



**VALIDATION REPORT
OMEGA ENERGIA
RENOVÁVEL S.A.
VALIDATION OF THE
OMEGA ENERGIA CDM
PROGRAMME OF ACTIVITIES
FOR THE PROMOTION OF
SMALL HYDROPOWER PLANTS
IN BRAZIL**

REPORT No. BRAZIL-VAL/BR.1099486

REVISION No. 02.2

BUREAU VERITAS CERTIFICATION

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Date of first issue: 22/03/2012	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Omega Energia Renovável S.A.	Client ref.: João Antonio R. da Cunha

Summary:

Bureau Veritas Certification has made the validation of the Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil located in 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 PoA-DD, generic CPA-DD, the baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the PoA design and the baseline and monitoring plan; ii) follow-up interviews with 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 Coordinating/Managing Entity revised its PoA design documents.

In summary, it is Bureau Veritas Certification's opinion that the PoA correctly applies the baseline and monitoring methodology ACM0002, version 12.3.0 and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

The only change from version 02 to version 02.1 of this Validation Report is to reflect the receipt of the Letter of Approval from the Interministerial Commission on Global Climate Change, which is the Designated National Authority of Brazil, issued on August 8th, 2012.

The only changes from version 02.1 to version 02.2 of this Validation Report is to reflect the modifications made considering the "Request for registration of the proposed programme of activities incomplete for 'Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil'" of 02/11/2012.

Report No.: BRAZIL-val/BR.1099486	Subject Group: CDM
Project title: Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil	
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Date of this revision: 27/11/2012	Rev. No.: 02.2
	Number of pages: 163

Indexing terms

Work approved by:

Flávio Gomes

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1 INTRODUCTION

Omega Energia Renovável S.A. has commissioned Bureau Veritas Certification to validate its CDM Programme of Activities: “Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil (hereafter called “the PoA”) in Brazil.

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

1.1 Objective

The validation serves as programme design verification and is a requirement of all programme of activities. The validation is an independent third party assessment of the programme design. In particular, the PoA's baseline, the monitoring plan (MP), and the programme compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the programme design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Validation is a requirement for all CDM programme and is seen as necessary to provide assurance to stakeholders of the quality of the PoA 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 programme design documents, the baseline study and monitoring plan and other relevant documents at POA level. 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 programme design.

1.3 Validation Team

The validation team consists of the following personnel:

FUNCTION	NAME	TA 1.2		TASK PERFORMED*
Team Leader	Antonio Daraya	X		X DR X SV X RI
Team Member	N.A.	<input type="checkbox"/>		<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI
Technical Specialist	N.A.	<input type="checkbox"/>		<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI



Financial Specialist	Antonio Vinicius Pimpão Gomes	<input type="checkbox"/>		X DR <input type="checkbox"/> SV X RI
Financial Specialist	Bernardo Lima	<input type="checkbox"/>		X DR <input type="checkbox"/> SV X RI
Internal Technical Reviewer (ITR)	Guilherme Borba Lefèvre	X		X DR <input type="checkbox"/> SV <input type="checkbox"/> RI
Specialist supporting ITR	N.A.	<input type="checkbox"/>		<input type="checkbox"/> DR <input type="checkbox"/> SV <input 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 programme, according to the Clean Development Mechanism Validation and Verification Manual (version 1.2) /A/, Procedures for registration of a programme of activities as a single CDM project activity and issuance of certified emission reductions for a programme of activities (Version 04.1) /H/ issued by the Executive Board at its 55th meeting on 30/06/2010. 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 PoA 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 PoA-DD and generic CPA-DD submitted by Omega Energia Renovável S.A. and additional background documents related to the PoA design and baseline, i.e. country Law, PoA-DD form /G/, CPA-DD form /F/, 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, Omega Energia Renovável S.A. revised the PoA-DD and generic CPA-DD and resubmitted it on 29/03/2012.

The validation conclusions presented in this report relate to the project as described in the PoA-DD version 4.1 (ref /20/) and generic CPA-DD version 4.1 (ref /22/).

2.2 Follow-up Interviews

On 12 and 13/12/2011 Bureau Veritas Certification performed interviews with stakeholders to confirm selected information and to resolve issues identified in the

document review. Representatives of Omega Energia Renovável S.A. and Ecopart Assessoria em Negócios Empresariais Ltda. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Omega Energia Renovável S.A.	<ul style="list-style-type: none"> ➤ CDM-PoA-DD, typical CDM-CPA-DD and a real case CDM-CPA-DD (CPA-1) design document ➤ Technology description ➤ Additionality assessment ➤ Environmental assessment ➤ Monitoring plan ➤ Monitoring methodology ➤ Baseline emission estimation ➤ Project emission estimation ➤ Emission reduction estimation ➤ Stakeholder consultation process ➤ Record keeping system of the PoA
Ecopart Assessoria em Negócios Empresariais Ltda.	<ul style="list-style-type: none"> ➤ CDM-PoA-DD, typical CDM-CPA-DD and a real case CDM-CPA-DD (CPA-1) design document ➤ Technology description ➤ Additionality of the real case CPA-DD (CPA 01) ➤ Monitoring plan ➤ Monitoring methodology ➤ Baseline emission estimation ➤ Project emission estimation ➤ Emission reduction estimation. ➤ Environmental requirement compliance. ➤ Stakeholder consultation process ➤ Record keeping system of the PoA

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 programme design.

Corrective Action Requests (CAR) is issued, where:

- (a) The CME/project participants have made mistakes that will influence the ability of the PoA to achieve real, measurable additional emission reductions;
- (b) The applicable 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.

The validation team may also raise a forward action request (FAR) during validation to identify issues related to programme implementation that require review during the first verification of the CPA under the PoA.



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

2.4 Internal Technical Review

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

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 Team Leader 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 PoA design, baseline, additionality, monitoring plan and emission reduction calculations, internal quality assurance systems of the CME as well as the PoA, 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 Team Leader and Validation Team and discusses these matters with Team Leader.

After the agreement of the responses on the 'Clarification Request' from the Team Leader 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 programme 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 45 Corrective Action Requests (CARs) and 23 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)

A Letter of Approval has been received from the Brazilian DNA – Designated National Authority /19/, dated August 8th, 2012.

Bureau Veritas Certification received this letter from project participant Ecopart Assessoria em Negócios Empresariais Ltda, and does not doubt its authenticity.

According to DNA's Letter of Approval:

- The Federative Republic of Brazil ratified the United Nations Framework Convention on Climate Change on February 28th, 1994 and the Kyoto Protocol on August 23rd, 2002;
- The Federative Republic of Brazil participates voluntarily in the CDM;
- The Programme of Activities "Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil" will assist the Federative Republic of Brazil in achieving sustainable development.
- The Omega Energia Renovável S.A. is authorized to act as the Coordinating/Managing Entity of the above Programme of Activities.

The DOE considers the Letter of Approval to be in accordance with paragraphs 45-48 of the VVM.

3.2 Participation (54)

A letter of approval has been received from the DNA-Designated National Authority. Refer to Section 3.1 above.

3.3 Project design document (57)

The validation team hereby confirms that the PoA-DD complies with the latest PoA-DD form and the Generic CPA DD complies with latest CPA-DD form.

Besides, the content between PoA-DD and Generic CPA DD is consistent.

3.4 Changes in the Programme of Activity (18)

During the site visit, no changes were observed in project as compared to details mentioned in webhosted PoA-DD, version 01, except those changes that have been supported by CARs and CLs opened by the DOE and have already been discussed in the Validation Protocol.

3.5 PoA description (64)

The primary objective of the proposed Programme of Activities (PoA) is to help meet Brazil's rising demand for energy due to economic growth and to improve the supply of electricity, while contributing to environmental, social and economic sustainability by increasing the share of renewable energy in total electricity consumption for Brazil (and for the region of Latin America and the Caribbean).

This PoA is a voluntary coordinated action by the Coordinating/Managing Entity (CME) Omega Energia Renovável S.A., consisting of the implementation of renewable energy projects in Brazil. The objective of this PoA is the construction of small hydropower



plants (from Portuguese Pequena Centrais Hidrelétricas – PCHs) connected to the Brazilian Interconnected System (from the Portuguese Sistema Interligado Nacional – SIN).

This cleaner source of electricity provides an important contribution to environmental sustainability. The project activity reduces emissions of greenhouse gas (GHG) by avoiding electricity generation by fossil fuel sources (and CO₂ emissions), which would be generated (and emitted) in the absence of the project.

Although this PoA does not have a major impact given its electric system size, it is part of a greater idea. The project contributes to sustainable development since it meets the present needs without compromising the ability of future generations to meet their own needs, as defined by the Brundtland Commission (1987). In other words, the implementation of small hydroelectric power plants ensures renewable energy generation, reduces the national electric system demand, avoids negative social and environmental impacts caused by the construction of fossil fuel thermo power plants, and drives regional economies, increasing quality of life in local communities.

The Programme of Activities will be implemented within the geographical area of Brazil.

All CPAs under this PoA consist of the implementation of small hydropower plants in Brazil as defined by the Brazilian Power Regulatory Agency (from the Portuguese Agência Nacional de Energia Elétrica – ANEEL). According to ANEEL's Resolution nr. 394/1998, small hydropower plants consist of a plant with an installed capacity between 1 MW and 30 MW, and reservoir area smaller than 3 km².

However, ANEEL's Resolution nr. 652/2003 presents other criteria to classify utilities with installed capacity between 1 MW to 30 MW, whose reservoir areas are greater than 3 km². Therefore, only plants under ANEEL classification of small hydropower plants will be considered and included in this PoA, independently of the installed capacity and/or reservoir area.

The technology to be employed in the small hydropower plants of this PoA is based on hydraulic turbines. There are many types of hydraulic turbines. The main types are Francis, Kaplan and Pelton; depending on the project waterfall and water flow, the type of turbine that better fits to the project design will be chosen.

The technology to be used in the project activities which will be included in this PoA will be detailed in each CPA-DD.

The length of the Programme of Activities is 28 years.

The process undertaken to validate the accuracy and completeness of the PoA description includes a document review of the PoA-DD version 4.1 (ref/20/), CPA-DD Generic version 4.1 (ref /22/), CPA-DD Santa Cruz version 4.1 (ref /21/), ANEEL's Resolution nr. 394/1998, ANEEL's Resolution nr. 652/2003, interviews with representatives of the project participants Omega Energia Renovável S.A. and Ecopart Assessoria em Negócios Empresariais Ltda. and a site visit, in the period of 12 to 13/12/2011.

The validation team hereby confirms that the programme description in PoA-DD version 4.1 (ref /22/), of 07/11/2012 is accurate and complete in all respects.

3.6 Operational and management arrangements (166)

A clear and transparent operational and management arrangement has been established by the management/coordinating entity. Complying with **para.166/VVM**, the Validation team is able to conclude that the operational and management arrangements have been established by the coordinating/managing entity and are suitable for the PoA being validated. Bureau Veritas Certification considers that the arrangements are sufficient to ensure that the coordinating/managing entity will have control of all records and information related to the implementation of individual CPAs.

By a document review of CME's record keeping system for the inclusion of CPAs in "Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil /13/ and of CME's database for the registered CDM Project Activities under ACM0002 and under AMSID in Brazil and for Brazilian registered CDM Programme of Activities /14/, interviewing with CME during on site visit, the validation team confirms that the CME has the competencies to check the features of potential CPAs and ensure that each CPA meets all requirements and eligibility criteria before inclusion in the registered PoA. For details of management system, please refer to section 3 of table 1 in appendix A.

3.7 Eligibility criteria for inclusion a CPA in the PoA (167)

The Validation team has assessed the eligibility criteria for inclusion of a CPA in the PoA in accordance with **para.167/VVM** and "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities" /K/ and confirms that:

- The eligibility criteria are verifiable
- The eligibility criteria are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA.
- The specified eligibility criteria in the PoA-DD are sufficient to ensure that all CPAs would comply with the CDM requirement applicable to the PoA, for details of eligibility criteria are:
 1. The geographical boundary of the CPA, including any time-induced boundary, consistent with the geographical boundary set in the PoA.
 2. Conditions that avoid double counting of emission reductions, like unique identifications of product and end-user locations (e.g. programme logo).
 - 3 . The specifications of technology/measure, including the level and type of service, performance specifications, including compliance with testing/certifications.
 4. Conditions to check the start date of the CPA through documentary evidence.
 5. Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs.
 6. The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality.



7. The PoA-specific requirements stipulated by the CME, including any conditions related to undertaking local stakeholder consultations and environmental impact analysis.

8. Conditions to provide an affirmation that funding from Annex I parties, if any, do not result in a diversion of Official Development Assistance (ODA).

9. The CPA has to include small hydropower plant(s) defined by ANEEL only.

10. No energy generating equipment shall be transferred from another activity located in a non-annex I party and no existing equipment shall be transferred from the project to another activity.

3.8 Baseline and monitoring methodology

3.8.1 Applicability of the selected baseline and monitoring methodology (76-77)

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

According to the PoA-DD, the CPAs under the PoA will apply the consolidated baseline and monitoring methodology ACM0002, version 12.3.0 /B/.

- Applicability condition (a): The project activity is the installation of a new grid-connected hydropower plant/unit (either with a run-of-river reservoir or an accumulation reservoir) at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant);

According to the 2nd paragraph of item II of Section E.6.1 of the PoA: "The CPAs to be added to this PoA in the future may consist of new small hydropower plants only."

- Applicability condition (b): In case of hydropower plants, at least one of the following conditions must apply:

o The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or

o The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each reservoir, as per definitions given in the project emissions section, is greater than 4 W/m² after the implementation of the project activity; or

o The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per definitions given in the Project Emissions section, is greater than 4 W/m² after the implementation of the project activity.

According to the item project emissions of Section E.6.2 of the PoA: "...the power density of each utility considered in the CPAs will be calculated and shall be greater than 4 W/m² as required by ACM0002."

- Applicability condition (c): In case of hydropower plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m² after the implementation of the project activity all of the following conditions must apply:



- o The power density calculated for the entire project activity using equation 5 (of ACM0002) is greater than 4 W/m^2 ;
- o All reservoirs and hydropower plants are located at the same river and where are designed together to function as an integrated project that collectively constitutes the generation capacity of the combined power plant;
- o The water flow between the multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity;
- o The total installed capacity of the power units, which are driven using water from the reservoirs with a power density lower than 4 W/m^2 , is lower than 15MW;
- o The total installed capacity of the power units, which are driven using water from reservoirs with a power density lower than 4 W/m^2 , is less than 10% of the total installed capacity of the project activity from multiple reservoirs.

Furthermore, the project activity cannot involve:

- o 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;
- o Biomass fired power plants;
- o Hydropower plant that result in new single reservoir or in the increase in existing single reservoir where the power density of the reservoir is less than 4 W/m^2 ;
- o Retrofits, replacements, or capacity additions.

Not applicable. See the applicability condition (b) above: According to the item project emissions of Section E.6.2 of the PoA: "...the power density of each utility considered in the CPAs will be calculated and shall be greater than 4 W/m^2 as required by ACM0002."

The eligibility criteria of the applicability of the selected baseline and monitoring methodology is set as:

- Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs.

As presented in section E.1 (CDM-PoA-DD), this PoA applies the ACM0002 - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (version 12.3.0). Therefore, the CPAs have to be in compliance with applicability conditions of ACM0002.

The DOE hereby confirms that the selected baseline and monitoring methodology ACM002 version 12.3.0 Ref /B/, "Tool for the demonstration and assessment of additionality" version 06.0.0 Ref /D/ and "Tool to calculate the emission factor for an electricity system", version 02.2.1 Ref /E/ are applicable to CPAs to be included in the PoA, which complies with all the applicability conditions therein.

3.8.2 PoA boundary

Boundary for the PoA in terms of geographical area is defined as Brazil.

The eligibility criteria of the CPA boundary are set as:



The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA.

Bureau Veritas Certification confirms that in establishing the boundary of the PoA, the project participants have taken into consideration all applicable national and/or sectoral policies and regulations within that chosen boundary.

3.8.3 Baseline identification (87-88)

The steps taken to assess the requirement given in paragraph 87 and 88 of the VVM are described below:

The CPAs to be included in the proposed PoA correspond to the installation of a new grid-connected small hydro power plant. Therefore, according to ACM0002, the baseline scenario for this option is the 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 as described in the “Tool to calculate the emission factor for an electricity system”.

The document review was used to cross check the baseline identification.

Based on the above assessment, the validation team hereby confirms that:

- (a) All the assumptions and data used by the project participants are listed in the PoA-DD, including their references and sources;
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PoA-DD;
- (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 PoA-DD;
- (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 PoA.

The eligibility criteria of the CPA boundary are set as:

The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA.

The document review was used to cross check the eligibility criteria of the CPA boundary.

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

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

In the PoA Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil, the emissions reductions are calculated according to version 12.3.0 of approved methodology ACM0002 and its recommended tools.

Emission Reductions (ER_y)

According to the selected approved methodology ACM0002, emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y \quad \text{Equation 1}$$

Where:

ER_y = Emission reductions in year y (tCO₂e/yr);

BE_y = Baseline emissions in year y (tCO₂/yr);

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

Baseline emissions (BE_y)

Baseline emissions for a typical CPA are determined following the procedures established by ACM0002. From the methodology “baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants”.

Baseline emissions are calculated as follows:

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

Where,

BE_y = Baseline emissions in year y (tCO₂/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 CO₂ 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” (tCO₂/MWh).

The calculation of the combined margin CO₂ emission factor for grid connected power generation ($EF_{grid,CM,y}$) follows, as recommended by ACM0002, the procedures



established in the methodological tool “Tool to calculate the emission factor for an electricity system” (version 2.2.1). According to this tool Project Participants shall apply six steps in order to calculate the baseline emission factor as further detailed below.

I. Calculation of the combined margin CO₂ emission factor for grid connected power generation ($EF_{grid,CM,y}$)

STEP 1 - Identify the relevant electricity system

According to the tool, “if the DNA of the host country has published a delineation of the project electricity system and connected electricity systems, these delineations should be used. If such delineations are not available, project participants should define the project electricity system and any connected electricity system and justify and document their assumptions in the CDM-PDD”.

The Brazilian DNA (“CIMGC” from the Portuguese Comissão Interministerial de Mudança Global do Clima) published Resolution nr. 8, issued on May 26th, 2008, which defines the Brazilian Interconnected Grid (SIN) as the “Project Electricity System” for any Clean Development Mechanism (CDM) project activity applying the ACM0002 and AMSI.D Methodologies in Brazil. The SIN is a single system that covers all the five macro-geographical regions of the country (North, Northeast, South, Southeast and Midwest)*. Hence this information will be used to calculate the baseline emission factor of the grid.

STEP 2 – Choose whether to include off-grid power plants in the project electricity system (optional).

The Project Participants may choose between the following two options to calculate the operating margin and build margin emission factor:

Option (i): only grid power plants are included in the calculation;

Option (ii): both, grid power plants and off-grid power plants are included in the calculation.

The Brazilian DNA made available the emission factor calculation based on information of the grid power plants only – option (i) – following the “Tool to calculate the emission factor for an electricity system”. More information of the methods applied can be obtained at the DNA’s website <http://www.mct.gov.br/index.php/content/view/74689.html>

Since the Project Participants will consider data published by the DNA, option (i) has to be considered in the CPAs.

* Information available at: <http://www.mct.gov.br/upd_blob/0024/24719.pdf>.

STEP 3 - Select a method to determine the operating margin (OM).

The calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on one of the following methods:

- (a) Simple OM, or
- (b) Simple adjusted OM, or
- (c) Dispatch data analysis OM, or
- (d) Average OM.

Since there is no preferable method for the calculation of the OM emission factor, the Project Participants have chosen the method and data annually published by the Brazilian DNA, using option (c) Dispatch data analysis OM. More information of the OM emission factor can be obtained at the DNA's website (<http://www.mct.gov.br/index.php/content/view/74689.html>).

According to the "Tool to calculate the emission factor for an electricity system", in the "dispatch data analysis OM" method, it shall be considered the year in which the project activity displaces grid electricity and update the emission factor annually during monitoring. Therefore, this PoA applies the *ex-post* data vintage.

STEP 4 - Calculate the operating margin emission factor according to the selected method

The dispatch data analysis OM emission factor ($EF_{grid,OM-DD,y}$) is determined based on the grid power units that are actually dispatched at the margin during each hour h where the project is displacing grid electricity. It shall be calculated according to the formulae below:

$$EF_{grid,OM-DD,y} = \frac{\sum_h EG_{PJ,h} \times EF_{EL,DD,h}}{EG_{PJ,y}} \quad \text{Equation 2}$$

Where:

$EF_{grid,OM-DD,y}$ = Dispatch data analysis operating margin CO₂ emission factor in year y (tCO₂/MWh);

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

$EF_{EL,DD,h}$ = CO₂ emission factor for power units in the top of the dispatch order in hour h in year y (tCO₂/MWh);

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

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

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

Calculation of hourly CO₂ emission factor for grid power units ($EF_{EL,DD,h}$)

The Brazilian DNA annually publishes the operating margin emission factor based on option (c) dispatch data analysis. Therefore, the Project Participants considered this figure for the proposed PoA.

STEP 5 - Calculate the build margin (BM) emission factor

The build margin emissions factor is the generation-weighted average emission factor (tCO₂/MWh) of all power units m during the most recent year y for which electricity generation data is available, calculated as follows:

$$EF_{grid, BM, y} = \frac{\sum_m EG_{m, y} \times EF_{EL, m, y}}{\sum_m EG_{m, y}} \quad \text{Equation 3}$$

Where:

$EF_{grid, BM, y}$ = Build margin CO₂ emission factor in year y (tCO₂/MWh);

$EG_{m, y}$ = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh);

$EF_{EL, m, y}$ = CO₂ emission factor of power unit m in year y (tCO₂/MWh);

m = Power units included in the build margin;

y = Most recent historical year for which electricity generation data is available.

In terms of vintage of data, project participants can choose between one of the following two options:

Option 1: For the first crediting period, calculate the build margin emission factor ex ante based on the most recent information available on units already built for sample group m at the time of CDM-PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should

be used. This option does not require monitoring the emission factor during the crediting period.

Option 2: For the first crediting period, the build margin emission factor shall be updated annually, ex post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated ex ante, as described in Option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

The option chosen by the Project Participants is option 2, *i.e.* the *ex-post* data vintage.

Calculation to determine the set of power units *m* included in the build margin

The Brazilian DNA annually publishes the build margin emission. Therefore, the Project Participants considered this figure for the proposed PoA.

Calculation of the CO₂ emission factor for each power unit *m* ($EF_{EL,m,y}$)

The Brazilian DNA annually publishes the calculation of the build margin emission. Therefore, the project participants considered this figure for the proposed PoA.

STEP 6 – Calculate the combined margin (CM) emission factor

The calculation of the combined margin (CM) emission factor is based on one of the following methods:

- (a) Weighted average CM; or
- (b) Simplified CM.

The weighted average CM method (option A) should be used as the preferred option.

The simplified CM method (option b) can only be used if:

- The project activity is located in a Least Developed Country (LDC) or in a country with less than 10 registered CDM projects at the starting date of validation; and
- The data requirements for the application of step 5 above cannot be met.

(a) Weighted average CM

The combined margin emissions factor is calculated as follows:

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

Equation 4

Where,

$EF_{grid,BM,y}$ = Build margin CO₂ emission factor in year y (tCO₂/MWh);

$EF_{grid,OM,y}$ = Operating margin CO₂ emission factor in year y (tCO₂/MWh);

w_{OM} = Weighting of operating margin emissions factor (%);

w_{BM} = Weighting of build margin emissions factor (%).

The following default values should be used for w_{OM} and w_{BM} :

- Wind and solar power generation project activities: $w_{OM} = 0.75$ and $w_{BM} = 0.25$ (owing to their intermittent and non-dispatchable nature) for the first crediting period and for subsequent crediting periods;
- All other projects: $w_{OM} = 0.5$ and $w_{BM} = 0.5$ for the first crediting period, and $w_{OM} = 0.25$ and $w_{BM} = 0.75$ for the second and third crediting period, unless otherwise specified in the approved methodology which refers to this tool.

Since only small hydropower plant projects will be considered in the proposed PoA, the weights used for the operating and build margin are 0.50 for both in the first crediting period.

(b) Simplified CM

The combined margin is calculated using equation 5 above with the following conditions:

- $w_{BM} = 0$;
- $w_{OM} = 1$.

Under the simplified CM, the operating margin emission factor ($EF_{grid,OM,y}$) must be calculated using the average OM (option (d) in step 3 of the “Tool to calculate the emission factor for an electricity system”). However, since the proposed PoA applies option (c) of the emission factor tool, this option will not be considered in the CPAs.

II. Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity ($EG_{PJ,y}$)

According to ACM0002, the calculation of $EG_{PJ,y}$ is different depending on the case of the project as follows:

- (a) Greenfield plants (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);

- (b) Retrofits and replacements of an existing renewable energy power plant;
- (c) Capacity addition to an existing renewable energy power plant.

The CPAs to be added to this PoA in the future may consist of new small hydropower plants only and, therefore:

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

Equation 5

Where,

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

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

The quantity of net electricity generation supplied by the project' plant to the grid in year y ($EG_{facility,y}$, in MWh/yr) is determined, for the purpose of ex-ante estimative as being equal to the installed capacity of each plant multiplied by the plant load factor (PLF) and by the number of hours in which the plant is forecasted to be operational during year y .

However, the energy exported to the grid by the power plants is commonly calculated by the assured energy (in MW-ave) of projects, which is the result of the multiplication of the installed capacity and the PLF. Therefore, the assured energy or the PLF of power plant(s) can be used in the proposed PoA.

The assured energy or the PLF of the project(s) to be included in the CPAs has to be determined according to one of the options presented in the "Guidelines for the reporting and validation of plant load factors" (version 1) /J/:

- (a) The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval;
- (b) The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company).

Project emissions (PE_y)

According to ACM0002, for most renewable power generation project activities, $PE_y = 0$. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for by using the following equation:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y} \quad \text{Equation 6}$$

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 reservoirs of hydro power plants in year y (tCO₂e/yr).

I. Emissions from fossil fuel combustion ($PE_{FF,y}$)

According to the methodology, only geothermal and solar thermal projects have to account emissions from the consumption of fossil fuels. Therefore, in the case of the proposed CPA, $PE_{FF,y} = 0$ tCO₂/yr.

II. Emissions from the operation of geothermal power plants due to the release of non-condensable gases ($PE_{GP,y}$)

Considering that the CPA to be considered in the context of the proposed PoA consists of the construction of small hydropower plants, there are no emissions related to non-condensable gases from the operation of geothermal power plants. Therefore, $PE_{GP,y} = 0$ tCO₂/yr.

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

According to ACM0002, new hydropower projects that result in new single or multiple reservoirs, shall account for project emissions as follows:

- a) If the power density of the single or multiple reservoirs (PD) is greater than 4 W/m² and less than or equal to 10 W/m²:

$$PE_{HP,y} = \frac{EF_{Res} \times TEG_y}{1000} \quad \text{Equation 7}$$

Where:

$PE_{HP,y}$ = Project emissions from reservoir of hydro power plants (tCO₂e/yr);

EF_{Res} = Default emission factor for emissions from reservoirs, and the default value as per EB23 is 90 Kg CO₂e/MWh;

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

b) If power density (PD) of the project is greater than 10W/m², $PE_{HP,y} = 0$ tCO₂e/yr.

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

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}} \quad \text{Equation 8}$$

Where:

PD = Power density of the project activity, in 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 single or multiple reservoirs measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m²);

A_{BL} = Area of the single or multiple reservoirs measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m²). For new reservoirs, this value is zero.

Leakage calculation (LE_y)

According to the methodology, “no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, and transport). These emissions sources are neglected”. Therefore, leakage emissions related to the implementation of the proposed project activity are 0 tCO₂/yr.

Note on Brazilian Emission Factor Validation



In order to comply with the guidance provided by the EB-CDM, on its 43rd meeting, regarding the validation of grid emission factors made available to project participants for use in CDM project activities by some DNAs, the Brazilian DNA sent, in January 2009, official letters addressed to several DOEs inviting them for a meeting with the purpose to grant the opportunity for the DOEs to have access to the calculation of the emission factor of the national grid system.

The DOEs representatives had access to confidential data and were requested by Mr. Miguez from the Brazilian DNA that such information must not be disclosed for national strategic and market reasons.

The DOEs members had the opportunity to: i) assess the formulae used in the calculation spreadsheet; ii) to be informed about the sources of data and information used in the calculation spreadsheet; and, iii) to discuss and to take note of the assumptions adopted by the calculation working group from the Brazilian DNA.

A new meeting was conceded by the Brazilian DNA in order to allow two DOEs representatives to check the findings of the first meeting of 05 February 2009 regarding the Brazilian grid emission factor calculation again.

The second meeting took place in MCT's office, located at Praia do Flamengo, n°200 – 7th floor, Rio de Janeiro, on 24 July 2009. The following participants attended the meeting: Mr. Newton Paciornik and Ms. Ana Carolina Avzaradel, both from MCT, on behalf of the Brazilian DNA, and; Mr. Ricardo Fontenele (BVC Holding SAS) and David Freire da Costa (DNV), both representing the group of DOEs.

During this second meeting, the DOEs' representatives were able to assess and verify a larger range of samples used in the emission factor calculation spreadsheets. Operating Margin (OM) and Build Margin (BM) data, sources, references, formulas and calculation were verified for the years 2007 and 2008. For the year 2009, only the OM calculation was verified, because the BM for the referred year will be only calculated after the end of 2009, as the Brazilian DNA needs to gather annual consolidated information from the power plants serving the Interconnected National System. In addition, the results of the emission factor calculation spreadsheets were cross-checked with the information made available at the Brazilian DNA website, on a sampling basis, and no discrepancy or inconsistencies of the verified values were found.

The second meeting, on 24 July 2009, was extremely useful for the DOEs' members to assess cross-check and verify complementary data and related information used in the emission factor calculation spreadsheets, given even more credibility and assurance of the calculation provided by the Brazilian DNA.



It was a common sense of the DOEs members, that the calculations provided in the spreadsheet are clearly and transparently demonstrated. The formulae, equations and steps followed in the calculations are in accordance to the “Tool to calculate the emission factor for an electricity system (Version 01.1)”. The assumptions made in the calculations are considered reasonable and acceptable.

Under consideration of the general conditions, the group of DOEs express a final favorable validation opinion in regards of the results from the calculation of the emission factor of the Brazilian grid system provided by the Brazilian DNA.

Observation: It has been noticed that, during EB 63 meeting it has been approved the version 02.2.1 of the “Tool to calculate the emission factor for an electricity system”. The DOE assessed this new version of the Tool and understands that the changes in version 02.2.1 don’t affect the results of the emission factor as calculated by the Brazilian DNA and validated by the DOEs during the meetings of February 2009 (1st meeting) and 24 July 2009 (2nd meeting).

Data and parameters that are to be reported in CDM-CPA-DD form:

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

$A_{BL} (m^2)$ = Area of the single or multiple reservoirs 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.

$EF_{Res} (kgCO_2e/MWh)$ = Default emission factor for emissions from reservoirs = 90 $kgCO_2e/MWh$.

Data and parameters to be monitored by each CPA

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

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

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

$TEG_y (MWh/yr)$ = Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y . Applicable only to hydropower project activities with a power density of the project activity (PD) greater than 4 W/m^2 and less than or equal to 10 W/m^2 .



$EF_{grid,CM,y}$ (tCO₂/MWh) = Combined margin CO₂ 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”.

Based on the above assessment, the validation team hereby confirms that:

- (a) All assumptions and data used by the project participants are listed in the PoA-DD, 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 PoA-DD;
- (c) All values used in the PoA-DD 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 PoA-DD.

The DOE cross checked the data and parameters used in the equations with the CDM-PoA-DD version 4.1 (ref /20/), Methodology ACM0002, version 12.3.0 (ref /B/), Tool to calculate the emission factor for an electricity system”, version 02.2.1 (ref /E/) and the site visit.

3.9 Additionality of PoA

3.9.1 Start date of the PoA/CPA

The eligibility criteria of the start date for inclusion of CPA has been set as:

Conditions to check the start date of the CPA through documentary evidence.

Documented evidence of the CPA starting date has to be presented in each CPA. If the starting date of the CPA refers to a future date, documented evidence related to the future date shall be presented during the inclusion process of each CPA.

The start date of the PoA is 25/10/2011, which was the date when CDM-PoA-DD was first published for global stakeholder consultation (GSP).

Bureau Veritas Certification confirms that the start date of any CPA is not prior to the commencement of the validation of the PoA, which is the date of the CDM-PoA-DD was first published for global stakeholder consultation.

3.9.2 Demonstration of additionality of the PoA as a whole

Validation team has assessed the additionality of a PoA in accordance with Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities /K/.

The DOE was able to validate the demonstration of additionality of the PoA as a whole by confirming that the PoA is additional, as demonstrated in Section A.4.3 of the PoA-DD version 4.1:



(i) The proposed PoA is a voluntary coordinated action

As mentioned in section A.2 of the PoA-DD version 4.1, the proposed PoA is a voluntary coordinated action of the CME Omega Energia Renovável S.A.

(ii) To implement Small Hydropower Plants in Brazil, it is necessary to have incentives, such as Proinfa and/or CDM.

In Brazil, the privatization process of the electric sector initiated in 1995 commenced with the expectation of adequate tariffs, fewer subsidies, and better prices for generators. It drew the attention of investors to possible alternatives not available in the centrally planned electricity market. In the late 1990's a strong increase in demand contrasted with an under average increase in installed capacity caused the outbreak of the supply crisis/rationing in 2001/2002. One of the solutions the government provided was to revise legislation, favoring smaller independent energy producers. Furthermore the possible eligibility under the Clean Development Mechanism of the Kyoto Protocol drew the attention of investors to renewable energy projects.

In February 2001, the federal state-owned power utility Eletrobrás (Centrais Elétricas Brasileiras S/A) – with the Brazilian Development Bank support (BNDES from the Portuguese *Banco Nacional de Desenvolvimento Econômico Social*) – launched the “PCH-COM” program for the promotion of electricity generation from small hydropower plant projects (ELETROBRÁS).

However, the program did not draw the attention from project developers since the tariff offered from Eletrobrás was lower than the market tariff. The price offered from Eletrobrás was BRL 67/MWh – the reference price of the so-called “competitive power source” or the average regular power generation addition cost –, but the reference market price of electricity for small hydropower plants at that time was around BRL 83/MWh. Thus, after four months from the program release, no proposal was received and Eletrobrás extended the deadline

Law nr. 10,438, dated April 2002, created the Program of Incentives to Alternative Energy Sources (in a free translation from the Portuguese *Programa de Incentivo às Fontes Alternativas de Energia Elétrica – PROINFA*). Among others, one of the initiative's goals was to increase the renewable energy sources share in the Brazilian electricity market, thus contributing to a greater environmental sustainability. In order to achieve such goals, the Brazilian government has designated Eletrobrás to act as the primary off-taker of electric energy generated by entering into long-term Power Purchase Agreements (PPAs) with alternative energy power producers, at a guaranteed price of at least 80% of the average energy supply tariff charged to ultimate consumers.

The creation of PCH-COM and PROINFA programs clearly indicates that, without specific support, the renewable sources and small projects would hardly be implemented.

The DOE cross checked the information with the following references:



ELETROBRÁS - Conceituação do Programa PCH-COM (Concepts of the PCH-COM program - Information available at: http://www.eletronbras.gov.br/EM_Programas_PCH-COM/conceituacao.asp)

CERPCH - Article from the National Centre of Reference in Small Hydropower Plant (Centro Nacional de Referência em Pequenas Centrais Hidrelétricas). Available at: http://www.cerpch.unifei.edu.br/Adm/materias_1/c6a22e3d8a4492cc067dc370ad1119b6.pdf

Ministry of Mines and Energy 2009 - Available at: <http://www.mme.gov.br/programas/proinfa/galerias/arquivos/apresentacao/PROINFA-ANEXO1-InstitucionalMME.pdf>

Chamber for the Commercialization of Electric Power website (CCEE from the Portuguese *Câmara de Comercialização de Energia Elétrica*): <http://www.ccee.org.br/>

For the CPAs to be included in the PoA, as per the additionality tool, investment analysis was adopted to demonstrate the additionality.

The eligibility criteria of the additionality were set as:

The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality.

As mentioned in section E.5.1 (CDM-PoA-DD), additionality will be assessed in each CPA and will follow the methodological tool “Tool for demonstration and assessment of additionality”, version 06.0.0 (ref /D/). Therefore, all CPAs to be included in this PoA have to present the additionality assessment following the above mentioned tool.

3.10 Monitoring plan (124)

The validation team 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 programme design are described below.

According to the PoA:

The monitoring of the proposed PoA will be conducted following the ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” version 12.3.0 (ref /B/).

CME opts for a verification method that does not use sampling but verifies individually each CPA. Verification will occur either separately for each CPA or in groups. The record keeping system that will be implemented by the CME will ensure that no double accounting will occur and that the status of verification can be determined anytime for each CPA. Description of the monitoring plan for a typical CPA is presented in section E.7.2 of the CDM-PoA-DD.

The monitoring of electricity generation by small hydropower plants follows the procedures established by the National Electric System Operator (from the Portuguese



Operador Nacional do Sistema Elétrico – ONS), ANEEL Brazilian Power Regulatory Agency (from the Portuguese Agência Nacional de Energia Elétrica – ANEEL) and CCEE (Chamber of Commerce for Electric Energy^{*}).

According to the procedures established by these entities, it will be possible to monitor total electricity exported to the grid. Beyond that, energy information will be controlled in real time by CCEE. Since the measurement points are physically defined and the invoice measurement system and the communication infrastructure will be installed, the measurement points will be registered in the SCDE (System of Energy Data collection) managed by CCEE. Each measurement point of every small hydropower plant is individually recognized by the system. Thus, information taken from these sources ensures that no double accounting occurs.

The DOE has verified the monitoring arrangements by cross-checking them against the PoA-DD, the Methodology ACM0002, version 12.3.0 and the procedures established by the National Electric System Operator.

The validation team 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 programme design.

3.11 Environmental impacts (133)

The CME has undertaken an analysis of Environmental Impacts at CPA level.

3.12 Local stakeholder consultation (130)

The CME has undertaken the local stakeholder consultation at PoA level.

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

The Resolution nr. 9 dated March 20th, 2009, issued by the Brazilian Designated National Authority (ref /L/), establishes all the requirements related to the CDM approval process for Programme of Activities. One of the requirements is the invitation for comments from local stakeholders[†] at least 15 days before the validation starting, *i.e.* the starting of the Global Stakeholder Process (GSP). The following stakeholders shall be invited:

- The Executive Secretariat of the Interministerial Commission on Global Climate Change; (The Brazilian Designated National Authority);

^{*} <http://www.ccee.org.br>

[†] Information available at: <http://www.mct.gov.br/upd_blob/0201/201258.pdf>.



- Brazilian NGO Forum and Social Movements for Environment and Development;
- National entities whose purposes are directly or indirectly related to the Programme of Activities;
- Federal Attorney General.

Considering the requirement above, letters were sent to the following stakeholders:

- The Executive Secretariat of the Interministerial Commission on Global Climate Change (“CIMGC” from the Portuguese Secretaria Executiva da Comissão Interministerial de Mudança Global do Clima);
- Brazilian NGO Forum and Social Movements for Environment and Development (“FBOMS” from the Portuguese Fórum Brasileiro de ONGs e Movimentos Sociais para o Meio Ambiente e Desenvolvimento);
- Brazilian National Reference Center of Small Hydropower Plants (“CERPCH” from the Portuguese Centro Nacional de Referência em Pequenas Centrais Hidrelétricas);
- Federal Attorney General (from the Portuguese Ministério Público Federal).

The content of the letter to be sent to local stakeholders is presented in Resolution nr. 7 dated March 5th, 2008 issued by the Brazilian DNA (ref /M/). Therefore, letters were prepared according to Resolution nr. 7/2008, informing the link where the PoA, related CPAs and the “Anexo III” report were made available in Portuguese for consultation and for comments. “Anexo III” is a report containing information related to the contribution of the proposed PoA to sustainable development. The link of the United Nations Framework Convention on Climate Change (UNFCCC) website, where the PoA and related CPAs would be available for GSP and the contact information of the Project Participants were also included in the letter sent to local stakeholders.

Invitation letters were sent to the stakeholders mentioned above (copies of the letters and post office confirmation of receipt communication were available to the DOE) /10/

The letters and the post office confirmation of receipt were analysed by the DOE and considered correct.

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



4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PoA-DD using methodology ACM0002 version 12.2.0 was webhosted on the UNFCCC for global stakeholder's comments as per CDM requirements. The programme was webhosted from 25/10/2011 to 23/11/2011.

No comments were received.



5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil, 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 design and the baseline and monitoring plan; ii) follow-up interviews with stakeholders; iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

By reviewing VVM, Procedures for registration of a programme of activities as a single CDM project activity and issuance of certified emission reductions for a programme of activities, Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities, Bureau Veritas Certification is of the opinion that management system of CME is robust and efficient to ensure eligibility and quality of CPAs. Eligibility criteria are sufficient so that the inclusion of CPAs could fulfill all requirements of EB rules. Emission reductions attributable to the CPA under the PoA are additional to any that would occur in the absence of the PoA, and hence are likely to be achieved.

The review of the PoA-DD version 4.1 (ref /20/) and generic CPA-DD version 4.1 (ref /22/) 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 PoA correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria. Bureau Veritas Certification concludes Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil meets all stated criteria and thus requests registration of Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil as PoA.



6 REFERENCES

Category 1 Documents:

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

- /1/ CDM-PoA-DD version 01, dated 04 October 2011
- /2/ CDM-PoA-DD version 02, dated 31 January 2012
- /3/ CDM-PoA-DD version 03, dated 17 February 2012
- /4/ CDM-CPA-DD Santa Cruz, version 01, dated 04 October 2011
- /5/ CDM-CPA-DD Santa Cruz, version 02, dated 31 January 2012
- /6/ CDM-CPA-DD Santa Cruz, version 03, dated 17 February 2012
- /7/ CDM-CPA-DD Generic, version 01, dated 04 October 2011
- /8/ CDM-CPA-DD Generic, version 02, dated 31 January 2012
- /9/ CDM-CPA-DD Generic, version 03, dated 17 February 2012
- /10/ ARs – PoA Omega.pdf (mail receipts that confirm the sending of the invitation letter for stakeholders)
- /11/ Omega – PoA_AnexoIII_2011_09.08.pdf (it is part of the Host country stakeholder process)
- /12/ CME prodedures_v.1_2012.02.22 english.pdf
- /13/ CME's record keeping system for the inclusion of CPAs in "Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil
- /14/ CME's database for the registered CDM Project Activities under ACM0002 and under AMSID in Brazil and for Brazilian registered CDM Programme of Activities
- /15/ CDM-PoA-DD version 04, dated 29 March 2012
- /16/ CDM-CPA-DD Santa Cruz, version 04, dated 29 March 2012
- /17/ CDM-CPA-DD Generic, version 04, dated 29 March 2012
- /18/ OMEGA – PoA_database_v.1_2012.03.29
- /19/ Letter of Approval received from the Brazilian DNA – Designated National Authority, dated August 8th, 2012
- /20/ CDM-PoA-DD version 4.1, dated 7 November 2012
- /21/ CDM-CPA-DD Santa Cruz, version 4.1, dated 7 November 2012
- /22/ CDM-CPA-DD Generic version 4.1, dated 7 November 2012

**Category 2 Documents:**

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

- /A/ Validation and Verification manual, version 01.2, EB 55, dated 30/07/2010.
- /B/ Methodology ACM0002 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources, version 12.3.0.
- /C/ Guidelines on the assessment of investment analysis, version 05.
- /D/ Tool for the demonstration and assessment of additionality, version 06.0.0.
- /E/ Tool to calculate the emission factor for an electricity system", version 02.2.1.
- /F/ CDM Programme Activity Design Document Form (CDM-CPA-DD), version 01.
- /G/ Programme of Activities Design Document Form (CDM-PoA-DD), version 01.
- /H/ Procedures for Registration of a Programme of Activities as a Single CDM Project Activity and Issuance of Certified Emission Reductions for a Programme of Activities, version 04.1.
- /I/ Guidelines on Common Practice, version 01.0.
- /J/ Guidelines for the Reporting and Validation of Plant Load Factor, version 01.
- /K/ Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities, version 01.0.
- /L/ Resolution nr. 9, dated March 20th, 2009, issued by the Brazilian Designated National Authority (Brazilian DNA).
- /M/ Resolution nr. 7, dated March 5th, 2008, issued by the Brazilian Designated National Authority (Brazilian DNA).

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/ Gustavo Magalhães – Omega Energia.
- /2/ Leonardo Oliveira – Omega Energia.
- /3/ Michel Obara – Omega Energia.
- /4/ Karen M. Nagai – Ecopart Assessoria em Negócios Empresariais Ltda.



7 CURRICULA VITAE OF THE DOE'S VALIDATION TEAM MEMBERS

Bureau Veritas Certification - Lead GHG Verifier

Antonio Daraya – is graduated in Chemical Engineering with a very large experience in Industrial and Environmental management in several industrial fields. He is ISO 9001:2000, ISO 14001:2004 and OHSAS 18001 Lead Auditor and has also experience in the implementation of Quality and Environmental Management Systems. Antonio is qualified as Lead Verifier GHG – Green House Gases.

Bureau Veritas Certification – Financial Specialist

Antonio Vinicius Pimpão Gomes – is graduated in Industrial Engineering and holds a MBA from Coppead/UFRJ School of Business with previous experience in economic assessment of Greenfield projects in electrical sector, as well as, projects related to renewable energy and energy conservation.

Bureau Veritas Certification – Financial Specialist

Bernardo Aleksandravicius 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

Guilherme Borba Lefèvre (GHG Verifier) – 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 has an MSc degree in Environmental Science (São Paulo University). Guilherme was trained as a lead auditor in the fields of environment (ISO 14001) and GHG – Green House Gas.



APPENDIX A: CDM GENERAL PROTOCOL POA REVO4 - OMEGA ENERGIA VALIDATION PROTOCOL (VERSION 01)

Table 1 – Validation Requirements Based on the Clean Development Mechanism Validation and Verification Manual (Version 01.2)

Table 2 – Resolution of Corrective Actions and Clarification Request

VALIDATION REPORT

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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VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
1. Approval			COUNTRY BRAZIL	COUNTRY B (insert the country name)		
a. Have all Parties involved approved the project activity?	VVM	44	The final decision from the 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 nº 1 of CIMGC – Comissão Interministerial de Mudança Global do Clima.		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 participatn or directly from the DNA)	VVM	45	Refer to item 1.a.		OK	OK
c. Does the letter of approval from DNA of each Party involved:	VVM	45	Refer to item 1.a.		OK	OK
i. confirm that the Party is a Party of the Kyoto Protocol?	VVM	45.a	Refer to item 1.a.		OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
ii. confirm that participation is voluntary?	VVM	45.b	Refer to item 1.a.		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	Refer to item 1.a.		OK	OK
iv. Refers to the precise proposed CDM project activity title in the PDD being submitted for registration?	VVM	45.d	Refer to item 1.a.		OK	OK
d. Is(are) the letter(s) of approval unconditional with respect to (i) to (iv) above?	VVM	46	Refer to item 1.a.		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	Refer to item 1.a.		OK	OK
f. Is there doubt with respect to the authenticity of the letter of approval?	VVM	48	Refer to item 1.a.		OK	OK
g. If yes, was verified with the DNA that the letter of approval is authentic?	VVM	48	Refer to item 1.a.		OK	OK
2. Participation			<i>PP1 - Ómega Energia Renovável S.A. (Private Entity)</i>	<i>PP2 - Ecopart Assessoria em Negócios Empresariais Ltda. (Private Entity)</i>		
a. Have all project participants been listed in a consistent manner in the project documentation?	VVM	51	Yes.	Yes.	OK	OK
b. Has the participation of the project participants in the project activity been approved by a Party to the Kyoto Protocol?	VVM	51	Refer to item 1.a.	Refer to item 1.a.	OK	OK
c. Are the project participants listed in tabular form in section A.3 of the PDD?	VVM	52	Yes.	Yes.	OK	OK
d. Is the information in section A.3 consistent with	VVM	52	Yes.	Yes.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
the contact details provided in annex 1 of the PDD?						
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	Refer to item 1.a.	Refer to item 1.a.	OK	OK
f. Are any entities other than those approved as project participants included in these sections of the PDD?	VVM	52	No.		OK	OK
g. Has the approval of participation issued from the relevant DNA?	VVM	53	Refer to item 1.a.	Refer to item 1.a.	OK	OK
h. Is there doubt with respect to (g) above? I	VVM	53	Refer to item 1.a.	Refer to item 1.a.	OK	OK
i. If yes, was verified with the DNA that the approval of participation is valid for the proposed project participant?	VVM	53	Refer to item 1.a.	Refer to item 1.a.	OK	OK
3. Project desing 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	Yes.		OK	OK
b. Is the PDD in accordance with the applicable CDM requirements for completing the PDD?	VVM	56	CAR 28 – The Name/Title of the PoA it is not correct in both, the CPA-DD Santa Cruz and the CPA-DD Generic. CAR 29 – Section A.4.1 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic are blank. CAR 30 – In Section A.4.1.2 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic, the		CAR 06 CAR 12 CAR 15 CAR 28 CAR 29 CAR 30 CAR 31	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>information Name/contact details of the entity/individual responsible for the CPA was not given.</p> <p>CL 12 – In Section A.4.2.1 of the CPA-DD Santa Cruz version 01, please inform the meaning of EPC.</p> <p>CL 13 – In Section A.4.2.1 of the CPA-DD Santa Cruz version 01, please confirm the starting date of the CPA.</p> <p>CL 14 – In Section A.4.2.2 of the CPA-DD Santa Cruz version 01, please inform the source of the information “Expected operational lifetime of the CPA = 30 years”.</p> <p>CAR 31 – Section A.4.3 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic is blank.</p> <p>CAR 32 – In the 1st column of Table 1 of Section A.4.4 of the CPA-DD Santa Cruz version 01, the years are not represented as Calendar Years (i.e. 2014, 2015, etc).</p> <p>In Section B.2 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic, please refer to CAR 06.</p> <p>In the 1st paragraph and in Step 2 of Section B.3 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic, please refer to CAR 15.</p> <p>CAR 33 – In the 2nd paragraph of Section B.3 of the CPA-DD Generic, since 29/11/2011 there is a version 03 (Annex 23 of EB 63) of the Guidelines for demonstrating additionality of microscale project</p>	<p>CAR 32</p> <p>CAR 33</p> <p>CAR 34</p> <p>CAR 35</p> <p>CAR 36</p> <p>CAR 37</p> <p>CAR 38</p> <p>CAR 39</p> <p>CL 12</p> <p>CL 13</p> <p>CL 14</p> <p>CL 15</p> <p>CL 16</p> <p>CL 17</p>	



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>activities”.</p> <p>CAR 34 – In the Excel FCF_PCH_Santa_Cruz, rev 2, the name of the first file is Serra das Agulhas – FCF, instead of Santa Cruz – FCF and the files ACR2010 and FICHA-RESUMO are in Portuguese.</p> <p>CL 15 – In the table Parameter/Value/Justification of Section B.3 of the CPA-DD Santa Cruz version 01, please justify the choice of the Plant Load Factor = 51.81 % = 8.29 MW, which represents the average energy of the plant. Also, inform which option (a) or (b) of the Guidelines for the reporting and validation of plant load factors (Annex 11 of EB 48) was chosen.</p> <p>CL 16 – In the table Parameter/Value/Justification of Section B.3 of the CPA-DD Santa Cruz version 01, please inform the composition of the total investment of US\$ 105,591,636.</p> <p>CAR 35 – In Step 4 of Section B.3 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic, the Guidelines on Common Practice, version 01.0 (Annex 12 of EB 63) was not utilized.</p> <p>CAR 36 – The tables of Section B.4 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic and also the table of Section E.6.3 of the PoA-DD are not following the model defined in Section Data and parameters not monitored of the methodology ACM0002 version 12.2.0.</p> <p>In the 1st paragraph below equation (2) of item II of Section B.3 of the CPA-DD Santa Cruz version 01</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>and of the CPA-DD Generic, please refer to CL 15.</p> <p>CAR 37 – In the table 6 of Section B.5.3 of the CPA-DD Santa Cruz version 01, the column “Estimation of baseline emissions (tonnes of CO₂e)” is blank.</p> <p>In the table 6 of Section B.5.3 of the CPA-DD Santa Cruz version 01, column “Year”, please refer to CAR 32.</p> <p>In the 1st paragraph of Section B.6.1 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic, please refer to CAR 12.</p> <p>CAR 38 – The tables of Section B.6.1 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic and also the table of Section E.7.1 of the PoA-DD are not following the model defined in Section Data and parameters monitored of the methodology ACM0002 version 12.2.0.</p> <p>CAR 39 – In the Section B.6.1 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic, the table EG_{facility,y}, line <u>Description</u> it is not correct. According to the methodology ACM0002, version 12.2.0, the correct is the <u>Quantity of net electricity generation supplied by the project plant/unit to the grid in year y</u>.</p> <p>CL 17 – In Section C.2 of the CPA-DD Santa Cruz version 01, please inform whether the LP - Preliminary License has already been granted.</p>		

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl





VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
c. The completed CDM-POA-DD, the specific CDM-CPA-DD with generic information relevant to all CPAs and the completed CDM-CPA-DD which is to be based on the application of the PoA to one real case are established in mutual accordance?	EB 55	Ann ex 38	Refer to (3.b.) above.	OK	OK
d. Specific questions for PoA-DD			http://cdm.unfccc.int/Reference/PDDs_Forms/PoA/index.html		
i. On the item A.1 from the CDM-PoA-DD is the title of the programme of activities provided?	PoA form	v1	Yes. CAR 01 – The title of Section A.1 of the PoA-DD version 01 is “Title of the Programme of Activities”. It is not correct to inform “ <u>Title of the project</u> : Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil”.	CAR 01	OK
ii. On the item A.2. from the CDM-PoA-DD, are the following information included:	PoA form	v1	CAR 02 – The information in Section A.2 of the PoA-DD version 01 is not given following the PoA template, using separate items: 1. General operating and implementing framework of PoA 2. Policy/measure or stated goal of the PoA 3. Confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity CL 01 – In Section A.2 of the PoA-DD version 01, please provide a web link address related to	CAR 02 CL 01 CL 02	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			footnotes 1 and 2, so that information can be verified. CL 02 – In Section A.2 of the PoA-DD version 01, Omega Energia Renovável is not the Managing entity of the PoA but it is the Coordinating/Managing entity of the PoA.		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii.1 General operating and implementing framework of PoA.	PoA form	v1	Refer to CAR 02 , CL 01 and CL 02 .	CAR 02 CL 01 CL 02	OK
ii.2 Policy/mesure or stated goal of the PoA.	PoA form	v1	Refer to CAR 02 , CL 01 and CL 02 .	CAR 02 CL 01 CL 02	OK
ii.3 Confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity.	PoA form	v1	Refer to CAR 02 , CL 01 and CL 02 .	CAR 02 CL 01 CL 02	OK
iii. On the item A.3 from the CDM-PoA-DD, are the following information included:	PoA form	v1	CAR 03 – In Section A.3 of the PoA-DD version 01, there is a phrase “Erro! Fonte de referência não encontrada” which it is not correct.	CAR 03	OK
iii.1 Coordinating or managing entity of the PoA as the entity which communicates with the Board.	PoA form	v1	Yes.	OK	OK
iii.2 Project participants being registered in relation to the PoA (Project participants may or may not be involved in one of the CPAs related to the PoA).	PoA form	v1	Yes.	OK	OK
iv. On the item A.4.1 from the CDM-PoA-DD is the Location of the programme of activities provided?	PoA form	v1	CAR 04 – Section A.4.1 of the PoA-DD version 01 is blank.	CAR 04	OK
v. On the item A.4.1.1 from the CDM-PoA-DD is the Host Party(ies) provided?	PoA form	v1	Yes. Brazil.	OK	OK
vi. On the item A.4.1.2. from the CDM-PoA-DD, is the definition of the boundary for the PoA in terms of a geographical area (e.g., municipality,	PoA form	v1	Yes. The Programme of Activities will be implemented in Brazil.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
region within a country, country or several countries) within which all CDM programme activities (CPAs) included in the PoA will be implemented, taking into consideration the requirement that all applicable national and/or sectoral policies and regulations of each host country within that chosen boundary included?					
vii. On the item A.4.2. from the CDM-PoA-DD is the Description of a typical CDM programme activity (CPA) provided?	PoA form	v1	CAR 05 – Section A.4.2 of the PoA-DD version 01 is blank.	CAR 05	OK
viii. On the item A.4.2.1. from the CDM-PoA-DD is the Technology or measures to be employed by the CPA provided?	PoA form	v1	Yes.	OK	OK
ix. On the item A.4.2.2. from the CDM-PoA-DD is a description of criteria for enrolling the CPA described?	PoA form	v1	CAR 06: In Section A.4.2.2 of the PoA-DD version 01, the eligibility criteria for inclusion of a CPA in the PoA have not been established in accordance with paragraphs 14, and 15 of Annex 03 of EB 65.	CAR 06	OK
x. On the item A.4.3. from the CDM-PoA-DD are the following informations demonstrated?	PoA form	v1	CAR 07 – In Section A.4.3 of the PoA-DD version 01, in the first paragraph of page 10, the correct is figure 3 and not figure 6. CL 03 – In Section A.4.3 of the PoA-DD version 01, please correct the number of the footnote 10, repeated twice.	CAR 07 CL 03	OK
x.1 The proposed PoA is a voluntary coordinated action.	PoA form	v1	Yes.	OK	OK
x.2 If the PoA is implementing a voluntary coordinated action, it would not be implemented in the absence of the PoA.	PoA form	v1	Yes.	OK	OK
x.3 If the PoA is implementing a mandatory	PoA	v1	Yes.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
policy/regulation, this would/is not enforced.	form				
x.4 If mandatory a policy/regulation is enforced, the PoA will lead to a greater level of enforcement of the existing mandatory policy/regulation.	PoA form	v1	N.A.	OK	OK
xi. On the item A.4.4.1. from the CDM-PoA-DD is a description of the operational and management arrangements established by the coordinating/managing entity for the implementation of the PoA, including:	PoA form	v1	CAR 08: In Section A.4.4.1 of the PoA-DD version 01, the CME has not developed and implemented a management system established in accordance with paragraph 17 of Annex 03 of EB 65.	CAR 08	OK
xi.1 A record keeping system for each CPA under the PoA.	PoA form	v1	CL 04 – In Section A.4.4.1 of the PoA-DD version 01, please provide a more detailed description about the record keeping system for each CPA under the PoA. The DOE needs to have access to the detailed control system that has been established by the CME.	CL 04	OK
xi.2 A system/procedure to avoid double accounting e.g. to avoid the case of including a new CPA that has been already registered either as a CDM project activity or as a CPA of another PoA.	PoA form	v1	CAR 09 – In Section A.4.4.1 of the PoA-DD version 01, figure 4 is represented twice. CAR 10 – In Section A.4.4.1 of the PoA-DD version 01, paragraphs 3 rd and 4 th of item (ii) have not established clear criteria to verify whether a new CPA to be included in the PoA has been already registered <u>either</u> as a <u>CDM project activity</u> or as <u>a CPA of another PoA</u> .	CAR 09 CAR 10	OK
xi.3 The provisions to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA.	PoA form	v1	Yes.	OK	OK
xii. On the item A.4.4.2. are the following informations provided.	PoA form	v1			



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
xii.1 Description of the proposed statistically sound sampling method/procedure to be used by DOEs for verification of the amount of reductions of anthropogenic emissions by sources or removals by sinks of greenhouse gases achieved by CPAs under the PoA.	PoA form	v1	Yes. CL 05 – In Section A.4.4.2 of the PoA-DD version 01, the information of the methodology is not being required. If the information is given, it should be indicated its version.	CL 05	OK
xii.2 In case the coordinating/managing entity opts for a verification method that does not use sampling but verifies each CPA (whether in groups or not, with different or identical verification periods) a transparent system is to be defined and described that ensures that no double accounting occurs and that the status of verification can be determined anytime for each CPA.	PoA form	v1	Refer to CL 04 .	CL 04	OK
xiii. On the item A.4.5. from the CDM-PoA-DD are informations about the public funding of the programme of activities (PoA) provided?	PoA form	v1	Yes.	OK	OK
xiv. On the item B.1. from the CDM-PoA-DD was the starting date of the programme of activities provided?	PoA form	v1	CAR 11 – In Section B.1 of the PoA-DD version 01, the starting date of the programme of activities has not been informed.	CAR 11	OK
xv. On the item B.2. from the CDM-PoA-DD was the length of the programme of activities provided?	PoA form	v1	Yes, 28 years.	OK	OK
xvi. On the item C.1. from the CDM-PoA-DD is indicate the level at which environmental analysis as per requirements of the CDM modalities and procedures is undertaken?	PoA form	v1	Yes. The environmental analysis is undertaken at the CPA level.	OK	OK
xvi.1 On the item C.1. from the CDM-PoA-DD	PoA	v1	Yes.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
is the choice of level at which the environmental analysis is undertaken justified?	form				
xvi2. If this environmental analysis is not undertaken for the PoA but is to be done at the CPA level, is this described and reflected in the CDM-PoA-DD and the CDM-CPA-DD?	PoA form	v1	Yes.	OK	OK
xvii. On the item C.2. from the CDM-PoA-DD is the documentation on the analysis of the environmental impacts, including transboundary impacts provided?	PoA form	v1	This information will be provided at the CPA level. CL 06: In Section C.2 of the PoA-DD version 01, please adjust CONAMA's name in English. "Resolution" shouldn't be part of it. This CL applies to PoA-DD v01 and to both CPA-DDs - (Santa Cruz v1 and Generic).	CL 06	OK
xviii. On the item C.3. from the CDM-PoA-DD is stated wheter in accordance with the host Party laws/regulations, an environmental impact assessment is required for a typical CPA, included in the programme of activities (PoA) provided?	PoA form	v1	Yes.	OK	OK
xix.1 On the item D.1. from the CDM-PoA-DD is indicate the level at which local stakeholder comments are invited?	PoA form	v1	Yes, at the PoA level.	OK	OK
xix.2 Is the choice of level at which local stakeholder comments are invited justified?	PoA form	v1	Yes.	OK	OK
xx. On the item D.2. from the CDM-PoA-DD is a brief description of how comments by local stakeholders have been invited and compiled provided?	PoA form	v1	Yes.	OK	OK
xxi. On the item D.3. from the CDM-PoA-DD is a summary of the comments received provided?	PoA form	v1	No concerns were raised in the public calls regarding the project neither in the local	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			(demanded by the DNA) nor in the global stakeholders' process (demanded by the CDM modalities and procedures).		



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
xxii. On the item D.4. from the CDM-PoA-DD is a report on how due account was taken of any comments received provided?	PoA form	v1	No comments were received.	OK	OK
xxiii. On the item E.1. from the CDM-PoA-DD is the Title and reference of the approved baseline and monitoring methodology applied to each CPA included in the PoA?	PoA form	v1	CAR 12 – In Section E.1 of the PoA-DD version 01, since 25/11/2011, the valid version of ACM0002 is version 12.2.0.	CAR 12	OK
xxiv. On the item E.2. from the CDM-PoA-DD is the justification of the choice of methodology and why it is applicable to each CPA provided?	PoA form	v1	CAR 13 – In Section E.2 of the PoA version 01, there is not a conclusion that the methodology is applicable to the PoA because it refers to Greenfield Plants. CL 07 - In Section E.2 of the PoA version 01, please revise all the applicability conditions according to ACM0002, version 12.2.0.	CAR 13 CL 07	OK
xxv. On the item E.3. from the CDM-PoA-DD is the description of the sources and gases included in the CPA boundary provided?	PoA form	v1	Yes.	OK	OK
xxvi. On the item E.4. from the CDM-PoA-DD is the description of how the baseline scenario is identified and description of the identified baseline scenario provided?	PoA form	v1	Yes.	OK	OK
xxvii. On the item E.5. from the CDM-PoA-DD is the description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the CPA being included as registered PoA provided?	PoA form	v1	CAR 14: Section E.5 of the PoA version 01 has been left blank.	CAR 14	OK
xxvii.1. On the item E.5.1. from the CDM-PoA-DD did the PPs demonstrate, using the	PoA form	v1	CAR 15 – In Section E.5.1 of the PoA-DD version 01, since 25/11/2011 the valid version of the “Tool	CAR 15 CAR 16	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
procedure provided in the baseline and monitoring methodology applied, additionality of a typical CPA?			for the demonstration and assessment of additionality" is version 06.0.0. CAR 16 – In Section E.5.1 of the PoA-DD version 01, in step 2, it was not indicated the version of the "Tool for the demonstration and assessment of additionality" to be used. CAR 17 – In Section E.5.1 of the PoA-DD version 01, in step 4, it was not utilized Annex 12 of EB 63 "Guidelines on Common Practice Analysis", version 01.0.	CAR 17	
xxvii.2. On the item E.5.2. from the CDM-PoA-DD did the PPs provide the key criteria for assessing additionality of a CPA when proposed to be included in the registered PoA?	PoA form	v1	Refer to CAR 15 and to CAR 17 .	CAR 15 CAR 17	OK
xxvii.3. On the item E.5.2. from the CDM-PoA-DD the criteria were based on additionality assessment undertaken in E.5.1.?	PoA form	v1	Refer to CAR 15 and to CAR 17 .	CAR 15 CAR 17	OK
xxvii.4. On the item E.5.2. from the CDM-PoA-DD the PPs justified the choice of criteria based on analysis provided in E.5.1.?	PoA form	v1	CAR 18 – Section E.5.2 of the PoA-DD version 01, does not include a justification of the choice of criteria for assessing additionality of a CPA.	CAR 18	OK
xxvii.5. On the item E.5.2. from the CDM-PoA-DD was demonstrated how these criteria would be applied to the additionality of a typical CPA at the time of inclusion?	PoA form	v1	Yes.	OK	OK
xxvii.6. Was the information provided on the item E.5.2. from the CDM-PoA-DD incorporated into the CDM-CPA-DD that has been specified for this PoA?	PoA form	v1	Yes. Refer to CAR 15 and to CAR 17 .	CAR 15 CAR 17	OK
xxviii. On the item E.6.1. from the CDM-PoA-	PoA	v1	CL 08 – In the 2 nd paragraph of Section E.6.1 of the	CAR 19	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
DD was the explanation of methodological choices, provided in the approved baseline and monitoring methodology applied, selected for a typical CPA ?	form		<p>PoA-DD version 01, please inform the version of the “Tool to calculate the emission factor for an electricity system”.</p> <p>CL 09 – In the 2nd paragraph of Step 1 of Section E.6.1 of the PoA-DD version 01, please inform the web link to access DNA’s Resolution nº 8.</p> <p>CAR 19 – In Section E.6.1 of the PoA-DD version 01, step 3, there is a phrase “Erro! Fonte de referência não encontrada” which it is not correct.</p> <p>CAR 20 – In Section E.6.1 of the PoA-DD version 01, step 5, it was not defined which Option (1 or 2) is used to calculate the Build Margin Emission Factor (BM).</p> <p>CAR 21 – In Section E.6.1 of the PoA-DD version 01, step 6, the identification of the equations it is not correct (equation 4 is before equation 3 and there are two equations 4).</p> <p>CAR 22 – In Section E.6.1 of the PoA-DD version 01, in equation 8 of Step 6, the representation of the emissions of the water reservoirs is represented as PE_v, but the correct is $PE_{HP,v}$.</p>	<p>CAR 20</p> <p>CAR 21</p> <p>CAR 22</p> <p>CL 08</p> <p>CL 09</p>	OK
xxix. On the item E.6.2. from the CDM-PoA-DD were the equations, including fixed parametric values, to be used for calculation of emission reductions of a CPA provided?	PoA form	v1	<p>CAR 23 – In Section E.6.2 of the PoA-DD version 01, step 4, it is not possible to verify the calculation of the Operating Margin, using the simple adjusted operation margin, because the spreadsheet containing all data used to determine the operating margin was not available to the DOE.</p> <p>CAR 24 – In Section E.6.2 of the PoA-DD version 01, step 6, there is a phrase “Erro! Fonte de</p>	<p>CAR 23</p> <p>CAR 24</p> <p>CAR 25</p> <p>CL 10</p>	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>referência não encontrada” which it is not correct.</p> <p>CL 10 – In Section E.6.2 of the PoA-DD version 01, item II, please inform how was defined that the Plant Load Factor is equal to the Assured Energy. To define the Plant Load Factor we have to follow Annex 11 of EB 48 – Guidelines for the reporting and validation of Plant Load Factor, version 01.</p> <p>CAR 25 – In Section E.6.2 of the PoA-DD version 01, item II does not Include the equation related to the Emission Reductions.</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
xxx. On the item E.6.3. from the CDM-PoA-DD are the data and parameters reported adequately?	PoA form	v1	Yes.	OK	OK
xxxi. On the item E.7.1. from the CDM-PoA-DD are the data and parameters reported adequately?	PoA form	v1	CAR 26 – In Section E.7 of the PoA-DD version 01, the identification of Section D.7.1 it is not correct. It should be E.7.1. CAR 27 – In Section E.7 of the PoA-DD version 01, table EG _{facility,y} , line <u>Description</u> it is not correct. The correct is the quantity of <u>net electricity generation supplied</u> by the project plant/unit to the grid in year y.	CAR 26 CAR 27	OK
xxxii. On the item E.7.2. from the CDM-PoA-DD was the description of the monitoring plan for a CPA provided?	PoA form	v1	Yes.	OK	OK
xxxiii. On the item E.8. from the CDM-PoA-DD was the date of completion of the applicarrtion of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies) provided?	PoA form	v1	CL 12 – In Section E.8 of the PoA-DD version 01, please inform whether Ecopart Assessoria em Negócios Empresariais Ltda is Project Participant.	CL 12	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 implementation?	VVM	58	Yes.	OK	OK
b. Is the description of the proposed CDM project activity as contained in the PDD:	VVM	59			
i. sufficiently covering all relevant elements?	VVM	59	Yes.	OK	OK
ii. accurate?	VVM	59	Yes.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
iii. providing the reader with a clear understanding of the nature of the proposed CDM project activity?	VVM	59	Yes.	OK	OK
iv. Are there any changes/modifications compared to the webhosted PDD?	VVM	59	No.	OK	OK
c. Is the proposed CDM project activity in existing facilities or or utilizing existing equipments?	VVM	60	No.	OK	OK
d. Is the CDM project activity one of the following types:	VVM	60			
i. Large scale?	VVM	60	No.	OK	OK
ii. Non-bundled small scale projects with emission reductions exceeding 15,000 tonnes per year?	VVM	60	No.	OK	OK
iii. Bundled small scale projects, each with emission reductions not exceeding 15,000 tonnes?	VVM	60	No.	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	N.A.	OK	OK
f. If yes to (d.iii) above, was the number of physical site visits base on sampling?	VVM	60	N.A.	OK	OK
g. If yes is the sampling size appropriately justified through statistical analysis?	VVM	60	N.A.	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	No. On 11 and 12/12/2011, when the visit was done to the offices of Omega Energia S/A in Belo Horizonte, MG, for document review, there was not any construction work neither equipments at the physical site.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
i. For all other proposed CDM project activities not referred to in paragraphs 59 – 61, and 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	62	N.A.	OK	OK
j. If no, was it appropriately justified?	VVM	62	Yes. Please, refer to item d.h. above.	OK	OK
k. Does the proposed CDM project activity involve the alteration of an existing installation or process?	VVM	63	No.	OK	OK
l. If yes, does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	VVM	63	N.A.	OK	OK
5. Baseline and monitoring methodology					
a. General requirement					
a. Do the the baseline and monitoring methodologies selected by the project participants comply with the methodologies previously approved by the CDM Executive Board?	VVM	65	Yes, methodology ACM0002, but the version was not correct. There is a new version available at the UNFCCC site, version 12.2.0. Refer to CAR 12 .	CAR 12	OK
b. Is the selected methodology applicable to the project activity?	VVM	66	Refer to (5.b.a) below	-	-
c. Had the PP correctly applied the selected methodology?	VVM	66	Refer to (5.b.d) below	-	-
d. Had the selected methodology been correctly applied with respect to project boundary?	VVM	67	Refer to (5.c) below	-	-
e. Had the selected methodology been correctly applied with respect to baseline identification?	VVM	67	Refer to (5.d) below	-	-
f. Had the selected methodology been correctly	VVM	67	Refer to (5.e) below	-	-



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
applied with respect to Algorithms and/or formulae used to determine emission reductions?					
g. Had the selected methodology been correctly applied with respect to additionality?	VVM	67	No. Please refer to CAR 15 and to CAR 17 .	CAR 15 CAR 17	OK
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	No. Please refer to CAR 15 and to CAR 17 .	CAR 15 CAR 17	OK
h. Had the selected methodology been correctly applied with respect to monitoring methodology?	VVM	67	Refer to CAR 12 .	CAR 12	OK
<i>b. Applicability of the selected methodology to the project activity</i>					
a. Is the selected baseline and monitoring methodology, previously approved by the CDM Executive Board, applicable to the project activity including that the used version is valid?	VVM	68	The methodology ACM0002 is applicable to the project activity, but the version used it is not valid anymore. There is a new version available at the UNFCCC site, version 12.2.0. Refer to CAR 12 .	CAR 12	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	It is applicable. The project activity is (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)	OK	OK



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b. Has the DOE applied specific guidance provided by the CDM Executive Board in respect to the applicable approved methodology?	VVM	69	N.A.	OK	OK
c. Is the methodology correctly quoted?	VVM	70	No. Refer to CAR 12 .	CAR 12	OK
d. Are the applicability conditions of the methodology met?	VVM	71	Yes.	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	The project activity is the installation of a hydro power plant either with a run-of-river reservoir or an accumulation reservoir.	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 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.	ACM	0002	N.A.	OK	OK
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	ACM	0002	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 .	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
<p>volume of reservoir; or</p> <ul style="list-style-type: none"> - 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/m²; 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/m². 					
<p>iv. The methodology is not applicable to the following conditions. Please confirm</p> <ul style="list-style-type: none"> - Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity - Biomass fired power plants; - 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/m². 	ACM	0002	N.A.	OK	OK
<p>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"</p>	ACM	0002	N.A.	OK	OK



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maintenance”.					
e. Is the proeject activity expected to result in emissions other than those allowed by the methodology?	VVM	71	No.	OK	OK
f. Is the choice of the methodology justified?	VVM	71	Yes.	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	-	-
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.	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.	OK	OK
ii. Are each of the applicability conditions of the “Tool for the demonstration and assessment of additionality” met?	EB 39	Ann 10	Yes.	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	N.A.	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	N.A.	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.	OK	OK
j. If yes, was the PDD cross checked against the	VVM	71	Yes.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
other sources to confirm that the project activity meets the applicability conditions of the methodology? (provide the reference to these choices)			Yes, the PDD was cross checked with other sources as: <ul style="list-style-type: none"> - Basic Project; - Methodology ACM0002; - CDM Programme Activity Design Document Form (CDM-CPA-DD); - Programme of Activities Design Document Form; - Excel Files; - Equipment Quotations. 		
k. Can a determination regarding the applicability of the selected methodology to the proposed CDM project activity be made?	VVM	72	Yes	OK	OK
l. If no, clarification of the methodology was requested, in accordance with the guidance provided by the CDM Executive Board?	VVM	72	N.A.	OK	OK
m. If answer to (5.b.d) above is “no”, revision or deviation from the methodology was requested, in accordance with the guidance provided by the CDM Executive Board?	VVM	73	N.A.	OK	OK
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	N.A.	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	VVM	78	Yes.	OK	OK



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the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity?					
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	Yes.	OK	OK
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	Yes.	OK	OK
b. Is the delineation in the PDD of the project boundary correct?	VVM	79	Yes.	OK	OK
c. Does the delineation in the PDD of the project boundary meet the requirements of the selected baseline?	VVM	79	Yes.	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.	OK	OK
e. Have all sources and GHGs required by the methodology been included within the project boundary?	VVM	79	Yes.	OK	OK
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.	OK	OK
g. If yes, have the project participants justified that choice?	VVM	79	N.A.	OK	OK



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h. If yes, is the justification provided reasonable? (provide reference to the supporting documented evidence provided by the project participants)	VVM	79	N.A.	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.	OK	OK
b. Has any procedure contained in the methodology to identify the most reasonable baseline scenario, been correctly applied?	VVM	82	Yes.	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	Yes.	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. 11? And is the point of time at which the generation facility would likely be replaced or retrofitted (DATE Baseline Retrofit) reasonably defined?	ACM	0002	No.	OK	OK
iii. If the project activity is the retrofit or replacement of existing grid-connected renewable power plant/unit, is the baseline	ACM	0002	No.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
scenario identified following the step-wise procedure in accordance with the ACM0002 ver.11?					
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	N.A.	OK	OK
v. Are the realistic and credible alternative baseline scenarios i.e. P1, P2 and P3 appropriately applied following the Step 2 of the “Combined tool to identify the baseline scenario and demonstrate additionality”? (Step 2)	ACM	0002	N.A.	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	Yes.	OK	OK
c. Does the selected methodology require use of 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?	VVM	82	No.	OK	OK
d. If yes, was the methodology consulted on the	VVM	82	N.A.	OK	OK



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application of these tools? (In such cases, the guidance in the methodology shall supersede the tool.)					
e. Does the methodology require several alternative scenarios to be considered in the identification of the most reasonable baseline scenario?	VVM	83	No.	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	N.A.	OK	OK
g. Has any reasonable alternative scenario been excluded?	VVM	83	No.	OK	OK
h. Is the baseline scenario identified reasonably supported by:	VVM	84			
i. Assumptions?	VVM	84	Yes.	OK	OK
ii. Calculations?	VVM	84	No.	OK	OK
iii. Rationales?	VVM	84	Yes.	OK	OK
i. Are the documents and sources referred to in the PDD correctly quoted and interpreted?	VVM	84	Yes.	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	Yes, the PDD was cross checked with other sources as: <ul style="list-style-type: none"> - Basic Project; - Methodology ACM0002; - CDM Programme Activity Design Document Form (CDM-CPA-DD); - Programme of Activities Design Document Form; - Excel Files; 	OK	OK

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			Equipment Quotations.		



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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	Yes.	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	Yes.	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	Yes.	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 monitoring?	VVM	89	Refer to CAR 20, CAR 22, CAR 23 and CAR 25.	CAR 20 CAR 22 CAR 23 CAR 25	OK
b. Have the equations and parameters in the PDD been correctly applied with respect those in the select approved methodology?	VVM	90	Refer to CAR 20, CAR 22, CAR 23 and CAR 25.	CAR 20 CAR 22 CAR 23 CAR 25	OK
i. Are the Project emissions appropriately calculated?.	ACM	0002	Yes.	OK	OK
ii. Are the Baseline emissions appropriately calculated specifically for (a)greenfield plants or	ACM	0002	Yes, for greenfield plant.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
(b) retrofit and replacements or (c) capacity additions?					
iii. Are the Leakage appropriately calculated?	ACM	0002	Yes. There are no linkages.	OK	OK
iv. Are the Emission reductions appropriately calculated?	ACM	0002	Refer to CL 10 and CAR 25 .	CAR 25 CL 10	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	Yes.	OK	OK
d. Does the methodology provide for selection between different options for equations or parameters?	VVM	90	No.	OK	OK
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	N.A.	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	-	-
g. Will data and parameters be monitored throughout the crediting period of the proposed CDM project activity?	VVM	91	Yes.	OK	OK
h. If no, and these data and parameters will remain	VVM	91	Some of the parameters will remain fixed	OK	OK



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fixed throughout the crediting period, are all data sources and assumptions:			throughout the crediting period.		
i. Appropriate and correct?	VVM	91	Yes.	OK	OK
ii. Applicable to the proposed CDM project activity?	VVM	91	Yes.	OK	OK
iii. Resulting in a conservative estimate of the emission reductions?	VVM	91	Yes.	OK	OK
i. Will data and parameters be monitored on implementation and hence become available only after validation of the project activity?	VVM	91	No.	OK	OK
j. If yes, are the estimates provided in the PDD for these data and parameters reasonable?	VVM	91	Yes.	OK	OK
6. Additionality of a project activity					
a. Does the PDD describe how a proposed CDM project activity is additional?	VVM	94	Yes.	OK	OK
b. Does the CDM-PDD state the latest version of the additionality tool being used?	ACM	0002	No. Refer to CAR 15 and CAR 33 .	CAR 15 CAR 33	OK
c. Were the following steps of the tool to assess additionality used:	EB 39	Ann 10			
i. Identification of alternatives to the project activity?	EB 39	Ann 10	Yes.	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.	OK	OK
iii. Barriers analysis?	EB 39	Ann 10	No.	OK	OK
iv. Common practice analysis?	EB 39	Ann 10	Yes. Refer to CAR 35 .	CAR 35	OK



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d. In step 1 (i) have all the sub-steps as below been followed?	EB 39	Ann 10			
i. Sub-step 1a: Define alternatives to the project activity	EB 39	Ann 10	Yes.	OK	OK
ii. Sub-step 1b: Consistency with mandatory laws and regulations	EB 39	Ann 10	Yes.	OK	OK
e. Have the following alternatives been included while defining alternatives as per sub-step 1a?	EB 39	Ann 10			
i. (a) The proposed project activity undertaken without being registered as a CDM project activity;	EB 39	Ann 10	Yes.	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	No.	OK	OK
iii. (c) If applicable, continuation of the current situation (no project activity or other alternatives undertaken).	EB 39	Ann 10	Yes.	OK	OK
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.	OK	OK
g. Has the outcome of Step 1a: Identified realistic	EB	Ann	Yes.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
and credible alternative scenario(s) to the project activity done correctly? Please briefly mention the outcome.	39	10	-The proposed project activity undertaken without being registered as a CDM project activity; -The continuation of the current situation (no project activity or other alternatives undertaken).		
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	Yes.	OK	OK
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	N.A.	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. -The proposed project activity undertaken without being registered as a CDM project activity; -The continuation of the current situation (no project activity or other alternatives undertaken).	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	The PP selected only Step 2.	OK	OK
l. In step 2, have all the sub-steps as below been	EB	Ann			


**BUREAU
VERITAS**

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
followed?	39	10			
i. Sub-step 2a: Determine appropriate analysis method;	EB 39	Ann 10	Yes.	OK	OK
ii. Sub-step 2b: Option I. Apply simple cost analysis;	EB 39	Ann 10	No.	OK	OK
iii. Sub-step 2b: Option II. Apply investment comparison analysis;	EB 39	Ann 10	No.	OK	OK
iv. Sub-step 2b: Option III. Apply benchmark analysis;	EB 39	Ann 10	Yes.	OK	OK
v. Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III);	EB 39	Ann 10	Yes.	OK	OK
vi. Sub-step 2d: Sensitivity analysis (only applicable to Options II and III).	EB 39	Ann 10	Yes.	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			
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	N.A.	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	Yes, benchmark analysis. The financial indicator identified for the SANTA CRUZ project is the Internal Rate of Return (IRR). The IRR is compared to the appropriate benchmark of the electric sector (in accordance with paragraph 12, Annex 5, EB62), which is the Weighted Average Cost of Capital (WACC).	OK	OK
n. Has the below guideline followed for sub-step 2b	EB	Ann	No.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
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.	39	10			
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	No.	OK	OK
p. Has the below guideline followed for Sub-step 2b: Option III. Apply benchmark analysis?	EB 39	Ann 10	Yes.	OK	OK
i. Identify the financial/economic indicator, such as IRR, most suitable for the project type and decision context.	EB 39	Ann 10	It was defined as IRR.	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	When applying Option III, the financial/economic analysis was 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.	OK	OK
iii. Discount rates and benchmarks shall be	EB	Ann	It was used as benchmark the WACC.	OK	OK



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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 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.	39	10			
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	Yes.	OK	OK



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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 in the host country.	EB 39	Ann 10	It was used Option III.	OK	OK
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	The investment analysis was presented in separate annexes to the CDM-PDD.	OK	OK
iii. Justify and/or cite assumptions.	EB 39	Ann 10	Refer to 6.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 6.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 6.c Investment Analysis.	OK	OK
vi. Present in the CDM-PDD a clear comparison of the financial indicator for the proposed CDM	EB 39	Ann 10	Refer to 6.c Investment Analysis.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
activity. Please specify details for above.					
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	Yes. A Sensitivity analysis was included.	OK	OK
s. Has the outcome of Step 2 clearly mentioned with justification?	EB 39	Ann 10	Yes.	OK	OK
t. In step 3: Barrier analysis have all the sub-steps as below been followed?	EB 39	Ann 10	N.A.	OK	OK
i. Sub-step 3a: Identify barriers that would prevent the implementation of the proposed CDM project activity;	EB 39	Ann 10	N.A.	OK	OK
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			
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	N.A.	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	EB 39	Ann 10	N.A.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
CDM project activity is to be implemented, as demonstrated by the credit rating of the country or other country investments reports of reputed origin.					
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, 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.	EB 39	Ann 10	N.A.	OK	OK
iii. (c) Barriers due to prevailing practice: The project activity is the "first of its kind".	EB 39	Ann 10	N.A.	OK	OK
iv. (d) Other barriers, preferably specified in the underlying methodology as examples.	EB 39	Ann 10	N.A.	OK	OK
v. Has the outcome from Step 3a clearly mentioned in PDD?	EB 39	Ann 10	N.A.	OK	OK
w. Has the below guideline followed for Sub-step 3	EB	Ann	N.A.	OK	OK



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b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity)?	39	10			
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 3a is not a viable alternative, and shall be eliminated from consideration.	EB 39	Ann 10	N.A.	OK	OK
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	N.A.	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	EB 39	Ann 10	N.A.	OK	OK



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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.					
x. Has the outcome from Step 3 clearly mentioned in PDD?	EB 39	Ann 10	N.A.	OK	OK
y. In step 4: Common practice analysis have all the sub-steps as below followed?	EB 39	Ann 10	Refer to CAR 17 and to CAR 35 .	CAR 17 CAR 35	OK
i. Sub-step 4a: Analyze other activities similar to the proposed project activity;	EB 39	Ann 10	Refer to CAR 17 and to CAR 35 .	CAR 17 CAR 35	OK
ii. Sub-step 4b: Discuss any similar Options that are occurring.	EB 39	Ann 10	Refer to CAR 17 and to CAR 35 .	CAR 17 CAR 35	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	Refer to CAR 17 and to CAR 35 .	CAR 17 CAR 35	OK
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	EB 39	Ann 10	Refer to CAR 17 and to CAR 35 .	CAR 17 CAR 35	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
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 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.					
bb. Has the outcome from Step 4 clearly mentioned in PDD?	EB 39	Ann 10	Refer to CAR 17 and to CAR 35 .	CAR 17 CAR 35	OK
cc. Has it been proved that the project is additional?	EB 39	Ann 10	Refer to CAR 17 and to CAR 35 .	CAR 17 CAR 35	OK
dd. Has the PP demonstrated additionality by explaining Investment barrier, Access-to-finance barrier, Technological barrier, Barrier due to prevailing practice or other barriers?	EB 35	Ann 34	No. Barrier Analysis was not utilized.	OK	OK
ee. If Investment barrier has been explained, is it demonstraed that financilly more viable alternative to the project activity would have led to higher emissions? Please explain.	EB 35	Ann 34	No. Barrier Analysis was not utilized.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ff. If Access-to-finance has been explained, is it demonstraed that the project activity could not access appropriate capital without consideration of the CDM revenues? Please explain.	EB 35	Ann 34	No. Barrier Analysis was not utilized.	OK	OK
gg. If Technological barrier has been explained, is it demonstraed that a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions? Please explain.	EB 35	Ann 34	No. Barrier Analysis was not utilized.	OK	OK
hh. If prevailing practise barrier has been explained, is it demonstrated that the prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions? Please explain.	EB 35	Ann 34	No. Barrier Analysis was not utilized.	OK	OK
ii. If other barrier has been explained, is it demonstrated that Other barriers such as institutional barriers or limited information, managerial resources, organizational capacity, or capacity to absorb new technologies would prevent the project activity any way?	EB 35	Ann 34	No. Barrier Analysis was not utilized.	OK	OK
jj. Have the project participants identified the most relevant barrier?	EB 35	Ann 34	No. Barrier Analysis was not utilized.	OK	OK
kk. Have the project participants provided transparent and documented third party evidence such as national/international statistics, national/provincial policy and legislation,	EB 35	Ann 34	No. Barrier Analysis was not utilized.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
studies/surveys by independent agencies etc. to demonstrate the most relevant barrier? Please explain.					



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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	Prior Consideration is not applicable to PoAs.	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	N.A.	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	N.A.	OK	OK
d. Does the project activity require construction, retrofit or other modifications?	VVM	99	N.A.	OK	OK
e. If yes, is it ensured that the date of commissioning cannot be considered as the project activity start date?	VVM	99	N.A.	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	N.A.	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 the PP informed the Host Party DNA and/or the UNFCCC secretariat in writing of the	VVM	101	N.A.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
commencement of the project activity and of their intention to seek CDM status? (Provide reference to such confirmation from host Party DNA and/or UNFCCC secretariat).					
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	N.A.	OK	OK
i. 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	N.A.	OK	OK
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	101	N.A.	OK	OK
ii. 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	N.A.	OK	OK
a. contract with consultants for CDM/PDD/methodology services?	VVM	102	N.A.	OK	OK
b. Emission Reduction Purchase Agreements or other documentation related to the sale of the potential CERs (including correspondence with	VVM	102	N.A.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
multilateral financial institutions or carbon funds)?					
c. evidence of agreements or negotiations with a DOE for validation services?	VVM	102	N.A.	OK	OK
d. submission of a new methodology to the CDM Executive Board?	VVM	102	N.A.	OK	OK
e. publication in newspaper?	VVM	102	N.A.	OK	OK
f. interviews with DNA?	VVM	102	N.A.	OK	OK
g. earlier correspondence on the project with the DNA or the UNFCCC secretariat?	VVM	102	N.A.	OK	OK
h. Has the chronology of events including time lines been appropriately captured and explained/detailed in the PDD?	VVM	102			
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.	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	N.A.	OK	OK
c. Does the list of alternatives given in the PDD ensure that:	VVM	106	N.A.	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	N.A.	OK	OK
ii. the list contains all plausible alternatives that the DOE, on the basis of its local and	VVM	106	N.A.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity?					
iii. the alternatives comply with all applicable and enforced legislation?	VVM	106	N.A.	OK	OK
c. Investment analysis					
a. Has investment analysis been used to demonstrate the additionality of the proposed CDM project activity?	VVM	108	Yes. The proposed project activity used the investment analysis to demonstrate the additionality.	OK	OK
b. If yes, does the PDD provide evidence that the proposed CDM project activity would not be:	VVM	108	See Below.		
i. the most economically or financially attractive alternative?	VVM	108	Not Applicable.	-	-
ii. economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs)?	VVM	108	Yes. The PDD and the spreadsheet demonstrate that the project is not attractive without the revenue from the sale of certified emission reductions (CERs).	OK	OK
c. Was this shown by one of the following approaches?	VVM	109	See Below.		
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.	-	-
ii. The proposed CDM project activity is less	VVM	109	Not Applicable.	-	-



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economically or financially attractive than at least one other credible and realistic alternative.					
iii. The financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	VVM	109	Yes. The PP demonstrated in the spreadsheet that the financial returns of the proposed CDM project activity are insufficient to justify the required investment.	OK	OK
d. Is the period of assessment limited to the proposed crediting period of the CDM project activity?	EB 51	Ann 58	No.		
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	Yes. The PP includes a fair value of the project activity at the end of the assessment period, given that the period of assessment is shorter than the technical lifetime.	OK	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. The Spreadsheet contains the costs of major maintenance through the O&M costs.	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	Yes. The PP justifies the appropriateness of the period of assessment (20 years) based on the guidance 3, Annex 5, EB 62.	OK	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	Yes.	OK	OK
i. Has the fair value been calculated in accordance	EB	Ann	Yes.	OK	OK



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with local accounting regulations where available, or international best practice?	51	58			
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	Yes.	OK	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 is calculated, added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV)?	EB 51	Ann 58	Yes.	OK	OK
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 01 – 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 01	OK
n. Is the timing of the investment decision consistent and appropriate with the input values?	EB 51	Ann 58	Refer to the CL BQA 01 .	CL BQA 01	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	EB 51	Ann 58	Not Applicable.	-	-



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implementation is recommenced due to consideration of the CDM?					
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	Yes. All formulas and cells are viewable and could be verified by de DOE.	OK	OK
s. In cases where the project participant does not wish to make such a spreadsheet available to the public has the PP provided an exact read-only or PDF copy for general publication?	EB 51	Ann 58	Not Applicable.	-	-
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.	-	-
u. Was the cost of financing expenditures (i.e. loan repayments and interest) included in the calculation of project IRR?	EB 51	Ann 58	No.	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	Not Applicable.	-	-
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	Not Applicable.	-	-
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 1 – Actual interest payable was not taken into account in the calculation of income tax..	CAR BQA 1	OK



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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 <u>CAR BQA 1</u> .	CAR BQA 1	OK
aa. In cases where a benchmark approach is used is the applied benchmark appropriate to the type of IRR calculated?	EB 51	Ann 58	Yes. According to the "Guidelines of Investment Assessment- Version 5", weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR.	OK	OK
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	Yes.	OK	OK
cc. Has required/expected returns on equity selected as appropriate benchmark for an equity IRR?	EB 51	Ann 58	Not Applicable.	-	-
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.	-	-
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	Yes.	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	EB 51	Ann 58	Not applicable.	-	-



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cases where there is only one possible project developer?					
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.	-	-
hh. Has a minimum clear evidence of the resolution by the company's Board and/or shareholders been provided to the effect as above?	EB 51	Ann 58	Not Applicable.	-	-
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.	-	-
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	Not Applicable.	-	-
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	EB 51	Ann 58	Not Applicable.	-	-



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supply the same (or substitute) products or services?					
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
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.	-	-
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.	-	-



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qq. Was the plant load factor defined ex-ante in the CDM-PDD according to one of the following options:	EB 51	Ann 58	See Below.		
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 51	Ann 58	CAR BQA 02 – Explain how was determined the plant load factor.	CAR BQA 02	OK
ii. The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)?	EB 51	Ann 58	Refer to CAR BQA 02 .	CAR BQA 02	OK
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. All parameters and assumptions used in calculating the relevant indicator are suitable and accurate.	OK	OK
ss. Were the parameters cross-checked against third-party or publicly available sources, such as invoices or price indices?	VVM	111	CAR BQA 03 – Present all evidences to support the following input values. 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. Provide the dates of each evidence. -Plant Export Capacity: 16,00 MW; -Plant Load Factor: 51,8%; -Power Output: 72.620 MWh; -PPA Price: 151,62	CAR BQA 03	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<ul style="list-style-type: none"> -Obras Civis: R\$50.939,01x10³ - Equipamentos Eletromecânicos:R\$ 25.660,46x10³ -Meio Ambiente: R\$ 3.198,28 x10³; -Custos Indiretos: R\$ 11.796,32 x10³ -Sistema de Transmissão associado: R\$ 8143,00x10³ -Juros Anuais: 12%; -Período de Utilização da Usina: 28 anos; -O&M: R\$ 10/MWh -Custo da energia Gerada:R\$ 186,38; -O&M: R\$ 5,17/MWh -Enviromental/Managerial: R\$ 1.248.072,00/year; -Insurance: 0,27%; -TUSD: R\$ 6,28/kW/month; -TUSD: 100%; -ANEEL: 385,7; -PIS/COFINS: 3,65%; -Depreciation; -Assumed Income for Social Tax: 12%; -Social Tax: 9%; Assumed Income for Income Tax: 8%; -Income Tax: 25%; -Fair Value Calculation; 		



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 <u>CAR BQA 03</u> .	CAR BQA 03	OK
uu. Was the correctness of computations carried out and documented by the project participants assessed?	VVM	111	Refer to <u>CAR BQA 03</u> .	CAR BQA 03	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	Not applicable.	-	-
ww. Is the type of benchmark applied is suitable for the type of financial indicator presented?	VVM	112	Yes. According to the "Guidelines of Investment Assessment- Version 5", weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR.	OK	OK
xx. Do any risk premiums applied determining the benchmark reflect the risks associated with the project type or activity?	VVM	112	Yes. The WACC was calculated considering a (β) Sectorial Risk of 1.55%.	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.		
i. assessing previous investment decisions by the project participants involved?	VVM	112	Not Applicable.	-	-
ii. determining whether the same benchmark has been applied?	VVM	112	Not Applicable.	-	-
iii. determining if there are verifiable circumstances that have led to a change in the benchmark?	VVM	112	Not Applicable.	-	-



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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 02 - 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 02	OK
xx. If yes:	VVM	113	See Below.		
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 02 .	CL BQA 02	OK
ii. Are the values used in the PDD and associated annexes fully consistent with the FSR?	VVM	113	Refer to CL BQA 02 .	CL BQA 02	OK
iii. If not, was the appropriateness of the values validated?	VVM	113	Refer to CL BQA 02 .	CL BQA 02	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 02 .	CL BQA 02	OK
d. Barrier analysis					
a. Has barrier analysis been used to demonstrated the additionality of the proposed CDM project activity?	VVM	115	No.	OK	OK



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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	N.A.	OK	OK
i. prevent the implementation of this type of proposed CMD project activity?	VVM	115			
ii. do not prevent the implementation of at least one of the alternatives?	VVM	115			
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	N.A.	OK	OK
d. Were the barriers determined as real by:	VVM	117	N.A.	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	N.A.	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	N.A.	OK	OK
iii. Is existence of a barrier substantiated only	VVM	117	N.A.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
by the opinions of the project participants? (If yes, this barrier cannot be considered as adequately substantiated)					
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	N.A.	OK	OK
e. Common practice analysis					
a. Is this a proposed large-scale, or first-of-its kind small-scale project activity?	VVM	119	It is a small-scale project activity.	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. Refer to CAR 17 and to CAR 35 .	CAR 17 CAR 35	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	Refer to CAR 17 and to CAR 35 .	CAR 17 CAR 35	OK
d. Was a region other than the entire host country	VVM	120	Refer to CAR 17 and to CAR 35 .	CAR 17	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
chosen?				CAR 35	
e. If yes, was the explanation why this region is more appropriate assessed?	VVM	120	Refer to <u>CAR 17</u> and to <u>CAR 35</u> .	CAR 17 CAR 35	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	Refer to <u>CAR 17</u> and to <u>CAR 35</u> .	CAR 17 CAR 35	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	Refer to <u>CAR 17</u> and to <u>CAR 35</u> .	CAR 17 CAR 35	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	Refer to <u>CAR 17</u> and to <u>CAR 35</u> .	CAR 17 CAR 35	OK
7. Monitoring plan					
a. Does the PDD include a monitoring plan?	VVM	122	Yes.	OK	OK
b. Is this monitoring plan based on the approved monitoring methodology applied to the proposed CDM project activity?	VVM	122	Yes, it is based on ACM0002.	OK	OK
c. Were the list of parameters required by the the selected methodology identified?	VVM	123	Yes.	OK	OK
d. Does the monitoring plan contains all necessary parameters?	VVM	123	Refer to <u>CAR 12</u> .	CAR 12	OK
e. Are the parameters clearly described?	VVM	123	Refer to <u>CAR 38</u> and to <u>CAR 39</u> .	CAR 38 CAR 39	OK
f. Does the means of monitoring described in the plan comply with the requirements of the methodology?	VVM	123	Refer to <u>CAR 12</u> .	CAR 12	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
g. Are all data and parameters monitored as per monitoring methodology?	ACM	0002	Refer to CAR 12 .	CAR 12	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	Yes.	OK	OK
i. Are 100% of the data monitored, if not indicated otherwise?	ACM	0002	Yes.	OK	OK
j. Are measurements conducted with calibrated measurement equipment according to relevant industry standards?	ACM	0002	Yes.	OK	OK
k. Are the monitoring provisions in the tools referred to in the methodology correctly applied?	ACM	0002	There are not any monitoring provisions referred in the tools utilized.	OK	OK
l. Are the monitoring arrangements described in the monitoring plan feasible within the project design?	VVM	123	Yes.	OK	OK
m. Does the monitoring plan provide details regarding calibration of monitoring equipments/instruments or does it include zero check as a substitute for calibration? (zero check can not be considered as a substitute for calibration)	VVM	123	CAR 40 – In Section E.7.2 of the PoA-DD version 01 and in Section B.6.1 of the CPA-DD Santa Cruz version 01 and of CPA-DD Generic there is not information regarding calibration of monitoring equipments/instruments.	CAR 40	OK
n. 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 reported ex post and verified:	VVM	123			
i. data management procedures?	VVM	123	Yes.	OK	OK
ii. quality assurance procedures?	VVM	123	Yes.	OK	OK
iii. quality control procedures?	VVM	123	Yes.	OK	OK
8. Sustainable development					



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
a. Does the CDM project activity assists Parties not included in Annex I to the Convention in achieving sustainable development?	VVM	125	Yes.	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	The final decision from the 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 nº 1 of CIMGC – Comissão Interministerial de Mudança Global do Clima.	OK	OK
9. 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.	OK	OK
b. Have comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity been invited?	VVM	129	No comments were received.	OK	OK
c. Is the summary of the comments received as provided in the PDD complete?	VVM	129	N.A	OK	OK
d. Have the project participants taken due account of any comments received and described this process in the PDD?	VVM	129	N.A	OK	OK
10. Environmental impacts					
a. Have the project participants submitted	VVM	131	Yes.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
documentation on the analysis of the environmental impacts of the project activity?					
b. Have the project participants undertaken an analysis of environmental impacts?	VVM	132	Yes.	OK	OK
c. Does the host Party require an environmental impact assessment?	VVM	132	Yes.	OK	OK
d. If yes, have the project participants undertaken an environmental impact assessment?	VVM	132	Yes.	OK	OK



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Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
CAR BQA 1 – Actual interest payable was not taken into account in the calculation of income tax.	EB 51 Annex 58	<p>Considering the DOE comments, the Project Participants (PPs) clarify that in Brazil, there are two income taxes: (a) the corporate income tax (IRPJ) and (b) the social contribution tax on profits (CSLL). There are also three methods provided by legislation to calculate corporate income tax and social contribution tax due on profits: Actual Profit, Presumed Profit and Arbitrated Profit.</p> <p>For the Presumed Profit eligibility, corporate entities revenues must be under Forty eight million Reais per year (Article nr. 13, Law ne. 9,718/1998). This is the case of Santa Cruz project as described in the project CPA (page 14).</p> <p>For the Presumed Profit system, 8% of gross sales in addition to financial revenues/earnings is used as basis for the income tax calculation. To this figure a 25% rate is applied resulting in the final income tax value. For the social contribution calculation 12% of gross sales in addition to financial revenues/earnings is used as a basis for</p>	<p>Answer 1 (12/02/2012)</p> <p>The DOE accepted the answer.</p> <p><u>CAR BQA 1 was closed.</u> <u>OK</u></p>



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		<p>the calculation. To this figure a 9% rate is applied resulting in the final social contribution value (as per Article nr. 518 of the Federal Decree nr. 3,000, dated 26 March 1999).</p> <p>Therefore, a corporate entity that opts for the presumed profit scheme pays the same rate of income tax and social contribution regardless of its costs, expenses, other cash items such as payable interest and non-cash items such as depreciation, because these elements are not deductible under this system.</p> <p>Please also refer to page of 28 of the PoA, which presents more information related to the Presumed Profit.</p>	
CAR BQA 02 – Explain how was determined the plant load factor	EB 51 Annex 58	<p>Table 4.46 of the consolidated project design (“PBC” from the Portuguese <i>Projeto Básico Consolidado</i>) prepared by SPEC – Planejamento, Engenharia, Consultoria Ltda. in July 2010.</p>	<p>Answer 1 (12/02/2012)</p> <p>The DOE crosschecked the information in the evidence and accepted the answer.</p> <p><u>CAR BQA 02 was closed.</u> <u>OK</u></p>
CAR BQA 03 – Present all evidences to support the followings input values. Make sure that all information and evidences are based on the relevant information available at the time of the	VVM 111	<p><u>First response (31/01/2012):</u> Considering the DOE comments, the Project Participants (PPs) included source of information of the input values</p>	<p>Answer 1 (12/02/2012)</p> <p>The plant export capacity, plant</p>



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<p>investment decision and not information available at an earlier or later point. Provide the dates of each evidence.</p> <ul style="list-style-type: none"> -Plant Export Capacity: 16,00 MW; -Plant Load Factor: 51,8%; -Power Output: 72.620 MWh; -PPA Price: 151,62 -Obras Civis: R\$50.939,01x10³ - Equipamentos Eletromecânicos:R\$ 25.660,46x10³ -Meio Ambiente: R\$ 3.198,28 x10³; -Custos Indiretos: R\$ 11.796,32 x10³ -Sistema de Transmissão associado: R\$ 8143,00x10³ -Juros Anuais: 12%; -Período de Utilização da Usina: 28 anos; -O&M: R\$ 10/MWh -Custo da energia Gerada:R\$ 186,38; -O&M: R\$ 5,17/MWh -Enviromental/Managerial: R\$ 1.248.072,00/year; -Insurance: 0,27%; -TUSD: R\$ 6,28/kW/month; -TUSD: 100%; -ANEEL: 385,7; -PIS/COFINS: 3,65%; -Depreciation; Assumed Income for Social Tax: 12%; -Social Tax: 9%; -Assumed Income for Income Tax: 8%; -Income Tax: 25%; -Fair Value Calculation; 		<p>in the IRR calculation presented. Please refer to the second version of the document. The PPs also clarify that the ANEEL's technical summary presented in the cash flow spreadsheet is one of the annexes presented in the Consolidated Project Design ("PBC" from the Portuguese <i>Project Básico Consolidado</i>). This PBC was presented to ANEEL. Since input data of the cash flow was presented to a third-party entity, it has been considered in the financial analysis of the project. Therefore:</p> <p>→ Plant export capacity, plant load (PLF), power output, plant investment (civil works, equipment, environment, indirect costs and transmission system costs) are based on the PBC of the project as presented during the audit visit.</p> <p>As mentioned in the PPs response of CL 15 and as discussed during the audit visit, the PLF was revised in the cash flow spreadsheet (from 8.29MW-ave to 8.04MW-ave) based on the "assured energy" of the project as presented in the project PCB.</p> <p>→ The energy price was based on the results of the energy auctions conducted by the Brazilian government in 2010:</p>	<p>load, power output could be validated by crosschecking the file SPEC-PBC_2010.pdf.</p> <p>The input values for: civil works, equipment, environment, indirect costs and transmission system costs could not be found in the SPEC-PBC_2010.pdf.</p> <p>In the tab 'Ficha-Resumo' of the FCF_PCH_Santa_Cruz_v.2.xls spreadsheet the DOE could see the values, but the values can be modified in the cells. For validation purposes, the input values should be validated through documented evidence available at the time of investment decision.</p> <p>Provide the input values available at the time of investment decision for :</p> <ul style="list-style-type: none"> -Juros Anuais: 12%; -Período de Utilização da Usina: 28 anos; -Custo da energia Gerada:R\$ 186,38; -Assumed Income for Income Tax: 8%; -Fair Value Calculation <p><u>CAR BQA 03 was not closed.</u></p>
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		<p>- 3rd reserve energy auction ("LER" from the Portuguese <i>Leilão de Energia de Reserva</i>) held on August 25-26th;</p> <p>- 2nd energy auction for renewable sources ("LFA" from the Portuguese <i>Leilão de Fontes Alternativas</i>) held on August 26th.</p> <p>The results of the energy auction can be seen at the Chamber of Electrical Energy Commercialization (CCEE) website: http://www.ccee.org.br/.</p> <p>The energy price considered in the IRR calculation is the average of the energy price negotiated for small hydropower plants only, adjusted to the Extended National Consumer Price Index ("IPCA" from the Portuguese <i>Índice Nacional de Preços ao Consumidor Amplo</i>) to July 2011.</p> <p>→ Operational and management (O&M) costs, environmental/managerial and insurance were based on the project sponsor experience with other operational small hydropower plant of the group (PCH Pipoca). All reference was already sent to DOE. Given the slight difference from the values considered in the first version of the project cash flow and the</p>	<p><u>20/03/2012</u></p> <p>Answer 2 The PP has provided sufficient evidence for the input values used in the IRR calculation of the referred project.</p> <p><u>CAR BQA 03 is closed.</u> <u>OK</u></p>
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		<p>attached evidences, the PPs revised the cash flow spreadsheet of Santa Cruz based on the documented evidence from Pipoca project attached to this response.</p> <p>→ Transmission costs ("TUSD" from the Portuguese <i>Tarifa de Uso do Sistema de Distribuição</i>) are based on the ANEEL Resolution nr. 1,127 dated April 5th, 2011. Available at: http://www.aneel.gov.br/cedoc/atreh20111127.pdf.</p> <p>→ ANEEL tax ("TFSEE" from the Portuguese <i>Taxa de Fiscalização de Serviços de Energia Elétrica</i>) is based on ANEEL Dispatch nr. 360 dated February 4th, 2011. Available at: http://www.aneel.gov.br/cedoc/dsp2011360.pdf.</p> <p><u>Second response (17/02/2012):</u> Before responding the DOE request, the PPs clarify that (as discussed during the audit visit) no activities/measures were taken at the project site for the project construction (no equipment was purchase, no financing was obtained, even licenses were not issued yet). Therefore, there is no major expenditure that can be considered as the first "real</p>	
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		<p>action” of the project or the project starting date. Therefore, the investment decision of the project did not happen; undoubtedly, the project sponsor can sell Santa Cruz project if legal/regulatory aspects are not favourable for the project implementation and the CDM revenues are considered unfeasible at this time. In reality, this is not uncommon and a project is purchased more than once before any expenditure commitment by the project owner. Please also refer to the PPs responses in CL 13 and CL BQA 01. Considering explanations above, the financial analysis conducted for Santa Cruz is based on the most recent data available at the time of the submission of the PDD to DOE for the Global Stakeholder Process (validation start). Since the project started validation in October 2011, parameters used for the benchmark and the IRR calculations are of the first semester of 2011 or adjusted for the first semester of 2011.</p> <p>Regarding the total investment of the project, as mentioned in the first round of the PPs response, the civil works, equipment, environment, indirect costs and transmission system costs compose the total investment of the project, which can be confirmed in the ANEEL's</p>	
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	<p>technical summary (an addendum of the PBC of the project) which was presented to ANEEL. Therefore, the PPs attached to this response Annex 11 of the PBC (which presents the ANEEL's technical summary) that was presented to ANEEL.</p> <p>The annual interest rate and cost of the generated energy were not used for the IRR calculation as can be seen in the project cash flow. These values are presented in the ANEEL's technical summary, which is an addendum of the project design presented to ANEEL. However, considering the DOE comments, the PPs realized that depreciation values should be adjusted to the reference date of the investment analysis (validation start). Therefore, depreciation was adjusted to the Extended National Consumer Price Index ("IPCA" from the Portuguese <i>Índice Nacional de Preços ao Consumidor Amplo</i>) in accordance with the project investment. Please refer to the second version of the cash flow spreadsheet and Santa Cruz CPA.</p> <p>Assumed income for social/income tax is based on the Brazilian regulations, including the social and income taxes, which is public available information:</p>	
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		<ul style="list-style-type: none"> - Law nr. 8,981, January 20th, 1995 (CSLL 12% x social taxes 9% = 1.08%) - Law nr. 9,430, December 27th, 1996 (8% x 25 % = 2%) <p>The PPs clarify that, in order to standardize the IRR calculation for the CPAs to be included in the PoA, the IRR of the project(s) to be included in the CPA shall have 20 years of assessment period (the maximum assessment period as recommended by the guidance 3, Annex 5, EB 62). This information is already presented in the PoA, generic CPA and Santa Cruz CPA.</p> <p>Therefore, since the technical lifetime of Santa Cruz project is higher than the assessment period considered for the IRR calculation, the fair value was considered as required by the Annex 3 of EB 62.</p> <p>The fair value was calculated considering the depreciation of the items that compose the total investment (is not reasonable to consider the project equipment only). The expected lifetime considered for the depreciation calculation is based on the publication from ANEEL "Manual de controle patrimonial do setor elétrico", since no equipment and/or services have been</p>	
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		contracted for the project construction. ANEEL's manual is available at: http://www.aneel.gov.br/cedoc/aren2009367_2.pdf .	
CAR 01 – The title of Section A.1 of the PoA-DD version 01 is “Title of the Programme of Activities”. It is not correct to inform “ <u>Title of the project</u> : Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil”.	PoA Form v1	Section A.1 of the PoA was corrected. Please refer to the second version of the document.	The title of Section A.1 was revised and now is correct in version 02. <u>CAR 01 was closed.</u> <u>OK</u>
CAR 02 – The information in Section A.2 of the PoA-DD version 01 is not given following the PoA template, using separate items: 1. General operating and implementing framework of PoA 2. Policy/measure or stated goal of the PoA 3. Confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity.	PoA Form v1	The PPs clarify that information requested by the DOE related to general operating and implementing framework of PoA, policy/measure or stated goal of the PoA and confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity are already presented in the first version of the PoA. However, the PPs revised the PoA to separate items as requested by DOE.	The information of Section A.2 was revised in version 02, according to the DOE's request.. <u>CAR 02 was closed.</u> <u>OK</u>
CAR 03 – In Section A.3 of the PoA-DD version 01, there is a phrase “Erro! Fonte de referência não encontrada” which it is not correct.	PoA Form v1	The PPs excluded all cross-reference in the PoA form considering the errors of source not found. Please refer to the second version of the document. Furthermore, the PPs included information that the CME of the proposed PoA is the entity which communicates with the CDM Executive Board and is also the Project Participant.	The information of Section A.3 was revised in version 02, according to the DOE's request.. <u>CAR 03 was closed.</u> <u>OK</u>
CAR 04 – Section A.4.1 of the PoA-DD version 01 is blank.	PoA Form	To the understanding of the PPs, section A.4.1 does not need to be filled since	The PP's answer to the DOE's request concerning to Section A.4.1



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	v1	sections that need to be filled are A.4.1.1. and A.4.1.2 (sub-items of section A.4.1). Information related to the location of the project activity is presented in these sections. Therefore, no changes were made in the PoA.	was accepted. <u>CAR 04 was closed.</u> <u>OK</u>
<u>CAR 05</u> – Section A.4.2 of the PoA-DD version 01 is blank.	PoA Form v1	To the understanding of the PPs, section A.4.2 does not need to be filled since sections that need to be filled are A.4.2.1. and A.4.2.2 (sub-items of section A.4.2). Information related to the description of a typical CPA is presented in these sections. Therefore, no changes were made in the PoA.	The PP's answer to the DOE's request concerning to Section A.4.2 was accepted. <u>CAR 05 was closed.</u> <u>OK</u>
<u>CAR 06</u> – In Section A.4.2.2 of the PoA-DD version 01, the eligibility criteria for inclusion of a CPA in the PoA have not been established in accordance with paragraphs 14, and 15 of Annex 03 of EB 65.	PoA Form v1	At the time of the validation start of PoA and CPAs (GSP start), the Annex 03 of EB65 was not available. Therefore, the PPs revised the eligibility criteria for the inclusion of CPAs in PoA and related documents. Item (g) of Annex 3 (EB 65) states: <i>"The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis".</i> Considering the requirement above, the PPs included more information in the PoA related to the choice of the environmental analysis at CPA level (section C.1) and more detailed description on how the	In Section A.4.2.2 of the PoA-DD version 02, the eligibility criteria for inclusion of a CPA in the PoA have been established in accordance with paragraphs 14, and 15 of Annex 03 of EB 65. <u>CAR 06 was closed.</u> <u>OK</u>



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		stakeholder consultation has been carried out for the proposed PoA (section D.2), since it was conducted at PoA level. Furthermore, the PPs revised sections C.1 and D.1 of the CPAs following the CPA form available at the UNFCCC's website. Please refer to the second version of PoA, generic CPA and Santa Cruz CPA.	
CAR 07 – In Section A.4.3 of the PoA-DD version 01, in the first paragraph of page 10, the correct is figure 3 and not figure 6.	PoA Form v1	Number of figures and tables presented in PoA and CPAs were properly checked and revised. Please refer to the second version of the documents.	In Section A.4.3 of the PoA-DD version 02, the information was corrected from figure 6 to figure 3. <u>CAR 07 was closed.</u> <u>OK</u>
CAR 08 – In Section A.4.4.1 of the PoA-DD version 01, the CME has not developed and implemented a management system established in accordance with paragraph 17 of Annex 03 of EB 65.	PoA Form v1	<u>First response (31/01/2012):</u> At the time of the validation start of PoA and CPAs (GSP start), the Annex 03 of EB65 was not available. Therefore, the PoA was revised considering the publication of the “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”. The §17 of the Annex 3 (EB65) states: “...The CME shall develop and implement a management system that includes the following made available to the DOE at the time of validation of	As stated on the first phrase of paragraph 17 of the Annex 3 of EB65: The CME shall have the competencies to check the features of potential CPAs and ensure that each CPA meets all requirements and eligibility criteria before inclusion in the registered PoA. The items (a) to (g) are related to the fact that “...each CPA meets all requirements and eligibility criteria before inclusion in the registered PoA”. Based on that, the sub items (a),



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		<p><i>the PoA:</i></p> <ul style="list-style-type: none"> <i>(a) A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies;</i> <i>(b) Records of arrangements for training and capacity development for personnel;</i> <i>(c) Procedures for technical review of inclusion of CPAs;</i> <i>(d) A procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA);</i> <i>(e) Records and documentation control process for each CPA under the PoA;</i> <i>(f) Measures for continuous improvements of the PoA management system;</i> <i>(g) Any other relevant information".</i> <p>Considering information above, the PPs presented the following clarifications:</p> <ul style="list-style-type: none"> (a) Responsibilities related to the inclusion of CPAs are CME's responsibility; 	<p>(b), (c) and (e) shall be better developed.</p> <p><u>CAR 08 was not closed.</u></p> <p><u>13/03/2012</u></p> <p>The Project Participants revised section A.4.4.1 of the version 2 of the PoA-DD. Version 3 now includes a better and more detailed description of items (a), (b), (c) and (e) to check whether each CPA to be included in the PoA meets all the requirements and the eligibility criteria before its inclusion in the registered PoA.</p> <p>Description of the operational and management arrangements established by the coordinating/managing entity for the implementation of the PoA is presented in the "Operational Procedures for the CME of Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil".</p> <p><u>CAR 08 was closed.</u> <u>OK</u></p>
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		<ul style="list-style-type: none">(b) The system/procedure for the inclusion of CPAs will be conducted by CME (Omega Energia) with the support from Ecopart Assessoria em Negócios Empresariais Ltda.;(c) The system/procedure for the inclusion of CPAs will be peer-reviewed;(d) The CME (Omega Energia) is implementing a system/procedure to avoid double accounting. Furthermore, only projects from the CME will be included in the proposed PoA and, therefore, the CME will assure that no double counting will occur. It is important to mention that CPAs will be validated by DOEs at the time of their inclusion in the PoA. This is another confirmation that no double counting will occur in the proposed PoA;(e) The CME is implementing a record keeping system (of its own CPAs) and a database (of registered CDM Project Activities and CDM Programme of Activities);(f) The CME's recording keeping system will be updated every time	
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		<p>a CPA is included in the PoA and the CME's database will be updated every time a new CPA is submitted for analysis of its inclusion in the PoA. During these updates, proposals for improvements in the PoA management system can be proposed.</p> <p>Considering information above, the PoA management system follows the requirements established by §17 (Annex 3, EB 65). All information presented above was included in the PoA. Please refer to the second version of the document.</p> <p>The CME's record keeping system and database are attached to this response consolidated in only one spreadsheet.</p> <p><u>Second response (17/02/2012):</u> Considering the DOE's comments, the PPs created the <i>Operational Procedures for the CME of Activities in "Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil"</i>, which covers all the requirements established in the §17 of the Annex 3 (EB65). Therefore, considering the DOE comments, the PPs clarify the following:</p>	
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		<p>(a) <i>A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies.</i></p> <p>The Coordinating/Managing Entity (CME) involved in this PoA is Omega Energia Renovável S.A. Omega Energia Renovável S.A. is the project developer responsible for the technical aspects related to the operation of project activities (construction, operation, maintenance and monitoring). Furthermore, the CME will be responsible for the CDM related matters (development and management of CPAs, validation, approval, verification) with the support from Ecopart Assessoria em Negócios Empresariais Ltda. (EQAO). The responsibilities for the inclusion of a CPA under the proposed PoA are divided among the CME's personnel as described in the Procedure mentioned above.</p> <p>(b) <i>Records of arrangements for training and capacity development for personnel.</i></p> <p>Under the proposed PoA, trainings will be carried out for the operation, maintenance and monitoring of the CPAs, which is the</p>	
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	<p>CPA implementers' responsibility. However, there will be also internal trainings for the CME's personnel. In case of trainings, the personnel indicated in the Operational Procedures for the CME of the proposed PoA will ensure records of arrangements for training and capacity development for personnel.</p> <p>Trainings carried out under the operation and maintenance of the project(s) included in the CPA is the CPA implementers' responsibility. Therefore, the CPA implementers and CME will ensure that the CPA follows the Host Country legislation and the CDM requirements for the operation, maintenance and monitoring of the CPA.</p> <p>All documents related to the trainings will be available in the CME's data server, which will be presented during the audit of the inclusion or verification of CPAs.</p> <p><i>(c) Procedures for technical review of inclusion of CPAs.</i></p> <p>As presented in the Procedures created by the CME, while analyzing if a CPA will be included in the proposed PoA, the system/procedure for the inclusion of the CPA will be conducted and revised by the</p>	
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		<p>CME (OMEGA ENERGIA) and peer-reviewed by the commercial and technical team of the CDM advisor (EQAO). Furthermore, the CPA will be prepared by the technical team and will be reviewed by the technical supervisor.</p> <p><i>(e) Records and documentation control process for each CPA under the PoA.</i></p> <p>The CME will manage and control the CPAs under “Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil”. The CME is implementing a record keeping system (of its own CPAs) and a database (of registered CDM Project Activities and CDM Programme of Activities) for the inclusion of CPAs in the proposed PoA.</p> <p>All data and information related to the CPAs will be available with the CPA implementers and the CME. All data provided by the CPA implementers to the CME will be recorded in the CME’s data server, which backup is made at least in a monthly basis.</p> <p>All information presented above is presented and documented in the</p>	
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		<i>Operational Procedures for the CME of “Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil”, which is attached to this response. The PoA was also revised to include the information presented above. Please refer to the third version of the document.</i>	
CAR 09 – In Section A.4.4.1 of the PoA-DD version 01, figure 4 is represented twice.	PoA Form v1	As mentioned in the PPs response in CAR 08, section A.4.4.1 was reviewed. Please refer to the second version of the PoA.	The correction in Section A.4.4.1 was made according to the DOE's request. <u>CAR 09 was closed.</u> <u>OK</u>
CAR 10 – In Section A.4.4.1 of the PoA-DD version 01, paragraphs 3 rd and 4 th of item (ii) have not established clear criteria to verify whether a new CPA to be included in the PoA has been already registered <u>either</u> as a <u>CDM project activity</u> or as a <u>CPA of another PoA</u> .	PoA Form v1	As mentioned in the PPs response in CAR 08, section A.4.4.1 was reviewed. Please refer to the second version of the PoA.	In Section A.4.4.1 of the PoA-DD version 02, a clear criterion has been established to verify whether a new CPA to be included in the PoA has been already registered <u>either</u> as a <u>CDM project activity</u> or as a <u>CPA of another PoA</u> . <u>CAR 10 was closed.</u> <u>OK</u>
CAR 11 – In Section B.1 of the PoA-DD version 01, the starting date of the programme of activities has not been informed.	PoA Form v1	Considering the DOE comments, the PPs clarify that at the time of the preparation of the first version of the PoA, the PPs did not know when the PoA would be published for GSP. Therefore, the PPs	In the PoA version 02, the starting date of the programme of activities has been informed. <u>CAR 11 was closed.</u>



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		revised the starting date of the PoA as the date which the PoA started GSP as can be seen at the UNFCCC website. Please refer to the second version of the PoA.	<u>OK</u>
CAR 12 – In Section E.1 of the PoA-DD version 01, since 25/11/2011, the valid version of ACM0002 is version 12.2.0.	PoA Form v1	<p><u>First response (31/01/2012):</u> At the time of the validation start (GSP start) of PoA and CPAs, ACM0002 (version 12.2.0) was not available. Therefore, PoA and CPAs were revised based on the updated version of the methodology. Furthermore, table 4 of the PoA and table presented in section B.4 for the CPAs were revised according to table 1 of ACM0002. Please refer to the second version of PoA, generic CPA and Santa Cruz CPA.</p> <p><u>Second response (17/02/2012):</u> The PPs excluded all cross-reference in the CPA forms considering the errors of source not found. Please refer to the third version of the generic CPA and Santa Cruz CPA. The table 4 mentioned in the first round is table 8 of the generic CPA and table 11 of Santa Cruz CPA (third version).</p>	<p>The version of the methodology ACM0002 is correct in Section E.1 of the PoA-DD version 02. Please, revise the numbers of the tables in the CPA-DD Santa Cruz version 02 and in the CPA-DD Generic version 02. Both have two “table 1”, three “table 4”, two “table 6” and two “table 7”. Also, when answering this CAR, please inform the number of the table in version 01 and in version 02 of the CPA-DD Santa Cruz, CPA-DD Generic and in the PoA-DD, because they are different in versions 01 and 02.</p> <p><u>CAR 12 was not closed.</u></p> <p><u>13/03/2012</u></p> <p>The required corrections have been made in version 3 of PoA-DD, CPA-DD Santa Cruz and in CPA-DD Generic.</p> <p><u>CAR 12 was closed.</u></p>



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			<u>OK</u>
CAR 13 – In Section E.2 of the PoA version 01, there is not a conclusion that the methodology is applicable to the PoA because it refers to Greenfield Plants.	PoA Form v1	Considering the DOE comments, the PPs revised section E.2 of the PoA. Please refer to the second version of the document.	In Section E.2 of the PoA version 02, there is a conclusion that the methodology is applicable to the PoA because it refers to Greenfield Plants. <u>CAR 13 was closed.</u> <u>OK</u>
CAR 14 – Section E.5 of the PoA version 01 has been left blank.	PoA Form v1	To the understanding of the PPs, section E.5 does not need to be filled since sections that need to be filled are E.5.1. and E.5.2 (sub-items of section E.5). Information related to the assessment and demonstration of additionality is presented in sections E.5.1 and E.5.2.	The PP's answer to the DOE's request concerning to Section E.5 was accepted. <u>CAR 14 was closed.</u> <u>OK</u>
CAR 15 – In Section E.5.1 of the PoA-DD version 01, since 25/11/2011 the valid version of the “Tool for the demonstration and assessment of additionality” is version 06.0.0.	PoA Form v1	<u>First response (31/01/2012):</u> At the time of the validation start (GSP start) of PoA and CPAs, version 6.0.0 of the methodological tool “Demonstration and assessment of additionality” was not available. Therefore, PoA and CPAs were revised based on the updated version of the methodology. The applicable version of the “Tool for the demonstration and assessment of additionality” for the proposed PoA is presented in the eligibility criteria for the inclusion of CPAs	In the 1 st paragraph of Section E.5.1 of the PoA-DD version 02, the version of the “Tool for the demonstration and assessment of additionality” has not been informed. <u>CAR 15 was not closed.</u> <u>13/03/2012</u> The required corrections have been made in the PoA-DD version 3.



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		<p>in the PoA. Please refer to section A.4.2.2 of the PoA.</p> <p><u>Second response (17/02/2012):</u> Although the PPs consider unnecessary the inclusion of the version of the methodological tool “Demonstration and assessment of additionality” in the whole PoA since it is already presented in section A.4.2.2, the PPs revised section E.5.1 of the PoA. Please refer to the third version of the document.</p>	<p><u>CAR 15 was closed.</u> <u>OK</u></p>
<p><u>CAR 16</u> – In Section E.5.1 of the PoA-DD version 01, in step 2, it was not indicated the version of the “Tool for the demonstration and assessment of additionality” to be used.</p>	PoA Form v1	<p><u>First response (31/01/2012):</u> Since the applicable version of the methodological tool “Demonstration and assessment of additionality” (Additionality Tool) is presented in section A.4.2.2, there is no need to inform again the applicable version of Additionality Tool in section E.5.1. As mentioned in section A.4.2.2, only CPAs that meet the requirements of the Additionality Tool (version 6.0.0) will be included in the PoA.</p> <p><u>Second response (17/02/2012):</u> The PPs included the applicable version of the methodological tool “Demonstration and assessment of additionality” in section E.5.1 of the PoA. Please also refer to the PPs response in CAR 15.</p>	<p>In step 2 of Section E.5.1 of the PoA-DD version 02, the version of the “Tool for the demonstration and assessment of additionality” has not been informed.</p> <p><u>CAR 16 was not closed.</u></p> <p><u>13/03/2012</u></p> <p><u>CAR 16 was closed.</u> <u>OK</u></p>
<u>CAR 17</u> – In Section E.5.1 of the PoA-DD version	PoA	The “Guidelines on Common Practice	The PPs revised Section E.5.1 of



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01, in step 4, it was not utilized Annex 12 of EB 63 "Guidelines on Common Practice Analysis", version 01.0.	Form v1	Analysis" was included in the revision of the methodological tool "Demonstration and Assessment of Additionality" (version 6.0.0). Since the PPs revised the PoA based on version 6.0.0 of the Additionality Tool, the revision of the PoA also includes the "Guidelines on Common Practice Analysis". Please refer to the second version of the PoA and CPAs.	the PoA based on version 6.0.0 of the Additionality Tool, which includes the "Guidelines on Common Practice Analysis". Versions 02 of the PoA and of the CPAs have been revised accordingly. <u>CAR 17 was closed.</u> <u>OK</u>
<u>CAR 18</u> – Section E.5.2 of the PoA-DD version 01, does not include a justification of the choice of criteria for assessing additionality of a CPA.	PoA Form v1	The ACM0002 methodology refers to the "Tool for the demonstration and assessment of additionality" (Additionality Tool) and the "Combined tool to identify the baseline scenario and demonstrate additionality" (Combined Tool). However, the combined tool is not applicable for Greenfield facilities where the output could be provided by other existing facilities or new facilities that could be implemented in parallel with the CDM project activity. Therefore, the Additionality Tool was used as mentioned in section E.5.1: <i>"the additionality assessment will be conducted at the CPA level and will follow the steps of the methodological tool 'demonstration and assessment of additionality' as referred in ACM0002 methodology"</i> . The explanations above justify the choice	The answer given by the PPs was accepted by the DOE. <u>CAR 18 was closed.</u> <u>OK</u>



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		of the criteria for assessing the additionality of the CPA. This information was included in section E.5.2 of the PoA.	
CAR 19 – In Section E.6.1 of the PoA-DD version 01, step 3, there is a phrase “Erro! Fonte de referência não encontrada” which it is not correct.	PoA Form v1	The PPs excluded all cross-reference in the PoA form considering the errors of source not found. Please refer to the second version of the document. Please refer to the PPs response CAR 03.	The information of Section E.6.1 was revised in version 02, according to the DOE’s request. <u>CAR 19 was closed.</u> <u>OK</u>
CAR 20 – In Section E.6.1 of the PoA-DD version 01, step 5, it was not defined which Option (1 or 2) is used to calculate the Build Margin Emission Factor (BM).	PoA Form v1	Considering the DOE comments, the PPs clarify that the first version of the PoA considered <i>ex-ante</i> data vintage for the OM and BM emission factor of the grid calculated by the PPs based on data from the National Electric System Operator (“ONS” from the Portuguese <i>Operador Nacional do Sistema Elétrico</i>). However, as discussed during the audit visit, the PPs changed opinion, and opted for the <i>ex-post</i> data vintage based on official source of data (the Brazilian DNA, “CIMGC” from the Portuguese <i>Comissão Interministerial de Mudança Global do Clima</i>). Therefore, the PoA, CPAs and Santa Cruz CER spreadsheet were revised accordingly. Option used for the BM emission factor calculation was included in section E.6.1. Please refer to the second version of the documents.	The PPs informed that the first version of the PoA considered <i>ex-ante</i> data vintage for the OM and BM emission factor of the grid calculated by the PPs based on data from the National Electric System Operator (“ONS” from the Portuguese <i>Operador Nacional do Sistema Elétrico</i>). However, the PPs changed their opinion, and opted for the <i>ex-post</i> data vintage based on official source of data (the Brazilian DNA, “CIMGC” from the Portuguese <i>Comissão Interministerial de Mudança Global do Clima</i>). Therefore, the PoA, CPAs and Santa Cruz CER spreadsheet were revised accordingly. Option used for the BM emission factor calculation was included in section E.6.1 of POA-DD version 02.



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			<u>CAR 20 was closed.</u> <u>OK</u>
<u>CAR 21</u> – In Section E.6.1 of the PoA-DD version 01, step 6, the identification of the equations it is not correct (equation 4 is before equation 3 and there are two equations 4).	PoA Form v1	Identification of equations was revised in the new version of the PoA and related CPAs. Please refer to the second version of the documents.	The PPs made the required corrections in the PoA-DD version 02. <u>CAR 21 was closed.</u> <u>OK</u>
<u>CAR 22</u> – In Section E.6.1 of the PoA-DD version 01, in equation 8 of Step 6, the representation of the emissions of the water reservoirs is represented as PE_y , but the correct is $PE_{HP,y}$.	PoA Form v1	The parameter of project emissions from water reservoir ($PE_{HP,y}$) was revised in section E.6.1. Please refer to the second version of the PoA and related CPAs.	The PPs made the required correction in the PoA-DD version 02. <u>CAR 22 was closed.</u> <u>OK</u>
<u>CAR 23</u> – In Section E.6.2 of the PoA-DD version 01, step 4, it is not possible to verify the calculation of the Operating Margin, using the simple adjusted operation margin, because the spreadsheet containing all data used to determine the operating margin was not available to the DOE.	PoA Form v1	As mentioned in the PPs response in CAR 20, the PPs changed data vintage of the CO ₂ emission factor of the grid from <i>ex-ante</i> to <i>ex-post</i> based on the numbers published by the Brazilian DNA ("CIMGC" from the Portuguese <i>Comissão Interministerial de Mudança Global do Clima</i>). Therefore, PoA, generic CPA, Santa Cruz CPA and CER spreadsheet were revised. Please also refer to the PPs response in CAR 20.	The PPs changed data vintage of the CO ₂ emission factor of the grid from <i>ex-ante</i> to <i>ex-post</i> based on the numbers published by the Brazilian DNA ("CIMGC" from the Portuguese <i>Comissão Interministerial de Mudança Global do Clima</i>). Therefore, PoA, generic CPA, Santa Cruz CPA and CER spreadsheet were revised. <u>CAR 23 was closed.</u>



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			<u>OK</u>
<u>CAR 24</u> – In Section E.6.2 of the PoA-DD version 01, step 6, there is a phrase “Erro! Fonte de referência não encontrada” which it is not correct.	PoA Form v1	The PPs excluded all cross-reference in the PoA form considering the errors of source not found. Please refer to the second version of the document. Please refer to the PPs response CAR 03 and CAR 19.	The information of Section E.6.2 was revised in version 02, according to the DOE’s request. <u>CAR 24 was closed.</u> <u>OK</u>
<u>CAR 25</u> – In Section E.6.2 of the PoA-DD version 01, item II does not Include the equation related to the Emission Reductions.	PoA Form v1	Equation related to the emission reductions was included in sections E.6.1 and E.6.2 of the PoA and section B.5.2 of the CPAs. Please refer to the second version of the documents.	The equation related to the emission reductions was included in sections E.6.1 and E.6.2 of the PoA version 02 and section B.5.2 of the CPAs version 02. <u>CAR 25 was closed.</u> <u>OK</u>
<u>CAR 26</u> – In Section E.7 of the PoA-DD version 01, the identification of Section D.7.1 it is not correct. It should be E.7.1.	PoA Form v1	The identification of section related to “data and parameters to be monitored by each CPA” was revised. Please refer to the second version of the PoA.	The correction in Section E.7 was made in version 02 of the PoA-DD, according to the DOE’s request. <u>CAR 26 was closed.</u> <u>OK</u>
<u>CAR 27</u> – In Section E.7.1 of the PoA-DD version 01, table EG _{facility,y} , line <u>Description</u> it is not correct. The correct is the quantity of <u>net electricity generation supplied</u> by the project plant/unit to the grid in year y.	PoA Form v1	<u>First response (31/01/2012):</u> Considering the DOE comments, the PPs revised sections E.6.3 and E.7.1 of PoA and sections B.5.1 and B.6.1 of CPAs according to ACM0002. Furthermore, the PPs included <i>TEG_y</i> parameter in the PoA	In Section E.7.1 of the PoA-DD version 02, table EG _{facility,y} , line <u>Description</u> quantity of <u>net electricity generation supplied</u> by the project plant/unit to the grid in year y is correct.



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	<p>in cases which projects with a power density of the project activity (PD) greater than 4 W/m² and less than or equal to 10 W/m². Please refer to the second version of the documents.</p> <p><u>Second response (17/02/2012):</u></p> <p>- <i>PoA form</i></p> <p>Considering the DOE comments, the PPs clarify that sections E.6.3 and E.7.1 were prepared following the PoA form (CDM-PoA-DD) available at the UNFCCC's website. Please refer to the third version of the document.</p> <p>It is important to mention that information presented in sections E.6.3 and E.7.1 of the PoA present information required by the ACM0002.</p> <p>- <i>Generic and Santa Cruz CPAs</i></p> <p>Considering the DOE comments, the PPs clarify that tables presented in sections B.5.1 and B.6.1 of the CPA were prepared following the PoA form available at the UNFCCC's website.</p> <p>It is important to mention that information presented in sections B.5.1 and B.6.1 of the CPAs present information required by</p>	<p>The PPs included <i>TEG_y</i> parameter in the PoA for projects with a power density of the project activity (PD) greater than 4 W/m² and less than or equal to 10 W/m², which is also correct.</p> <p>But, The sections E.6.3 and E.7.1 of version 02 of PoA-DD, and the sections B.5.1 and B.6.1 of version 02 of the CPA-DD Santa Cruz and CPA-DD Generic, are not following the table models of pages 12 (Data and parameters not monitored) and 13 (Data and parameters monitored) of the methodology ACM0002 version 12.2.0.</p> <p><u>CAR 27 was not closed.</u></p> <p><u>13/03/2012</u></p> <p>PP's answer was accepted.</p> <p><u>CAR 27 was closed.</u> <u>OK</u></p>
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		the ACM0002.	
		Please also refer to the PPs response in CAR 36 and CAR 38.	
CAR 28 – The Name/Title of the PoA it is not correct in both, the CPA-DD Santa Cruz and the CPA-DD Generic.	VVM 56	Name/title of the PoA presented in the generic CPA and Santa Cruz CPA was corrected. The PPs also revised the generic CPA to unify notation related to information that shall be changed in the specific CPAs to be included in the PoA. Furthermore, the PPs revised the geographical coordinates of Santa Cruz project (from the power house to the dam) and included source of information of the installed capacity, reservoir area, geographical coordinates and technical description of the project in the CPA (sections A2 and A.4.1.2). Please refer to the second version of the document. Please refer to the second version of both documents.	<p>In version 02 of the CPA-DD Santa Cruz and of the CPA-DD Generic, the Name/title of the PoA was corrected.</p> <p>Also, other necessary corrections have been made in Sections A.2 and A.4.1.2 of the CPAs.</p> <p><u>CAR 28 was closed.</u> <u>OK</u></p>
CAR 29 – Section A.4.1 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic are blank.	VVM 56	<u>First response (31/01/2012):</u> To the understanding of the PPs, section A.4.1 does not need to be filled since sections that need to be filled are A.4.1.1. and A.4.1.2. (sub-items of section A.4.1). The identification of the CPA required by section A.4.1 is possible through the identification of the Host Party and geographical coordinates of the project	<p>The PP's answer to the DOE's request concerning to Section A.4.1 of the CPA-DD Santa Cruz and of the CPA-DD Generic was accepted.</p> <p>Referring to Table 1 of Section 4.1.2 of the CPA-DD Santa Cruz, version 02, there is an inconsistency: The estimated installed capacity of</p>



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		<p>(sections A.4.1.1 and A.4.1.2). Therefore, no information was included in section A.4.1 of the CPAs.</p> <p>However, the PPs clarify that detailed technical information was not included in the first version of Santa Cruz CPA in order to avoid conflicts with the information presented in the generic CPA. Since the Santa Cruz project is in an initial stage (no turbines and generators purchased), the PPs would like to avoid detailed technical information related to the project turbines and generators. However, the PPs revised section A.4.1.2 of the CPAs to include information related to the estimated technical description of the project. Please refer to the second version of the documents.</p> <p><u>Second response (17/02/2012):</u> Considering the DOE comments, the project sponsor contacted the engineering company (SPEC - Planejamento, Engenharia, Consultoria) that designed the project layout in March 2012. The engineering company has informed that in fact there was a typo in the technical configuration of the project and has corrected the capacity of turbines and generators. Therefore, the PPs revised table 1 of Santa Cruz CPA based on the revised configuration of the project. In the</p>	<p>the turbines is: $3 \times 3.333 \text{ MW} = 16 \text{ MW}$ The estimated installed capacity of the generators is: $3 \times 5.754 \text{ MVA}$ As the nominal power factor is 0.9, $5.754 \text{ MVA} = 5.754 \times 0.9 \text{ MW} = 5.1786 \text{ MW}$ $3 \times 5.1786 = 15.5 \text{ MW}$ According to the definition given in page in page 2 of the methodology ACM0002, version 12.2.0, <u>the installed power generation capacity of a power plant is the sum of the installed power generation capacities of its power units.</u> In the case of Santa Cruz, the installed capacity should be 15.5 MW and not 16 MW. The information of the installed capacity = 16 MW is also given in the SPEC's Relatório Final do Projeto Básico Consolidado, of July 2010 (This report must be translated to English).</p> <p><u>CAR 29 was not closed.</u></p> <p><u>13/03/2012</u></p> <p>The DOE checked the revised information "Ficha-Resumo –</p>
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		revision of the project configuration, it can be seen that the sum of nominal capacities of generators is 16MW, which was already considered in the CPA. As informed by the project owner, all necessary revised documentation will be submitted to the environmental agency and ANEEL. Please refer to the second version of the CPA and the revised technical summary attached to this response.	Estudos de Viabilidade e Projeto Básico (Sheet-Summary – Feasibility Studies and Basic Design) from the engineering company SPEC - Planejamento, Engenharia, Consultoria and also the table 1 of the CPA-DD Santa Cruz version 3. The corrections have been made in both documents. <u>CAR 29 was closed.</u> <u>OK</u>
<u>CAR 30</u> – In Section A.4.1.2 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic, the information Name/contact details of the entity/individual responsible for the CPA was not given.	VVM 56	Name/contact details of the entity/individual responsible for the CPA was included in the new version of the generic CPA and Santa Cruz CPA. Please refer to the second version of both documents.	The Name/contact details of the entity/individual responsible for the CPA were included in version 02 of the CPA-DD Santa Cruz and of the CPA-DD Generic. <u>CAR 30 was closed.</u> <u>OK</u>
<u>CAR 31</u> – Section A.4.3 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic is blank.	VVM 56	<u>First response (31/01/2012):</u> To the understanding of the PPs, section A.4.3 does not need to be filled since sections that need to be filled are A.4.3.1. and A.4.3.2 (sub-items of section A.4.3). Information related to the choice and period of the crediting period (fixed or renewable) and related information is	According to the “CDM PROGRAMME ACTIVITY DESIGN DOCUMENT FORM (CDM-CPA-DD) - Version 01”, Section A.4.3 must be filled. <u>CAR 31 was not closed.</u>



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		<p>presented in sections A.4.3.1. and A.4.3.2 (sub-items of section A.4.3). Therefore, no changes were made in the CPAs.</p> <p><u>Second response (17/02/2012):</u> Considering the DOE comments, section A.4.3 of generic CPA and Santa Cruz CPA was revised. Please refer to the third version of the documents.</p>	<p><u>13/03/2012</u></p> <p>Section A.4.3 of generic CPA version 3 and of Santa Cruz CPA version 3 were revised.</p> <p><u>CAR 31 was closed</u> <u>OK</u></p>
<p><u>CAR 32</u> – In the 1st column of Table 1 of Section A.4.4 of the CPA-DD Santa Cruz version 01, the years are not represented as Calendar Years (i.e. 2014, 2015, etc).</p>	VVM 56	<p>Considering the DOE comments, the PPs revised table 1 of Santa Cruz CPA. Furthermore, the emission reductions of Santa Cruz project were revised considering the leap years.</p>	<p>Table 1 of CPA-DD Santa Cruz was revised. Also, due to the change of the Combined Margin Emission Factor, caused by the calculation change from ex-ante to ex-post and the determination of the Operating Margin Emission Factor utilizing the method (c) Dispatch data analysis OM, the emission reductions of Santa Cruz project were revised, considering also the leap years.</p> <p><u>CAR 32 was closed.</u> <u>OK</u></p>
<p><u>CAR 33</u> – In the 2nd paragraph of Section B.3 of the CPA-DD Generic, since 29/11/2011 there is a version 03 (Annex 23 of EB 63) of the Guidelines for demonstrating additionality of microscale project activities”.</p>	VVM 56	<p>Considering the DOE comments, the PPs updated the version of the “Guidelines for demonstrating additionality of microscale project activities”. Please refer to the second version of the generic CPA.</p>	<p>In the 2nd paragraph of Section B.3 of the CPA-DD Generic, it has been indicated to use of version 03 (Annex 23 of EB 63) of the Guidelines for demonstrating additionality of microscale project activities”.</p>



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			<u>CAR 33 was closed.</u> <u>OK</u>
CAR 34 – In the Excel FCF_PCH_Santa_Cruz, rev 2, the name of the first file is Serra das Agulhas –FCF, instead of Santa Cruz – FCF and the files ACR2010 and FICHA-RESUMO are in Portuguese.	VVM 56	<p><i><u>First response (31/01/2012):</u></i> Santa Cruz cash flow was revised accordingly. Please refer to the second version of the spreadsheet.</p> <p><i><u>Second response (17/02/2012):</u></i> Considering the DOE comments, the PPs revised cash flow spreadsheet to include only information in English. Please refer to the spreadsheet attached to this response.</p>	<p>The name of the first file was corrected to Santa Cruz – FCF, but the files ACR2010 and FICHA-RESUMO are still in Portuguese.</p> <p><u>CAR 34 was not closed.</u></p> <p><u>13/03/2012</u></p> <p>The files ACR2010 and FICHA-RESUMO have been translated to English.</p> <p><u>CAR 34 was closed.</u> <u>OK</u></p>
CAR 35 – In Step 4 of Section B.3 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic, the Guidelines on Common Practice, version 01.0 (Annex 12 of EB 63) was not utilized.	VVM 56	Please refer to the PPs response in CAR 15, CAR 16 and CAR 17. Since the updated version of the Additionality Tool includes the stepwise approach for the common practice analysis as presented in the “Guidelines on Common Practice”, the PPs referred the common practice analysis based on the Additionality Tool.	<p>The PPs utilized in CPA-DD Santa Cruz version 02 and in CPA-DD Generic version 02, the Tool for the demonstration and assessment of additionality version 06.0.0, which has already incorporated the Guidelines on Common Practice, version 01.0 (Annex 12 of EB 63).</p> <p><u>CAR 35 was closed.</u> <u>OK</u></p>



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<p>CAR 36 – The tables of Section B.5.1 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic and also the table of Section E.6.3 of the PoA-DD are not following the model defined in Section Data and parameters not monitored of the methodology ACM0002 version 12.2.0.</p>	VVM 56	<p><u>First response (31/01/2012):</u> As mentioned in the PPs response in CAR 27, sections E.6.3 and E.7.1 of PoA and sections B.5.1 and B.6.1 of CPAs were revised according to ACM0002. Furthermore, the PPs included the EF_{Res} parameter (default emission factor for emissions from reservoirs) in the PoA in cases which the power density of the single or multiple reservoirs (PD) is greater than 4 W/m² and less than or equal to 10 W/m². Please also refer to the PPs response in CAR 27.</p> <p><u>Second response (17/02/2012):</u> - <i>PoA form</i> Considering the DOE comments, the PPs clarify that sections E.6.3 and E.7.1 were prepared following the PoA form (CDM-PoA-DD) available at the UNFCCC's website. Please refer to the third version of the document.</p> <p>It is important to mention that information presented in sections E.6.3 and E.7.1 of the PoA present information required by the ACM0002.</p> <p>- <i>Generic and Santa Cruz CPAs</i></p>	<p>The PPs included the EF_{Res} parameter (default emission factor for emissions from reservoirs) in the PoA and in the CPA-DD Generic, in cases when the power density of the single or multiple reservoirs (PD) is greater than 4 W/m² and less than or equal to 10 W/m², which is correct. But, The section E.6.3 of version 02 of PoA-DD, and the section B.5.1 of version 02 of the CPA-DD Santa Cruz and CPA-DD Generic, are <u>still</u> not following the table models of pages 12 (Data and parameters not monitored) of the methodology ACM0002 version 12.2.0.</p> <p><u>CAR 36 was not closed.</u></p> <p><u>13/03/2012</u></p> <p>PP's answer was accepted.</p> <p><u>CAR 36 was closed.</u> <u>OK</u></p>
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		<p>Considering the DOE comments, the PPs clarify that tables presented in sections B.5.1 and B.6.1 of the CPA were prepared following the PoA form available at the UNFCCC's website.</p> <p>It is important to mention that information presented in sections B.5.1 and B.6.1 of the CPAs present information required by the ACM0002.</p> <p>Please also refer to the PPs response in CAR 27 and CAR 38.</p>	
CAR 37 – In the table 6 of Section B.5.3 of the CPA-DD Santa Cruz version 01, the column “Estimation of baseline emissions (tonnes of CO ₂ e)” is blank.	VVM 56	<p>Table 6 of Santa Cruz CPA was revised. Please refer to the second version of the document.</p>	<p>The table 6 of Section B.5.3 of the CPA-DD Santa Cruz version 02, the column “Estimation of baseline emissions (tonnes of CO₂e)” was filled.</p> <p><u>CAR 37 was closed.</u> <u>OK</u></p>
CAR 38 – The tables of Section B.6.1 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic and also the table of Section E.7.1 of the PoA-DD are not following the model defined in Section Data and parameters monitored of the methodology ACM0002 version 12.2.0.	VVM 56	<p><u>First response (31/01/2012):</u> All parameters presented in sections E.6.3 and D.7.1 of the PoA and sections B.5.1 and B.6.1 of CPAs were revised. Please refer to the PPs response in CAR 27 and CAR 36.</p> <p><u>Second response (17/02/2012):</u></p>	<p>The section E.7.1 of version 02 of PoA-DD, and the section B.6.1 of version 02 of the CPA-DD Santa Cruz and CPA-DD Generic, are <u>still</u> not following the table model of page 13 (Data and parameters monitored) of the methodology ACM0002 version 12.2.0.</p>



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		<p>- <i>PoA form</i></p> <p>Considering the DOE comments, the PPs clarify that sections E.6.3 and E.7.1 were prepared following the PoA form (CDM-PoA-DD) available at the UNFCCC's website. Please refer to the third version of the document.</p> <p>It is important to mention that information presented in sections E.6.3 and E.7.1 of the PoA present information required by the ACM0002.</p> <p>- <i>Generic and Santa Cruz CPAs</i></p> <p>Considering the DOE comments, the PPs clarify that tables presented in sections B.5.1 and B.6.1 of the CPA were prepared following the PoA form available at the UNFCCC's website.</p> <p>It is important to mention that information presented in sections B.5.1 and B.6.1 of the CPAs present information required by the ACM0002.</p> <p>Please also refer to the PPs response in CAR 27 and CAR 36.</p>	<p><u>CAR 38 was not closed.</u></p> <p><u>13/03/2012</u></p> <p>PP's answer was accepted.</p> <p><u>CAR 38 was closed.</u></p> <p><u>OK</u></p>
<u>CAR 39</u> – In the Section B.6.1 of the CPA-DD Santa Cruz version 01 and of the CPA-DD Generic, the table EG _{facility,y} , line <u>Description</u> it is	VVM 56	Please refer to the second version of the PoA and related CPAs. Please also refer to the PPs response in CAR 27, CAR 36	In Section B.6.1 of the CPA-DD Santa Cruz version 02 and of the CPA-DD Generic, version 02, table



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not correct. According to the methodology ACM0002, version 12.2.0, the correct is the <u>Quantity of net electricity generation supplied by the project plant/unit to the grid in year y.</u>		and CAR 38.	EG _{facility,y} , line <u>Description</u> quantity of <u>net electricity generation supplied by the project plant/unit to the grid in year y</u> is correct. <u>CAR 39 was closed.</u> <u>OK</u>
<u>CAR 40</u> – In Section E.7.2 of the PoA-DD version 01 and in Section B.6.1 of the CPA-DD Santa Cruz version 01 and of CPA-DD Generic there is not information regarding calibration of monitoring equipments/instruments.	VVM 123	The PPs revised section E.7.2 of the PoA and section B.6.1 of the CPAs to include information related to calibration of energy meters. Furthermore, the PPs revised information that there will be energy meters at the power plants since this is not a mandatory requirement from ONS; this will depend on the case. Please refer to the second version of the documents.	Information regarding calibration of monitoring equipments/instruments has been included In Section E.7.2 of the PoA-DD version 02 and in Section B.6.1 of the CPA-DD Santa Cruz version 02 and of CPA-DD Generic version 02. <u>CAR 40 was closed.</u> <u>OK</u>
<u>CARs abertas devido ao ITR</u>			
<u>CAR 41</u> 1 – Regarding the PoA-DD version 3, please clarify the use of version 12.2.0 of ACM0002, seeing that the latest version of ACM0002 is version 12.3.0. (This request also applies for the Generic CPA-DD). 2 – Regarding the PoA-DD version 3, in section A.4.2.2, in eligibility criteria (c), the PoA should include information regarding <u>what the eligibility criteria are concerning the</u>		Considering the DOE comments, the PPs took the following actions: 1. The PoA-DD, generic CPA and Santa Cruz CPA were revised to consider the latest version of ACM0002 (version 12.3.0). Please refer to the fourth version of the documents. 2. Section A.4.2.2 of the PoA and section B.2 of the CPAs were revised. Please refer to the fourth version of the documents.	<u>PP has addressed all the issues that were identified during the ITR (internal Technical Review) procedure. The ITR has accepted all the modifications carried out by PP in version 4 of the PoA-DD, in version 4 of the generic CPA-DD and in the CPA Santa Cruz-DD also version 4. In addition, all clarifications provided by PP were analyzed and accepted by</u>



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<p>specification of technology/measure. Moreover, it should be defined in this item (c) what these criteria for the inclusion of CPAs are (i.e. only small hydro power plants as defined by ANEEL, etc.).</p> <p>3 – Regarding the PoA-DD version 3, in section A.4.3, the number “1,55” should be “1.55”.</p> <p>4 – Regarding the PoA-DD version 3, in section D.2, the names (in English) of the local stakeholders prescribed by the Brazilian DNA are not in accordance with the names provided by the English version of Resolution number 9 of the DNA, available on the DNA web site.</p> <p>5 – Regarding the PoA-DD version 3, in section D.2, the names (in Portuguese) of the local stakeholders that were contacted by the CME should be accompanied by the English translation of those names.</p> <p>6 – In Section D.2 of the PoA-DD version 3, please clarify the following phrase: “The link of the United Nations Framework Convention on Climate Change (UNFCCC) website where the PoA and related CPAs were available for GSP (...) were also included in the letter sent to local stakeholders.” Moreover, the letters were sent to local stakeholders <u>before</u> the PoA-DD and the</p>		<p>3. Information was corrected in section A.4.3 of the PoA (version 4).</p> <p>4. Names in English of local stakeholders as presented in the Brazilian DNA Resolution nr. 9 dated March 20th, 2009 were revised in PoA (version 4).</p> <p>5. Translation from Portuguese to English of the stakeholders invited was included in section D.2 of PoA. Please refer to the fourth version of the document.</p> <p>6. As mentioned in section D.2 of the PoA, invitation for comments from local stakeholders was sent at least 15 days before the PoA/CPA validation starting, <i>i.e.</i> the starting of the Global Stakeholder Process (GSP). This requirement is established by the Brazilian DNA in order to issue the Letter of Approval for Programme of Activities under CDM. Please refer to Brazilian DNA Resolution nr. 9 dated March 20th, 2009, available at: <http://www.mct.gov.br/upd_blob/0201/201258.pdf>. Therefore, letters were sent to local stakeholders before the GSP starting of the PoA/CPA as required by the Brazilian DNA and, the link where the stakeholders could consult the</p>	<p><u>the ITR. Seeing the above, this CAR was closed.</u></p>
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<p>CPA-DD were made available for GSP.</p> <p>7 – In the entire PoA-DD, reference to the Additionality tool needs to be as following: the methodological tool “Tool for the demonstration and assessment of additionality (version 6.0.0)”. And not: the methodological tool “Demonstration and assessment of additionality” (version 6.0.0). (This request also applies for the Generic CPA-DD).</p> <p>8 – In Section E.5.1 of the PoA-DD, in the first paragraph of Sub-step 2b, the CME states that: “The IRR will be compared to the appropriate benchmark of the electric sector (...), which is the Weighted Average Cost of Capital (WACC)”. However, in this same sub-step 2b, the CME states that: “The Project IRR can be compared with the WACC <u>as the Equity IRR with the Return on Equity (Ke).</u>”</p> <p>9 – In Section E.5.1 of the PoA-DD, in table 4 of the Sub-step 2b, please also include “operation costs”, as this parameter is also included in the sensitive analysis. (This request also applies for the Generic CPA-DD).</p> <p>10 – In E.5.1 of the PoA-DD version 3, regarding common practice, all descriptions included regarding the 4.a and 4.b common practice analysis needs to be removed.</p>		<p>project documents in Portuguese as well as the link where the project was going to be available at UNFCCC’s website were included in the letter. Then, stakeholders had the opportunity to make comments at the website available by the PPs (containing documents in Portuguese) or at the UNFCCC’s website (presenting information in English only).</p> <p>Considering the DOE comments, the PPs revised section D.2 of the PoA to correct information that the PoA and related CPAs in English were available. Please refer to the revised version of the PoA attached to this response.</p> <p>It is important to mention that the contact information of the PPs was also included in the letter if stakeholders preferred make comments or consult/contact the PPs directly.</p> <p>7. Considering the DOE comments, the reference for the methodological tool “Tool for the demonstration and assessment of additionality” presented in the PoA and CPAs were revised.</p> <p>8. In reality, where is written: “<i>as the Equity IRR with the Return on Equity</i>”</p>	
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<p>According to the Additionality Tool version 6, the analysis needs to be done only in accordance to paragraph 47 of the Tool. (This request also applies for the Generic CPA-DD).</p> <p>11 – Regarding Step 2 of Section E.5.2 of the PoA-DD, please note that there is another possible benchmark besides WACC: the <u>Return on Equity (Ke)</u>, according to Section E.5.1.</p> <p>12 – In Sections E.6.1 and E.6.2 of the PoA-DD version 3, the names of the steps 1 and 6 to calculate the emission factor are not in accordance with the names provided by the Tool to calculate the emission factor for an electricity system version 02.2.1. (This request also applies for the Generic CPA-DD).</p> <p>13 – In Section E.7.1, regarding $EG_{\text{facility},y}$, the following statement is not in accordance with ACM0002: “Cross check with internal control (if available).”. Moreover, crosscheck should be done with: “records of sold energy” (i.e. CCEE reports). (This request also applies for the Generic CPA-DD).</p> <p>14 – Regarding spreadsheet “OMEGA-PoA_database_v.1_2012.01.26”, in <OMEGA Database>, cells F7, G7, J7 and K7 are not in accordance with information provided in the</p>		<p>(Ke)” shall be read “<i>as the Equity IRR with the Cost of Equity (Ke)</i>”. Furthermore, the PPs revised the first paragraph of the section “Financial Indicator – Internal Rate of Return (IRR)” to clarify that the project IRR shall be compared with the WACC and the equity IRR with the Ke. Therefore, step 2b of section E.5.1 of the PoA and section B.3 of the CPAs were revised. Equation of Ke presented in the PoA and related CPAs were also revised. Please refer to the fourth version of the documents.</p> <p>9. Operation costs parameter was included in the PoA and CPAs. Please refer to the fourth version of the documents.</p> <p>10. Considering the DOE comments, the PPs revised the common practice analysis. Please refer to step 4 of section E.5.1 of the PoA and section B.3 of the CPAs (version 4).</p> <p>11. Please refer to the PPs response in item 8. Where is written: “<i>as the Equity IRR with the Return on Equity (Ke)</i>” shall be read “<i>as the Equity IRR with the Cost of Equity (Ke)</i>”. Ke calculation is already presented in section E.5.2 of the PoA.</p> <p>12. Steps for the CO₂ emission factor of</p>	
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CPA-DD.		<p>the grid presented in sections E.6.1 and E.6.2 of the PoA and section B.5.2 of the CPA were revised. Please refer to the fourth version of the documents.</p> <p>13. Considering the DOE comments, the PPs revised $EG_{facility,y}$ table presented in section E.7.1 of the PoA. Please refer to the fourth version of the document. In addition, the PPs highlighted that EF_{Res} and TEG_y parameters will be included in the CPA only if the power density of reservoir(s) is greater than $4W/m^2$ and less than or equal to $10W/m^2$. Parameters of the CO_2 emission factor of the grid that needs to be monitored were also included in the PoA and CPAs. Please refer to section E.7.1 of the PoA and section B.6.1 of the generic CPA.</p> <p>14. "OMEGA-PoA_database_v.1_2012.01.26" was revised according to Santa Cruz CPA. Please refer to the revised spreadsheet attached to this response. Figure 4 of the PoA was also revised accordantly. Please refer to the revised version of the PoA attached to this response.</p>	
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<p>CAR 42</p> <p>1 – According to Section A.2 of the CPA-DD Santa Cruz version 3, the reservoir area is 76,860 m². However, in Section B.2 it is informed that the reservoir area is of 76,900 m². Please, correct the information in the entire document to the area mentioned in Section A.2.</p> <p>2 – In the entire CPA-DD Santa Cruz version 3, reference to the Additionality tool needs to be as following: the methodological tool “Tool for the demonstration and assessment of additionality (version 6.0.0)”. And not: the methodological tool “Demonstration and assessment of additionality” (version 6.0.0).</p> <p>3 – In Section B.3 of the CPA-DD of Santa Cruz version 3, regarding WACC calculations, the values for Pre-Cost of Debt (9.93%) is not in accordance with the value provided in WACC ElectricGen_2011 01 v2 (9.43%).</p> <p>4 – In Section B.3 of the CPA-DD Santa Cruz version 3, in the table containing the input values, please also include “operation costs”, as this parameter is also included in the sensitive analysis.</p> <p>5 – In Section B.3 of the CPA-DD Santa Cruz version 3, regarding common practice, all descriptions included regarding the 4.a and</p>	<ol style="list-style-type: none"> 1. The reservoir area presented in sections B.2 and B.6.1 of Santa Cruz CPA was revised to 76,860 m² as presented in the Consolidated Project Design ("PBC" from the Portuguese Projeto Básico Consolidado) prepared by SPEC - Planejamento, Engenharia, Consultoria in July 2010. 2. Please refer to the PPs response in item 7 of CAR 41. 3. In fact, there is a typo in Santa Cruz CPA. The value of pre-tax Cost of Debt presented in Santa Cruz CPA was revised according to the WACC calculation spreadsheet. Please refer to the fourth version of the document. 4. Please refer to the PPs response in item 9 of CAR 41. 5. Please refer to the PPs response in item 10 of CAR 41. 6. Section B.3 of the CPAs was revised. Please refer to the fourth version of the documents. Please also refer to the PPs response in CL20. 7. Please refer to the PPs response in item 12 of CAR 41. 8. Section B.5.2 of Santa Cruz CPA was revised. Please refer to the fourth version of the document. 9. Please refer to the PPs response in item 13 of CAR 41. 10. Please refer to the PPs response in 	<p><u>PP has addressed all the issues that were identified during the ITR (internal Technical Review) procedure. The ITR has accepted all the modifications carried out by PP in version 4 of the PoA-DD, in version 4 of the generic CPA-DD and in the CPA Santa Cruz-DD also version 4. In addition, all clarifications provided by PP were analyzed and accepted by the ITR. Seeing the above, this CAR was closed.</u></p>
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<p>4.b common practice analysis needs to be removed. According to the Additionality Tool version 6, the analysis needs to be done only in accordance to paragraph 47 of the Tool.</p> <p>6 – In Section B.3 of the CPA-DD Santa Cruz version 3, in step 3 of the common practice analysis, please change the phrase “As mentioned in section A.4.3, PROINFA is (...)” into “As mentioned in section A.4.3 of the PoA-DD, PROINFA is (...).”</p> <p>7 – In Sections B.5.2 of the CPA-DD Santa Cruz version 3, the names of the steps 1 and 6 to calculate the emission factor are not in accordance with the names provided by the Tool to calculate the emission factor for an electricity system version 02.2.1.</p> <p>8 – In Sections B.5.2 of the CPA-DD Santa Cruz version 3, regarding step 6, the phrase: “Applying the results presented above in STEPS 4 and 6 above” should be: “Applying the results presented above in STEPS 4 and 5 above”.</p> <p>9 – In Section B.6.1 of the CPA-DD Santa Cruz version 3, regarding $EG_{\text{facility},y}$, the following statement is not in accordance with ACM0002: “Cross check with internal control (if available).”. Moreover, crosscheck should be done with: “records of sold energy” (i.e. CCEE reports).</p>		<p>item 1 of this CAR.</p> <p>11. Cell B8 of the CER spreadsheet was corrected, since the CO2 emission factor of the grid of 2010 year published by the Brazilian DNA was used (and not from 2008 to 2010). Please refer to the revised spreadsheet attached to this response.</p> <p>12. Data unit of ANEEL fee was included in the cash flow spreadsheet. Law nr. 9,427, December 12th, 1996 was also included as reference for the ANEEL fee calculation. Please refer to the revised spreadsheet attached to this response.</p>	
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<p>10 – In Section B.6.1 of the CPA-DD Santa Cruz version 3, a reservoir area is mentioned of 76,900 m². However, according to A.2 of the same document, this must be: 76,860 m².</p> <p>11 – Regarding the spreadsheet “Santa Cruz_Estimated CERs_v.2_2012.01.31”, in <BEy>, cell B8 is not in accordance with the CPA-DD. Moreover, the EF figures are from 2010 only.</p> <p>12 – Regarding “FCF_PCH_Santa_Cruz_v 2”, in <Santa Cruz-FCF>, Cell B14 (ANEEL) does not indicate the unit of this value.</p>			
<p>CL BQA 01 – 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.</p>	<p>EB 51 Annex 58</p>	<p><u>First response (31/01/2012):</u></p> <p>As discussed during the audit visit, no activities/measures have been implemented at the project site for the project construction (only environmental diagnosis for the Preliminary License issuance). Currently, the project sponsor is waiting for the Preliminary License issuance by the environmental agency, which was requested on April 13th, 2010. Please refer to the document “Comprovantes ambientais Santa Cruz.pdf” attached to this response and presented during the audit visit.</p> <p>After the Preliminary License issuance, the project sponsors shall prepare the environmental project design (“PBA” form the Portuguese <i>Projeto Básico Ambiental</i>) for the Construction License issuance.</p>	<p>Answer 1 (14/02/2012)</p> <p>1. According to the “GUIDELINES ON THE ASSESSMENT OF INVESTMENT ANALYSIS (Version 05)” : “The use of investment analysis to demonstrate additionality is intended to assess whether or not a reasonable investor would or not decide to proceed with a particular project activity without the benefits of the CDM. This decision will therefore be based on the relevant information available at the time of the investment decision and not information available at an earlier or</p>



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		<p>Until the Construction License is issued and EPC contract is signed, the project construction cannot start.</p> <p>Considering explanations above, no actions were taken for the project construction which may configure the "project starting date". Therefore, the investment analysis of the project (IRR and WACC calculation) was based on the most recent data/ information available at the time of the submission of the PDD for GSP (Global Stakeholder Process), i.e. data of the first semester of 2011 year.</p> <p>Please also refer to the PPs response in CL 13.</p> <p>Furthermore, the PPs revised the US expected inflation considered in the Cost of Equity calculation (WACC spreadsheet). For the inflation calculation, it is considered the 10 Year Treasury Note (^TNX), and the TIPS (Treasury Inflation Protected Securities), which are readily quoted in the US market. The ^TNX index carries inflation on their value while the TIPS is an index without inflation. The subtraction from the chosen period average values from the ^TNX and the TIPS results in the estimated inflation. The previous value of 1.32% considered the inflation indexed Bond of 10 years minus a 20 year Bond without inflation.</p>	<p>later point."</p> <p>2. According to the Glossary of terms: "The starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a programme activity begins."</p> <p>In the absence of available and validity evidence, the investment decision can be considered the date of upload of the project activity to the UNFCCC database (26/10/2011).</p> <p>In addition, the revision of the US expected inflation used in the WACC calculation is not applicable, given that by the time of investment decision the inflation was considered 1.32%.</p> <p><u>CL BQA 01 was not closed.</u></p> <p><u>20/03/2012</u></p> <p>Considering there is no significative</p>
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		<p>For more consistency, the inflation was calculated as the difference from an indexed Bond of 10 years between a 10 year bond without inflation. The updated value is 1.98%. Please refer to the revised benchmark spreadsheet attached to this response.</p> <p><u>Second response (17/02/2012):</u> Before responding the DOE's correction request, the PPs clarify that the validation start (GSP start) of October 2011 was considered by the PPs just as a reference date for the financial analysis elaboration since no investment decision was taken for the project implementation yet. Please refer to the PPs response in CAR BQA 03. In having this clarification in mind, the PPs clarify the following:</p> <p>- <i>Benchmark calculation</i> First, the 10-year T.Notes and the 10-year TIPS as well as the 20-year TIPS are applicable to the "investment decision" since they are based on data of 2010 year. The revision of the benchmark calculation was only to consistently consider the indexed Bond of 10 years between a 10 year bond without inflation instead of the indexed Bond inflation of 10 years minus a 20 year Bond without inflation. To the understanding of the PPs,</p>	<p>disbursement since then, the use of GSP start as the investment decision date was accepted. Also, since the benchmark is more conservative, we accept the PP's response.</p> <p><u>CL BQA 01 was closed.</u> <u>OK</u></p>
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		<p>it is more consistent to use the same period (10 year) for the inflation calculation.</p> <p>Since the DOE has to consider the correctness of assumptions and methods used in the benchmark calculation, the PPs consider this revision applicable. If calculation is not correct, it shall be corrected during validation.</p> <p>Furthermore, the approach of the PPs is considered conservative, since without the change of the inflation, the WACC is 9.72% as presented in the first version of the PDD and the WACC with the inflation revised results in 9.38% as presented in the benchmark spreadsheet attached to this response. Considering this explanation, the benchmark calculation was not revised.</p>	
CL BQA 02 - 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	The project participants clarify that there are no Feasibility Study Reports (FSR) approved by national authorities since the financial/investment decision is from the project developer (Brazil is not a centrally planned economy).	<p>Answer 1 (12/02/2012)</p> <p>The answer was accepted.</p> <p><u>CL BQA 02 was closed.</u> <u>OK</u></p>
CL 01 – In Section A.2 of the PoA-DD version 01, please provide a web link address related to footnotes 1 and 2, so that information can be verified.	PoA Form v1	Considering the DOE comments, the PPs included source of information related to the commitment of the countries in the Latin America and the Caribbean region (a target of 10% renewable energy of total energy use) and web link address of the	<p>The required information has been given by the PP in Section A.2 of the PoA-DD version 02.</p> <p><u>CL 01 was closed.</u> <u>OK</u></p>



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		WSSD Plan of Implementation. Source of information related to the preliminary meeting conducted by the Ministers of the Environment in 2002 is the same as the one presented in the first footnote. Please refer to the second version of the PoA.	
CL 02 – In Section A.2 of the PoA-DD version 01, Omega Energia Renovável is not the Managing entity of the PoA but it is the Coordinating/ Managing entity of the PoA.	PoA Form v1	Considering the DOE comments, the PPs included information that Omega is the Coordinating/ Managing entity of the PoA. Please refer to the second version of the document.	The required correction has been made by the PP in Section A.2 of the PoA-DD version 02. <u>CL 02 was closed.</u> <u>OK</u>
CL 03 – In Section A.4.3 of the PoA-DD version 01, please correct the number of the footnote 10, repeated twice.	PoA Form v1	Section A.4.3 was revised. Please refer to the second version of the PoA.	The required correction has been made by the PP in Section A.4.3 of the PoA-DD version 02. <u>CL 03 was closed.</u> <u>OK</u>
CL 04 – In Section A.4.4.1 of the PoA-DD version 01, please provide a more detailed description about the record keeping system for each CPA under the PoA. The DOE needs to have access to the detailed control system that has been established by the CME.	PoA Form v1	The management system for the inclusion of CPAs in the proposed PoA was revised in the new version of the PoA based on the publication of Annex 03 in the 65 th EB Meeting. Please refer to the second version of the PoA. Please also refer to the PPs response in CAR 08.	A more detailed description about the record keeping system for each CPA under the PoA has been given in Section A.4.4.1 of the PoA-DD version 02. <u>CL 04 was closed.</u> <u>OK</u>
CL 05 – In Section A.4.4.2 of the PoA-DD version 01, the information of the methodology is not	PoA Form	The applicable version of ACM0002 for the proposed PoA is presented in the	The PP's answer has been accepted.



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being required. If the information is given, it should be indicated its version.	v1	eligibility criteria for the inclusion of CPAs in the PoA. Please refer to section A.4.2.2 of the PoA. Therefore, to the understanding of the PPs, there is no need to indicate the version of the methodology in the whole document.	<u>CL 05 was closed.</u> <u>OK</u>
<u>CL 06</u> – In Section C.2 of the PoA-DD version 01, please adjust CONAMA's name in English. "Resolution" shouldn't be part of it. This CL applies to PoA-DD v01 and to both CPA-DDs - (Santa Cruz v1 and Generic).	PoA Form v1	Section C.2 of the PoA and CPAs were revised accordingly. Furthermore, the PPs revised section C.1 of the CPAs based on the CPA form and included more information related to the choice of the environmental analysis at CPA level. Please refer to the second version of the documents.	The required correction has been made in Section C.2 of the PoA-DD version 02. <u>CL 06 was closed.</u> <u>OK</u>
<u>CL 07</u> - In Section E.2 of the PoA version 01, please revise all the applicability conditions according to ACM0002, version 12.2.0.	PoA Form v1	All CPAs to be included in the proposed PoA have to comply with the applicability conditions of ACM0002 as established in item (e) of the eligibility criteria for the inclusion of CPAs presented in section A.4.2.2 of this PoA. This information was included in section E.2 of the PoA. Please refer to the second version of the document.	In Section E.2 of the PoA-DD version 02, the applicability conditions have been revised according to the methodology ACM0002, version 12.2.0. <u>CL 07 was closed.</u> <u>OK</u>
<u>CL 08</u> – In the 2 nd paragraph of Section E.6.1 of the PoA-DD version 01, please inform the version of the "Tool to calculate the emission factor for an electricity system".	PoA Form v1	Version of the Emission Factor Tool was included in the PoA. Please refer to the second version of the documents. Please also refer to the PPs response in CAR 20 and CAR 23.	The version of the "Tool to calculate the emission factor for an electricity system", 02.2.1, has been informed in Section E.6.1 of the PoA-DD version 02. <u>CL 08 was closed.</u> <u>OK</u>



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CL 09 – In the 2 nd paragraph of Step 1 of Section E.6.1 of the PoA-DD version 01, please inform the web link to access DNA's Resolution nº 8.	PoA Form v1	Weblink of the Brazilian DNA was included in the PoA and related CPAs. Please refer to the second version of the documents.	The web link to access DNA's Resolution nº 8 has been informed in the 2 nd paragraph of Step 1 of Section E.6.1 of the PoA-DD version 02. <u>CL 09 was closed.</u> <u>OK</u>
CL 10 – In Section E.6.2 of the PoA-DD version 01, item II, please inform how was defined that the Plant Load Factor is equal to the Assured Energy. To define the Plant Load Factor we have to follow Annex 11 of EB 48 – Guidelines for the reporting and validation of Plant Load Factor, version 01.	PoA Form v1	Source of the PLF of the project and information related to assured energy of power plants were included in sub-step 2b of section E.5.1 of the PoA and sub-step 2b of section B.3 and B.5.2 of the CPAs. Please refer to the second version of both documents.	The PP's answer has been accepted. <u>CL 10 was closed.</u> <u>OK</u>
CL 11 – In Section E.8 of the PoA-DD version 01, please inform whether Ecopart Assessoria em Negócios Empresariais Ltda is Project Participant.	PoA Form v1	Information was included in section E.8 of the PoA-DD. Please refer to the second version of the document.	In Section E.8 of the PoA-DD version 02, it has been informed that Ecopart Assessoria em Negócios Empresariais Ltda is a Project Participant. <u>CL 11 was closed.</u> <u>OK</u>
CL 12 – In Section A.4.2.1 of the CPA-DD Santa Cruz version 01, please inform the meaning of EPC.	VVM 56	The meaning of EPC was included in the new version of Santa Cruz CPA. Please refer to the second version of the document.	The meaning of EPC has been informed in Section A.4.2.1 of the CPA-DD Santa Cruz, version 02.



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			<u>CL 12 was closed.</u> <u>OK</u>
<u>CL 13</u> – In Section A.4.2.1 of the CPA-DD Santa Cruz version 01, please confirm the starting date of the CPA.	VVM 56	<p>According to the “Glossary of CDM terms”:</p> <p><i>“The starting date of a CDM programme activity is the earliest date at which either the implementation or construction or real action of a programme activity begins. The starting date of the CPA cannot be prior to the commencement of validation of the programme of activities, i.e. the date on which the CDM-POADD is first published for global stakeholder consultation”.</i></p> <p>The definition of starting date for CDM project activities is the same to the one presented for the CDM programme activity. However, it includes more detailed clarification about what means “real action of a project activity begins”:</p> <p><i>“...the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. This, for example, can be the date on which contracts have been signed for</i></p>	<p>The starting date of the CPA has been postponed from 01/02/2012 to 01/01/2013 and, consequently, the starting date of the crediting period from 01/01/2014 to 01/01/2015. This information has been updated in Section A.4.2.1 of the CPA-DD Santa Cruz version 02. The answer was accepted.</p> <p><u>CL 13 was closed.</u> <u>OK</u></p>

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		<p><i>equipment or construction/operation services required for the project activity. Minor pre-project expenses, e.g. the contracting of services /payment of fees for feasibility studies or preliminary surveys, should not be considered in the determination of the start date as they do not necessarily indicate the commencement of implementation of the project”.</i></p> <p>As discussed during the audit visit, there is no EPC contract signed or equipment purchased. Therefore, there are no major expenditures related to the construction of Santa Cruz project. For this reason, the starting date of the CPA is based on the estimated date when the EPC contract of Santa Cruz project will be signed. This is considered as the first “real action” for the project construction, in which the project sponsor commits expenditures related to the project implementation. However, the construction of the project can start only if the project sponsor has the Construction License. Considering the workers’ strike of the environmental agency, the Preliminary License was not issued for Santa Cruz project yet and, therefore, this cause delay in the estimated date for the project construction start and, consequently, the operation starting date</p>	
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		of the project. Therefore, the PPs changed the starting date of Santa Cruz project from 01/02/2012 to 01/01/2013 and, consequently, the starting date of the crediting period from 01/01/2014 to 01/01/2015. Please refer to the second version of the CPA. Please also refer to the PPs response in CL BQA 01.	
CL 14 – In Section A.4.2.2 of the CPA-DD Santa Cruz version 01, please inform the source of the information “Expected operational lifetime of the CPA = 30 years”.	VVM 56	<p>The operational lifetime of hydropower projects are presented in the concession contract and authorizations issued by ANEEL; concessions are granted for large hydropower projects and authorizations are issued for small scale hydropower plants, which is the case of Santa Cruz project.</p> <p>However, the authorization of Independent Energy Producer (“PIE” from the Portuguese <i>Produtor Independente de Energia</i>) was not issued yet for Santa Cruz project. Generally, the authorization is issued for 30 years for small hydropower plants. Therefore, this figure was used in the first version of the PDD.</p> <p>Since ANEEL authorization cannot be used as documented evidence of the operational lifetime of Santa Cruz, the PPs investigate the legislation of the electricity sector.</p> <p>According to Decree nr. 2,003 dated September 10th, 1996 (http://www.aneel.gov.br/cedoc/dec19962</p>	<p>The PP’s explanation has been accepted.</p> <p><u>CL 14 was closed.</u> <u>OK</u></p>



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	<p>003.pdf), concessions are valid for 35 years from the date of the signature of the concession contract and authorizations are valid for 30 years from the issuance of the authorization.</p> <p>However, the Decree nr. 2,003/1996 was repealed by Decree nr. 5,163 dated July 7th, 2004 (http://www.aneel.gov.br/cedoc/dec20045163.pdf), which regulates the electricity commercialization and the concession and authorization process.</p> <p>Then, Decree nr. 5,163/2004 was changed by Decree nr. 6,048 dated February 27th, 2007 (http://www.aneel.gov.br/cedoc/dec20076048.pdf).</p> <p>The Decree nr. 6,048/2007 establishes a minimum 10-year period and maximum 30-year period for the Electricity Commercialization Contract within the Regulated Contracting Ambience ("CCEAR" from the Portuguese <i>Contrato de Comercialização de Energia Elétrica no Ambiente Regulado</i>). These periods are established in the case of electricity generated by alternative sources (wind, cogeneration and small hydropower plant projects). Therefore, the operational lifetime of Santa Cruz presented in the CPA corresponds to the maximum period as mentioned in Decree nr. 6,048/2007</p>	
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		<p>(30 years), which is the period commonly presented in the authorizations issued for small hydropower plants.</p> <p>The PPs clarify that National Council of Hydrological Resources ("CNRH" from the Portuguese <i>Conselho Nacional de Recursos Hídricos</i>) Resolution nr. 16 dated May 8th, 2001 (http://www.cnrh.gov.br/sitio/index.php?option=com_docman&task=doc_details&gid=62&Itemid=) establishes, in the case of electricity generation, the authorization of the water use for electricity generation as the period of the concession/authorization issued by ANEEL (<i>i.e.</i> 30 years in the case of small hydropower plants). Therefore, the period for which the water use authorization is valid is the same as the authorization issued by ANEEL for electricity generation.</p>	
<p>CL 15 – In the table Parameter/Value/Justification of Section B.3 of the CPA-DD Santa Cruz version 01, please justify the choice of the Plant Load Factor = 51.81 % = 8.29 MW, which represents the average energy of the plant. Also, inform which option (a) or (b) of the Guidelines for the reporting and validation of plant load factors (Annex 11 of EB 48) was chosen.</p>	VVM 56	<p>In fact, 8.29 MW-ave refers to the "average energy" of the project (in a free translation from the Portuguese <i>energia média</i>). The "average energy" is calculated based on hydrological data, height of the dam and efficiency of turbine/generator/transformer.</p> <p>On the other hand, the "assured energy" (from the Portuguese <i>energia assegurada</i>) considers the average energy (mentioned above) minus forced and programmed unavailability of the</p>	<p>In Section B.3 of the CPA-DD Santa Cruz, version 02, the Plant Load Factor was calculated considering the assured energy instead of the average energy, which is a more conservative assumption.</p> <p>The PLF was defined in the Consolidated Project Design ("PBC" from the Portuguese Projeto Básico Consolidado), prepared by SPEC -</p>



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		<p>power plant. In the case of Santa Cruz project, the “assured energy” is 8.04 MW-ave as can be seen in Table 4.46 of the consolidated project design (PBC) dated July 2010.</p> <p>Considering explanation above, it is more conservative to consider the “energy assured” instead of the “average energy”, since the “assured energy” also considers the unavailability (forced and programmed) of the project. Therefore, the PPs revised Santa Cruz CPA and the CER and IRR spreadsheets. Please refer to the second version of the documents.</p>	<p>Planejamento, Engenharia, Consultoria. Therefore, the project applies option (b) of the “Guidelines for the reporting and validation of plant load factors” (Annex 11, EB 48):</p> <p>“(b) The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)”.</p> <p>The PP’s explanation has been accepted.</p> <p><u>CL 15 was closed.</u> <u>OK</u></p>
<p><u>CL 16</u> – In the table Parameter/Value/Justification of Section B.3 of the CPA-DD Santa Cruz version 01, please inform the composition of the total investment of US\$ 106,591,636.</p>	VVM 56	<p><u>First response (31/01/2012):</u> Considering the DOE comments, the PPs revised the generic CPA and Santa Cruz CPA. Please refer to the second version of both documents.</p> <p><u>Second response (17/02/2012):</u> 1 – ANEEL’s technical summary was translated to English. Please also refer to the PPs response in CAR 34. 2.1 and 2.2 – The PPs clarify that the document “Ficha Resumo – Estudo de Viabilidade e Projeto Básico” was</p>	<p>1 – The document “Ficha Resumo – Estudo de Viabilidade e Projeto Básico”, of 20/07/2010, needs to be translated to English. 2 – From the document Excel FCH_PCH_Santa_Cruz_v.2, file Santa Cruz_FCF: 2.1-Please, inform with evidences, the composition of the total investment of R\$ 106,591,636. 2.2-Compare the investment information of item 2.1 above with the information of item 1 above, and</p>



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		presented to the Brazilian Power Regulatory Agency (ANEEL). Therefore, it was considered for the project IRR calculation.	<p>show that they are consistent.</p> <p><u>CL 16 was not closed.</u></p> <p><u>13/03/2012</u></p> <p>1 – ANEEL's technical summary was translated to English. 2 – The composition of the total investment of R\$ 106,591,636 was informed.</p> <p><u>CL 16 was closed.</u></p> <p><u>OK</u></p>
<u>CL 17</u> – In Section C.2 of the CPA-DD Santa Cruz version 01, please inform whether the LP - Preliminary License has already been granted.	VVM 56	<p>Until the preparation of this response, the Preliminary License was not issued. Please also refer to the PP's response in CL BQA 01 and CL 13.</p>	<p>According to the PP's information, currently, the project sponsor is still awaiting for the Preliminary License issuance by the environmental agency, which has been requested on April 13th, 2010.</p> <p>Evidence: Recibo de Entrega de Documentos (Document Delivery Receipt) nº 237878/2010, from COPAM – Conselho Estadual de Política Ambiental (State council of Environmental Policy) – State of Minas Gerais.</p> <p><u>CL 17 was closed.</u></p> <p><u>OK</u></p>



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<p>CL 18 – Please, inform why in CPA-DD Santa Cruz version 02, Step 4 Common Practice Analysis, item d of step 3, Investment climate in the date of the investment decision, inter alia, (i) and (ii), and item (e) of step 3, other features, inter alia, (i), have not been considered/discussed as defined in CPA-DD Generic version 02.</p>	<p>CPA-DD Version 02 CPA-DD Generic v.02</p>	<p>Considering the DOE comments, step 4 (section B.3) of Santa Cruz CPA was revised. Please refer to the third version of the document.</p>	<p><u>13/03/2012</u></p> <p>Step 4 of section B.3 of CPA-DD Santa Cruz version 3 was revised. The answer was accepted.</p> <p><u>CL 18 was closed.</u> <u>OK</u></p>
<p>CL 19 – Revise the equation numbers of PoA-DD version 02, CPA-DD Santa Cruz version 02 and CPA-DD Generic version 02. The equation numbers are not consistent among the three documents and also, for instance, there are two equations (1) in CPA-DD Santa Cruz version 02 and CPA-DD Generic version 02.</p>	<p>PoA-DD v.02, CPA-DD Santa Cruz v.02 CPA-DD Generic v.02</p>	<p>Considering the DOE comments, the PPs revised the sequence of equations presented in the generic CPA and in Santa Cruz CPA. Please refer to the third version of the documents.</p>	<p><u>13/03/2012</u></p> <p>The PPs revised the sequence of equations presented in the PoA-DD, CPA-DD generic and CPA-DD Santa Cruz version 3. The answer was accepted.</p> <p><u>CL 19 was closed</u> <u>OK</u></p>
<p><u>CLs abertas devido ao ITR</u></p>			
<p><u>CL 20</u> <u>1 – In E.5.1 of the PoA version 3, please clarify the following statement: “In the case of small hydropower plants with installed capacity smaller than 5 MW, additionality will be assessed following the “Guidelines for demonstrating additionality of microscale project activities” (version 3).” Moreover, the PoA-DD form (version 1) states: “This form is</u></p>		<p>1. Considering the DOE comments, the PPs revised the PoA to exclude information regarding the additionality assessment through the “Guidelines for demonstrating additionality of microscale project activities”. In fact, Omega Energia Renovável S/A has no intention to include small hydropower plants with installed</p>	<p><u>PP has addressed all the issues that were identified during the ITR (internal Technical Review) procedure. The ITR has accepted all the modifications carried out by PP in version 4 of the PoA-DD, in version 4 of the generic CPA-DD and in the CPA Santa Cruz-DD also version 4. In addition, all</u></p>



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<p><u>for the submission of a CDM PoA whose CPAs apply a large scale approved methodology". Also, the PoA-DD version 3 states that the large scale methodology ACM0002 is the only applicable methodology. Please also clarify regarding the eligibility of Small Hydro Power Plants with installed capacity between 5 MW and 15 MW. (This request also applies for the Generic CPA-DD).</u></p> <p><u>2 – Please clarify why in Section B.3 of the generic CPA-DD version 3, the WACC calculation description is not as complete as the description provided in the PoA-DD version 3.</u></p> <p><u>3 – In Section B.3 of the generic CPA-DD, in step 3 of the common practice analysis, please change the phrase "As mentioned in section A.4.3, PROINFA is (...)" into "As mentioned in section A.4.3 of the PoA-DD, PROINFA is (...).</u></p>		<p>capacity lower than 5 MW in the PoA. For the CPAs to be included in the PoA, they have to comply with the eligibility criteria presented in section A.4.2.2 independently of the installed capacity. Therefore, the eligibility criteria for small hydropower plants with installed capacity between 5 MW to 15MW will be analyzed through the steps already presented in the PoA. The additionality assessment will be also conducted in the light of the "Tool for the demonstration and assessment of additionality" as described in the PoA.</p> <p>2. Detailed description of the WACC calculation and the considered assumptions are presented in the PoA. Therefore, to the understanding of the PPs, the "standard" is defined and there is no need to repeat it in the CPAs. Therefore, no alterations were made in the CPAs.</p> <p>3. The CPAs were revised to consider the mentioned information as required by DOE.</p>	<p><u>clarifications provided by PP were analyzed and accepted by the ITR. Seeing the above, this CL was closed.</u></p>
<p><u>CL 21</u></p> <p><u>1 – Please clarify why in Section B.3 of the CPA-DD of Santa Cruz version 3, the WACC calculation description is not as complete as the description provided in the PoA-DD version 3.</u></p> <p><u>2 – In Section B.3 of the CPA-DD Santa Cruz</u></p>		<p>1. Please refer to the PPs response in item 2 of CL20.</p> <p>2. Source of information of tables 8, 9 and 10 is the same of the source of information presented in table 7. Tables 8 to 10 are the results of the analysis of table 7. Therefore, to the</p>	<p><u>PP has addressed all the issues that were identified during the ITR (internal Technical Review) procedure. The ITR has accepted all the modifications carried out by PP in version 4 of the PoA-DD, in version 4 of the generic CPA-</u></p>



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<u>version 3, in step 3 of the common practice analysis, please provide a source for “table 10 - Operation starting of grid-connected small hydropower plants from 8,000,000 W to 24,000,000 W installed capacity in Minas Gerais (without CDM incentives and/or PROINFA)”.</u>		understanding, there is no need to repeat the source of information in tables 8 to 10.	<u>DD and in the CPA Santa Cruz-DD also version 4. In addition, all clarifications provided by PP were analyzed and accepted by the ITR. Seeing the above, this CL was closed.</u>
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