.	OK	OK
g. In CDM-PDD section A.4.2 is the list of categories of project activities provided?	EB 41	Ann 12	Sectorial Scope 1 – Energy Industries (Renewable Source).	OK	OK
h. In CDM-PDD section A.4.3 are following provided?	EB 41	Ann 12		OK	OK
i. A description of how environmentally safe and sound technology, and know-how, is transferred to the Host Party(ies)	EB 41	Ann 12	CL 01: In Section A.4.3 of the PDD (version 1), please clarify if this specific project comprises the application of environmentally safe and sound technology. Please also explain if any technology or know-how will be transferred to the Host Party.	CL 01	OK
ii. Explanation of purpose of project activity with scenario existing prior to the start of project, scope or present activities and the baseline scenario	EB 41	Ann 12	<p>- Scenario existing prior to the start of the project activity:</p> <p>See baseline scenario below.</p> <p>- Scope or present activities:</p> <p>According to the PDD:</p> <p>“SHP Passos Maia will use the Chapecó River’s hydraulic potential to supply electricity. The SHP</p>	CAR 05	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>Passos Maia is a run-of-river hydroelectric power plant with a small reservoir of 1.75 km²."</p> <p>PP provides in table 3 the technical characteristics of the project activity, summarized in item (3.h.iii) below.</p> <p>- Baseline scenario:</p> <p>According to Section A.4.3, the baseline scenario is the same scenario that existed before the beginning of the project activity implementation: PP provides a list of the energy generating enterprises in the State of Santa Catarina, according to ANEEL. (source: http://www.aneel.gov.br/area.cfm?idArea=15&idP_erfil=2 .crosschecked on 21.10.2010.).</p> <p>CAR 05: In Section A.4.3 of the PDD version 1, the definition of the baseline scenario has not been done as identified in Section B.4 of the PDD. It should comprise the SIN (National Interconnected System) and not just part of it. This is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
iii. List and arrangement of the main manufacturing/production technologies, systems and equipments involved	EB 41	Ann 12	<p>PP provides in Section A.4.3 a table containing the main technical characteristics of the project:</p> <ul style="list-style-type: none"> - Power (installed capacity) 25 MW - Capacity factor 0.57 - Assured Energy (MW) 14.3 - Reservoir Area 1.75 km² - Turbines 2 x Francis –Horizontal Axle <p>The DOE was able to validate the above mentioned data through:</p> <p>Installed capacity, capacity factor, assured energy and turbines:</p> <ul style="list-style-type: none"> - Revision of Basic Engineering Project 1165/00-10-RL-0001-1 of 15 March 2010 (table 8.9 – Final Results, page 96). - ANEEL letter nr. 3116/2010-SGH/ANEEL of 20 September 2010 – ANEEL's confirmation that the revision of the Basic Engineering Project has been received by ANEEL. <p>Reservoir area:</p> <ul style="list-style-type: none"> - Installation Environmental license 001/2007 of February 2007. 	CL 02 CL 03 CAR 06 CL 04	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>CL 02: PP has provided the DOE with two “Technical Charts” (Ficha Resumo) of the project, one dated 15.03.2010 and another dated 08.04.2010. Both have different reservoir areas. Please explain this divergence. Please also provide a copy of the Revision of Basic Engineering Project 1165/00-10-RL-0001-1 of 15 March 2010, <u>which includes Annex 1 – “Technical Chart”</u>, as the copy provided by PP does not include the annexes.</p> <p>CL 03: Please provide in Section A.4.3 of the PDD version 1 the technical characteristics of the generators that will be used and the expected yearly energy generation (MWh).</p> <p>CAR 06: In Section A.4.3 of the PDD (version 1), information is missing regarding: (1) the age and average lifetime of the equipments based on manufacturer’s specifications and industry standards and (2) efficiencies. This is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p> <p>CL 04: In Section A.4.3 of the PDD version 1, please clarify if the capacity factor mentioned is</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			the same as the plant load factor. If so, please explain how the plant load factor of 0.57 was defined. Please provide an answer taking into consideration the GUIDELINES FOR THE REPORTING AND VALIDATION OF PLANT LOAD FACTORS (Version 01) EB 48 – ANN 11.		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
iv. The emissions sources and GHGs involved	EB 41	Ann 12	CO ₂ is a greenhouse gas involved in the project activity. The CO ₂ emissions arising from electricity generation in fossil fuel power plants are the emissions sources that will be replaced due to the project activity.	OK	OK
v. The types and levels of services (normally in terms of mass or energy flows) provided by the systems and equipments that are being modified and/or installed under the project activity and their relation, if any, to other manufacturing/production equipments and systems outside the project boundary.	EB 41	Ann 12	Yes, Project activity provide as service electric energy to be send to the grid to be sold on the energy market.	OK	OK
vi. Are there any changes/modifications compared to the webhosted PDD?	EB 41	Ann 12	No. During site visit held on the 26 th of October 2010, the DOE could assess that the construction of the small hydropower plant is being carried out in accordance to the description provided in the webhosted PDD.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
i. In CDM-PDD section A.4.4 is the estimation of emission reductions provided as requested in a tabular format?	EB 41	Ann 12	<p>CL 05: Regarding Section A.4.4 of the PDD version 1, PP states that the electricity generation is projected according to the SHP's "commercializable" energy of 14.3 MW. Please provide evidence so the DOE can validate that the SHP will commercialize this amount of MW. If a power purchase agreement (PPA) has been sign, please provide a copy.</p> <p>CAR 07: Regarding Section A.4.4 of the PDD version 1, the year 2018 has a different annual estimation of emission reduction, when compared to the other years. This is in disagreement with the information provided in Section B.6.3.</p>	CL 05 CAR 07	OK
j. In CDM-PDD section A.4.5 is Information regarding Public funding provided?	EB 41	Ann 12	<p>PDD states that:</p> <p>CAR 08: In Section A.4.5. of the PDD version 1, the information "No public funding for the CDM's project activities was solicited by parties involved in Annex I." is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>	CAR 08	OK
k. In CDM-PDD section B.1 are following provided?	EB 41	Ann 12		OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
i. The approved methodology and version number	EB 41	Ann 12	CAR 09: In Section B.1 of the PDD version 1, the title of the relevant approved methodology is not in accordance with APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.	CAR 09	OK
ii. Any methodologies or tools which the above approved methodology draws upon and their version number	EB 41	Ann 12	Tools which the approved methodology draws upon and their version number: Tool to calculate the emission factor for an electricity system, Version 2. Tool for the demonstration and assessment of Additionality, Version 05.2. Source of methodology and tools (http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html) crosschecked by the DOE on 21.10.2010)	OK	OK
I. In CDM-PDD section B.2 are following provided?	EB 41	Ann 12		OK	OK
i. Justification of the choice of methodology that the project activity meets each of the applicability conditions	EB 41	Ann 12	Yes, the choice of methodology is justified. PP provides in Section B.2 also a calculation of	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>the power density (PD), so to prove that the project has a power density above 4W/M².</p> <p>Cap_{PJ} = 25,000,000 W A_{PJ} = 1,750,000 m² PD 14.3 W/m²</p> <p>Please refer also to item (5.b) below.</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. Documentations with references that had been used. This can be provided in Annex 3 instead	EB 41	Ann 12	<p>The DOE was able to validate the applicability through:</p> <ul style="list-style-type: none"> - Site visit held on the 26th of October 2010 - Revision of Basic Engineering Project 1165/00-10-RL-0001-1 of 15 March 2010 (table 8.9 – Final Results, page 96). - ANEEL letter nr. 3116/2010-SGH/ANEEL of 20 September 2010 – ANEEL's confirmation that the revision of the Basic Engineering Project has been received by ANEEL. - Installation Environmental license 001/2007 of February 2007. - ANEEL Resolution nr 68 of March the 2nd 2004 – authorization of Adami S.A. – Madeiras to become a independent producer of electric energy by exploiting the hydraulic potential of Passos Maia SHP - ANEEL Resolution nr 1880, of April 7 2009, transferring from Adami S.A. - Madeiras to <u>Passos Maia Energética S.A.</u> the authorization to explore the PCH 	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>Passos Maia hydraulic potential.</p> <ul style="list-style-type: none"> - ANEEL Resolution nr 2385 of May 11 2010, wherein both Adami S.A. – Madeiras and Desenvix S.A. are approved as the legal controllers of Passos Maia Energética S.A. <p>See however CARs and CLs in item (3.h) above.</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
m. In CDM-PDD section B.3 are following provided?	EB 41	Ann 12		OK	OK
i. Description of all sources and gases included in the project boundary in the table	EB 41	Ann 12	<p>CL 06: Please provide a reference to the information provided in the first two paragraphs of Section B.3 of the PDD version 1.</p> <p>PDD states that:</p> <p>According to ACM0002, version 12, the spatial extension of the project boundary includes the project power plant and all power plants physically connected to the electricity system that the CDM project power plant is connected to. The SHP Passos Maia is connected to National Interconnected System.</p> <p>CAR 10: In Section B.3 of the PDD version 1, the justification for the inclusion of CO₂ in baseline emissions in table 1 is not in accordance with the ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12. Moreover, GHG emissions are not only caused by coal thermoelectric plants.</p>	CL 06 CAR 10	OK
ii. A flow diagram of the project boundary physically delineating the project activity	EB 41	Ann 12		CAR 11 CAR 12	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>Yes, PP provides a flow diagram containing the project boundary, equipments, systems, flows of energy and monitoring variables. However, some errors were found:</p> <p>CAR 11: In Section B.3 of the PDD version 1, monitored variable TEG_y is described. However, according to the ACM0002, version 12, for this project this variable does not need to be monitored.</p> <p>CAR 12: In Section B.3 of the PDD version 1, monitored variable A_{PJ} is not included. This is not in accordance with the ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12.</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
iii. The flow diagram with all equipments, systems and flows of mass and energy etc.	EB 41	Ann 12	Yes, see item (3.m.ii) above.	OK	OK
n. In CDM-PDD section B.4 are following provided?	EB 41	Ann 12		OK	OK
i. Explanation how the most plausible baseline scenario is identified in accordance with the selected baseline methodology	EB 41	Ann 12	<p>PP describes that:</p> <p>In the absence of the project activity, the clean energy generated by Passos Maia Project dispatched to the Brazilian National Interconnected System (SIN) would have been generated through non-renewable sources from Power Plants connected to the interconnected grid, providing the emission of greater quantities of green house gases.</p> <p>CAR 13: In Section B.4 of the PDD version 1, the statement: "In the absence of the project activity, the clean energy generated by Passos Maia Project dispatched to the Brazilian National Interconnected System (SIN) <u>would have been generated through non-renewable sources</u> from Power Plants connected to the interconnected grid" is not in accordance with the ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12. Moreover, the energy would not be generated only through non-renewable sources</p>	CAR 13 CAR 14 CL 07 CAR 15	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>but by all power plants connected to the grid and by the addition of new generation sources.</p> <p>PP gives the baseline definition in accordance with ACM0002v.12. However, some minor errors were found:</p> <p>CAR 14: In Section B.4 of the PDD version 1, the baseline definition provided by PP is not in accordance with APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p> <p>PP also provides information regarding the expected growth of fossil fuel based power plants in Brazil for the next years.</p> <p>CL 07: Regarding Section B.4 of the PDD version 1, please explain the relevancy of the information provided regarding the Brazilian Decennial Plan for Electric Energy Expansion (2010-2019), as well as data from table 7, for baseline description.</p> <p>CAR 15: In Section B.4 of the PDD version 1, in references 2 and 3, two different studies are described for the same reference: PDE 2010-2019 and PDE 2006-2015.</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. Justification of key assumptions and rationales	EB 41	Ann 12	For new grid-connected renewable power plants, the baseline scenario is provided by the methodology (ACM0002v.12). The project comprises the installation of a new SHPP.	OK	OK
iii. Transparent illustration of all data used to determine the baseline scenario (variables, parameters, data sources, etc.)	EB 41	Ann 12	For new grid-connected renewable power plants, the baseline scenario is provided by the methodology (ACM0002v.12). The project comprises the installation of a new SHPP.	OK	OK
iv. A transparent and detailed description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed project activity	EB 41	Ann 12	For new grid-connected renewable power plants, the baseline scenario is provided by the methodology (ACM0002v.12). The project comprises the installation of a new SHPP.	OK	OK
v. Are there any changes/modifications compared to the webhosted PDD?	EB 41	Ann 12	No. During site visit held on the 26 th of October 2010, the DOE could assess that the construction of the small hydropower plant is being carried out in accordance to the description provided in the webhosted PDD.	OK	OK
o. In CDM-PDD section B.5 are following provided?	EB 41	Ann 12		OK	OK
i. Explanation of how and why this project activity is additional and therefore not the baseline scenario in accordance with the selected baseline methodology	EB 41	Ann 12	Yes, the PDD Section B.5 provides by mean of an investment analysis in accordance with the Tool for the Demonstration and Assessment of Additionality, an explanation of how and why the project activity is additional.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			See for detailed discussion item (6) below		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. Justification of key assumptions and rationales	EB 41	Ann 12	<p>PP uses an investment analysis to determine that the project is additional.</p> <p>A benchmark analysis is provided using the internal rate of return (IRR) as financial indicator.</p> <p>See for detailed discussion item (6) below.</p>	OK	OK
iii. Transparent illustration of all data used to determine the baseline scenario (variables, parameters, data sources etc.)	EB 41	Ann 12	<p>PP uses an investment analysis to determine that the project is additional. A benchmark analysis is provided using the internal rate of return (IRR) as financial indicator.</p> <p>See for detailed discussion item (6) below.</p>	OK	OK
iv. Evidence that the incentive from the CDM was seriously considered in the decision to proceed with the project activity, if the starting date of the project activity is before the date of validation	EB 41	Ann 12	<p>Yes, PP provides the following evidence to the DOE:</p> <p>In April 13th 2010, Enerbio Consultoria, company hired by Passos Maia Energética SA to develop the CDM project , informed to UNFCCC and to Brazilian NDA the intention of the project to become a CDM project activity, demonstrating that the CDM was seriously considered in the decision to proceed with the project activity.</p> <p>Observation: the starting date was defined as: 21 December 2009 – contract with company responsible for construction of the power plant,</p>	CL 08 CAR 16	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>see item (3.w) below.</p> <p>The DOE was able to validate that UNFCCC secretariat was informed on the 13th of April 2010 through:</p> <ul style="list-style-type: none"> - Crosschecking the information on: http://cdm.unfccc.int/Projects/PriorCDM/notifications/index.html (accessed on 21.10.2010). - Copy of e-mail sent to UNFCCC by PP on the 13th of April 2010 - Copy of e-mail from UNFCCC acknowledging the receipt of e-mail sent by PP. <p>The DOE was able to validate that the Brazilian DNA secretariat was informed on the 13th of 2010 through:</p> <ul style="list-style-type: none"> - Copy of letter send to DNA on 13th of April 2010. - Copy of letter from DNA confirming the receipt of prior consideration communication (16.04.2010). <p>CL 08: Regarding Section B.5 of the PDD version 1, please a copy of the contract signed on December 21st 2009 with company responsible</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>for construction of SHP Passos Maia.</p> <p>CAR 16: In Section B.5 of the PDD (version 1), PP does not provides a timeline for the power plant's implementation and of events and actions, which have been taken to achieve CDM registration. This is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
p. In CDM-PDD section B.6.1 are following provided?	EB 41	Ann 12		OK	OK
i. Explanation as to how the procedures, in the approved methodology to calculate project emissions, baseline emissions, leakage emissions and emission reductions are applied to the proposed project activity	EB 41	Ann 12	<p>Procedures to calculate emission reductions:</p> <p>CAR 17: In Section B.6.1 of the PDD version 1, the description of parameter BE_y in equation 03 is not in accordance with the description given in equation 11 of APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p> <p>Procedures to calculate baseline emissions:</p> <p>CAR 18: In Section B.6.1 of the PDD version 1, in the description of the calculation of baseline emission, the baseline emissions are abbreviated as $tCO_2e/year$. This is not in accordance with APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p> <p>CAR 19: In equation 4, Section B.5 of the PDD</p>	CAR 17 CAR 18 CAR 19 CAR 20 CL 09 CL 10 CL 11 CAR 21 CAR 22 CAR 23 CAR 24	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>version 1, the description of parameter $EF_{grid,CM,y}$ is not in accordance with the description provided by equation 6 of APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p> <p>CAR 20: Throughout the entire PDD version 1, equations have been included which use dots instead of commas: example $BE_y = EG_{PJ,y} * EF_{grid,CM,y}$. This is not in accordance with APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p> <p>CL 09: In Section B.6.1 of the PDD version 1, PP states that: "For ex-ante estimation, it was considered for the variable $EG_{facility,y}$, the SHP Passos Maia's <u>assured energy</u>. However, in Section A.4.4, PP states the "commercializable" energy will be used. Please explain this divergence.</p> <p>CL 10: In Section B.6.1 of the PDD version 1, please provide a reference for the following</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>statement: "This method [Dispatch Data Analysis] was chosen because it is, according to the Brazilian DNA, the most accurate and most recommended if information is available."</p> <p>CL 11: In Section B.6.1 of the PDD version 1, please provide a reference for the following statement: "Following that procedures, from July 2008, the operating margin emission factor started to be calculated for the National Interconnected System, considering the System as unique, and it became available to be consulted by the interested public and investors."</p> <p>CAR 21: In section B.6.1 of the PDD version 1, PP does not describe the data vintage chosen for the calculation of the OM emission factor. This is not in accordance with TOOL TO CALCULATE THE EMISSION FACTOR FOR AN ELECTRICITY SYSTEM, VERSION 2. EB 50 – ANN14.</p> <p>CAR 22: In Section B.6.1 of the PDD version 1, the descriptions of parameters $EF_{grid,BM,y}$ and $EF_{grid,OM,y}$ in equation 6 are not in accordance with the descriptions provided in equation 14 of the TOOL TO CALCULATE THE EMISSION FACTOR FOR AN ELECTRICITY SYSTEM, VERSION 2. EB 50 – ANN14.</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>Regarding Project Emissions calculation:</p> <p>CAR 23: In Section B.6.1 of the PDD version 1, parameter $PE_{FF,y}$ and the description of parameters $PE_{GP,y}$ and $PE_{HP,y}$ in equation 07 are not in accordance with equation 1 of the APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p> <p>PP indicates correctly that as described on the table 6 on the item B.2 the power density of SHP Passos Maia is higher than 10 W/m^2 and $PHP.y = 0$. Therefore, for Passos Maia Project, $PE_y = 0$.</p> <p>See for calculation of Power Density also item (3.l.i).</p> <p>CAR 24: In Section B.6.1 of the PDD (version 1), the explanation of the procedure to calculate the power density of the project activity is missing. This is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			Leakage: No leakage needs to be considered, according to the relevant methodology (ACM0002v.12).		


**BUREAU
VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. Equations used in calculating emission reductions	EB 41	Ann 12	Please refer to item (3.p.i) above	OK	OK
iii. Explanation and justification for all relevant methodological choices, including different scenarios or cases, options and default values	EB 41	Ann 12	CAR 25: In Section B.6.1 of the PDD version 1, PP does not explain the methodological choices described in Steps 1 to 7 of the latest version of the Tool to Calculate the Emission Factor. This is not in accordance with item (b) of B.6.1 of the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.	CAR 25	OK
q. In CDM-PDD section B.6.2 are following provided?	EB 41	Ann 12		OK	OK
i. A compilation of information on the data and parameters that are not monitored throughout the crediting period but that are determined only once and thus remains fixed throughout the crediting period AND that are available when validation is undertaken	EB 41	Ann 12	PP provides information regarding two parameters that do not need to be monitored: - Installed capacity (W) of the hydro power plant before the implementation of the project activity (CapBL) - Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m2).(ABL)	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. The actual value applied	EB 41	Ann 12	Please refer to item (3.q.i) above.	OK	OK
iii. Explanation and justification for the choice of the source of data	EB 41	Ann 12	Please refer to item (3.q.i) above.	OK	OK
iv. Clear and transparent references or additional documentation in Annex 3	EB 41	Ann 12	No additional information is provided in Annex 3.	OK	OK
v. Where values have been measured, a description of the measurement methods and procedures (e.g. which standards have been used), indicated the responsible person/entity having undertaken the measurement, the date of measurement(s) and the measurement results	EB 41	Ann 12	Please refer to item (3.q.i) above.	OK	OK
r. In CDM-PDD section B.6.3 are following provided?	EB 41	Ann 12		OK	OK
i. A transparent <i>ex ante</i> calculation of project emissions, baseline emissions (or, where applicable, direct calculation of emission reductions) and leakage emissions expected during the crediting period, applying all relevant equations provided in the approved methodology	EB 41	Ann 12	<p>Project emission = zero.</p> <p>Leakage = zero.</p> <p>Therefore, emission reductions = Baseline emissions:</p> <p>CAR 26: In Section B.6.3 of the PDD version 1, in the equation to calculate baseline emissions (equation 4), the description of ER_y, BE_y and $EF_{grid,CM,y}$ are not in accordance with ACM0002: "CONSOLIDATED BASELINE</p>	CAR 26 CAR 27 CAR 28 CAR 29	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES". VERSION 12.</p> <p>CAR 27: In Section B.6.3 of the PDD version 1, the title "<u>EG_{PJ} Calculation</u>" is not in accordance with ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES". VERSION 12.</p> <p>PP provides table 11 with the EG_{PJ,y} of the three power plants in the period 2012 – 2018.</p> <p>Total 878,876 MWh for a period of 7 years.</p> <p>CAR 28: In Section B.6.3 of the PDD version 1, in table 11, the total amount of MWh (878,876) is not the same as the sum of the individual years (2012-2018).</p> <p>PP provides in table 12 the Emission Factor calculations (EF_{grid,CM,y}):</p> <p>CAR 29: In Section B.6.3 of the PDD version 1, on table 12, the values provided by PP for EF_{grid,BM} are not in accordance with the values provided by PP in annex III of the PDD and the values given by the Brazilian DNA on: http://www.mct.gov.br/index.php/content/view/303</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<u>076.html#ancora</u> (accessed on 21.10.2010). <i>Ex ante</i> EF used for calculation of $EF_{grid,CM,y}$ is 0.1635 tCO ₂ (year of 2009).		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. Documentation how each equation is applied, in a manner that enables the reader to reproduce the calculation	EB 41	Ann 12	Please refer to CARs and CLs in items (3.p) and (3.r) above.	OK	OK
iii. Additional background information and or data in Annex 3, including relevant electronic files (i.e. spreadsheets)	EB 41	Ann 12	<p>PP has provided the DOE with electronic files containing:</p> <ul style="list-style-type: none"> - Monthly generation estimates (MWh) - CERs estimates - Combined margin emission factors for 2009 as produced by the Brazilian DNA. <p>Annex 3 of the PDD includes:</p> <ul style="list-style-type: none"> - Combined margin emission factors for 2009 as produced by the Brazilian DNA. 	OK	OK
s. In CDM-PDD section B.6.4 are the results of the <i>ex ante</i> estimation of emission reductions for all years of the crediting period, provided in a tabular format?	EB 41	Ann 12	<p>PP provides in Section B.6.4 Table 14, which has been produced in accordance with the relevant guidelines.</p> <p>See however CAR in item (3.r.i) above.</p>	OK	OK
t. In CDM-PDD section B.7.1 are following provided?	EB 41	Ann 12		OK	OK
i. Specific information on how the data and parameters that need to be monitored would actually be collected during monitoring for the	EB 41	Ann 12	CAR 30: In Section B.7.1 of the PDD version 1, PP states that the only parameters to be	CAR 30 CAR 31 CAR 32	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
project activity			<p>measured are: “the project’s installed capacity, the electricity generation by the project and the project activity’s power plant reservoir area” This is not in accordance with ACM0002: “CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES”. VERSION 12.</p> <p>CAR 31: In Section B.7.1 of the PDD (version 1), regarding the data/parameter $EG_{facility,y}$, the value of the data applied should not be expressed in MW but in MWh/year according to ACM0002: “CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES” VERSION 12.</p> <p>CAR 32: In Section B.7.1 of the PDD version 1, the parameter TEG_y is indicated as a parameter to be monitored. This is not in accordance with ACM0002: “CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES”. VERSION 12.</p> <p>CAR 33: In Section B.7.1 of the PDD (version 1), regarding the data/parameter A_{PJ}, PP does not define monitoring frequency as yearly. This is not</p>	CAR 33	



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			in accordance with "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12.		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. For each parameter the following below information, using the table provided:	EB 41	Ann 12		OK	OK
a. The source(s) of data that will be actually used for the proposed project activity (e.g. which exact national statistics). Where several sources may be used, explain and justify which data sources should be preferred.	EB 41	Ann 12	<p>Yes,</p> <p>Source of data for $EG_{\text{facility},y}$: Project activity site;</p> <p>Source of data for $EF_{\text{grid},CM,y}$: Brazilian DNA. website: http://www.mct.gov.br/index.php/content/view/303076.html#ancora (check by the DOE on 21.10.2010)</p> <p>Source of data: for Cap_{PJ}: Installation license emitted by the environmental agency.</p> <p>Source of data: for A_{PJ}: Project Site.</p>	OK	OK
b. Where data or parameters are supposed to be measured, specify the measurement methods and procedures, including a specification which accepted industry standards or national or international standards will be applied, which measurement equipment is used, how the measurement is undertaken, which calibration procedures are applied, what is the accuracy of the measurement method, who is the responsible person/entity that	EB 41	Ann 12	<p>CAR 34: In Section B.7.1 of the PDD (version 1), the following information is missing regarding data/parameters $EG_{\text{facility},y}$: (1) a specification which accepted industry standards or national or international standards will be applied, (2) which calibration procedures are applied, (3) what is the accuracy of the measurement method and (4) who is the responsible person/entity that should undertake the measurements. This is not in accordance with GUIDELINES FOR</p>	CAR 34 CAR 35	OK


**BUREAU
VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
should undertake the measurements and what is the measurement interval; (i) A description of the QA/QC procedures (if any) that should be applied; (ii) Where relevant: any further comment. Provide any relevant further background documentation in Annex 4.			<p>COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p> <p>CAR 35: In Section B.7.1 of the PDD (version 1), the following information is missing regarding data/parameters A_{PJ}: (1) a specification which accepted industry standards or national or international standards will be applied, (2) which measuring equipment is used, (3) how the measuring is undertaken, (4) what is the accuracy of the measuring method and (5) what is the measurement interval. This is not in accordance with GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p> <p>No additional information is supplied in Annex 4.</p>		
u. In CDM-PDD section B.7.2 are following provided?	EB 41	Ann 12		OK	OK
i. A detailed description of the monitoring plan	EB 41	Ann 12	Yes, see below:	OK	OK
ii. The operational and management structure that the project operator will implement in order to	EB 41	Ann 12	Yes. The procedures to (1) generation data collection, (2) data storage and (3) meters	CL 12 CAR 36	OK


**BUREAU
VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
monitor emission reductions and any leakage effects generated by the project activity			<p>calibration are described in item B.7.2 of the PDD.</p> <p>CL 12: In Section B.7.2 of the PDD, please provide a detailed description of the procedure that will be adopted to crosscheck the electricity generation data as obtained from the metering installation.</p> <p>CAR 36: In Section B.7.2, PP describes the procedures to measure the gross electricity generation at the power plant. This is not a monitored parameter in accordance with ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES". VERSION 12.</p> <p>Section B.7.2 describes that meters calibration will follow what was described on the document elaborated by procedure: "ONS - Sub module 12.3". This was checked by the DOE at: http://www.ons.org.br/download/procedimentos/modulos/Modulo_12/Submodulo%2012.3_Rev_1.0.pdf (accessed on 21.10.2010).</p>		
iii. The responsibilities for and institutional arrangements for data collection and archiving	EB 41	Ann 12	<p>Responsibilities:</p> <p>Operation and Maintenance Board: responsible</p>	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			for the plant's operation. Measurement Area: responsible for collecting data from measuring meters and for the consolidation and analysis of the monthly generation spreadsheets.		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
iv. Indication that the monitoring plan reflect good monitoring practice appropriate to the type of project activity	EB 41	Ann 12	Yes, see however item (3.u).	OK	OK
v. Relevant further background information in Annex 4	EB 41	Ann 12	No further background information is provided in Annex 4.	OK	OK
v. In CDM-PDD section B.8 are following provided?	EB 41	Ann 12		OK	OK
i. Date of completion of the application of the methodology to the project activity study in DD/MM/YYYY	EB 41	Ann 12	27/09/2010	OK	OK
ii. Contact information of the person(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity	EB 41	Ann 12	Enerbio Consultoria Ltda - ME Contacts: Eduardo Baltar de Souza Leão Porto Alegre. Brazil Tel: 55 51 3392-1505 Email: eduardo@enerbio-rs.com.br www.enerbio-rs.com.br	OK	OK
iii. Indication if the person/entity is also a project participant listed in Annex 1	EB 41	Ann 12	Enerbio Consultoria is also a project participant listed on Annex I	OK	OK
w. In CDM-PDD section C.1.1 are following provided?	EB 41	Ann 12		OK	OK
i. The starting date of a CDM project activity, which is the earliest of the date(s) on which the implementation or construction or real action of a project activity begins/has begun (EB33, Para 76/CDM Glossary of terms/EB41, Para 67)	EB 41	Ann 12	21/12/2009. This date corresponds to the date when the company that will build SHP Passos Maia was hired.	OK	OK
ii. A description of how this start date has been determined, and a description of the evidence	EB 41	Ann 12	See CL in item (3.o,iv) wherein a copy of the contract mentioned in Section C.1.1 of the PDD is	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
available to support this start date			requested by the DOE.		
iii. If this starting date is earlier than the date of publication of the CDM-PDD for global stakeholder consultation by a DOE, description in Section B.5 contain a of how the benefits of the CDM were seriously considered prior to the starting date (EB41, Para 68).	EB 41	Ann 12	Yes, please refer to item (3.o.iv) for a discussion on how the DOE was able to validate the prior consideration.	OK	OK
x. In CDM-PDD section C.1.2 is the expected operational lifetime of the project activity in years and months provided?	EB 41	Ann 12	Yes, 22 years and 2 months. CL 13: Please clarify how the operational lifetime, described in Section C.1.2 of the PDD (version 1) of the project activity was defined. Please provide third party evidence so the DOE can validate the project's operational lifetime.	CL 13	OK
y. In CDM-PDD section C.2 is it stated whether the project activity will use a renewable or a fixed crediting period and is C.2.1 or C.2.2 completed accordingly?	EB 41	Ann 12	Yes. PP chooses a renewable crediting period.	OK	OK
z. In CDM-PDD section C.2.1 is it indicated that each crediting period shall be at most 7 years and may be renewed at most two times, provided that, for each renewal, a designated operational entity determines and informs the Executive Board that the original project baseline is still valid or has been updated taking account of new data where applicable?	EB 41	Ann 12	Yes, in the PDD section C.2.1, it is indicated that each crediting period shall be at most 7 years and may be renewed at most two times	OK	OK
aa. In CDM-PDD section C.2.1.1 are dates in the	EB	Ann		CL 14	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
following format: (DD/MM/YYYY) provided?	41	12	01/01/2012 (Prevision for operations beginning and project Registration) CL 14: Regarding Section C.2.1.1, please clarify how the expected operation start of the power plant (01.01.2012) was defined, as this is not clear to the DOE seeing the evidence provided by PP: ANEXO I - CRONOGRAMA FÍSICO.		
bb. In CDM-PDD section C.2.1.2 is the length of the first crediting period in years and months provided?	EB 41	Ann 12	Yes, 7 years.	OK	OK
cc. In CDM-PDD section C.2.2 is the fixed crediting period at most ten (10) years provided?	EB 41	Ann 12	Not applicable	OK	OK
dd. In CDM-PDD section C.2.2.1 are the dates provided in the following format: (DD/MM/YYYY)?	EB 41	Ann 12	Not applicable	OK	OK
ee. In CDM-PDD section C.2.2.2 is the length of the crediting period in years and months Provided?	EB 41	Ann 12	Not applicable	OK	OK
ff. In CDM-PDD section D.2 are the conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the Host Party, if environmental impacts are considered significant by the project participants or the Host, provided?	EB 41	Ann 12	According to Brazilian Legislation, there are three environmental licenses needed. First the LP (Previous License), then the LI (Installation License), and last the LO (Operating License). The project activity has obtained the first two: Passos Maia LP: 303/2003 of 19.03.2003. Passos Maia LI: 001/2007	CL 15	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>CL 15: During site visit, the DOE observed that the Installation License mentioned in Section D.1 of the PDD version 1 (001/2007) is not the latest license emitted by the environmental agency. Please provide a copy o the latest document.</p> <p>The last one (LO) can be requested only after the construction of the SHPPs.</p> <p>A Copy of The Environmental Impact Study was presented to the DOE during site visit:</p> <p>Estudo de Impacto Ambiental - Implantação da Pequena Central Hidrelétrica – PCH Passos Maia, produced by: Terra - Consultoria em Engenharia e Meio Ambiente Ltda. (date: August 2007. It contains:</p> <p>01. Justification 02. Objectives 03. General Description of Enterprise 04. Institutional and Legal Aspects 05. Technological Alternatives and Location 06. Impact Areas 07. Methodology 08. Environmental Diagnosis 09. Integrated Analysis 10. Prognosis 11. Control Programs and Environmental Monitoring Programs</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			Some of the programs that will be developed to minimize the project's impact are described in Section D.2 of the PDD. A complete list was provided to the DOE: "Relatório de detalhamento dos programas ambientais"		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
gg. In CDM-PDD section E.1 are the following provided?	EB 41	Ann 12		OK	OK
i. The process by which comments by local stakeholders have been invited and compiled. An invitation for comments by local stakeholders shall be made in an open and transparent manner, in a way that facilitates comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted.	EB 41	Ann 12	<p>Yes, PP has invited local stakeholders to comment on the project activity. Letters were sent to:</p> <ul style="list-style-type: none"> - City Hall of Passos Maia - City Assembly of Passos Maia - Passos Maia Commercial and Industry Association - FATMA – Santa Catarina's Environmental Agency - Agriculture Municipal Secretary - State Secretary of Sustainable Economic Development - State of Santa Catarina Attorney of Public Interest - Federal Attorney of Public Interest - Brazilian NGO Forum <p>Copy of letters and evidence of receipt (A/R) were given to the DOE during site visit.</p> <p>The PDD was put online at www.enerbio-rs.com.br. Local Stakeholders were also given the opportunity to comment through e-mail and through conventional mail.</p> <p>CL 16: Please provide a reference for the</p>	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			statement in the first paragraph of Section E.1 of the PDD version 1.		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. The project activity is described in a manner, which allows the local stakeholders to understand the project activity, taking into account confidentiality provisions of the CDM modalities and procedures.	EB 41	Ann 12	Yes, the PDD was put online in the Portuguese language and the letter described the project in a simple though complete manner.	OK	OK
iii. The local stakeholder process has been completed before submitting the proposed project activity to the DOE for validation.	EB 41	Ann 12	<p>CAR 37: In section E.1 of the PDD version 1, PP states that letters were sent to local stakeholders, inviting them to comment on the Project. According to evidence provided by PP, letters were sent on the 24th of September 2010 and received by local stakeholders between 28 and 30 of September 2010. However, the first version of the PDD that was presented to the DOE for validation was finalized on the 27th of September 2010. Local stakeholders had, therefore, no reasonable time for comments. This is not in accordance with GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p> <p>CL 17: Regarding section E.1 of the PDD version 1, Please provide a copy of the letter send to the State Secretary of Sustainable Economic Development. Please also provide the evidence of receipt (A/R).</p>	CAR 37 CL 17	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
hh. In CDM-PDD section E.2 are following provided?	EB 41	Ann 12		OK	OK
i. Identification of local stakeholders that have made comments	EB 41	Ann 12	No comments had been received by PP until the validation procedure.	OK	OK
ii. A summary of this comments.	EB 41	Ann 12	No comments had been received by PP until the validation procedure.	OK	OK
ii. In CDM-PDD section E.3 is the explanation of how due account have been taken of comments received from local stakeholders provided?	EB 41	Ann 12	No comments had been received by PP until the validation procedure.	OK	OK
jj. In CDM-PDD Annex 1 are the following provided?	EB 41	Ann 12			
i. Contact information of project participants	EB 41	Ann 12	Yes, contact information is provided of the project participants: Passos Maia Energética S.A Enerbio Consultoria Ltda – Me	OK	OK
ii. For each organisation listed in section A.3 the following mandatory fields: Organization, Name of contact person, Street, City, Postfix/ZIP, Country, Telephone and Fax or e-mail	EB 41	Ann 12	Yes. All mandatory fields are listed.	OK	OK
kk. In CDM-PDD Annex 2 is information from Parties included in Annex I on sources of public funding for the project activity which shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the	EB 41	Ann 12	No public funding coming from Annex I countries was used in this project.	OK	OK



**BUREAU
VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
financial obligations of those Parties provided?					
II. In CDM-PDD Annex 3 is the background information used in the application of the baseline methodology provided?	EB 41	Ann 12	<p>Yes, Annex 3 provides the baseline emission figures for 2009 as calculated by the Brazilian DNA and crosschecked by the DOE on 18.10.2010 on: http://www.mct.gov.br/index.php/content/view/74689.html</p> <p>CAR 38: In Annex 3 of the PDD version 1, PP refers to an old version of the Tool to calculate emission factor (EB 35 – Annex 12). This is not in accordance with ACM0002: “CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES”. VERSION 12.</p> <p>CAR 39: In Annex 3 of the PDD version 1, PP refers to another CDM project: Santa Carolina Project.</p>	CAR 38 CAR 39	OK
mm. In CDM-PDD Annex 4 is the background information used in the application of the monitoring methodology provided?	EB 41	Ann 12	No background information is provided regarding the monitoring methodology will be applied.	OK	OK
4. Project description					
a. Does the PDD contain a clear description of the project activity that provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its	VVM	58	Yes, in Section A.2 and in Section A.4.3, the PDD provides a clear description of the project activity and the technical aspects of its implementation:	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
implementation?			<p>The project activity involves the development of a Greenfield plant consistent in a run-of-river power plant with 25 MW installed capacity and a reservoir area of 1.75 km².</p> <p>Please refer to item (3.d) up to (3.h) for a discussion on the project description, including all technical aspects and CARs and CLs raised by the DOE.</p>		
b. Is the description of the proposed CDM project activity as contained in the PDD:	VVM	59	Please refer to items (3.d), (3.f) and (3.h) above	OK	OK
i. sufficiently covering all relevant elements?	VVM	59	Please refer to items (3.d), (3.f) and (3.h) above	OK	OK
ii. accurate?	VVM	59	Please refer to items (3.d), (3.f) and (3.h) above	OK	OK
iii. providing the reader with a clear understanding of the nature of the proposed CDM project activity?	VVM	59	Please refer to items (3.d), (3.f) and (3.h) above	OK	OK
iv. Are there any changes/modifications compared to the webhosted PDD?	VVM	59		OK	OK
c. Is the proposed CDM project activity in existing facilities or utilizing existing equipments?	VVM	60	<p>No, the project activity involves the development of a Greenfield plant consistent in a run-of-river power plant with 25 MW installed capacity and a reservoir area of 1.75 km².</p> <p>The DOE was able to validate this through site visit held on the 26th of October 2010.</p>	OK	OK
d. Is the CDM project activity one of the following	VVM	60		OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
types:					
i. Large scale?	VVM	60	Yes. The following large scale methodology is applicable: ACM0002v12	OK	OK
ii. Non-bundled small scale projects with emission reductions exceeding 15,000 tonnes per year?	VVM	60	The project is a large scale activity.	OK	OK
iii. Bundled small scale projects, each with emission reductions not exceeding 15,000 tonnes?	VVM	60	The project is a large scale activity.	OK	OK
e. If yes to (c) and (d) above, was a physical site inspection conducted to confirm that the description in the PDD reflects the proposed CDM project activity, unless other means are specified in the methodology?	VVM	60	Yes. During site visit held on the 26 th of October 2010, the DOE could assess that the construction of the small hydropower plant is being carried out in accordance to the description provided in the webhosted PDD.	OK	OK
f. If yes to (d.iii) above, was the number of physical site visits base on sampling?	VVM	60	The project is a large scale activity.	OK	OK
g. If yes is the sampling size appropriately justified through statistical analysis?	VVM	60	The project is a large scale activity.	OK	OK
h. For other individual proposed small scale CDM project activities with emission reductions not exceeding 15,000 tonnes per year, was a physical site inspection conducted?	VVM	61	The project is a large scale activity.	OK	OK
i. For all other proposed CDM project activities not referred to in paragraphs 59 – 61, was a physical site inspection conducted?	VVM	62	Please refer to item (4.e) above.	OK	OK
j. If no, was it appropriately justified?	VVM	62	Not applicable	OK	OK
k. Does the proposed CDM project activity involve the alteration of an existing installation or process?	VVM	63	No, the project activity involves the development of a Greenfield plant consistent in a run-of-river power plant with 25 MW installed capacity and a reservoir area of 1.75 km ² .	OK	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
I. If yes, does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	VVM	63	No, the project activity involves the development of a Greenfield plant consistent in a run-of-river power plant with 25 MW installed capacity and a reservoir area of 1.75 km ² .	OK	OK
5. Baseline and monitoring methodology					
a. General requirement					
a. Do the baseline and monitoring methodologies selected by the project participants comply with the methodologies previously approved by the CDM Executive Board?	VVM	65	Yes, the selected methodology is: Approved consolidated baseline and monitoring methodology ACM0002: “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (version 12).	OK	OK
b. Is the selected methodology applicable to the project activity?	VVM	66	Refer to (5.b.a) below	OK	OK
c. Had the PP correctly applied the selected methodology?	VVM	66	Refer to (5.b.d) below	OK	OK
d. Had the selected methodology been correctly applied with respect to project boundary?	VVM	67	Refer to (5.c) below	OK	OK
e. Had the selected methodology been correctly applied with respect to baseline identification?	VVM	67	Refer to (5.d) below	OK	OK
f. Had the selected methodology been correctly applied with respect to Algorithms and/or formulae used to determine emission reductions?	VVM	67	Refer to (5.e) below	OK	OK
g. Had the selected methodology been correctly	VVM	67	Please refer to item (6) below: Additionality of a	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
applied with respect to Additionality?			project activity		
i. Has the Additionality of the project activity been demonstrated and assessed using the latest version of the "Tool for the demonstration and assessment of Additionality" agreed by the Board, which is available on the UNFCCC website?	ACM	0002 v.12	Yes, the latest version of the Tool has been used: "Tool for the demonstration and assessment of Additionality" (Version 05.2).	OK	OK
h. Had the selected methodology been correctly applied with respect to monitoring methodology?	VVM	67	Refer to (7.g), (7.h), (7.i), (7.j) and (7.k) below	OK	OK
b. Applicability of the selected methodology to the project activity					
a. Is the selected baseline and monitoring methodology, previously approved by the CDM Executive Board, applicable to the project activity? Is the used version valid?	VVM	68	Yes, the methodology is applicable: see below. The used version (version 12) is also valid: http://cdm.unfccc.int/UserManagement/FileStorage/NAIRO8FDLZHKM42TYQGJS91WVBE36X (accessed by the DOE on 17.10.2010).	OK	OK
i. This methodology is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plants); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).	ACM	0002 v.12	Yes: This methodology is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plants). The DOE was able to validate this through site visit held on the 26 th of October 2010. The PDD contains some errors regarding the	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			description of the applicability conditions of the relevant methodology. Please refer to item (3.I) above.		


**BUREAU
VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
b. Has the DOE applied specific guidance provided by the CDM Executive Board in respect to the applicable approved methodology?	VVM	69	Yes, the following guidance were applied: GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07	OK	OK
c. Is the methodology correctly quoted?	VVM	70	See item (3.k.i) for a CAR related to how the methodology is quoted.	OK	OK
d. Are the applicability conditions of the methodology met?	VVM	71		OK	OK
i. The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit	ACM	0002 v.12	The project activity involves the development of a Greenfield plant consistent in a run-of-river power plant with 25 MW installed capacity and a reservoir area of 1.75 km ² . See item (5.b.i) above for a discussion on how the DOE has validated the project's applicability.	OK	OK
ii. In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects which use Option 2: on page 10 to calculate the parameter $EG_{PJ,y}$): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline	ACM	0002 v.12	The project activity involves the development of a Greenfield plant consistent in a run-of-river power plant with 25 MW installed capacity and a reservoir area of 1.75 km ² .	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
emissions and defined in the baseline emission section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.					
iii. In case of hydro power plants, one of the following conditions must apply: - The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; or - The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m ² ; or - The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m ² .	ACM	0002 v.12	<p>The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m².</p> <p>Section A.4.3 of the PDD provides technical description of the project activity, including the installed capacity and the reservoir area. This information is needed to calculate the project's power density according to equation 1 of the PDD.</p> <p>See item (3.h.1) for a discussion on how the DOE has validated the SHPP's installed capacity and reservoir areas, and thus, also its power density.</p>	OK	OK
iv. The methodology is not applicable to the following conditions. Please confirm - Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity - Biomass fired power plants;	ACM	0002 v.12	<p>CAR 40: In Section B.2 of the PDD version 1, PP does not confirm that the project does not comprises one on the following two options: (1) Project activities that involve switching from fossil fuels to renewable energy sources at the site of</p>	CAR 40	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
- Hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m ² .			the project activity and, (2) Biomass fired power plants.		
v. In the case of retrofits, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, i.e. to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	ACM	0002 v.12	The project activity is the installation of a new hydro power plant (run-of-river). (Greenfield)	OK	OK
e. Is the project activity expected to result in emissions other than those allowed by the methodology?	VVM	71	No, there are no project emissions. Please refer to item (3.p) above for a discussion regarding project emission.	OK	OK
f. Is the choice of the methodology justified?	VVM	71	Refer to (5.b.d) above	OK	OK
g. Have the project participants shown that the project activity meets each of the applicability conditions or the approved methodology?	VVM	71	Refer to (5.b.d) above	OK	OK
h. Have the project participants shown that the project activity meets each of the applicability conditions of any tool or other methodology component referred to the methodology?	VVM	71	Yes: See below:	OK	OK
i. Are each of the applicability conditions of the "Tool to calculate the emission factor for an electricity system" met?	EB 50	Ann 40	Yes: "This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions"	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			for a project activity that substitutes grid electricity, i.e. where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).”		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. Are each of the applicability conditions of the “Tool for the demonstration and assessment of Additionality” met?	EB 39	Ann 10	Yes: “The document [Additionality tool] provides a general framework for demonstrating and assessing Additionality and is applicable to a wide range of project types.”	OK	OK
iii. Are each of the applicability conditions of the “Combined tool to identify the baseline scenario and demonstrate Additionality” met?	EB 28	Ann 14	Not applicable as this tool is not used in the project.	OK	OK
iv. Are each of the applicability conditions of the “Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion” met?	EB 41	Ann 11	Not applicable as this tool is not used in the project.	OK	OK
i. Is the DOE, based on local and sectoral knowledge, aware that comparable information is available from sources other than that used in the PDD?	VVM	71	Yes, see below:	OK	OK
j. If yes, was the PDD cross checked against the other sources to confirm that the project activity meets the applicability conditions of the methodology? (provide the reference to these choices)	VVM	71	Please refer to item (3.l.ii) above.	OK	OK
k. Can a determination regarding the applicability of the selected methodology to the proposed CDM project activity be made?	VVM	72	Yes, the project is applicable. See item 5.b.d above.	OK	OK
l. If no, clarification of the methodology was requested, in accordance with the guidance provided by the CDM Executive Board?	VVM	72	Not applicable.	OK	OK
m. If answer to (5.b.d) above is “no”, revision or	VVM	73	Not applicable.	OK	OK


**BUREAU
VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
deviation from the methodology was requested, in accordance with the guidance provided by the CDM Executive Board?					
n. If yes to (5.b.l) and (5.b.m) above, a request for registration was submitted before the CDM Executive Board has approved the proposed deviation or revision?	VVM	74	Not applicable.	OK	OK
c. Project boundary					
a. Does the PDD correctly describe the project boundary, including the physical delineation of the proposed CDM project activity included within the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity?	VVM	78	See items (3.m.i), (3.m.ii) and (3.m.iii) above for a discussion regarding project boundary.	OK	OK
i. Does the extent of the project boundary, as described in the PDD, includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to?	ACM	0002 v12	<p>Yes, according to the PDD, the spatial extension of the project boundary includes the project power plant and all power plants physically connected to the electricity system that the CDM project power plant is connected to. This statement is in accordance with ACM0002v12.</p> <p>So, the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to (the SIN) are included in the project boundary.</p> <p>See items (3.m.i), (3.m.ii) and (3.m.iii) above for a discussion regarding project boundary and how</p>	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			the project electricity system has been defined.		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. Are the greenhouse gases and emission sources that are included in or excluded from the project boundary shown in a table format as per applicable methodology?	ACM	0002 v 12	Yes, See item (3.m.i) for a discussion regarding the greenhouse gases and emission sources in or excluded from the project boundary. See items (3.m.i), (3.m.ii) and (3.m.iii) above for a discussion regarding project boundary	OK	OK
b. Is the delineation in the PDD of the project boundary correct and include identification of all locations, processes and equipment including secondary equipment and associated processes such as logistics etc.?	VVM	79	Yes, the PP section B.3 contains a delineation of the project boundary in accordance with the relevant methodology. It includes identification of all locations, processes and equipment associated with the project activity. See items (3.m.i), (3.m.ii) and (3.m.iii) above for a discussion regarding project boundary	OK	OK
c. Does the delineation in the PDD of the project boundary meet the requirements of the selected baseline mythology?	VVM	79	Please refer to items (5.c.a.i), (5.c.a.ii) above.	OK	OK
d. Have changes been made to the project boundary in comparison to the webhosted PDD. If yes please comment on the reason for the changes.	VVM	79	No. During site visit held on the 26 th of October 2010, the DOE could assess that the construction of the small hydropower plant is being carried out in accordance to the description provided in the webhosted PDD.	OK	OK
e. Have all sources and GHGs required by the methodology been included within the project boundary?	VVM	79	Yes. Only GHG included: Baseline: CO ₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
f. Does the methodology allow project participant to choose whether a source or gas is to be included within the project boundary	VVM	79	No, the methodology prescribes which gases are to be included within the project boundary.	OK	OK
g. If yes, have the project participants justified that choice?	VVM	79	Not applicable.	OK	OK
h. If yes, is the justification provided reasonable? (provide reference to the supporting documented evidence provided by the project participants)	VVM	79	Not applicable	OK	OK
d. Baseline identification					
a. Does the PDD identify the baseline for the proposed CDM project activity, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed CDM project activity?	VVM	81	Yes, the baseline scenario is defined according to the methodology ACM0002 version 12. However, some minor errors were found. Please refer to item 3.n.i above.	OK	OK
b. Has any procedure contained in the methodology to identify the most reasonable baseline scenario, been correctly applied?	VVM	82	No procedure is to be applied for Greenfield plants according to the methodology.	OK	OK
i. If the project activity is the install a new grid-connected renewable power plant/unit (greenfield plant), is the baseline scenario identified appropriately in accordance with the ACM0002 ver.12?	ACM	0002 v12	Please refer to item (3.n.i) above for a discussion regarding the identification of the baseline scenario.	OK	OK
ii. If the project activity is a capacity addition to existing grid-connected renewable power plant/unit, is the baseline scenario identified appropriately in accordance with the ACM0002 ver. 12? And is the point of time at which the generation facility would likely be replaced or	ACM	0002 v12	Not applicable. The project is a Greenfield plant.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
retrofitted (DATE Baseline Retrofit) reasonably defined?					
iii. If the project activity is the retrofit or replacement of existing grid-connected renewable power plant/unit, is the baseline scenario identified following the step-wise procedure in accordance with the ACM0002 ver.12?	ACM	0002 v12	Not applicable. The project is a Greenfield plant.	OK	OK
iv. Are the realistic and credible alternative baseline scenarios for power generation appropriately identified following the Step 1 of the "Combined tool to identify the baseline scenario and demonstrate Additionality"? (Step 1)	ACM	0002 v12	Not applicable. The project is a Greenfield plant.	OK	OK
v. Are the realistic and credible alternative baseline scenarios i.e. P1, P2 and P3 appropriately applied Barrier analysis following the Step 2 of the "Combined tool to identify the baseline scenario and demonstrate Additionality"? (Step 2)	ACM	0002 v12	Not applicable. The project is a Greenfield plant.	OK	OK
vi. If more than one alternative is remaining after Step 2, is Investment analysis appropriately applied (apply an Investment Comparison as per step 3 of the "Combined tool to identify the baseline scenario and demonstrate Additionality" or a Benchmark Analysis as per step 2b of the "Tool for the demonstration and assessment of Additionality")? (Step 3)	ACM	0002 v12	Not applicable. The project is a Greenfield plant.	OK	OK
c. Does the selected methodology require use of	VVM	82	No, for this type of project (Greenfield plant), the	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
tools (such as the “Tool for the demonstration and assessment of Additionality” and the “Combined tool to identify the baseline scenario and demonstrate Additionality”) to establish the baseline scenario?			baseline scenario is provided by the methodology ACM0002v12.		
d. If yes, was the methodology consulted on the application of these tools? (In such cases, the guidance in the methodology shall supersede the tool.)	VVM	82	Not applicable. The project is a Greenfield plant.	OK	OK
e. Does the methodology require several alternative scenarios to be considered in the identification of the most reasonable baseline scenario?	VVM	83	Not applicable. The project is a Greenfield plant.	OK	OK
f. If yes, are all scenarios that are considered by the project participants and are supplementary to those required by the methodology reasonable in the context of the proposed CDM project activity?	VVM	83	Not applicable. The project is a Greenfield plant.	OK	OK
g. Has any reasonable alternative scenario been excluded?	VVM	83	Not applicable. The project is a Greenfield plant.	OK	OK
h. Is the baseline scenario identified reasonably supported by:	VVM	84			
i. Assumptions?	VVM	84	Project comprises the installation a new SHP. For these types of project, the baseline is provided by the relevant methodology (ACM0002v12). Please refer to item (3.n.i) above for a discussion regarding the identification of the baseline scenario.	OK	OK
ii. Calculations?	VVM	84	Project comprises the installation a new SHP. For	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>these types of project, the baseline is provided by the relevant methodology (ACM0002v12).</p> <p>Please refer to item (3.n.i) above for a discussion regarding the identification of the baseline scenario.</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
iii. Rationales?	VVM	84	<p>Project comprises the installation a new SHP. For these types of project, the baseline is provided by the relevant methodology (ACM0002v12).</p> <p>Please refer to item (3.n.i) above for a discussion regarding the identification of the baseline scenario.</p>	OK	OK
i. Are the documents and sources referred to in the PDD correctly quoted and interpreted?	VVM	84	<p>No, please refer to item (3.n.i) above.</p>	OK	OK
j. Was the information provided in the PDD cross checked with other verifiable and credible sources, such as local expert opinion, if available? (identify the sources)	VVM	84	<p>Project comprises the installation a new SHP. For these types of project, the baseline is provided by the relevant methodology (ACM0002v12).</p> <p>The DOE was able to confirm this with the following:</p> <ul style="list-style-type: none"> - Site visit held on the 26th of October 2010. - Revision of Basic Engineering Project 1165/00-10-RL-0001-1 of 15 March 2010 (table 8.9 – Final Results, page 96). - ANEEL letter nr. 3116/2010-SGH/ANEEL of 20 September 2010 – ANEEL's confirmation that the revision of the Basic Engineering Project has been received by 	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>ANEEL</p> <ul style="list-style-type: none"> - Installation Environmental license 001/2007 of February 2007. - ANEEL Resolution nr 68 of March the 2nd 2004 – authorization of Adami S.A. – Madeiras to become a independent producer of electric energy by exploiting the hydraulic potential of Passos Maia SHP - ANEEL Resolution nr 1880, of April 7 2009, Transferring from Adami S.A. - Madeiras to <u>Passos Maia Energética S.A.</u> the authorization to explore the PCH Passos Maia hydraulic potential. - ANEEL Resolution nr 2385 of May 11 2010, wherein both Adami S.A. – Madeiras and Desenvix S.A. are approved as the legal controllers of Passos Maia Energética S.A. - Aneel online database: http://www.aneel.gov.br/15.htm 		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
k. Have all applicable CDM requirements been taken into account in the identification of the baseline scenario for the proposed CDM project activity?	VVM	85	<p>Project comprises the installation a new SHP. For these types of project, the baseline is provided by the relevant methodology (ACM0002v12).</p> <p>Please refer to item (3.n.i) above for a discussion regarding the identification of the baseline scenario.</p>	OK	OK
l. Have all relevant policies and circumstances been identified and correctly considered in the PDD, in accordance with the guidance by the CDM Executive Board?	VVM	85	<p>Project comprises the installation a new SHP. For these types of project, the baseline is provided by the relevant methodology (ACM0002v12).</p> <p>Please refer to item (3.n.i) above for a discussion regarding the identification of the baseline scenario.</p>	OK	OK
m. Does the PDD provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity?	VVM	86	No, please refer to item (3.n.i) above.	OK	OK
e. Algorithms and/or formulae used to determine emission reductions					
a. Do the steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected baseline and	VVM	89	<p>Yes. However, some errors were found.</p> <p>Please refer to items (3.p.i), (3.p.iii), (3.r.i), (3.r.ii) and (3.r.iii) above.</p>	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
monitoring?					
b. Have the equations and parameters in the PDD been correctly applied with respect those in the select approved methodology?	VVM	90	Please refer to items (3.p.i), (3.p.iii), (3.r.i), (3.r.ii) and (3.r.iii) above.	OK	OK
i. Are the Project emissions appropriately calculated?.	ACM	0002 v.12	Please refer to items (3.p.i), (3.p.iii), (3.r.i), (3.r.ii) and (3.r.iii) above.	OK	OK
ii. Are the Baseline emissions appropriately calculated specifically for (a)greenfield plants or (b) retrofit and replacements or (c) capacity additions?	ACM	0002 v.12	Please refer to items (3.p.i), (3.p.iii), (3.r.i), (3.r.ii) and (3.r.iii) above.	OK	OK
iii. Are the Leakage appropriately calculated?	ACM	0002 v.12	No leakage needs to be considered according to the relevant methodology (ACM0002v.12).	OK	OK
iv. Are the Emission reductions appropriately calculated?	ACM	0002 v.12	Please refer to item (3.r.i) above.	OK	OK
c. Have project participants prepared as part of the CDM-PDD an estimate of likely emission reductions for the proposed crediting period? This estimate should, in principle, employ the same methodology as selected for the calculation of emission reductions. Where the grid emission factor (EFCM,grid,y) is determined ex post during monitoring, project participants may use models or other tools to estimate the emission reductions prior to validation.	ACM	0002 v.12	Yes, In Section B.6.4 of the PDD, project participants have prepared an estimate of likely emission reductions for the proposed crediting period. See also item 3.s above.	OK	OK
d. Does the methodology provide for selection between different options for equations or	VVM	90	Yes, see below:	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
parameters?					
e. If yes, has adequate justification been provided (based on the choice of the baseline scenario, context of the proposed CDM project activity and other evidence provided)?	VVM	90	Please refer to item (3.p.iii) above	OK	OK
f. If yes, have correct equations and parameters been used, in accordance with the methodology selected?	VVM	90	Refer to (5.e.b) above	OK	OK
g. Will data and parameters be monitored throughout the crediting period of the proposed CDM project activity?	VVM	91	Yes. However, some data and parameters will not be monitored. See below:	OK	OK
h. If no, and these data and parameters will remain fixed throughout the crediting period, are all data sources and assumptions:	VVM	91	<p>PP provides information regarding two parameters that do not need to be monitored:</p> <ul style="list-style-type: none"> - Installed capacity (W) of the hydro power plant before the implementation of the project activity (CapBL) - Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m2).(ABL) 	OK	OK
i. Appropriate and correct?	VVM	91	Please refer to item (5.e.h) above.	OK	OK
ii. Applicable to the proposed CDM project activity?	VVM	91	Please refer to item (5.e.h) above.	OK	OK
iii. Resulting in a conservative estimate of the	VVM	91	Please refer to item (5.e.h) above.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
emission reductions?					
i. Will data and parameters be monitored on implementation and hence become available only after validation of the project activity?	VVM	91	<p>The following data and parameter will be monitored according to Section B.7.1 of the PDD:</p> <p>EG_{facility}</p> <p>TEG_y</p> <p>$EF_{\text{grid,CM,y}}$</p> <p>Cap_{PJ}</p> <p>A_{PJ}</p> <p>Item B.7.1 of the PDD has not been prepared in accordance with ACM0002v12. Please refer to item (3.t) above.</p>	OK	OK
j. If yes, are the estimates provided in the PDD for these data and parameters reasonable?	VVM	91	Please refer to item (3.t) above.	OK	OK
6. Additionality of a project activity					
a. Does the PDD describe how a proposed CDM project activity is additional?	VVM	94	Yes, the PDD Section B.5 provides by mean of an investment analysis, in accordance with the Tool for the Demonstration and Assessment of Additionality, an explanation of how and why the project activity is additional.	OK	OK
b. Does the CDM-PDD state the latest version of	ACM	0002	Yes: "Tool for the demonstration and assessment	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
the Additionality tool being used?		v.12	of Additionality" version 5.2.		
c. Were the following steps of the tool to assess Additionality used:	EB 39	Ann 10		OK	OK
i. Identification of alternatives to the project activity?	EB 39	Ann 10	Yes, see item (6.d) below.	OK	OK
ii. Investment analysis to determine that the proposed project activity is either: 1) not the most economically or financially attractive, or 2) not economically or financially feasible?	EB 39	Ann 10	Yes, see item (6.l) below.	OK	OK
iii. Barriers analysis?	EB 39	Ann 10	No. Only an investment analysis has been chosen.	OK	OK
iv. Common practice analysis?	EB 39	Ann 10	Yes, see item (3.y) below	OK	OK
d. In step 1 (i) have all the sub-steps as below been followed?	EB 39	Ann 10		OK	OK
i. Sub-step 1a: Define alternatives to the project activity	EB 39	Ann 10	<p>Alternatives are defined as following:</p> <ol style="list-style-type: none"> 1. The continuity of the present scenario, with electricity generation happening according to the current generation composition of the National Interconnected System; 2. The construction of a new mineral coal thermoelectric power plant, with similar installed capacity to the SHP Passos Maia; 3. The project activity undertaken without being registered as a CDM Project Activity. 	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			See items (6.e), (6.f) and (6.g) below.		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. Sub-step 1b: Consistency with mandatory laws and regulations	EB 39	Ann 10	Yes, all alternatives are consistent with mandatory laws and regulations. See items (6.h), (6.i), (6.j) below.	OK	OK
e. Have the following alternatives been included while defining alternatives as per sub-step 1a?	EB 39	Ann 10		OK	OK
i. (a) The proposed project activity undertaken without being registered as a CDM project activity;	EB 39	Ann 10	Yes, this alternative has been included: "The project activity undertaken without being registered as a CDM Project Activity."	OK	OK
ii. (b) Other realistic and credible alternative scenario(s) to the proposed CDM project activity scenario that deliver outputs services or services with comparable quality, properties and application areas, taking into account, where relevant, examples of scenarios identified in the underlying methodology;	EB 39	Ann 10	Yes, this alternative has been included: "The construction of a new mineral coal thermoelectric power plant, with similar installed capacity to the SHP Passos Maia" CL 18: In Section B.5 of the PDD version 1, in sub-step 1.a, please explain why the second alternative to the project activity (The construction of a new mineral coal thermoelectric power plant) does not include the construction of power plants that use other generation sources.	CL 18	OK
iii. (c) If applicable, continuation of the current situation (no project activity or other alternatives	EB 39	Ann 10	Yes, this alternative has been included:	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
undertaken).			"The continuity of the present scenario, with electricity generation happening according to the current generation composition of the National Interconnected System"		
f. Has the project participant included the technologies or practices that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity and that have been implemented previously or are currently being introduced in the relevant country/region?	EB 39	Ann 10	No, see item (6.e) above.	OK	OK
g. Has the outcome of Step 1a: Identified realistic and credible alternative scenario(s) to the project activity done correctly? Please briefly mention the outcome.	EB 39	Ann 10	<p>Yes, there are three scenarios:</p> <p>Alternatives are defined as following:</p> <p>1. The continuity of the present scenario, with electricity generation happening according to the current generation composition of the National Interconnected System;</p> <p>2. The construction of a new mineral coal thermoelectric power plant, with similar installed capacity to the SHP Passos Maia;</p> <p>3. The project activity undertaken without being registered as a CDM Project Activity.</p>	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			See however item (6.e) above.		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
h. Is the alternative(s) in compliance with all mandatory applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution.?	EB 39	Ann 10	<p>According to the PDD, all three identified scenarios are in compliance with the mandatory applicable legal and regulatory requirements due to the following considerations:</p> <ul style="list-style-type: none"> - “As exposed in item B.4 of this PDD, in the south region were 77% of the mineral coal thermoelectric are located. Particularly, in Santa Catarina, there are approximately 33% of the thermo electrical coal plants of the country” - According to MME, “it is the agents of distribution that decide and compromise themselves to pay, through contracts resulting from auctions, amounts of electrical energy coming from new installations of electric energy generation to be delivered (...). With the distributors’ information, the generators may then decide which new entrepreneurships of generation they wish to build, presenting in the auctions proposals of selling prices of their electric energy, competing for contracts of energy purchase from distributors. (source: http://www.epe.gov.br/PDEE/Forms/EPEE_studo.aspx, accessed by the DOE on 17.10.2010). <p>The DOE was able to validate that the</p>	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			alternative(s) in compliance with all mandatory applicable legal and regulatory requirements, observing the existence of coal fired power plants (and other thermal power plants) and of small hydro power plants in Brazil: http://www.aneel.gov.br/15.htm (Data bank Brazilian energy agency ANEEL accessed by the DOE on 21.10.2010).		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
i. If an alternative does not comply with all mandatory applicable legislation and regulations, has it been shown that, based on an examination of current practice in the country or region in which the law or regulation applies, those applicable legal or regulatory requirements are systematically not enforced and that noncompliance with those requirements is widespread in the country?	EB 39	Ann 10	Not applicable. Alternative do comply with all mandatory applicable legal and regulatory requirements.	OK	OK
j. Has the outcome of Step 1b: Identified realistic and credible alternative scenario(s) to the project activity that are in compliance with mandatory legislation and regulations taking into account the enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations done correctly? Please state the outcome.	EB 39	Ann 10	Yes, all three identified alternatives are in compliance with mandatory legislation and regulations. See however item (6.e) above.	OK	OK
k. Has PP selected Step 2 (Investment analysis) or Step 3 (Barrier analysis) or both Steps 2 and 3?	EB 39	Ann 10	PP has selected only Steps 2. See below:	OK	OK
l. In step 2, have all the sub-steps as below been followed?	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
i. Sub-step 2a: Determine appropriate analysis method;	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
ii. Sub-step 2b: Option I. Apply simple cost analysis;	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
iii. Sub-step 2b: Option II. Apply investment comparison analysis;	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
iv. Sub-step 2b: Option III. Apply benchmark analysis;	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK


**BUREAU
VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
v. Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III);	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
vi. Sub-step 2d: Sensitivity analysis (only applicable to Options II and III).	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
m. In sub-step 2a has the determination of appropriate method of analysis done as per the guidance as below?	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
i. Simple cost analysis if the CDM project activity and the alternatives identified in Step 1 generate no financial or economic benefits other than CDM related income (Option I).	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
ii. Otherwise, use the investment comparison analysis (Option II) or the benchmark analysis (Option III). Specify option used with justification.	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
n. Has the below guideline followed for sub-step 2b Option I. Apply simple cost analysis? Document the costs associated with the CDM project activity and the alternatives identified in Step1 and demonstrate that there is at least one alternative which is less costly than the project activity.	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
o. Has the below guideline followed for sub-step 2b Option II. Apply investment comparison analysis? Identify the financial indicator, such as IRR, NPV, cost benefit ratio, or unit cost of service most suitable for the project type and decision-making context. Please specify	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
p. Has the below guideline followed for Sub-step 2b:	EB	Ann	Refer to section 6 item c – Investment analysis.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
Option III. Apply benchmark analysis?	39	10			
i. Identify the financial/economic indicator, such as IRR, most suitable for the project type and decision context.	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
ii. When applying Option II or Option III, the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. Only in the particular case where the project activity can be implemented by the project participant, the specific financial/economic situation of the company undertaking the project activity can be considered.	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
iii. Discount rates and benchmarks shall be derived from: (a) Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data; (b) Estimates of the cost of financing and required return on capital (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on bankers views and private equity investors/funds' required return on comparable projects; (c) A company	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
internal benchmark (weighted average capital cost of the company), only in the particular case referred to above in 2. The project developers shall demonstrate that this benchmark has been consistently used in the past, i.e. that project activities under similar conditions developed by the same company used the same benchmark; (d) Government/official approved benchmark where such benchmarks are used for investment decisions; (e) Any other indicators, if the project participants can demonstrate that the above Options are not applicable and their indicator is appropriately justified. Please specify benchmark and justify.					
q. Has the below guideline followed for Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III)?	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
i. Calculate the suitable financial indicator for the proposed CDM project activity and, in the case of Option II above, for the other alternatives. Include all relevant costs (including, for example, the investment cost, the operations and maintenance costs), and revenues (excluding CER revenues, but possibly including inter alia subsidies/fiscal incentives, ODA, etc., where applicable), and, as appropriate, non-market cost and benefits in the case of public investors if this is standard practice for the selection of public investments	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
in the host country.					
ii. Present the investment analysis in a transparent manner and provide all the relevant assumptions, preferably in the CDM-PDD, or in separate annexes to the CDM-PDD.	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
iii. Justify and/or cite assumptions.	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
iv. In calculating the financial/economic indicator, the project's risks can be included through the cash flow pattern, subject to project-specific expectations and assumptions.	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
v. Assumptions and input data for the investment analysis shall not differ across the project activity and its alternatives, unless differences can be well substantiated.	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
vi. Present in the CDM-PDD a clear comparison of the financial indicator for the proposed CDM activity. Please specify details for above.	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
r. Has the below guideline followed for Sub-step 2d: Sensitivity analysis (only applicable to Options II and III)? Include a sensitivity analysis that shows whether the conclusion regarding the financial/economic attractiveness is robust to reasonable variations in the critical assumptions.	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
s. Has the outcome of Step 2 clearly mentioned with justification?	EB 39	Ann 10	Refer to section 6 item c – Investment analysis.	OK	OK
t. In step 3: Barrier analysis have all the sub-steps as below been followed?	EB 39	Ann 10	No. Barrier analysis was presented by PP.	OK	OK
i. Sub-step 3a: Identify barriers that would	EB	Ann	No. Barrier analysis was presented by PP.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
prevent the implementation of the proposed CDM project activity;	39	10			
ii. Sub-step 3 b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity).	EB 39	Ann 10	No. Barrier analysis was presented by PP.	OK	OK
u. Has the below guideline followed for Sub-step 3a: Identify barriers that would prevent the implementation of the proposed CDM project?	EB 39	Ann 10	No. Barrier analysis was presented by PP.	OK	OK
i. (a) Investment barriers: For alternatives undertaken and operated by private entities: Similar activities have only been implemented with grants or other non-commercial finance terms. No private capital is available from domestic or international capital markets due to real or perceived risks associated with investment in the country where the proposed CDM project activity is to be implemented, as demonstrated by the credit rating of the country or other country investments reports of reputed origin.	EB 39	Ann 10	No Barrier analysis was presented by PP.	OK	OK
ii. (b) Technological barriers: Skilled and/or properly trained labour to operate and maintain the technology is not available in the relevant country/region, which leads to an unacceptably high risk of equipment disrepair and malfunctioning or other underperformance; Lack of infrastructure for implementation and logistics for maintenance of the technology,	EB 39	Ann 10	No. Barrier analysis was presented by PP.	OK	OK


**BUREAU
VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
Risk of technological failure: the process/technology failure risk in the local circumstances is significantly greater than for other technologies that provide services or outputs comparable to those of the proposed CDM project activity, as demonstrated by relevant scientific literature or technology manufacturer information, The particular technology used in the proposed project activity is not available in the relevant region.					
iii. (c) Barriers due to prevailing practice: The project activity is the "first of its kind".	EB 39	Ann 10	No. Barrier analysis was presented by PP.	OK	OK
iv. (d) Other barriers, preferably specified in the underlying methodology as examples.	EB 39	Ann 10	No. Barrier analysis was presented by PP.	OK	OK
v. Has the outcome from Step 3a clearly mentioned in PDD?	EB 39	Ann 10	No. Barrier analysis was presented by PP.	OK	OK
w. Has the below guideline followed for Sub-step 3 b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity)?	EB 39	Ann 10	No. Barrier analysis was presented by PP.	OK	OK
i. If the identified barriers also affect other alternatives, explain how they are affected less strongly than they affect the proposed CDM project activity. In other words, demonstrate that the identified barriers do not prevent the implementation of at least one of the alternatives. Any alternative that would be prevented by the barriers identified in Sub-step	EB 39	Ann 10	No. Barrier analysis was presented by PP.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
3a is not a viable alternative, and shall be eliminated from consideration.					
ii. Provide transparent and documented evidence, and offer conservative interpretations of this documented evidence, as to how it demonstrates the existence and significance of the identified barriers and whether alternatives are prevented by these barriers.	EB 39	Ann 10	No. Barrier analysis was presented by PP.	OK	OK
iii. The type of evidence to be provided should include at least one of the following: (a) Relevant legislation, regulatory information or industry norms; (b) Relevant (sectoral) studies or surveys (e.g. market surveys, technology studies, etc.) undertaken by universities, research institutions, industry associations, companies, bilateral/multilateral institutions, etc.; (c) Relevant statistical data from national or international statistics; (d) Documentation of relevant market data (e.g. market prices, tariffs, rules); (e) Written documentation of independent expert judgments from industry, educational institutions (e.g. universities, technical schools, training centres), industry associations and others. Please specify.	EB 39	Ann 10	No. Barrier analysis was presented by PP.	OK	OK
x. Has the outcome from Step 3 clearly mentioned in PDD?	EB 39	Ann 10	No. Barrier analysis was presented by PP.	OK	OK
y. In step 4: Common practice analysis have all the sub-steps as below followed?	EB 39	Ann 10	Yes, see for a discussion below.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
i. Sub-step 4a: Analyze other activities similar to the proposed project activity;	EB 39	Ann 10	Yes, see for a discussion below.	OK	OK
ii. Sub-step 4b: Discuss any similar Options that are occurring.	EB 39	Ann 10	Yes, see for a discussion below.	OK	OK
z. Has the below guideline followed for Sub-step 4a: Analyze other activities similar to the proposed project activity? Provide an analysis of any other activities that are operational and that are similar to the proposed project activity. Other CDM project activities are not to be included in this analysis. Provide documented evidence and, where relevant, quantitative information. On the basis of that analysis, describe whether and to which extent similar activities have already diffused in the relevant region.	EB 39	Ann 10	<p>PP mentions that, according to ANEEL, there are 43 Small Hydro power (more than 1 MW and less than 30 MW active in Santa Catarina State. (crosschecked by DOE: http://www.aneel.gov.br/15.htm (on 21.10.2010)</p> <p>According to table 10 of the PDD, 26.3% of the Santa Catarina's power plants are small hydro power plants. Seeing this, the DOE concludes that similar activities are already diffuse in Santa Catarina. However:</p> <p>CL 19: Please explain why a region other than the entire Host Country was found more appropriate to analyze if other activities similar to the proposed project activity are observed in the relevant region.</p> <p>CL 20: Clarify how the operational activities</p>	CL 19 CL 20 CAR 41	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>identified in the region were defined as similar and excluded other types of project activity.</p> <p>CAR 41: In item 4.a of Section B.5 of the PDD version 1, PP has not excluded from its analysis of other CDM project activities (registered project activities and project activities which have been published on the UNFCCC website for global stakeholder consultation as part of the validation process). This is not in accordance with "TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY" (VERSION 05.2)".</p>		
<p>aa. Has the below guideline followed for Sub-step 4b: Discuss any similar Options that are occurring? If similar activities are identified, then it is necessary to demonstrate why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers. This can be done by comparing the proposed project activity to the other similar activities, and pointing out and explaining essential distinctions between them that explain why the similar activities enjoyed certain benefits that rendered it financially/economically attractive (e.g., subsidies or other financial flows) and which the proposed project activity cannot use or</p>	EB 39	Ann 10	<p>PP states that there are 43 similar activities that do exist in the region.</p> <p>From this 43, according to PP, 36 can be excluded due to the fact that they have an installed capacity lower than 10 MW (65% under the capacity of SHP Passos Maia) and show different characteristics of SHP Passos Maia.</p> <p>PP states that from the remaining 9 [observation DOE: 43-36 = 7, see below] 3 are CDM projects and 6 receive PROINFA** incentive. Therefore, all similar activities, according to PP, are essentially distinct.</p>	CL 21 CAR 42 CL 22	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
did not face the barriers to which the proposed project activity is subject. In case similar projects are not accessible, the PDD should include justification about non-accessibility of data/information.			<p>** PROINFA, a promotion policy from the federal government (through the Law n° 10.438, in April 26th2002). This incentive was available for plants that came into operation until December 2006. So, the Passos Maia cannot receive PROINFA subsidies. See for more info: http://www.elektrobras.gov.br/ELB/data/Pages/LU_MISABB61D26PTBRIE.htm (accessed by the DOE on 21.10.2010).</p> <p>CL 21: Regarding item 4.b in Section B.5 of the PDD version 1, please explain why PP has excluded from the analysis all small hydro power plants with an installed capacity lower than 10 MW. Moreover, please clarify which criteria PP has followed to determine that all SHP with installed capacity below 10 MW are essentially distinct than its project activity.</p> <p>CAR 42: In Section B.5 of the PDD version 1, in item 4.b, PP states that 36 out of 43 small hydro power plants in Santa Carolina State have an installed capacity below 10 MW. However, according to the reference provided by PP (http://www.aneel.gov.br/area.cfm?idArea=15&idPerfil=2, accessed by DOE on 21.10.2010), there are 34 plants with this characteristic.</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			CL 22: In Section B.5 of the PDD version 1, in item 4.b, PP states that out of the 9 similar projects in the region, 6 are PROINFA projects. As evidence PP provides a copy of a document containing a list of the SHPs that were considered enabled ("habilitado" in Portuguese) to take part in the selection procedure of PROINFA. Please provide evidence of the SHPs that were contracted through PROINFA.		
bb. Has the outcome from Step 4 clearly mentioned in PDD?	EB 39	Ann 10	Please refer to item (6.zz) and (6.a) above.	OK	OK
cc. Has it been proved that the project is additional?	EB 39	Ann 10		OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
<i>a. Prior consideration of the clean development mechanism</i>					
a. Is the project activity start date prior to the date of publication of the PDD for stakeholder comments?	VVM	98	<p>Yes, according to Section C.1.1 of the PDD, the starting date is:</p> <p>21 December 2009. – Date correspond to the date when the company that will build SHP Passos Maia was hired.</p> <p>Please refer to item (3.w.i), (3.w.ii) and (3.w.iii) for a discussion on the prior consideration of the project.</p>	OK	OK
b. If yes, were the CDM benefits considered necessary in the decision to undertake the project as a proposed CDM project activity?	VVM	98	<p>Yes, PP has send letters to the Brazilian DNA and UNFCCC within 6 month of the project start date.</p>	OK	OK
c. Is the start date of the project activity, reported in the PDD, in accordance with the “Glossary of CDM terms”, which states that “The starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins.”?	VVM	99	<p>Yes, according to Section C.1.1 of the PDD, the starting date is:</p> <p>21 December 2009. – Date correspond to the date when the company that will build SHP Passos Maia was hired.</p> <p>See however Section (3.o.iv) for a discussion on how the DOE was able to validate this.</p>	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
d. Does the project activity require construction, retrofit or other modifications?	VVM	99	It requires construction as it is a green field facility.	OK	OK
e. If yes, is it ensured that the date of commissioning cannot be considered as the project activity start date?	VVM	99	The data of contracting of construction company was defined as starting date.	OK	OK
f. Is it a new project activity (a project activity with a start date on or after 02 August 2008) or an existing project activity (a project activity with a start date before 02 August 2008)?	VVM	100	It comprises a new project activity (a project activity with a start date after 02 August 2008)?	OK	OK
g. For a new project, for which PDD has not been published for global stakeholder consultation or a new methodology proposed to the CDM Executive Board before the project activity start date, had PPs informed the host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status? (Provide reference to such confirmation from host Party DNA and UNFCCC secretariat).	VVM	101	Yes, PP has send letters to the Brazilian DNA and UNFCCC within 6 month of the project start date. See item (3.o.iv) for a discussion on how the DOE was able to validate this.	OK	OK
h. For an existing project activity, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, are the following evidences provided:	VVM	102	Not applicable. Project is a new project activity.	OK	OK
ii. evidence that must indicate that awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project, including, inter alia:	VVM	102	Not applicable. Project is a new project activity.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
a. minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participant, to undertake the project as a proposed CDM project activity?	VVM	102	Not applicable. Project is a new project activity.	OK	OK
iii. reliable evidence from project participants that must indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation, including, inter alia:	VVM	102	Not applicable. Project is a new project activity.	OK	OK
a. contract with consultants for CDM/PDD/methodology services?	VVM	102	Not applicable. Project is a new project activity.	OK	OK
b. Emission Reduction Purchase Agreements or other documentation related to the sale of the potential CERs (including correspondence with multilateral financial institutions or carbon funds)?	VVM	102	Not applicable. Project is a new project activity.	OK	OK
c. evidence of agreements or negotiations with a DOE for validation services?	VVM	102	Not applicable. Project is a new project activity.	OK	OK
d. submission of a new methodology to the CDM Executive Board?	VVM	102	Not applicable. Project is a new project activity.	OK	OK
e. publication in newspaper?	VVM	102	Not applicable. Project is a new project activity.	OK	OK
f. interviews with DNA?	VVM	102	Not applicable. Project is a new project activity.	OK	OK
g. earlier correspondence on the project with the DNA or the UNFCCC secretariat?	VVM	102	Not applicable. Project is a new project activity.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
h. Has the chronology of events including time lines been appropriately captured and explained/detailed in the PDD?	VVM	102	Not applicable. Project is a new project activity.	OK	OK
b. Identification of alternatives					
a. Does the approved methodology that is selected by the proposed CDM project activity prescribe the baseline scenario and hence no further analysis is required?	VVM	105	Yes, the relevant methodology (ACM0002.v12) prescribe the baseline scenario and hence no further analysis is required	OK	OK
b. If no, does the PDD identify credible alternatives to the project activity in order to determine the most realistic baseline scenario?	VVM	105	Not applicable. The relevant methodology (ACM0002.v12) prescribe the baseline scenario and hence no further analysis is required	OK	OK
c. Does the list of alternatives given in the PDD ensure that:	VVM	106	Not applicable. The relevant methodology (ACM0002.v12) prescribe the baseline scenario and hence no further analysis is required	OK	OK
i. the list of alternatives includes as one of the options that the project activity is undertaken without being registered as a proposed CDM project activity?	VVM	106	Not applicable. The relevant methodology (ACM0002.v12) prescribe the baseline scenario and hence no further analysis is required	OK	OK
ii. the list contains all plausible alternatives that the DOE, on the basis of its local and sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity?	VVM	106	Not applicable. The relevant methodology (ACM0002.v12) prescribe the baseline scenario and hence no further analysis is required	OK	OK
iii. the alternatives comply with all applicable and enforced legislation?	VVM	106	Not applicable. The relevant methodology (ACM0002.v12) prescribe the baseline scenario and hence no further analysis is required	OK	OK
c. Investment analysis					


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VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
a. Has investment analysis been used to demonstrate the Additionality of the proposed CDM project activity?	VVM	108	Yes.	OK	OK
b. If yes, does the PDD provide evidence that the proposed CDM project activity would not be:	VVM	108	See below.	OK	OK
i. the most economically or financially attractive alternative?	VVM	108	Not applicable.	OK	OK
ii. economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs)?	VVM	108	Yes.	OK	OK
c. Was this shown by one of the following approaches?	VVM	109	See below.	OK	OK
i. The proposed CDM project activity would produce no financial or economic benefits other than CDM-related income. Document the costs associated with the proposed CDM project activity and the alternatives identified and demonstrate that there is at least one alternative which is less costly than the proposed CDM project activity.	VVM	109	Not applicable.	OK	OK
ii. The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative.	VVM	109	Not applicable.	OK	OK
iii. The financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	VVM	109	Yes.	OK	OK
d. Is the period of assessment limited to the proposed crediting period of the CDM project	EB 51	Ann 58	No.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
activity?					
e. Does the project IRR and equity IRR calculations reflect the period of expected operation of the underlying project activity (technical lifetime), or - if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period?	EB 51	Ann 58	CAR BQA 1 – Provide evidences to support the period of expected operation used in the investment analysis.	CAR BQA 1	OK
f. Does the IRR calculation include the cost of major maintenance and/or rehabilitation if these are expected to be incurred during the period of assessment?	EB 51	Ann 58	Yes.	OK	OK
g. Do the project participants justify the appropriateness of the period of assessment in the context of the underlying project activity, without reference to the proposed CDM crediting period?	EB 51	Ann 58	Refer to CAR BQA 1.	CAR BQA 1	OK
h. Does the cash flow in the final year include a fair value of the project activity assets at the end of the assessment period?	EB 51	Ann 58	Refer to CAR BQA 1.	CAR BQA 1	OK
i. Has the fair value been calculated in accordance with local accounting regulations where available, or international best practice?	EB 51	Ann 58	Refer to CAR BQA 1.	CAR BQA 1	OK
j. Does the fair value calculations include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets?	EB 51	Ann 58	Refer to CAR BQA 1.	CAR BQA 1	OK
k. Was depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax	EB 51	Ann 58	Yes.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
is calculated, added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV)?					
l. Has taxation been included as an expense in the IRR/NPV calculation in cases where the benchmark or other comparator is intended for post-tax comparisons?	EB 51	Ann 58	Yes.	OK	OK
m. Are the input values used in all investment analysis valid and applicable at the time of the investment decision taken by the project participant?	EB 51	Ann 58	CL BQA 1 – Clarify with evidences the moment of investment decision, in order to guarantee that the input values are the correct ones at this moment in the project chronology.	CL BQA 1	OK
n. Is the timing of the investment decision consistent and appropriate with the input values?	EB 51	Ann 58	Refer to CL BQA 1.	CL BQA 1	OK
o. Are all the listed input values been consistently applied in all calculations?	EB 51	Ann 58	Yes.	OK	OK
p. Does the investment analysis reflect the economic decision making context at point of the decision to recommence the project in the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM?	EB 51	Ann 58	Not applicable.	OK	OK
q. Have project participants supplied the spreadsheet versions of all investment analysis?	EB 51	Ann 58	Yes.	OK	OK
r. Are all formulas used in this analysis readable and all relevant cells be viewable and unprotected?	EB 51	Ann 58	CAR BQA 2 – It was not possible to reproduce the results of the sensitivity analysis.	CAR BQA 2	OK
s. In cases where the project participant does not	EB	Ann	Not applicable.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
wish to make such a spreadsheet available to the public has the PP provided an exact read-only or PDF copy for general publication?	51	58			
t. In case the PP wishes to black-out certain elements of the publicly available version, is it justifiable?	EB 51	Ann 58	Not applicable.	OK	OK
u. Was the cost of financing expenditures (i.e. loan repayments and interest) included in the calculation of project IRR?	EB 51	Ann 58	Yes.	OK	OK
v. In the calculation of equity IRR, has only the portion of investment costs which is financed by equity been considered as the net cash outflow?	EB 51	Ann 58	Yes.	OK	OK
w. Has the portion of the investment costs which is financed by debt been considered a cash outflow in the calculation of equity IRR? (this is not allowed)	EB 51	Ann 58	No.	OK	OK
x. Was a pre-tax benchmark be applied?	EB 51	Ann 58	No.	OK	OK
y. In cases where a post-tax benchmark is applied, is actual interest payable taken into account in the calculation of income tax?	EB 51	Ann 58	CAR BQA 3 – The actual interest payable was not taken into account in the calculation of income tax.	CAR BQA 3	OK
z. In such situations, was interest calculated according to the prevailing commercial interest rates in the region, preferably by assessing the cost of other debt recently acquired by the project developer and by applying a debt-equity ratio used by the project developer for investments taken in the previous three years?	EB 51	Ann 58	Refer to CAR BQA 3.	CAR BQA 3	OK
aa. In cases where a benchmark approach is used is	EB	Ann	Yes.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
the applied benchmark appropriate to the type of IRR calculated?	51	58			
bb. Has local commercial lending rates or weighted average costs of capital (WACC) selected as appropriate benchmarks for a project IRR?	EB 51	Ann 58	Not applicable.	OK	OK
cc. Has required/expected returns on equity selected as appropriate benchmark for an equity IRR?	EB 51	Ann 58	Yes.	OK	OK
dd. In case benchmarks supplied by relevant national authorities selected is it applicable to the project activity and the type of IRR calculation presented?	EB 51	Ann 58	Not applicable.	OK	OK
ee. In the cases of projects which could be developed by an entity other than the project participant is the benchmark applied based on publicly available data sources which can be clearly validated?	EB 51	Ann 58	Not applicable.	OK	OK
ff. Have internal company benchmarks/expected returns (including those used as the expected return on equity in the calculation of a weighted average cost of capital - WACC) been applied in cases where there is only one possible project developer?	EB 51	Ann 58	Not applicable.	OK	OK
gg. In such cases, have these values been used for similar projects with similar risks, developed by the same company or, if the company is brand new, would have been used for similar projects in the same sector in the country/region?	EB 51	Ann 58	Not applicable.	OK	OK
hh. Has a minimum clear evidence of the resolution by the company's Board and/or shareholders	EB 51	Ann 58	Not applicable.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
been provided to the effect as above?					
ii. Has a thorough assessment of the financial statements of the project developer - including the proposed WACC - to assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects been conducted?	EB 51	Ann 58	Not applicable.	OK	OK
jj. Does the risk premiums applied in the determination of required returns on equity reflect the risk profile of the project activity being assessed, established according to national/international accounting principles? (It is not considered reasonable to apply the rate general stock market returns as a risk premium for project activities that face a different risk profile than an investment in such indices.)	EB 51	Ann 58	Yes.	OK	OK
kk. Has an investment comparison analysis and not a benchmark analysis used when the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services?	EB 51	Ann 58	Not applicable.	OK	OK
ll. Have variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues been subjected to reasonable variation (positive and negative) and the results of this variation been presented in the PDD and be reproducible in the associated spreadsheets?	EB 51	Ann 58	Yes.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
mm. Have a corrective action been raised for a variable to be included in the sensitivity analysis which constitute less than 20% and have a material impact on the analysis ?	EB 51	Ann 58	Not applicable.	OK	OK
nn. Is the range of variations selected is reasonable in the project context?	EB 51	Ann 58	Yes.	OK	OK
oo. Dos the variations in the sensitivity analysis at least cover a range of +10% and -10%, unless this is not deemed appropriate in the context of the specific project circumstances?	EB 51	Ann 58	Yes.	OK	OK
pp. In cases where a scenario will result in the project activity passing the benchmark or becoming the most financially attractive alternative, is an assessment done of the probability of the occurrence of this scenario in comparison to the likelihood of the assumptions in the presented investment analysis, taking into consideration correlations between the variables as well as the specific socio-economic and policy context of the project activity?	EB 51	Ann 58	Not applicable.	OK	OK
qq. Was the plant load factor defined ex-ante in the CDM-PDD according to one of the following options:	EB 48	Ann 11	See below.	OK	OK
i. The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval?	EB 48	Ann 11	See CL in item (3.h.ii) above.	OK	OK
ii. The plant load factor determined by a third	EB	Ann	See CL in item (3.h.ii) above.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
party contracted by the project participants (e.g. an engineering company)?	48	11			
rr. Was a thorough assessment of all parameters and assumptions used in calculating the relevant financial indicator, and determine the accuracy and suitability of these parameters using the available evidence and expertise in relevant accounting practices conducted?	VVM	111	Yes.	OK	OK
ss. Were the parameters cross-checked against third-party or publicly available sources, such as invoices or price indices?	VVM	111	<p>CAR BQA 4 – Provide a spreadsheet containing all the assumptions and input values used in the investment analysis with its respective description and provide the evidences to justify the respective evidence, the description of the evidence and evidence's date. Make sure that all information and evidences are based on the relevant information available at the time of the investment decision and not information available at an earlier or later point. (Total investment, energy price, plant load factor, O&M costs and among others)</p> <p>CAR BQA 5 – Present all the evidences in a manner that can be clearly validated by the DOE. When answering the protocol refer to the evidences by their numbers and provided all the evidences with the respective number in order to facilitate, organize and present their in a clearly way.</p>	CAR BQA 4 and CAR BQA 5	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
tt. Were feasibility reports, public announcements and annual financial reports related to the proposed CDM project activity and the project participants reviewed?	VVM	111	Refer to CAR BQA 4.	CAR BQA 4	OK
uu. Was the correctness of computations carried out and documented by the project participants assessed?	VVM	111	Yes.		OK
vv. Was the sensitivity analysis by the project participants to determine under what conditions variations in the result would occur, and the likelihood of these conditions assessed?	VVM	111	CAR BQA 6 – The PP should explain how it has determined that the parameters used in the sensitivity analysis are the most critical and that the ranges of variations are appropriate.	CAR BQA 6	OK
ww. Is the type of benchmark applied is suitable for the type of financial indicator presented?	VVM	112	Yes.	OK	OK
xx. Do any risk premiums applied determining the benchmark reflect the risks associated with the project type or activity?	VVM	112	Yes.	OK	OK
yy. To determine this, was it assessed whether it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by:	VVM	112	See below.	OK	OK
i. assessing previous investment decisions by the project participants involved?	VVM	112	Not applicable.	OK	OK
ii. determining whether the same benchmark has been applied?	VVM	112	Not applicable.	OK	OK
iii. determining if there are verifiable circumstances that have led to a change in the benchmark?	VVM	112	Not applicable.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
zz. Did the project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed CDM project activities?	VVM	113	CL BQA 2 – Did the project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed CDM project activities?	CL BQA 2	OK
aaa. If yes:	VVM	113		OK	OK
i. has the FSR been the basis of the decision to proceed with the investment in the project, i.e. that the period of time between the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed?	VVM	113	Refer to CL BQA 2.	CL BQA 2	OK
ii. Are the values used in the PDD and associated annexes fully consistent with the FSR?	VVM	113	Refer to CL BQA 2.	CL BQA 2	OK
iii. If not, was the appropriateness of the values validated?	VVM	113	Refer to CL BQA 2.	CL BQA 2	OK
iv. On the basis of its specific local and sectoral expertise, is confirmation provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision?	VVM	113	Refer to CL BQA 2.	CL BQA 2	OK
d. Barrier analysis					
a. Has barrier analysis been used to demonstrated the Additionality of the proposed CDM project activity?	VVM	115	Not applicable, no Barrier analysis has been presented by PP.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
b. If yes, does the PDD demonstrate that the proposed CDM project activity faces barriers that:	VVM	115	Not applicable, no barrier analysis has been presented by PP.	OK	OK
i. prevent the implementation of this type of proposed CMD project activity?	VVM	115	Not applicable, no barrier analysis has been presented by PP.	OK	OK
ii. do not prevent the implementation of at least one of the alternatives?	VVM	115	Not applicable, no barrier analysis has been presented by PP.	OK	OK
c. Are there any issues that have a clear direct impact on the financial returns of the project activity, other than: risk related barriers, for example risk of technical failure, that could have negative effects on the financial performance; or barriers related to the unavailability of sources of finance for the project activity? {If yes, these issues cannot be considered barriers and shall be assessed by investment analysis. [Refer to (6.c) above]}	VVM	116	Not applicable, no barrier analysis has been presented by PP.	OK	OK
d. Were the barriers determined as real by:	VVM	117	Not applicable, no barrier analysis has been presented by PP.	OK	OK
i. assessing the available evidence and/or undertaking interviews with relevant individuals (including members of industry associations, government officials or local experts if necessary) to determine whether the barriers listed in the PDD exist?	VVM	117	Not applicable, no barrier analysis has been presented by PP.	OK	OK
ii. ensuring that existence of barriers is substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics?	VVM	117	Not applicable, no barrier analysis has been presented by PP.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
iii. Is existence of a barrier substantiated only by the opinions of the project participants? (If yes, this barrier cannot be considered as adequately substantiated)	VVM	117	Not applicable, no Barrier analysis has been presented by PP.	OK	OK
e. Were the barriers determined as preventing the implementation of the project activity but not the implementation of at least one of the possible alternatives by applying local and sectoral expertise to judge whether a barrier or set of barriers would prevent the implementation of the proposed CDM project activity and would not equally prevent implementation of <i>at least one of</i> the possible alternatives, in particular the identified baseline scenario?	VVM	117	Not applicable, no Barrier analysis has been presented by PP.	OK	OK
e. Common practice analysis					
a. Is this a proposed large-scale, or first-of-its kind small-scale project activity?	VVM	119	Large scale project	OK	OK
b. If yes, was common practice analysis carried out as a credibility check of the other available evidence used by the project participants to demonstrate Additionality?	VVM	119	Yes, a common practice analysis was carried out as a credibility check.	OK	OK
c. Was it assessed whether the geographical scope (e.g. defined region) of the common practice analysis is appropriate for the assessment of common practice related to the project activity's technology or industry type? (For certain technologies the relevant region for assessment will be local and for others it may be transnational/global.	VVM	120	See item (6.z) above regarding the geographical scope (e.g. defined region) of the common practice analysis.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
d. Was a region other than the entire host country chosen?	VVM	120	Yes.	OK	OK
e. If yes, was the explanation why this region is more appropriate assessed?	VVM	120	No, see CL in item (6.z) above regarding the geographical scope (e.g. defined region) of the common practice analysis.	OK	OK
f. Using official sources and local and industry expertise, was it determined to what extent similar and operational projects (e.g., using similar technology or practice), other than CDM project activities, have been undertaken in the defined region?	VVM	120	See item items (6.t), (6.u), (6.v), (6.w) and (6.x)	OK	OK
g. Are similar and operational projects, other than CDM project activities, already "widely observed and commonly carried out" in the defined region?	VVM	120	See items (6.y), (6.z), (6.aa) and (6.bb)	OK	OK
h. If yes, was it assessed whether there are essential distinctions between the proposed CDM project activity and the other similar activities?	VVM	120	See items (6.y), (6.z), (6.aa) and (6.bb)	OK	OK
3. Monitoring plan					
a. Does the PDD include a monitoring plan?	VVM	122	Yes, in item B.7.1 and item B.7.2	OK	OK
b. Is this monitoring plan based on the approved monitoring methodology applied to the proposed CDM project activity?	VVM	122	Yes, based on ACM0002v12.	OK	Ok
c. Were the list of parameters required by the selected methodology identified?	VVM	123	The following data and parameter will be monitored according to Section B.7.1 of the PDD: EG _{facility} TEG _y	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			$EF_{grid,CM,y}$ Cap_{PJ} A_{PJ} Item B.7.1 of the PDD has not been prepared in accordance with ACM0002v12. Please refer to item (3.t) above.		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
d. Does the monitoring plan contains all necessary parameters?	VVM	123	Yes, however, parameter TEG _y does not need to be monitored. See item (3.t) and (3.u) for a discussion on this.	OK	OK
e. Are the parameters clearly described?	VVM	123	No, see item (3.t) and (3.u).	OK	OK
f. Does the means of monitoring described in the plan comply with the requirements of the methodology?	VVM	123	Yes, however, some clarifications are needed: See item (3.t) and (3.u).	OK	OK
g. Are all data and parameters monitored as per monitoring methodology?	ACM	0002 v.12	No, see item (3.t) above for a discussion on how the concordance of monitoring plan of the PDD with ACM0002v12.	OK	OK
h. Are all data collected as part of monitoring archived electronically and kept at least for 2 years after the end of the last crediting period?	ACM	0002 v.12	Yes, the PDD indicates that all data collected as part of monitoring archived electronically and kept at least for 2 years after the end of the last crediting period?	OK	OK
i. Are 100% of the data monitored, if not indicated otherwise?	ACM	0002 v.12	CL 23: Please clarify if 100% of the data described in Section B.7.1 of the PDD (version 1) will be monitored.	CL 23	OK
j. Are measurements conducted with calibrated measurement equipment according to relevant industry standards?	ACM	0002 v.12	Yes, however, some clarifications are needed: See item (3.t) and (3.u).	OK	OK
k. Are the monitoring provisions in the tools referred to in the methodology correctly applied?	ACM	0002 v.12	Yes, however, some clarifications are needed: See item (3.t) and (3.u).	OK	OK
l. Are the monitoring arrangements described in the monitoring plan feasible within the project design?	VVM	123	Yes, however, some clarifications are needed: See item (3.t) and (3.u).	OK	OK
m. Are the following means of implementation of the monitoring plan sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be	VVM	123		OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
reported ex post and verified:					
i. data management procedures?	VVM	123	Please refer to item (3.u) above.	OK	OK
ii. quality assurance procedures?	VVM	123	Please refer to item (3.u) above.	OK	OK
iii. quality control procedures?	VVM	123	Please refer to item (3.u) above.	OK	OK
4. Sustainable development					
a. Does the CDM project activity assists Parties not included in Annex I to the Convention in achieving sustainable development?	VVM	125	Please refer to item 1.b above.	OK	OK
b. Does the letter of approval by the DNA of the host Party confirm the contribution of the proposed CDM project activity to the sustainable development of the host Party?	VVM	126	Please refer to item 1.b above.	OK	OK
5. Local stakeholder consultation					
a. Were local stakeholders (public, including individuals, groups or communities affected, of likely to be affected, by the proposed CDM project activity or actions leading to the implementation of such an activity) invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC website?	VVM	128	Yes, please refer to item (3.gg.i) above	OK	OK
b. Have comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity been invited?	VVM	129	Yes, please refer to item (3.gg.i) above	OK	OK
c. Is the summary of the comments received as provided in the PDD complete?	VVM	129	No comments have been received until project's validation procedure.	OK	OK
d. Have the project participants taken due account of any comments received and described this	VVM	129	No comments have been received until project's validation procedure.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
process in the PDD?					
6. <i>Environmental impacts</i>					
a. Have the project participants submitted documentation on the analysis of the environmental impacts of the project activity?	VVM	131	No, please refer to item (3.ff) above.	OK	OK
b. Have the project participants undertaken an analysis of environmental impacts?	VVM	132	Yes, please refer to item (3.ff) above	OK	OK
c. Does the host Party require an environmental impact assessment?	VVM	132	Yes, please refer to item (3.ff) above	OK	OK
d. If yes, have the project participants undertaken an environmental impact assessment?	VVM	132	Yes, please refer to item (3.ff) above	OK	OK

Table 2 Resolution of Corrective Action and Clarification Requests



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
CAR 01: In Section A.2 of the PDD (version 1), no technical description is given regarding the installed capacity and the size of the reservoir area, as described in Section A.4.3 of the PDD. This is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.	EB 41 ANN 12	Section A.2 was modified according to GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.	<p>Information regarding the installed capacity of the Power Plant (25 MW) and the size of the reservoir area (1.75 KM) was added into section A.2 of the PDD version 2. See protocol item (3.h.iii) for evidence that the DOE used to validate this technical characteristics.</p> <p>Seeing the above, this CAR was closed.</p>



VALIDATION REPORT

<p>CAR 02: In Section A.2 of the PDD (version 1), the baseline scenario is not described in accordance with the relevant methodology. Moreover, the electricity that will be supplied to the grid by the project would not be generated by the operation of <u>another power plant</u> connected to the grid and the addition of new sources, but by the operation of grid-connected <u>power plants</u> and the addition of new sources. The description of the baseline scenario is, therefore, not in accordance with the ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12.</p>	<p>EB 41 ANN 12</p>	<p>Section A.2 was modified according to ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12.</p>	<p>In Section A.2 of the PDD (version 2), the baseline scenario is described in accordance with the relevant methodology. Seeing the above, this CAR was closed.</p>
<p>CAR 03: In Section A.3 of the PDD version 1, the third column of table 1 suggests there are two Parties involved. However, only one Party (Brazil) is involved. This is not in accordance with GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>	<p>EB 41 ANN 12</p>	<p>It was modified according to GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>	<p>The table 1 in Section A.3 of the PDD version 2 demonstrates clearly that there is only one Party (Brazil) involved in the Project. Seeing this, the CAR was closed.</p>



VALIDATION REPORT

CAR 04: The geographic coordinates provided in Section A.4.1.4 do not indicate a position located in the municipality of Passos Maia.	EB 41 ANN 12	The geographic coordinates provided in Section A.4.1.4 was modified.	<p>The coordinates have been changed to:</p> <p>26° 42' 12" South Latitude and 51° 55' 7" West Longitude.</p> <p>The DOE was able to validate this with: Technical chart (ficha técnica) of 27.09.2010):</p> <p>Ficha Resumo - rev 2_assinada</p> <p>Seeing this, the CAR was closed.</p>
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VALIDATION REPORT

CAR 05: In Section A.4.3 of the PDD version 1, the definition of the baseline scenario has not been done as identified in Section B.4 of the PDD. It should comprise the SIN (National Interconnected System) and not just part of it. This is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.	EB 41 ANN 12	Section A.4.3 and Section B.4 is corrected according GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.	<p>The definition of the baseline scenario in Section A.4.3of the PDD version 2 now included the entire SIN. The entire energy generation mix of the entire country was been contemplated. See page 6 of the PDD version 2.</p> <p>Seeing this, the CAR was closed.</p>
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VALIDATION REPORT

<p>CAR 06: In Section A.4.3 of the PDD (version 1), information is missing regarding: (1) the age and average lifetime of the equipments based on manufacturer's specifications and industry standards and (2) efficiencies. This is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>	<p>EB 41 ANN 12</p>	<p>Information was added to attend CAR 06, according with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>	<p>In Section A.4.3 of the PDD (version 2), information was added regarding:</p> <p>(1) the age and average lifetime of the equipments based on manufacturer's specifications and industry standards:</p> <p>"The average lifetime of this equipment is thirty years, according to manufacturer's specification."</p> <p>PP provided the manufacture's specification as evidence: CT0028-11_Vida_Util</p> <p>(2) efficiencies: Passos Maia will have two generators with nominal unit capacity of 13.900 kVA; nominal performance of 97.3% and rotor weight of 350 kN.</p> <p>PP provided the following evidence to support this 97.3% efficiency: Technical chart (ficha técnica) of 27.09.2010): Ficha Resumo - rev 2_assinada.</p> <p>Seeing this, the CAR was closed.</p>
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VALIDATION REPORT

CAR 07: Regarding Section A.4.4 of the PDD version 1, the year 2018 has a different annual estimation of emission reduction, when compared to the other years. This is in disagreement with the information provided in Section B.6.3.	EB 41 ANN 12	Section A.4.4 was corrected and it is in accordance with Section B.6.3	In Section A.4.4 of the PDD version 2, the year 2018 has now the same annual estimation of emission reduction, when compared to the other years. This is in agreement with the information provided in Section B.6.3. Seeing this, the CAR was closed.
CAR 08: In Section A.4.5. of the PDD version 1, the information "No public funding for the CDM's project activities was solicited <u>by</u> parties involved in Annex I." is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.	EB 41 ANN 12	It was modified to "from".	In Section A.4.5. of the PDD version 2, the information is now: "No public funding for the CDM's project activities was solicited <u>from</u> parties involved in Annex I." This is in accordance with the relevant guidelines. Seeing the above, this CAR was closed.



VALIDATION REPORT

<p>CAR 09: In Section B.1 of the PDD version 1, the title of the relevant approved methodology is not in accordance with APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p>	<p>EB 41 ANN 12</p>	<p>Section B.1 was modified according to ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12.</p>	<p>In Section B.1 of the PDD version 2, the title of the relevant approved methodology is now in accordance with APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.1.</p> <p>Seeing this, the CAR was closed.</p>
<p>CAR 10: In Section B.3 of the PDD version 1, the justification for the inclusion of CO₂ in baseline emissions in table 1 is not in accordance with the ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12. Moreover, GHG emissions are not only caused by coal thermoelectric plants.</p>	<p>EB 41 ANN 12</p>	<p>PDD Version 02 provides Section B.3 in accordance with ACM0002 methodology. The table was changed.</p>	<p>In Section B.3 of the PDD version 2, the justification for the inclusion of CO₂ in baseline emissions in table 1 is now in accordance with the ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12.1.</p> <p>Seeing this, the CAR was closed.</p>



VALIDATION REPORT

CAR 11: In Section B.3 of the PDD version 1, monitored variable TEG_y is described. However, according to the ACM0002, version 12, for this project this variable does not need to be monitored.	EB 41 ANN 12	PDD version 02 provides section B.3 with corrections. Mention to the monitored variable TEG_y was excluded.	In Section B.3 of the PDD version 2, monitored variable TEG_y has been excluded. This is in according to the ACM0002, version 12.1, as for this project this variable does not need to be monitored. Seeing this, the CAR was closed.
CAR 12: In Section B.3 of the PDD version 1, monitored variable A_{PJ} is not included. This is not in accordance with the ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12.	EB 41 ANN 12	Information regarding the monitoring variable A_{PJ} was added to section B.3 of PDD version 02 accordingly ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12.	In Section B.3 of the PDD version 2, monitored variable A_{PJ} has been included. This is in concordance with ACM0002v12.1 Seeing this, the CAR was closed.



VALIDATION REPORT

<p>CAR 13: In Section B.4 of the PDD version 1, the statement: "In the absence of the project activity, the clean energy generated by Passos Maia Project dispatched to the Brazilian National Interconnected System (SIN) <u>would have been generated through non-renewable sources</u> from Power Plants connected to the interconnected grid" is not in accordance with the ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12. Moreover, the energy would not be generated only through non-renewable sources but by all power plants connected to the grid and by the addition of new generation sources.</p>	<p>EB 41 ANN 12</p>	<p>PDD version 02 provides Section B.4 with corrections and it is in accordance with ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12.</p>	<p>In Section B.4 of the PDD version 2, the provided information states:</p> <p>"Electricity delivered to the grid by the project would have otherwise been generated by the operation of grid connected power plants and by the addition of new generation sources, as reflected in the combined margin(CM) calculations described in the "Tool to calculate the emission factor for an electricity system".</p> <p>This is in accordance with the baseline scenario prescribed by ACM0002.v12.1</p> <p>Seeing the above, this CAR was closed.</p>
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VALIDATION REPORT

CAR 14: In Section B.4 of the PDD version 1, the baseline definition provided by PP is not in accordance with APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.	EB 41 ANN 12	Section B.4 was modified according to ACM0002 VERSION 12 - "CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES.	In Section B.4 of the PDD version 2, the baseline definition provided by PP is now in accordance with ACM 0002v12.1. Seeing this, the CAR was closed.
CAR 15: In Section B.4 of the PDD version 1, in references 2 and 3, two different studies are described for the same reference: PDE 2010-2019 and PDE 2006-2015.	EB 41 ANN 12	Section B.4 was corrected to attend the CAR 15.	The source has been corrected. The reference 05 was crosschecked by the DOE. Seeing this, the CAR was closed.



VALIDATION REPORT

<p>CAR 16: In Section B.5 of the PDD (version 1), PP does not provide a timeline for the power plant's implementation and of events and actions, which have been taken to achieve CDM registration. This is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>	<p>EB 41 ANN 12</p>	<p>Information was added in the section B.5 to attend CAR 16.</p>	<p>In Section B.5 of the PDD version 02, PP has provided a timeline for the power plant's implementation and of events and actions, which have been taken to achieve CDM registration.</p> <p>The following evidences were used to validate this timeline:</p> <ul style="list-style-type: none"> - Proposal to develop CDM project submitted by the company Enerbio Consultoria (29.09.2009) = - Contract established between Desenvix SA and Enerbio Consultoria - E-mails sent to the UNFCCC and letter send to the Brazilian DNA (13.04.2010) regarding prior consideration: copy of letter by Brazilian DNA acknowledging the receipt and http://cdm.unfccc.int/Projects/PriorCDM/notifications/index.html. <p>177</p>
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VALIDATION REPORT

			<ul style="list-style-type: none"> - SHP Passos Maia commercial operation prevision (01.12.2012) - PASSOS MAIA-CE-0018-09 - Cronograma de Implantação_ANEEL_protocolo <p>The DOE has crosschecked the evidence and was able to close this CAR.</p>
CAR 17: In Section B.6.1 of the PDD version 1, the description of parameter BE_y in equation 03 is not in accordance with the description given in equation 11 of APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.	EB 41 ANN 12	Section B.6.1 of the PDD was modified according to ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.	<p>In Section B.6.1 of the PDD version 2, the description of parameter BE_y in equation 03 is now in accordance with the description given in equation 11 of ACM0002v12.1.</p> <p>Seeing this, the CAR was closed.</p>



VALIDATION REPORT

<p>CAR 18: In Section B.6.1 of the PDD version 1, in the description of the calculation of baseline emission, the baseline emissions are abbreviated as tCO₂e/year. This is not in accordance with APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p>	<p>EB 41 ANN 12</p>	<p>Section B.6.1 of the PDD was modified according to ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p>	<p>In Section B.6.1 of the PDD version 2, in the description of the calculation of baseline emission, the baseline emissions are now abbreviated as tCO₂/year. This is in accordance with ACM002.v12.1.</p> <p>Seeing this, the CAR was closed.</p>
<p>CAR 19: In equation 4, Section B.5 (6) of the PDD version 1, the description of parameter $EF_{grid,CM,y}$ is not in accordance with the description provided by equation 6 of APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p>	<p>EB 41 ANN 12</p>	<p>Section B.6.1 is the section modified of the PDD and was modified according to ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p>	<p>In equation 4, Section B.6.1 of the PDD version 2, the description of parameter $EF_{grid,CM,y}$ is now in accordance with the description provided by equation 6 of ACM0002v12.1.</p> <p>Seeing this, the CAR was closed.</p>



VALIDATION REPORT

<p>CAR 20: Throughout the entire PDD version 1, equations have been included which use dots instead of commas: example $BE_y = EG_{PJ,y} * EF_{grid,CM,y}$. This is not in accordance with APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p>	<p>EB 41 ANN 12</p>	<p>It was modified according to METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.</p>	<p>The equations are now correct. They were all crosschecked by the DOE and are in concordance with ACM0002v12.1.</p> <p>Seeing this, the CAR was closed.</p>
<p>CAR 21: In section B.6.1 of the PDD version 1, PP does not describe the data vintage chosen for the calculation of the OM emission factor. This is not in accordance with TOOL TO CALCULATE THE EMISSION FACTOR FOR AN ELECTRICITY SYSTEM, VERSION 2. EB 50 – ANN14.</p>	<p>EB 41 ANN 12</p>	<p>In section B.6.1 of the PDD the data vintage is now described to attend CAR 21.</p>	<p>In section B.6.1 of the PDD version 2, PP now describes the data vintage chosen for the calculation of the OM emission factor:</p> <p>“the data vintage that was chosen to calculate operating margin (OM) for Passos Maia Project is ex-post (mandatory for Dispatch data Analysis).”</p> <p>This is in accordance with the Tool to calculate the emission factor v.2.</p> <p>Seeing this, the CAR was closed.</p>



VALIDATION REPORT

CAR 22: In Section B.6.1 of the PDD version 1, the descriptions of parameters $EF_{grid,BM,y}$ and $EF_{grid,OM,y}$ in equation 6 are not in accordance with the descriptions provided in equation 14 of the TOOL TO CALCULATE THE EMISSION FACTOR FOR AN ELECTRICITY SYSTEM, VERSION 2. EB 50 – ANN14.	EB 41 ANN 12	Section B.6.1 was modified according to TOOL TO CALCULATE THE EMISSION FACTOR FOR AN ELECTRICITY SYSTEM, VERSION 2. EB 50 – ANN14.	In Section B.6.1 of the PDD version 2, the descriptions of parameters $EF_{grid,BM,y}$ and $EF_{grid,OM,y}$ in equation 6 are now in accordance with the descriptions provided in equation 14 of the Tool o calculate the emission factor version 02. Seeing this, the CAR was closed.
CAR 23: In Section B.6.1 of the PDD version 1, parameter $PE_{FF,y}$ and the description of parameters $PE_{GP,y}$ and $PE_{HP,y}$ in equation 07 are not in accordance with equation 1 of the APPROVED CONSOLIDATED BASELINE AND MONITORING METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.	EB 41 ANN 12	Section B.6.1 was modified according to METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.	In Section B.6.1 of the PDD version 2, parameter $PE_{FF,y}$ and the description of parameters $PE_{GP,y}$ and $PE_{HP,y}$ in equation 07 are now in accordance with equation 1 of the ACM0002v12.1. Seeing this, the CAR was closed.
CAR 24: In Section B.6.1 of the PDD (version 1), the explanation of the procedure to calculate the power density of the project activity is missing. This is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.	EB 41 ANN 12	The section B.6.1 makes reference to section B.2 where the Power density is calculated and the procedure to calculate the power density is presented. Procedure to calculate the power density was added again in the section B.6.1.	In Section B.6.1 of the PDD (version 2), the explanation of the procedure to calculate the power density of the project activity is now included in accordance with the applicable guidelines. Seeing this, the CAR was closed.



VALIDATION REPORT

CAR 25: In Section B.6.1 of the PDD version 1, PP does not explain the methodological choices described in Steps 1 to 7 of the latest version of the Tool to Calculate the Emission Factor. This is not in accordance with item (b) of B.6.1 of the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.	EB 41 ANN 12	PDD Version 02 provides the methodological choices in section B.6.1 of the PDD.	In Section B.6.1 of the PDD version 2, PP now explains the methodological choices described in Steps 1 to 7 of the latest version of the Tool to Calculate the Emission Factor. Seeing this, the CAR was closed.
CAR 26: In Section B.6.3 of the PDD version 1, in the equation to calculate baseline emissions (equation 4), the description of ER_y , BE_y and $EF_{grid,CM,y}$ are not in accordance with ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES". VERSION 12.	EB 41 ANN 12	Section B.6.3 was modified according to METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.	In Section B.6.3 of the PDD version 2, in the equation to calculate baseline emissions (equation 4), the description of ER_y , BE_y and $EF_{grid,CM,y}$ are now in accordance with ACM0002 v12.1 Seeing this, the CAR was closed.
CAR 27: In Section B.6.3 of the PDD version 1, the title " <u>EG_{PJ} Calculation</u> " is not in accordance with ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES". VERSION 12.	EB 41 ANN 12	Section B.6.3 of the PDD was modified and is in accordance with the methodology.	In Section B.6.3 of the PDD version 2, the title " Calculation of $EG_{PJ,y}$ " is now in accordance with ACM0002v12.1 Seeing this, the CAR was closed.



VALIDATION REPORT

CAR 28: In Section B.6.3 of the PDD version 1, in table 11, the total amount of MWh (878,876) is not the same as the sum of the individual years (2012-2018).	EB 41 ANN 12	It was a typing mistake. PDD version 02 corrected Section B.6.3 to attend CAR 28.	In Section B.6.3 of the PDD version 2, in table 11, the total amount of MWh (876,876) is now the same as the sum of the individual years (2012-2018). Seeing this. The CAR was closed.
CAR 29: In Section B.6.3 of the PDD version 1, on table 12, the values provided by PP for $EF_{grid,BM}$ are not in accordance with the values provided by PP in annex III of the PDD and the values given by the Brazilian DNA on: http://www.mct.gov.br/index.php/content/view/303076.html#ancora (accessed on 21.10.2010).	EB 41 ANN 12	The values were the same. Table 12 provided $EF_{grid,BM}$. PDD version 02 provides numbers with four decimals.	In Section B.6.3 of the PDD version 2, on table 12, the values provided by PP for $EF_{grid,BM}$ are now in accordance with the values provided by PP in annex III of the PDD and the values given by the Brazilian DNA: 0.0794 tco2/MWh Seeing this, the CAR was closed.
CAR 30: In Section B.7.1 of the PDD version 1, PP states that the only parameters to be measured are: "the project's installed capacity, the electricity generation by the project and the project activity's power plant reservoir area" This is not in accordance with ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES". VERSION 12.	EB 41 ANN 12	The statement was modified in PDD version 02. Section B.7.1 is now in accordance with the methodology ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES". VERSION 12.	In Section B.7.1 of the PDD version 2, PP has excluded the incorrect statement. The parameters are all described in Section B.7.1 in accordance with ACM0002v12.1. Seeing this, the CAR was closed.



VALIDATION REPORT

CAR 31: In Section B.7.1 of the PDD (version 1), regarding the data/parameter $EG_{\text{facility},y}$, the value of the data applied should not be expressed in MW but in MWh/year according to ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12.	EB 41 ANN 12	Section B.7.1 was modified according to METHODOLOGY ACM0002 - CONSOLIDATED BASELINE METHODOLOGY FOR GRID-CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES, VERSION 12.	In Section B.7.1 of the PDD (version 2), regarding the data/parameter $EG_{\text{facility},y}$, the value of the data applied is now expressed in MWh/year, according to ACM0002v12.1: 125,268 MWh/year. Seeing this, the CAR was closed.
CAR 32: In Section B.7.1 of the PDD version 1, the parameter TEG_y is indicated as a parameter to be monitored. This is not in accordance with ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES". VERSION 12.	EB 41 ANN 12	Section B.7.1 was modified to attend CAR 32.	In Section B.7.1 of the PDD version 2, the parameter TEG_y was excluded. This is in concordance with ACM0002v12.1. Seeing this, the CAR was closed.
CAR 33: In Section B.7.1 of the PDD (version 1), regarding the data/parameter A_{PJ} , PP does not define monitoring frequency as yearly. This is not in accordance with "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES" VERSION 12.	EB 41 ANN 12	PDD version 01 defined the monitoring frequency as yearly in the QA/QC procedures. However, information regarding reservoir area monitoring was added to the PDD version 02.	In Section B.7.1 of the PDD (version 2), regarding the data/parameter A_{PJ} , PP has defined monitoring frequency as yearly. This is in accordance with ACM0002v12.1 Seeing this, the CAR was closed.



VALIDATION REPORT

<p>CAR 34: In Section B.7.1 of the PDD (version 1), the following information is missing regarding data/parameters EG_{facility,y}: (1) a specification which accepted industry standards or national or international standards will be applied, (2) which calibration procedures are applied, (3) what is the accuracy of the measurement method and (4) who is the responsible person/entity that should undertake the measurements. This is not in accordance with GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>	<p>EB 41 ANN 12</p>	<p>Information was added to attend CAR 34.</p>	<p>Information added in the PDD version 2:</p> <p>(1) National standard by ONS: ONS Procedures 12.2 (crosschecked by DOE at http://www.ons.org.br/procedimentos/modulo_12.aspx)</p> <p>(2) National standard by ONS: ONS Procedures 12.3 (crosschecked by DOE http://www.ons.org.br/procedimentos/modulo_12.aspx)</p> <p>(3) Accuracy: The measurement method is established by ONS; therefore, the accuracy is under Brazilian Standards (see links above).</p> <p>(4) Responsible entity: The measurements will be undertaken by measurement area or by outsourced agent.</p> <p>Seeing the above, the CAR was closed.</p>
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VALIDATION REPORT

<p>CAR 35: In Section B.7.1 of the PDD (version 1), the following information is missing regarding data/parameters A_{PJ}: (1) a specification which accepted industry standards or national or international standards will be applied, (2) which measuring equipment is used, (3) how the measuring is undertaken, (4) what is the accuracy of the measuring method and (5) what is the measurement interval. This is not in accordance with GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>	<p>EB 41 ANN 12</p>	<p>Section B.7.1 was modified and information were added to attend this CAR, according GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>	<p>Information added in the PDD version 2 for parameter A_{PJ} provides enough details so to comply with the requirements of the applicable guidelines. Seeing this, the CAR was closed.</p>
<p>CAR 36: In Section B.7.2, PP describes the procedures to measure the gross electricity generation at the power plant. This is not a monitored parameter in accordance with ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES". VERSION 12.</p>	<p>EB 41 ANN 12</p>	<p>Additional information does not affect the item. This could not be considered a CAR. However, Section B.7.2 was changed to attend the CAR 36.</p>	<p>Information regarding the procedure to calculate the gross electricity was excluded from Section B.7.2 of the PDD version 2, as this is not a monitored parameter in accordance with ACM0002v12.1.</p> <p>Seeing this, the CAR was closed.</p>



VALIDATION REPORT

<p>CAR 37: In section E.1 of the PDD version 1, PP states that letters were send to local stakeholders, inviting them to comment on the Project. According to evidence provided by PP, letters were sent on the 24th of September 2010 and received by local stakeholders between 28 and 30 of September 2010. However, the first version of the PDD that was presented to the DOE for validation was finalized on the 27th of September 2010. Local stakeholders had, therefore, no reasonable time for comments. This is not in accordance with GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM), VERSION 07.</p>	<p>EB 41 ANN 12</p>	<p>Based in the date of dispatch of letters, and the date of publication of PDD is possible to see that was given a period of 15 days for comments by local stakeholders. PDD version 02 will have a new date and, therefore, clarify that appropriate time was given to stakeholders. Also, it is important to say that PDD is available for public comments in Enerbio's website until now. None comment was received.</p>	<p>PP has clarified that reasonable time were given to local stakeholders to respond to invitations to comment on the project: letters were send to local stakeholders on the 24.09.2010 and the validation started only on 20th October 2010. So, PP complies with the Brazilian DNA's Resolution 7: http://www.mct.gov.br/upd_blob/0023/23744.pdf (which states that letters to local stakeholders should be send at least 15 days before the start of validation).</p> <p>Seeing the above, the CAR was closed.</p>
<p>CAR 38: In Annex 3 of the PDD version 1, PP refers to an old version of the Tool to calculate emission factor (EB 35 – Annex 12). This is not in accordance with ACM0002: "CONSOLIDATED BASELINE METHODOLOGY FOR GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES". VERSION 12.</p>	<p>EB 41 ANN 12</p>	<p>The wrong reference in the annex 3 was corrected to attend CAR 38.</p>	<p>The reference now cites the correct tool: version 02 of the Tool to calculate the emission factor.</p> <p>Seeing the above, the CAR was closed.</p>



VALIDATION REPORT

CAR 39: In Annex 3 of the PDD version 1, PP refers to another CDM project: Santa Carolina Project.	EB 41 ANN 12	The name was corrected.	The name was correct and the CAR was closed.
CAR 40: In Section B.2 of the PDD version 1, PP does not confirm that the project does not comprises one on the following two options: (1) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity and, (2) Biomass fired power plants.	ACM 0002 v.12	PP's believe that this is not necessary information. PP's believe that it is necessary just to express why the methodology is applicable to the project. However, to attend CAR 40, information was added to Section B.2.	In Section B.2 of the PDD version 2, PP now confirms that the project does not comprises one on the following two options: (1) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity and, (2) Biomass fired power plants. Seeing the above, the CAR was closed.



VALIDATION REPORT

<p>CAR 41: In item 4.a of Section B.5 of the PDD version 1, PP has not excluded from its analysis of other CDM project activities (registered project activities and project activities which have been published on the UNFCCC website for global stakeholder consultation as part of the validation process). This is not in accordance with “TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY” (VERSION 05.2)”.</p>	<p>EB 39 ANN 10</p>	<p>The common practice was modified to include similar activities of the whole country. Together with these modifications, changes were made to attend CAR 41.</p>	<p>In item 4.a of Section B.5 of the PDD version 2, PP has now excluded from its analysis of other CDM project activities (registered project activities and project activities which have been published on the UNFCCC website for global stakeholder consultation as part of the validation process):</p> <p>“Among these 99 SHPs, 56 SHPs shall be excluded from the analysis because they are CDM project activities (or they are registered or they have been submitted for stakeholders consultation).”</p> <p>Please refer to CL19-22 to an analysis of the new common practice analysis provided by PP in the second version of the PDD.</p> <p>Seeing the above, this CAR was closed.</p>
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VALIDATION REPORT

<p>CAR 42: In Section B.5 of the PDD version 1, in item 4.b, PP states that 36 out of 43 small hydro power plants in Santa Carolina State have an installed capacity below 10 MW. However, according to the reference provided by PP (+98+9 accessed by DOE on 21.10.2010), there are 34 plants with this characteristic.</p>	<p>EB 39 ANN 10</p>	<p>The common practice was modified to include similar activities of the whole country and CAR 42 is not valid anymore.</p>	<p>This CAR is not valid anymore., since the common practice analysis of PP has changed in the second version of the PDD.</p> <p>Please refer to CL19-22 to an analysis of the new common practice analysis provided by PP in the second version of the PDD.</p> <p>Seeing the above, this CAR was closed.</p>
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VALIDATION REPORT

<p>CL 01: In Section A.4.3 of the PDD (version 1), please clarify if this specific project comprises the application of environmentally safe and sound technology. Please also explain if any technology or know-how will be transferred to the Host Party.</p>	<p>EB 41 ANN 12</p>	<p>Information required in CL 01 was added in section A.4.3.</p>	<p>In Section A.4.3 of the PDD (version 2), PP has added the following info:</p> <p>It [the project] was also approved by environmental agents through environmental licensing. This process avoids project avoids the risks to different ecosystems. The whole process of approval that this project activity was submitted assures that Passos Maia Project comprises the application of environmentally safe and sound technology and knowhow.</p> <p>Seeing that the project has received its environmental license (evidence: LAI_011_2010), the DOE concludes that the project comprises the application of environmentally safe and sound technology and knowhow. Seeing this, the CL was closed.</p>
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VALIDATION REPORT

<p>CL 02: PP has provided the DOE with two “Technical Charts” (Ficha Resumo) of the project, one dated 15.03.2010 and another dated 08.04.2010. Both have different reservoir areas. Please explain this divergence. Please also provide a copy of the Revision of Basic Engineering Project 1165/00-10-RL-0001-1 of 15 March 2010, <u>which includes Annex 1 – “Technical Chart”</u>, as the copy provided by PP does not include the annexes.</p>	<p>EB 41 ANN 12</p>	<p>Copy of the Revision of Basic Engineering Project which includes “Annex 1 – Technical Chart” is provided to DOE with PDD Version 02. The correct reservoir area is included in this evidence.</p>	<p>The DOE has analyzed the latest basic engineering project (Basic Engineering Project 1165/00-10-RL-0001-1 of 15 March 2010). The reservoir area in this evidence is 1.75 km², as described in the PDD.</p> <p>The DOE was also able to validate the reservoir area of 1.75 km² through the following document: Environmental License (LAI 069424) of 24 August 2010.</p> <p>Seeing the above, the CL was closed.</p>
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VALIDATION REPORT

CL 03: Please provide in Section A.4.3 of the PDD version 1 the technical characteristics of the generators that will be used and the expected yearly energy generation (MWh).	EB 41 ANN 12	To attend CL 03, it was added information of the generators in the section A.4.3 accordingly technical chart of the revision of the engineering basic project. Also, expected yearly generation was added.	<p>In Section A.4.3 of the PDD version 2, the following info was added: the technical characteristics of the generators that will be used and the expected yearly energy generation (MWh).</p> <p>The DOE was able to validate this info with the following document: technical chart: ficha técnica of 27.09.2010.</p> <p>Seeing the above, the CL was closed.</p>
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VALIDATION REPORT

<p>CL 04: In Section A.4.3 of the PDD version 1, please clarify if the capacity factor mentioned is the same as the plant load factor. If so, please explain how the plant load factor of 0.57 was defined. Please provide an answer taking into consideration the GUIDELINES FOR THE REPORTING AND VALIDATION OF PLANT LOAD FACTORS (Version 01) EB 48 – ANN 11.</p>	<p>EB 41 ANN 12</p>	<p>Section A.4.3 was modified and information were added for attend CL 04 according GUIDELINES FOR THE REPORTING AND VALIDATION OF PLANT LOAD FACTORS (Version 01) EB 48 – ANN 11. Capacity factor is the same as Plant Load Factor. The plant load factor was provided using information of technical engineering studies supplied by third party company. This number is available at page 96 of the Engineering Consolidated Basic Project.</p>	<p>The plant load factor was provided using information of technical engineering studies supplied by third party company. This number is available at page 96 of the Engineering Consolidated Basic Project.</p> <p>The DOE has crosschecked this info, as the mentioned document was provided as evidence to the DOE. Page 96 of this document describes the PLF (0.57) of the SHPP. This document was prepared by a third party.</p> <p>Seeing the above, this CL was closed.</p>
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VALIDATION REPORT

<p>CL 05: Regarding Section A.4.4 of the PDD version 1, PP states that the electricity generation is projected according to the SHP's "commercializable" energy of 14.3 MW. Please provide evidence so the DOE can validate that the SHP will commercialize this amount of MW. If a power purchase agreement (PPA) has been sign, please provide a copy.</p>	<p>EB 41 ANN 12</p>	<p>PP first response:</p> <p>The statement was changed for the term "assured electricity". Projections follow electricity expressed by engineering basic project. Power purchase agreement will be supplied to DOE with PDD version 02. However, the amount electricity sold is less than assured energy. Project owners wait for ANEEL's approval about the assured energy to sell the remainder electricity. For Additionality analysis, the amount of 14.3 MW was considered as electricity to be sold by the project. Emission Reductions projections are in accordance with that.</p> <p>PP second response:</p> <p>Approval of installed capacity by ANEEL occurred in 10th May 2011. Evidence for that is the Dispatch published in Official Daily Union of 16th May 2011. Project Owners cannot predict the approval of assured energy by ANEEL. But, its calculation was done by third party engineering company which it is one of the options recommended by UNFCCC to calculate the Plant Load Factor.</p>	<p>DOE first analysis:</p> <p>PP states that calculations of emission reductions are done using the "assured energy" of the power plant (PLF / Installed capacity) of 14.3 MW. The PLF was calculated by third party engineering company (see CL 04 for evidence).</p> <p>PP also states that the PPA, that has already been sign, comprises the commercialization of an amount of energy below the assured energy of 14.3 MW.</p> <p><u>Please provide a copy of the PPA mentioned in the answer of CL 05.</u></p> <p><u>Please clarify when ANEEL's approval of the installed capacity/ assured energy of the SHP is expected.</u></p> <p>THIS CL IS STILL OPEN</p> <p>DOE second analysis:</p>
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VALIDATION REPORT



			<p>Approval of Consolidated Basic Engineering Project was approved by ANEEL on 10/05/2011. (ANEEL Ordinance number 2003).</p> <p>In this document, ANEEL states that it has approved the Consolidated Basic Engineering Project (prepared by third party engineering company). ANEEL also mentions some of the most important technical features of the Power Plant, contained in the Consolidated Basic Engineering Project:</p> <p>Installed capacity: 25 MW Reservoir area: 1.75 km²</p> <p>And other technical characteristics, in accordance with the approved Consolidated Basic Engineering Project.</p> <p><u>Please refer to CL 04 on how the DOE was able to validate the PLF of the Power Plant.</u></p> <p>Seeing the above, the CL was closed.</p>
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VALIDATION REPORT

CL 06: Please provide a reference to the information provided in the first two paragraphs of Section B.3 of the PDD version 1.	EB 41 ANN 12	The reference in two first paragraphs in Section B.3 was added.	<p>The reference in two first paragraphs in Section B.3 was provided and crosschecked by the DOE:</p> <p>Plano Decenal de Expansão de Energia 2019. Ministério de Minas e Energia. Empresa de Pesquisa Energética. 2010. Page 61.</p> <p>For more information: http://www.ons.org.br/atuacao/index.aspx</p> <p>And: http://www.ons.org.br/historico/index.aspx</p> <p>Seeing this, the CL was closed.</p>
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VALIDATION REPORT

<p>CL 07: Regarding Section B.4 of the PDD version 1, please explain the relevancy of the information provided regarding the Brazilian Decennial Plan for Electric Energy Expansion (2010-2019), as well as data from table 7, for baseline description.</p>	<p>EB 41 ANN 12</p>	<p>This information is relevant because it shows the projections of the Ministry of Mines and Energy for electricity sources that provides higher GHG emissions than the project activity. Table 7 shows that the presence of coal plants of the country are highly concentrated in the south region.</p> <p>The relevance is that the project can be a collaborator to avoid that one of the thermoelectric power plants is activated, or requiring the construction of similar enterprises.</p> <p>These are additional information that project participants would like to keep in the PDD.</p>	<p>PP wishes to keep this information in Section B.4 of the PDD version 2. This information is not directly necessary for the project's description of the baseline scenario, seeing that the baseline scenario for this type of project is provided by the relevant methodology. However, it can be considered complementary for a better understanding of the Brazilian energy mix. Seeing this, the DOE was able to close this CL</p>
<p>CL 08: Regarding Section B.5 of the PDD version 1, please a copy of the contract signed on December 21st 2009 with company responsible for construction of SHP Passos Maia.</p>	<p>EB 41 ANN 12</p>	<p>Copy of the contract was supplied to DOE with PDD version 2.</p>	<p>Copy of the contract was supplied to DOE with PDD version 2.</p> <p>The DOE has analyzed this contract. The date of signature is as indicated in the PDD. The contract comprises the complete construction and installation of the SHPP Passos Maia.</p> <p>Seeing the above, this CL was closed.</p>



VALIDATION REPORT

CL 09: In Section B.6.1 of the PDD version 1, PP states that: "For ex-ante estimation, it was considered for the variable $EG_{facility,y}$, the SHP Passos Maia's <u>assured energy</u> . However, in Section A.4.4, PP states the "commercializable" energy will be used. Please explain this divergence.	EB 41 ANN 12	Assured energy is the Commercializable energy (by concept). Section A.4.4 was corrected to make the terms uniform. PDD version 02 provides section A.4.4 with corrections.	Section A.4.4 has been modified. Please refer to CL 05. Seeing the above, the CL was closed.
CL 10: In Section B.6.1 of the PDD version 1, please provide a reference for the following statement: "This method [Dispatch Data Analysis] was chosen because it is, according to the Brazilian DNA, the most accurate and most recommended if information is available."	EB 41 ANN 12	The reference was Brazilian DNA. However, the document is outdated. This sentence was excluded from PDD.	The sentence was excluded from the PDD version 02 and replaced by: "This method was chosen following the recommendation of resolution number 817 to Brazilian DNA (Designated National Authority)." Resolution number 08 was crosschecked on http://www.mct.gov.br/upd_blob/0024/24719.pdf Seeing this, the CL was closed.



VALIDATION REPORT

CL 11: In Section B.6.1 of the PDD version 1, please provide a reference for the following statement: "Following that procedures, from July 2008, the operating margin emission factor started to be calculated for the National Interconnected System, considering the System as unique, and it became available to be consulted by the interested public and investors."	EB 41 ANN 12	The reference was Brazilian DNA. However, the document is outdated. This sentence was excluded from PDD.	PP has chosen to exclude the mentioned sentence. As it does not comprise essential information, the DOE has accepted this and has closed this CL.
CL 12: In Section B.7.2 of the PDD, please provide a detailed description of the procedure that will be adopted to crosscheck the electricity generation data as obtained from the metering installation.	EB 41 ANN 12	Information was added to section B.7.2.	<p>PP has added detailed information regarding crosscheck of the amounts of energy generation in B.7.2 of the PDD version 02:</p> <p>"Monthly, information of net electricity will be cross-checked with reports supplied by CCEE, entity responsible for settlement of power purchase agreements in Brazil. Information of generation can be also checked by sales invoice, if it is necessary to do so."</p> <p>The DOE has found this clarification sufficient and in accordance with ACM0002v12.1. Seeing this, the CL was closed.</p>



VALIDATION REPORT

CL 13: Please clarify how the operational lifetime, described in Section C.1.2 of the PDD (version 1) of the project activity was defined. Please provide third party evidence so the DOE can validate the project's operational lifetime.	EB 41 ANN 12	PDD version 01 provides as operational lifetime the time that Project Owner can explore the hydraulic potential (22 years and 2 months). Also, statement of the turbine supplier expressing useful lifetime is provided to DOE.	Please refer to CARBQA01.
CL 14: Regarding Section C.2.1.1, please clarify how the expected operation start of the power plant (01.01.2012) was defined, as this is not clear to the DOE seeing the evidence provided by PP: ANEXO I - CRONOGRAMA FÍSICO.	EB 41 ANN 12	The expected operation start date is in accordance with "cronograma fisico". PP is also providing with PDD version 02, copy of letter ("Passos Maia CE 0011/2009") submitted to ANEEL with information regarding the expected operation starting date. This letter provides the date: 28/12/2010. To facilitate calculation, PP's considered 01/01/2012.	<p>The DOE is able to validate the expected operation start of the power plant (01.01.2012) with the following document :</p> <p>PASSOS MAIA-CE-0018-09 - Cronograma de Implantação_ANEEL_protocolo</p> <p>This document comprises a Schedule for the construction of the SHPP that was presented to ANEEL. This document provides the date: 28/12/2010. To facilitate calculation, PP's considered 01/01/2012.</p> <p>Seeing the above, the CL was closed.</p>



VALIDATION REPORT

CL 15: During site visit, the DOE observed that the Installation License mentioned in Section D.1 of the PDD version 1 (001/2007) is not the latest license emitted by the environmental agency. Please provide a copy o the latest document.	EB 41 ANN 12	A new license was issued during the validation process. The latest document is provided with PDD version 02.	<p>In the PDD version 2, PP has included information regarding the latest environmental license:</p> <p>Installation Environmental License (LAI) - no 011/2010/GELRH</p> <p>Signed on: 24/08/2010</p> <p>Valid for 16 months.</p> <p>A copy was provided to the DOE.</p> <p>Seeing the above, this CL was closed.</p>
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VALIDATION REPORT

CL 16: Please provide a reference for the statement in the first paragraph of Section E.1 of the PDD version 1.	EB 41 ANN 12	Reference was added in Section E.1 to attend CL 16	<p>In Section E.1 of the PDD version 2, in the first paragraph, a reference was added:</p> <p>http://www.mct.gov.br/upd_blob/0023/23744.pdf</p> <p>Reference crosschecked by the DOE on 19.04.2010).</p> <p>Seeing this, the CL was closed.</p>
CL 17: Regarding section E.1 of the PDD version 1, Please provide a copy of the letter send to the State Secretary of Sustainable Economic Development. Please also provide the evidence of receipt (A/R).	EB 41 ANN 12	PPs did not send letter to State Secretary of Sustainable Economic Development. Regarding environmental state agencies, letter was sent to FATMA- Santa Catarina Environmental Foundation. Information regarding letter sent to the State Secretary of Sustainable Economic Development was excluded of the PDD.	<p>PP informs that no letter was send to the State Secretary of Sustainable Economic Development. As this is not mandatory by the Brazilian DNA (http://www.mct.gov.br/upd_blob/0023/23744.pdf) and seeing that a letter was send to the environmental state agency (FATMA-Santa Catarina), this CL was closed.</p>



VALIDATION REPORT

<p>CL 18: In Section B.5 of the PDD version 1, in sub-step 1.a, please explain why the second alternative to the project activity (The construction of a new mineral coal thermoelectric power plant) does not include the construction of power plants that use other generation sources.</p>	<p>EB 39 ANN 10</p>	<p>PP had chosen as an alternative scenario the construction of new mineral coal thermoelectric power plant because high percentage of coal thermoelectric power plants is concentrated in the south region, where the project is located. Besides, the Decennial Plan 2010 – 2019 projects a high increase of the offer of this kind of electricity in Brazil.</p> <p>However, to avoid any doubt, second alternative scenario was changed to “The construction of new electricity enterprises, with similar installed capacity to the SHP Passos Maia”.</p>	<p>In Section B.5 of the PDD version 2, in sub-step 1.a, second alternative scenario was been changed to “The construction of new electricity enterprises, with similar installed capacity to the SHP Passos Maia”. Seeing that this change is in line with the Additionality Tool version 05.2, this CL was closed.</p>
<p>CL 19: Please explain why a region other than the entire Host Country was found more appropriate to analyze if other activities similar to the proposed project activity are observed in the relevant region.</p>	<p>EB 39 ANN 10</p>	<p>This method was used before in other projects that were registered without problems. However, to avoid any doubt, PDD version 02 provides common practice considering the whole country..</p>	<p>The common practice analysis in the PDD version 2 comprises as geographical scope the entire host country. Seeing this, the CL was closed.</p>



VALIDATION REPORT

CL 20: Clarify how the operational activities identified in the region were defined as similar and excluded other types of project activity.	EB 39 ANN 10	PDD version 02 provides information regarding how operational activities were identified as similar. Activities were considered similar accordingly its installed capacity and operation starting date (due the institutional framework)	<p>PP has chosen the following approach:</p> <p>1. <i>To only contemplate in the common practice analysis (item 4.a of Section B.5 of the PDD version 2) the hydropower plants with an installed capacity of 12.5 MW – 30 MW.</i></p> <p><u>12.5 MW:</u> 50% below the installed capacity of the Passos Maia SHPP (25 MW). The DOE was able to validate this threshold of – 50% with: http://cdm.unfccc.int/Projects/DB/TUEV-SUED1218108477.61/ReviewInitialComments/8KZ3T8MYPBK2Z2HYZN5CQ4Z5BJ2F9S. In this request for review, the CDM EB defines that considering a range of +/- 50% is appropriate for hydro power plants.</p> <p><u>30 MW:</u> This is the limit for small hydro power plants in Brazil http://www.aneel.gov.br/cedoc/res2003652.pdf) Above 30 MW, the hydro power plants are considered to be “large hydro” and have a distinctive approval process before the government agencies (ANEEL and environmental agencies) and higher cost of energy generation: http://www.portalpch.com.br/index.php?option=com_content&task=view&id=702</p>
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VALIDATION REPORT

			<p>Seeing the above, the DOE has accepted the 12,5 MW – 30 MW range.</p> <p><i>2. It was considered as similar SHPs with an operation starting date after June 2004, because of the law 10,438 of 26th April 2002, that created PROINFA, which predicted that all plants should celebrate its contracts with Eletrobrás until June 2004.</i></p> <p>PP states that the end of the PROINFA benefits (in June 2004) changed the institutional framework for renewable electricity in Brazil. Consequently, an identification of similar activities should contemplate only those SHPPs that became operational after June 2004. Also, all PROINFA projects were excluded.</p> <p>The DOE agrees that PROINFA projects are not to be considered similar projects within the sub-step 4.a analysis.</p> <p>3. PP has also excluded from its analysis in sub-step 4.a all CDM project activities (registered project activities and project activities that have been published for global stakeholders consultation at the UNFCCC website). This is in accordance with the Additionality Tool.</p>
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VALIDATION REPORT

			<p>4. PP has also excluded those SHPP that produce energy for own consumption. Those enterprises cannot be considered similar as they do not take part in the energy market in Brazil.</p> <p>PP has provided the following numbers:</p> <p>Total of SHPPs in Brazil: <u>388</u>. Evidence: Print screen ANEEL site (PCHs em operação_Brasil.pdf)</p> <p>Crosschecked by DOE at http://www.aneel.gov.br/aplicacoes/capacidadebrasil/GeracaoTipoFase.asp?tipo=5&fase=3)</p> <p>From the total of 388, <u>104</u> are of installed capacity between 12.5 MW and 30 MW. Evidence: Print screen ANEEL site (PCHs em operação_Brasil.pdf)</p> <p>Crosschecked by DOE at http://www.aneel.gov.br/aplicacoes/capacidadebrasil/GeracaoTipoFase.asp?tipo=5&fase=3)</p> <p>From the 104, <u>99</u> projects became operational after June 2004. Evidence: Cronograma_Eventos_PCH_LI_jan_2011 and Common Practice Spreadsheet.</p> <p>Crosschecked by DOE at: http://www.aneel.gov.br/aplicacoes/atlas/pdf/Anexo3B%283%29.pdf and http://www.seinfra.goias.gov.br/aprovado_proj_1_a_30.htm (agro trafo).</p>
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VALIDATION REPORT

		<p>From 99, 43 are not CDM projects. Evidence: Common Practice Spreadsheet. Crosschecked by DOE at: http://cdm.unfccc.int/Projects/projsearch.html</p> <p>From 43, only 05 are not PROINFA projects. Crosschecked with proinfa_contratos1 (from Eletrobras website)</p> <p>From 05, only 03 are not "APE" (producers for own internal consumption. Evidence: Common Practice Spreadsheet. Crosschecked by DOE: http://www.aneel.gov.br/aplicacoes/capacidadebrasil/GeracaoTipoFase.asp?tipo=5&fase=3.</p> <p>From those last three, PP has provided information in the PDD describing why they are essentially distinctive than its own Project.</p> <p>Seeing the above, the CL was closed.</p>
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VALIDATION REPORT

CL 21: Regarding item 4.b in Section B.5 of the PDD version 1, please explain why PP has excluded from the analysis all small hydro power plants with an installed capacity lower than 10 MW. Moreover, please clarify which criteria PP has followed to determine that all SHP with installed capacity below 10 MW are essentially distinct than its project activity.	EB 39 ANN 10	PDD version 02 provides a new common practice considering the whole country. Information regarding power plants excluded from the analysis is described in PDD version 02.	Please refer to the first point of analysis in CL 20. The DOE has validated the 12.5 MW and 30 MW range for the analysis. Please refer to CL 20. Seeing this, the CL 21 was closed.
CL 22: In Section B.5 of the PDD version 1, in item 4.b, PP states that out of the 9 similar projects in the region, 6 are PROINFA projects. As evidence PP provides a copy of a document containing a list of the SHPs that were considered enabled ("habilitado" in Portuguese) to take part in the selection procedure of PROINFA. Please provide evidence of the SHPs that were <u>contracted</u> through PROINFA.	EB 39 ANN 10	All references regarding the common practice of the PDD version 02 is supplied to DOE.	Please refer to CL 20 as the common practice analysis has been modified in the Second version of the PDD and other evidences have been presented by PP. Seeing the above, the CL 22 was closed.
CL 23: Please clarify if 100% of the data described in Section B.7.1 of the PDD (version 1) will be monitored.	ACM 0002 v. 12	100% of the data will be monitored. Additional information regarding reservoir area was added in the table of this parameter.	PP states in Section B.7.1 of the PDD version 02 that 100% of the data will be monitored. Seeing that this is in accordance with ACM0002v12.1, this CL was closed.



VALIDATION REPORT

CAR BQA 1 – Provide evidences to support the period of expected operation used in the investment analysis.	EB 51 annex 58	<p>PDD version 01 provides as operational lifetime the time that Project Owner can explore the hydraulic potential (22 years and 2 months).</p> <p>The period of expected operational 22 years and two months This can be evidenced by letter “Passos Maia CE 0011/2009” (Beginning of Commercial Operation – 28th December 2011) and by ANEEL Resolution 68, issued in March 02th 2004, article 07 (which indicates the end of the concession period).</p>	<p>As confirmed by the evidences letter “Passos Maia CE 0011/2009” and by ANEEL Resolution 68, issued in March 02th 2004, article 07 (which indicates the end of the concession period) the period of expected operation is appropriated.</p> <p>CAR BQA 1 is closed.</p>
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VALIDATION REPORT

CAR BQA 2 – It was not possible to reproduce the results of the sensitivity analysis.	EB 51 annex 58	<p>To reproduce each result of the sensitivity analysis, DOE should use the projected situation and change in the spreadsheet “cash flow”, the following items :</p> <p>Electricity price: Change cells “L9”, “L10” and “L11”; Investment variation: Change cell “I15”; O&M Cost Variation: Change cell “I14”; Assured Energy (PLF): Change cell “I17”; Loan Cost Variation: Change the cell “I16”, inserting the value “2.91%”.</p> <p>The same instructions of this answer were added to the spreadsheet sensitivity analysis.</p>	<p>Answer 1 (05/05/2011)</p> <p>The referred instructions are correct and the validation team was able to reproduce the sensitivity analysis.</p> <p>CAR BQA 2 is closed.</p>
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VALIDATION REPORT

<p>CAR BQA 3 – The actual interest payable was not taken into account in the calculation of income tax.</p>	<p>EB 51 annex 58</p>	<p>In the Brazilian Presumed Profit Taxation Regime, the calculus of Income Tax and Social Contribution does not take into account neither actual interest payable nor any expenses. Taxes rates are calculated directly over gross revenue. The following laws and legal rules proves that:</p> <ul style="list-style-type: none"> • Brazilian Law 10,637 of 30th December 2002 ; • Brazilian Law 9,718 of 27th of November 1998; • Regarding Income Tax - Law 8,981/95 and Act 3,000/99. <p>Regarding Social Contribution – Laws 7,689/98 and 10,637/02 and Temporary Measure 2,158-25/01 are the main references for that.</p>	<p>Answer 1 (05/05/2011)</p> <p>Referred evidences were checked and the interest payable is not applicable to this project.</p> <p>CAR BQA 3 is closed.</p>
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VALIDATION REPORT

<p>CAR BQA 4 – Provide a spreadsheet containing all the assumptions and input values used in the investment analysis with its respective description and provide the evidences to justify the respective evidence, the description of the evidence and evidence's date. Make sure that all information and evidences are based on the relevant information available at the time of the investment decision and not information available at an earlier or later point. (Total investment, energy price, plant load factor, O&M costs and among others)</p>	VVM 111	<p>PDD provides information regarding all input values. Spreadsheet with the evidences is provided to DOE together with PDD version 02.</p> <p>Answer 02 Loan expense in real terms is considered in PDD V03.</p>	<p>Answer 1 (05/05/2011)</p> <p>The spreadsheet was provided, all assumptions were described and evidences submitted.</p> <p>It was assessed that the loan expense was calculated in nominal terms and the cash flow was calculated in real terms. It is necessary to consider the loan expense in real terms (without considering the inflation).</p> <p>CAR BQA 4 was not closed.</p> <p>Answer 2 (21/08/2011)</p> <p>The Loan was calculated in real terms.</p> <p>CAR BQA 4 was closed.</p>
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VALIDATION REPORT

CAR BQA 5 – Present all the evidences in a manner that can be clearly validated by the DOE. When answering the protocol refer to the evidences by their numbers and provided all the evidences with the respective number in order to facilitate, organize and present their in a clearly way.	VVM 111	All evidences were provided to DOE. Numbering evidences is a DOE work.	<p>Answer 1 (05/05/2011)</p> <p>All evidences were provided in a manner that could be clearly validated by the DOE.</p> <p>CAR BQA 5 is closed.</p>
CAR BQA 6 – The PP should explain how it has determined that the parameters used in the sensitivity analysis are the most critical and that the ranges of variations are appropriate.	VVM 111	<p>PDD Version 01 already provided a lot of information regarding how the parameters used in the sensitivity analysis were defined as the most critical. Also the ranges of variations were discussed, showing that they are appropriate. Each item included in the sensitivity analysis contains comments about why it was varied.</p> <p>However, to attend the auditor, PPs added more information.</p>	<p>Answer 1 (05/05/2011)</p> <p>PP has provided an explanation about how it has determined that the parameters used in the sensitivity analysis are the most critical and that the ranges of variations are appropriate, besides all the values were submitted to variations between -10% and +10% as required by the Additionality tool.</p> <p>CAR BQA 6 is closed.</p>



VALIDATION REPORT

CL BQA 1 – Clarify with evidences the moment of investment decision, in order to guarantee that the input values are the correct ones at this moment in the project chronology.	EB 51 annex 58	The moment of the investment decision is 17 th September 2009. Evidence for that is the Contract of Assignment and Share Subscription Rights and also the Shareholders Agreement which constitutes the Annex II of the Contract of Assignment and Share Subscription Rights.	Answer 1 10/01/2011 All the evidences were checked and as the project starting date is 21/12/2009 and as the time between the project investment decision date and the project starting date is short the validation team accepted the referred date. CL BQA 1 is closed
CL BQA 2 – Did the project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed CDM project activities?	VVM 113	In Brazil, National Authorities does not approve Feasibility Study Reports. National Authorities approves Engineering Project, as it was supplied to the DOE. Electricity investors compete among them to sell electricity through auctions organized by Brazilian Government. Therefore, financial information about the project is confidential. All evidences for values used in the financial spreadsheet were supplied to DOE during the site visit.	Answer 1 (01/05/2011) In Brazil, National Authorities don't approve Feasibility Study Reports and it was provided to the validation team other evidences to support all assumptions and input values. CL BQA 2 is closed.