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# VALIDATION REPORT

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**Energest S.A.**

**São João hydro power plant project**

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**SGS Climate Change Programme**

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Date of Issue:	Project Number:
29-05-2007	CDM.Val0595
Project Title:	Organisational Unit:
São João hydro power plant project	SGS Climate Change Programme
Revision Number:	Client:
2	Energest S.A.

**Summary:**

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

The project activity consists of the construction of a new small hydro power plant with 25 MW total installed capacity and a small reservoir. The plant is being installed in the South East region of Brazil, in Castelo river.

Total amount of emission reductions estimated for the first crediting period is 226,408tCO<sub>2</sub>e.

SGS will request the registration of the São João hydro power plant project as a CDM project activity, once the written approval by the DNA of the participating Parties and the confirmation by the DNA of Brazil that the project assists in achieving sustainable development has been received.

The Letter of Approval from the Government of Brazil was issued on 20th June 2007.

Subject:	<b>Indexing Terms</b>
CDM validation	
Work carried out by	
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Technical Review	<input checked="" type="checkbox"/> No Distribution without permission from the Client or responsible organisational unit
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Date of Final Decision:	
29/05/2007	
Number of Pages:	
38	

**Abbreviations**

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

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## 1. Introduction

### 1.1 Objective

The ENERGEST S.A have commissioned SGS to perform the validation of the project: São João hydro power plant project with regard to the relevant requirements for CDM project activities. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP) and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Certified Emission Reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

### 1.2 Scope

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

### 1.3 GHG Project Description

This report summarizes the results of the validation of São João hydro power plant project, performed on the basis of UNFCCC criteria. The validation has been performed as a desk review of the project documents presented by Energest S.A and a site visit to São João Hydro Power Plant (under construction), located in Conceição do Castelo, Espírito Santo, Brazil. During site visit, Energest managers and Ecológica consultant were interviewed.

The project activity consists of the construction of a new small hydro power plant with 25 MW total installed capacity and a small reservoir. The plant is being installed in the South East region of Brazil, in Castelo River.

The project aims to generate clean energy from hydropower. The project is being carry out by Energest an energy generation facility which is part of the EDP group.

The power station is subterraneous, with 2 horizontal Francis turbines.

The yearly minimum energy output expected for the project is 123,516 MWh. The project is connected to interconnected grid South-Southeast-Midwest.

Total amount of emission reductions estimated for the first crediting period is 226,408 tCO<sub>2</sub>e.

Baseline Scenario:

No investment in clean power generation; electricity generation from fossil-fuel thermal plants that would have otherwise been delivered to the interconnected grid and to isolated systems.

With-project scenario:

The project activity consists of the construction of a new small hydropower plant with capacity of 25 MW. It will result in GHG emissions reductions avoiding the dispatch of same amount of energy produced by fossil-fuelled thermal plants to the grid.

Leakage:

No leakage is anticipated.

#### Environmental and social impacts:

With the use of hydropower facilities to generate electricity for local use and for delivery to the grid, the project displaces part of the electricity derived from finite fossil fuel, and gives less incentive for the construction of large hydro plants which can have major environmental and social impacts.

Regarding the compliance with environmental legislation of the host country, the Brazilian regulation requires an environmental licensing process, including: the preliminary license (Licença Prévia or LP), the construction license (Licença de Instalação or LI); and the operating license (Licença de Operação or LO).

It was verified during the site visit that the plant obtained the LP and LI, and will require the LO license.

It is expected that the project activity will contribute to improve the supply of electricity.

#### **1.4 The Names and Roles of the Validation Team Members**

<b>Name</b>	<b>Role</b>
<i>Fabian Gonçalves</i>	<i>Lead Assessor</i>
<i>Geisa Príncipe</i>	<i>Local assessor</i>
<i>Aurea Nardelli</i>	<i>Assessor</i>

## 2. Methodology

### 2.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project documents. The assessment is performed by trained assessors using a validation protocol.

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

### 2.2 Use of the Validation Protocol

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

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation.

The validation protocol consists of several tables. The different columns in these tables are described below.

<b>Checklist Question</b>	<b>Means of Verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
<i>The various requirements are linked to checklist questions the project should meet.</i>	<i>Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.</i>	<i>This is either acceptable based on evidence provided (Y), or a <b>Corrective Action Request (CAR)</b> due to non-compliance with the checklist question (See below). <b>New Information Request (NIR)</b> is used when the validation team has identified a need for further clarification.</i>

The completed validation protocol for this project is attached as Annex 2 to this report

### 2.3 Findings

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

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

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR)**. A CAR is issued, where:

- mistakes have been made with a direct influence on project results;
- validation protocol requirements have not been met; or
- there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be verified.

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

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

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex 3). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

## **2.4 Internal Quality Control**

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.



### 3. Determination Findings

#### 3.1 Participation Requirements

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

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

The Letter of Approval was issued on 20<sup>th</sup> June 2007.

#### 3.2 Baseline Selection and Additionality

The methodology applied to this Project Activity is: ACM0002 – “Consolidated baseline methodology for grid-connected electricity generation from renewable sources/ Consolidated monitoring methodology for grid-connected electricity generation from renewable sources” (version 06, issued on 19<sup>th</sup> May, 2006).

ACM 0002 (version 6) is applicable to grid-connected renewable power generation project activities which include among other conditions “new hydro plant with small reservoir”.

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

As required in the ACM 0002, the project demonstrated additionality using the “Tool for the demonstration and assessment of additionality”.

Step 0 of the Tool for the demonstration and assessment of additionality is not applicable, because the crediting period will not start prior registration. To include the information under sub-step 4a. CAR 1 was raised.

The information was revised in the version 2 of the PDD. CAR 1 was closed out.

The hydro power plant São João was planned in 1999. The Engineering Procurement and Construction (EPC) plan was made, but due to economic problems faced, the project stopped before start the construction.

After that a new EPC was made and the project started the process to obtain ANEEL license, environmental license and the power purchase agreement. During these years more financial and economic barriers were faced. In 2005 a new EPC was made and Energest (EDP group) decided to re-take the hydro power plant, at this time the costs were much higher than other EPC made.

In 2003 the EDP group decided to consider the CER revenue in all projects. It was possible to re-take the hydro power plant as a CDM project, considering CER to make the project financial viable due to the barriers faced in the past and actually

In the discussion of additionality, the project uses a benchmark analysis. The decision to go on with the project activity in 2005 does not consider the carbon credit revenue. To revise the IRR using the data that was used by Energest in the decision to re-take the construction of São João plant.

Provide copy of the EPC signed in 2002 and 2005. CAR 2 was raised.

Copy of the financial study was provided. The project uses benchmark analysis as a tool to assess the potential generation project. The internal benchmark (Energest) for the year 2005 is 15% and the project used another value as reference, the National treasury notes (NTN-C), reference year 2005 = 16.42%. The NTN-C is an option to the project activity to invest in the Brazilian financial market which is the government bond rates. The NTN-C IRR is higher than the internal benchmark. The financial analysis demonstrates that

the IRR without CDM revenue is 10.71% and with CDM revenue is 13.51% which is lower than internal benchmark or NTN-C. CAR 2 was closed out.

Barrier analysis:

It was verified during site visit that the project takes 30 years to install the 4<sup>th</sup> generator.

To provide more information regarding why Escelsa was focused exclusively on the distribution activities due to the increasing opportunities on the energy market.

It was verified during site visit the infrastructure barrier: the location of the project and the condition to build the generation room, to install the equipments, the tunnel (7Km) inside the rock. NIR 3 was raised.

A barrier analysis was made to prove additionality of the project activity. The barriers presented were investment and uncertainties on the energy regulatory market, prevailing business practice, difficulties on construction. The information was provided in the revised PDD. NIR 3 was closed out.

Escelsa was focused exclusively in energy distribution because of the characteristic of the Brazilian market. Most recently the market changed and it was possible to obtain concession to act as a generator. The energy prices are a barrier to the project. The government established the Thermoelectric Priority Plan. The thermal energy price is lower than hydro and this energy market is growing.

Verified that there are other similar generation plants, but not applicable as a CDM project activity. In 2003 the EDP that owns Energest decided to consider CERs revenue for all generation activities in Brazil, and this is applicable for São João plant (MDL distribuidoras Brasil).

Besides the financial analysis and barriers presented, the project decided to implement the São João plant.

The sources and information mentioned (data available in ONS, ANEEL websites) were confirmed by the assessors. The alternative to the project activity is the continuation of the current (previous) situation of electricity supplied by thermal power stations.

### 3.3 Application of Baseline Methodology and Calculation of Emission Factors

Considering that the project emissions and leakage are zero, the emission reductions by the project activity ( $ER_y$ ) during a given year  $y$  will be the product of the baseline emissions factor ( $EF_y$ , in  $tCO_2e/MWh$ ) times the electricity supplied by the project to the grid ( $EG_y$ , in  $MWh$ ).

As defined in the ACM0002, the baseline emission factor is calculated as a combined margin, consisting of the combination of operating margin and the build margin factors. The calculation of the emission factor of Brazilian South-Southeast-Midwest grid is based on data from the National Electric System Operator (ONS – Operador Nacional do Sistema Elétrico) covering years 2003 -2005.

The baseline emission factor is defined as ( $EF_y$ ) and is calculated as a combined margin ( $CM$ ), consisting of the combination of operating margin ( $OM$ ) and build margin ( $BM$ ) factors.

The methodology mentions that the baseline emission factor is calculated considering the generation for the most recent 3 years available at the time of the PDD submission. Annex 3 of the PDD presents data for the most recent 4 years. To revised the baseline emission factor (2003-2005). CAR 7 was raised.

The emissions factor was revised and included in the PDD version 2. CAR 7 was closed out.

Baseline emissions are calculated by using the annual generation (project annual electricity dispatched to the grid) times the  $CO_2$  average emission rate of the estimated baseline, as follows:

(A) Monitored project power generation (MWh) (B) Baseline emission rate factor ( $tCO_2/MWh$ )

$BE = (A) \times (B) \quad (tCO_2)$

The EF calculated (after CAR 7 closing out) was  $0.262 \text{ tCO}_2e/MWh$ .

The version 6 of the ACM0002 requires that the PE should be calculated from the “power density”.

Verified:

Reservoir area =  $0,21 \text{ Km}^2$

Installed capacity = 25MW

Power density = 119W/m<sup>2</sup>

The power density is higher than 4W/m<sup>2</sup>, project emissions is not applicable according ACM0002 methodology.

### 3.4 Application of Monitoring Methodology and Monitoring Plan

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

CAR 5 was raised: to correct table presented in section D of the PDD according to project scenario and considering that Emission Factor was calculated ex-ante.

Recording frequency for items 2, 3, 4 and 10: At the validation and will be recalculated at any renewal crediting period.

Some items are not applicable for this project. To revise the QC/QA according section D.2.1.3 when revised.

The PDD was revised; all item related to the EF was defined as ex-ante. CAR 5 was closed out.

PE is dependent on the reservoir area and capacity installed of the plant. The project has a small reservoir area. The power density is 119W/m<sup>2</sup> (higher than 4W/m<sup>2</sup>). PE=0.

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

The project developer will be responsible for the management. During site visit it was confirmed the structure described in the PDD (section B.7.2). As informed during site visit, the project will prepare the Operation and Maintenance Manual. Verified that the project developer is responsible for the operation, monitoring and registration and will ensure resources for the activities of monitoring.

Observation 1: Specific procedure needs to be available before project operation and during verification assessment (procedures for monitoring data adjustments, review of reported data/ results, internal audit, review data before verification assessment, corrective action).

### 3.5 Project Design

The project's starting date (17/06/2005) and operational lifetime (22years) were clearly defined in the PDD and are reasonable. It was assumed a renewable crediting period. The operational lifetime exceeds the crediting period. Project starting data according installation license issued by the environmental agency.

To correct the lifetime of the project according documents presented during validation assessment. CAR 4 was raised.

The lifetime was revised in version 2 of the PDD. CAR 4 was closed out.

Section E.6 of the PDD version 1: to present the correct table, according PDD template. CAR 8 was raised.

The PDD was revised using the new template (version 3). Table was revised. CAR 8 was closed out.

The project design engineering reflects current good practices and is not likely to be substituted by other or more efficient technologies within the project period.

### 3.6 Environmental Impacts

Verified that the project obtained the required installation license, to obtain this license an EIA was performed.

The following documents were verified during the site visit:

Attendance list of the requests described in the operation license PCH São João – LI180/2005.

Installation license LIGCA/180/2005, 17 June 2005, issued by IEMA.

The environmental effects were considered by the environmental agency during the licensing process. Transboundary environmental impact was considered in the licensing process. The project obtained the licenses required by the Brazilian environmental regulation.

### **3.7 Local Stakeholder Comments**

Local stakeholders have been invited by letters to comment on the São João hydro power plant project.

The invitation was sent to specific stakeholders, considered representative of the general public, as defined in the Resolution n° 1 (Brazilian DNA requirement).

To provide copy of the letters and delivery receipts sent to local stakeholders and up date the PDD with comments received. CAR 6 was raised.

Copy of the letters and delivery receipts were provided. CAR 6 was closed out.

One comment was received (from Public Ministry) asking for a meeting with project developer. The project sent a letter to Public Ministry but no answer was received.

#### **4. Comments by Parties, Stakeholders and NGOs**

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

##### **4.1 Description of How and When the PDD was Made Publicly Available**

The PDD and the monitoring plan for this project were made available on the SGS website <http://cdm.unfccc.int/Projects/Validation/DB/DBZ9F9HIOYOSTHM637WFDVNTQM9D8O/view.htm> and were open for comments from 06 July 2006 until 04 August 2006. Comments were invited through the UNFCCC CDM homepage

##### **4.2 Compilation of all Comments Received**

No comments were received during the 30 days commenting period.

##### **4.3 Explanation of how Comments Have Been Taken into Account**

No comments were received.

## 5. Validation Opinion

Steps have been taken to close out 8 findings. The observation raised does not preclude the validation of the project, but should be considered as an opportunity for improvement for the verification process.

SGS has performed a validation of the project: São João hydro power plant project.

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

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

The validation is based on the information made available to SGS and the engagement conditions detailed in the report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence SGS can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose. The DOE declares herewith that in undertaking the validation of this proposed CDM project activity it has no financial interest related to the proposed CDM project activity and that undertaking such a validation does not constitute a conflict of interest which is incompatible with the role of a DOE under the CDM.

## 6. List of Persons Interviewed

<i>Date</i>	<i>Name</i>	<i>Position</i>	<i>Short Description of Subject Discussed</i>
24-08-2006	Pedro Sirgado	ENVIRONMENT	Environmental license.
23-08-2006	Sávio da Rós	PRODUCTION MANAGER	Project details, financial analysis.
23-08-2006	José Augusto Sava	MAINTENANCE MANAGER	Project details, operation.
20-10-2006	Alejandro Bango	CDM CONSULTANT	PDD developing, monitoring plan, baseline study.
20-10-2006	Flávia Takeuchi	CDM CONSULTANT	PDD developing, monitoring plan, baseline study.

## 7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

- /1/ Project Design Document, São João hydro power plant. Version 01, 05/06/2006; version 02, 05/11/2006; version 03, 06/03/2007; version 04, 29/05/2007.
- /2/ Approved consolidated baseline and monitoring methodology ACM0002 – Consolidated baseline and monitoring methodology for grid-connected electricity generation from renewable sources, version 6, 19/05/2006.
- /3/ Tool for the demonstration and assessment of additionality, version 3.

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

- /4/ ANEEL license number 406, 18 October 2000.
- /5/ Attendance list of the requests described in the operation license PCH São João – LI180/2005.
- /6/ Installation license LIGCA/180/2005, 17 June 2005, issued by IEMA.
- /7/ Power purchase agreement signed between Escelsa (energy buyer) and Castelo Energética SA (CESA). Escelsa and CESA are part of the EDP group.
- /8/ Technical description of the hydro power plant (General description PCH São João).
- /9/ Financial analysis and cash flow.
- /10/ Emission factor and CER worksheet.
- /11/ Energest presentation about CERs income for all generation activities in Brazil (MDL distribuidoras Brasil).



## A.1 Annex 1 - Local Assessment Checklist

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document. It serves as a “reality check” on the project. It is to be completed by a local assessor from SGS Brazil

Issue	Findings	Source /Means of Verification	Further action / clarification / information required?
Verify operation licence from ANEEL (national energy agency).	Verified ANEEL licenses: ANEEL number 406, 18 October 2000.	DR/ site visit	No
Verify PPA (Power purchase agreement)	Verified the power purchase agreement signed between Escelsa (energy buyer) and Castelo Energética SA (CESA). Escelsa and CESA are part of the EDP group.	DR/ site visit	No
Verify project like described in the PDD.	<p>The hydro power plant São João was planned in 1999. The Engineering Procurement and Construction (EPC) plan was made but due to economic problems faced, the project stopped before start the construction.</p> <p>After that a new EPC was made and the project started the process to obtain ANEEL license, environmental license and the power purchase agreement. During these years more financial and economic barriers were faced. In 2005 a new EPC was made and Energest (EDP group) decided to re-take the hydro power plant, at this time the costs were much higher than other EPC made.</p> <p>In 2003 the EDP group decided to consider the CER revenue in all projects. It was possible to re-take the hydro power plant as a CDM project considering CER to make the project financial viable due to the barriers faced in the past and actually.</p> <p>Verified:</p> <p>Contract between Castelo Energética S.A and Va Tech, Engevix, Metalmec, RDJ, 30 September 2005 (contract with suppliers and services to re-take the construction of the hydro power plant).</p> <p>Turbines: VaTech, 13509kW, serial number 2-020202 and 1-020202.</p> <p>Generators: Weg SLW 1250, 14000kVA, serial number 115095 and 115096.</p>	DR/ site visit	No

Issue	Findings	Source /Means of Verification	Further action / clarification / information required?
	The meters will send the information directly to Escelsa (concessionary) in Vitória and the information is transferred electronically to the internal system.		
Verify the reservoir area.	It was verified the reservoir area: 21ha. Verified the technical description of the hydro power plant (General description PCH São João).	Site visit/DR	No

## A.2 Annex 2 - Validation Protocol

This validation protocol is designed to ensure that the project meets the requirements for CDM projects that are detailed in paragraph 37 of the CDM modalities and procedures. Each requirement is covered in a separate table. The following requirements are discussed in this protocol:

Requirement	Description	
Participation requirements	The participation requirements as set out in Decision 17/CP.7 need to be satisfied	Covered in table 1
Baseline and monitoring methodology	The baseline and monitoring methodology complies with the requirements pertaining to a methodology previously approved by the Executive Board	Baseline methodology is covered in table 2 Monitoring methodology is covered in table 4
Additionality	The project activity is expected to result in a reduction in anthropogenic emissions by sources of greenhouse gases that are additional to any that would occur in the absence of the proposed project activity	Covered in table 3
Monitoring plan	Provisions for monitoring, verification and reporting are in accordance with relevant decisions of the COP/MOP	Covered in table 5
Environmental impacts	Project participants have submitted to the designated operational entity documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts and, if those impacts are considered significant by the project participants or the host Party, have undertaken an environmental impact assessment in accordance with procedures as required by the host Party;	Covered in table 6
Comments by local stakeholders	Comments by local stakeholders have been invited, a summary of the comments received has been provided, and a report to the designated operational entity on how due account was taken of any comments has been received;	Covered in Table 7
Other requirements	The project activity conforms to all other requirements for CDM project activities in relevant decisions by the COP/MOP and the Executive Board.	Covered in Table 8

Small scale projects and AR projects have specific requirements which are covered in Table 9-11. Small scale SSC projects have special requirements which might deviate from the requirements of other CDM projects. These requirements are tested in table 9. Please note that some questions in table 9 overlap with questions in the other tables. Where the questions in table 9 contradict or overlap questions elsewhere in the checklist, the questions in table 9 shall prevail. For the validation of small scale projects, assessor is required to address the questions in table 9 first before starting with the questions in the other tables.

Further remarks on the use of this document:

text in *italic blue* is meant as guidance for the assessor

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

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

REQUIREMENT	MoV	Ref	Comment	Draft finding	Concl
1.1 The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3 and be entered into voluntarily.	DR	PDD	No Annex I country in this project.	Ok	Ok
1.2 The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	DR	PDD	No Letter of Approval by host country (Brazil) has been submitted to the validator. The letter will be issued by the DNA after they analyse the draft validation report.  The Letter of approval was issued on 20th June 2007.	Send the validation report to DNA	Ok
1.3 All Parties (listed in Section A3 of the PDD) have ratified the Kyoto protocol and are allowed to participate in CDM projects	DR	UFC CC	Yes.  Brazil: 23 August 2002	Ok	Ok
1.4 The project results in reductions of GHG emissions or increases in sequestration when compared to the baseline; and the project can be reasonably shown to be different from the baseline scenario	DR	PDD	The project activity reduces emissions of greenhouse gas (GHG) as the result of the displacement of generation from fossil-fuel thermal plants that would have otherwise been delivered to the interconnected grid.	Ok	Ok
1.5 Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days (45 days for AR projects), and the project design document and comments have been made publicly available	DR	UFC CC	PDD was publicly available: 06 July 2006 until 04 August 2006.  <a href="http://cdm.unfccc.int/Projects/Validation/DB/DBZ9F9HIOYOSTHM637WFDVN/TQM9D8O/view.html">http://cdm.unfccc.int/Projects/Validation/DB/DBZ9F9HIOYOSTHM637WFDVN/TQM9D8O/view.html</a> No comments were received.	Ok	Ok
1.6 The project has correctly completed a Project Design Document, using the current version and exactly following the guidance	DR	PDD	Yes, the first version of the PDD uses the template version 2 (PDD publicly available during 30 days). During validation assessment the project changed the template to version 3.	Ok	Ok
1.7 The project shall not make use of Official Development Assistance (ODA), nor result in the diversion of such ODA	DR	PDD	This project activity do not made use of ODA. The project was financed by BNDES.	Ok	Ok

REQUIREMENT	MoV	Ref	Comment	Draft finding	Concl
1.8 For AR projects, the host country shall have issued a communication providing a single definition of minimum tree cover, minimum land area value and minimum tree height. Has such a letter been issued and are the definitions consistently applied throughout the PDD?			N.A		
1.9 Does the project meet the additional requirements detailed in: Table 9 for SSC projects Table 10 for AR projects Table 11 for AR SSC projects			N.A		
1.10 Is the current version of the PDD complete and does it clearly reflect all the information presented during the validation assessment.	DR Site visit I	PDD	The PDD published in the UNFCCC website was prepared using version 2 of the template. During validation assessment the PDD was updated to use the current version 3 of the template.	Ok	Ok
1.11 Does the PDD use accurate and reliable information that can be verified in an objective manner?	DR Site visit	PDD	Yes. Information and references were confirmed during validation assessment.	Ok	Ok

**Table 2 Baseline methodology(ies) (Ref: PDD Section B and E and Annex 3 and AM) Normal CDM projects only**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
2.1 Does the project meet all the applicability criteria listed in the methodology	PDD ACM 0002	DR	ACM 0002 (version 6) is applicable to grid-connected renewable power generation project activities which include among other conditions "new hydro plant with small reservoir". (Installed power generation capacity divided by the surface area at full reservoir level greater than 4 W/m <sup>2</sup> ). The project has currently power density = 119W/m <sup>2</sup>	Ok	Ok
2.2 Is the project boundary consistent with the approved methodology	PDD ACM 0002	DR	Yes. It encompasses the physical, geographical site of the hydropower generation source, which is represented by the respective river basin of the project close to the power plant facility and the interconnected grid (South-	Ok	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			Southeast-Midwest interconnected subsystem of the Brazilian grid).		
2.3 Are the baseline emissions determined in accordance with the methodology described	PDD ACM 0002	DR	<p>The baseline emission factor is defined as (<math>EF_y</math>) and is calculated as a combined margin (<math>CM</math>), consisting of the combination of operating margin (<math>OM</math>) and build margin (<math>BM</math>) factors.</p> <p>The methodology mentions that the baseline emission factor is calculated considering the generation for the most recent 3 years available at the time of the PDD submission. Annex 3 of the PDD presents data for the most recent 4 years. To revised the baseline emission factor (2003-2005). CAR 7 was raised.</p> <p>The emissions factor was revised and included in the PDD version 2. CAR 7 was closed out.</p> <p>Baseline emissions factor were calculated using the annual generation (project annual electricity dispatched to the grid) times the <math>CO_2</math> average emission rate of the estimated baseline, as follows:</p> <p>(A) Monitored project power generation (MWh)      (B) Baseline emission rate factor (<math>tCO_2/MWh</math>)</p> <p><math>BE = (A) \times (B) \quad (tCO_2)</math></p> <p>The EF calculated (after CAR 7 closing out) was <math>0.262 \text{ tCO}_2e/MWh</math>.</p>	CAR 7	Ok
2.4 Are the project emissions determined in accordance with the methodology described	PDD ACM 0002	DR	<p>The version 6 of the ACM0002 requires that the PE should be calculated from the "power density".</p> <p>Verified:</p> <p>Reservoir area = <math>0,21 \text{ Km}^2</math></p>	Ok	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			Installed capacity = 25MW Power density = 119W/m <sup>2</sup> The power density is higher than 4W/m <sup>2</sup> , project emissions is not applicable according ACM0002 methodology.		
2.5 Is the leakage op the project activity determined in accordance with the methodology described	PDD ACM 0002	DR	Leakage is not applicable.	Ok	Ok
2.6 Are the emission reductions determined in accordance with the methodology described	PDD ACM 0002	DR	Yes. The emissions factor used to determine the emissions reductions was revised.	Ok	Ok

**Table 3 Additionality (Ref: PDD Section B3 and AM) Normal CDM projects only**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
3.1 Does the PDD follow all the steps required in the methodology to determine the additionality	PDD ACM 0002 Tool	DR	Step 0 of the Tool for the demonstration and assessment of additionality is not applicable, because the crediting period will not start prior registration. To include the information under sub-step 4a. CAR 1 was raised.  The information was revised in the version 2 of the PDD. CAR 1 was closed out.	CAR 1	Ok
3.2 Is the discussion on the additionality clear and have all assumptions been supported by transparent and documented evidence	ACM 0002 PDD	DR	In the discussion of additionality, the project uses a benchmark analysis. The decision to go on with the project activity in 2005 does not consider the carbon credit revenue. To revise the IRR using the data that was used by Energest in the decision to re-take the construction of São João plant. Provide copy of the EPC signed in 2002 and 2005. CAR 2 was raised. Copy of the financial study was provided. The project uses benchmark analysis as a tool to assess the	CAR 2 NIR 3	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			<p>potential generation project. The internal benchmark (Energest) for the year 2005 is 15% and the project used another value as reference, the National treasury notes (NTN-C), reference year 2005 = 16.42%. The NTN-C is an option to the project activity to invest in the Brazilian financial market which is the government bond rates. The NTN-C IRR is higher than the internal benchmark. The financial analysis demonstrates that the IRR without CDM revenue is 10.71% and with CDM revenue is 13.51% which is lower than internal benchmark or NTN-C. CAR 2 was closed out.</p> <p>Barrier analysis: To provide more information regarding why Escelsa was focused exclusively on the distribution activities due to the increasing opportunities on the energy market.</p> <p>It was verified during site visit the infrastructure barrier: the location of the project and the condition to build the generation room, to install the equipments, the tunnel (7Km) inside the rock. NIR 3 was raised.</p> <p>A barrier analysis was made to prove additionality of the project activity. The barriers presented were investment and uncertainties on the energy regulatory market, prevailing business practice, difficulties on construction. The information was provided in the revised PDD. NIR 3 was closed out.</p> <p>Escelsa was focused exclusively in energy distribution because of the</p>		



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			<p>characteristic of the Brazilian market. Most recently the market changed and it was possible to obtain concession to act as a generator. The energy prices are a barrier to the project. The government established the Thermoelectric Priority Plan. The thermal energy price is lower than hydro and this energy market is growing.</p> <p>Verified that there are other similar generation plants, but not applicable as a CDM project activity. In 2003 the EDP that owns Energest decided to consider CERs revenue for all generation activities in Brazil, and this is applicable for São João plant (MDL distribuidoras Brasil).</p> <p>Besides the financial analysis and barriers presented, the project decided to implement the São João plant.</p>		
3.3 Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	ACM 0002 PDD	DR	Yes. The alternative to the project activity is the continuation of the current (previous) situation of electricity supplied by thermal power stations. As an alternative for the group company, there is the investment in other opportunities, like the financial market.	Ok	Ok
3.4 Is it demonstrated/justified that the project activity itself is not a likely baseline scenario	PDD ACM 0002	DR	The other alternative could be the continuation of electricity supplied by thermal plants in the country or to invest in the financial market.	Verify	Ok

**Table 4 Monitoring methodology (PDD Section D and AM) Normal CDM projects only**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
4.1 Does the project meet all the applicability criteria listed in the monitoring methodology	PDD ACM 0002	DR	Yes.	Ok	Ok
4.2 Does the PDD provide for the monitoring of the baseline emissions as required in the monitoring methodology	PDD ACM 0002	DR	CAR 5 was raised: to correct table presented in section D of the PDD according to project scenario and considering that Emission Factor was calculated ex-ante. Recording frequency for items 2, 3, 4 and 10: At the validation and will be recalculated at any renewal crediting period. Some items are not applicable for this project. To revise the QC/QA according section D.2.1.3 when revised.  The PDD was revised; all item related to the EF was defined as ex-ante. CAR 5 was closed out.	CAR 5	Ok
4.3 Does the PDD provide for the monitoring of the project emissions as required in the monitoring methodology	PDD ACM 0002	DR	PE is dependent on the reservoir area and capacity installed of the plant. The project has a small reservoir area. The power density is 119W/m <sup>2</sup> (higher than 4W/m <sup>2</sup> ). PE=0.	Ok	Ok
4.4 Does the PDD provide for the monitoring of the leakage as required in the monitoring methodology	PDD ACM 0002	DR	There is no leakage.	Ok	Ok
4.5 Does the PDD provide for Quality Control (QC) and Quality Assurance (QA) Procedures as required in the monitoring methodology	PDD AM	DR	Yes. See item 4.2.	CAR 5	Ok

**Table 5 Monitoring plan (PDD Annex 4) Normal CDM projects only**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
5.1 Monitoring of Sustainable Development Indicators/ Environmental Impacts					
5.1.1 Does the monitoring plan provide the collection and archiving of relevant data	PDD	DR	The methodology	Ok	Ok

CHECKLIST QUESTION		Ref	MoV*	COMMENTS	Draft Concl	Final Concl
concerning environmental, social and economic impacts?				requires monitoring of some environmental and social programs, in order to attend the environmental license, but not specifically for the project activity.		
5.1.2	Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	PD D	DR	See item 5.1.1.	Ok	Ok
5.1.3	Will it be possible to monitor the specified sustainable development indicators?	PD D	DR	See item 5.1.1.	Ok	Ok
5.1.4	Are the sustainable development indicators in line with stated national priorities in the Host Country?	PD D	DR	The PDD presented a discussion under six items (social and environmental) of the World Commission on Dams. Recommendations checklist.	Ok	Ok
5.2 Project Management Planning						
5.2.1	Is the authority and responsibility of project management clearly described?	PD D	DR/ I	Yes. The project developer will be responsible for the management.	Ok	Ok
5.2.2	Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PD D	DR/ I	During the site visit it was verified by interview the structure described in the PDD (section B.7.2).	Ok	Ok
5.2.3	Are procedures identified for training of monitoring personnel?	PD D	DR Site visit I	São João plant will contract specialized personnel, which will be trained before hydro	Ok	Ok

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			power plant operation.		
5.2.4 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	PD D	DR Site visit I	Unintended emissions from the hydro power plant are not expected. Other potential emergencies and troubles should be covered by the operational manual (Operation and Maintenance).	Verify	Ok
5.2.5 Are procedures identified for calibration of monitoring equipment?	PD D	DR Site visit I	Verify on site. As informed during site visit, the project will prepare the Operation and Maintenance Manual. The calibration of monitoring equipment is under project responsibility.	Verify	Ok
5.2.6 Are procedures identified for maintenance of monitoring equipment and installations?	PD D	DR Site visit I	See 5.2.5. São João plant will be responsible for the calibration and maintenance of the monitoring equipment.	Verify	Ok
5.2.7 Are procedures identified for monitoring, measurements and reporting?	PD D	DR I	Verify on site. The São João project was not operational during the site visit. As informed during the site visit, the project sponsors will prepare the	Verify	Ok

CHECKLIST QUESTION		Ref	MoV*	COMMENTS	Draft Concl	Final Concl
				Operation and Maintenance Manual.  Section B.7.2 of the PDD includes information about monitoring and reporting general procedures to be implemented.		
5.2.8	Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	PD D	DR I	Verify on site.  The São João project was not operational during site visit.  See item 5.2.5.	Verif y	Ok
5.2.9	Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	PD D	DR Site visit I	Verified that the project developer is responsible for the operation, monitoring and registration and will ensure resources for the activities of monitoring. Specific procedure needs to be available before project operation and during verification assessment.	Ok	Obs erva tion 1
5.2.10	Are procedures identified for review of reported results/data?	PD D	DR I	See 5.2.9.	See 5.2. 9	Obs erva tion 1
5.2.11	Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	PD D	DR I	See 5.2.9.	See 5.2. 9	Obs erva tion 1
5.2.12	Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	PD D	DR I	See 5.2.9	See 5.2. 9	Obs erva tion 1

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
5.2.13 Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	PDD	DR	See 5.2.9	See 5.2.9	Observation 1

**Table 6 Environmental Impacts (Ref PDD Section F and relevant local legislation) Normal CDM projects only**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
6.1 Has an analysis of the environmental impacts of the project activity been sufficiently described?	PDD	DR	Yes.	Ok	Ok
6.2 Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	PDD	DR	<p>Verify EIA and other legal requirement.</p> <p>Verified that the project obtained the required installation license, to obtain this license an EIA was performed.</p> <p>The following documents were verified during the site visit:</p> <p>Attendance list of the requests described in the operation license PCH São João – LI180/2005.</p> <p>Installation license LIGCA/180/2005, 17 June 2005, issued by IEMA.</p>	Verify	Ok
6.3 Will the project create any adverse environmental effects?	PDD	DR	The environmental effects were considered by the environmental agency during the licensing process.	Verify	Ok
6.4 Are transboundary environmental impacts considered in the analysis?	PDD	DR	Transboundary environmental impact was considered in the licensing process.	Ok	Ok
6.5 Have identified environmental impacts been addressed in the project design?	PDD	DR	The project obtained the licenses required by the Brazilian environmental regulation.	Ok	Ok
6.6 Does the project comply with environmental legislation in the host country?	PDD	DR	<p>Verify licenses.</p> <p>The plant obtained the legal required environmental license (previous and installation). It will be</p>	Verify	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			required the operation license.		

**Table 7 Comments by local stakeholders (Ref PDD Section G) All CDM projects activities**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
7.1 Have relevant stakeholders been consulted?	PDD	DR	Yes, as listed in the PDD, section E and verified during the validation assessment.	Ok	Ok
7.2 Have appropriate media been used to invite comments by local stakeholders?	PDD	DR	Verify language and information used in the consultation process.  Letters sent to stakeholders were verified. They are prepared in local language.	Verify	Ok
7.3 If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	PDD	DR	To provide copy of the letters and delivery receipts sent to local stakeholders and up date the PDD with comments received.  Copy of the letters and delivery receipts were provided. CAR 6 was closed out.	CAR 6	Ok
7.4 Is a summary of the stakeholder comments received provided?	PDD	DR	Yes, one comment was received (from Public Ministry) asking for a meeting with project developer.	Verify	Ok
7.5 Has due account been taken of any stakeholder comments received?	PDD	DR	Yes, the project sent a letter to Public Ministry but no answer was received.	Verify	Ok

**Table 8 Other requirements. All CDM project activities**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
<b>8.1 Project Design Document</b>					
8.1.1 Editorial issues: does the project correctly apply the PDD template and has the document been completed without modifying/adding headings or logo, format or font.	PDD	DR	No. Section E.6 of the PDD version 1: to present the correct table, according PDD template. CAR 8 was raised.  The PDD was revised using the new template (version 3). Table was revised. CAR 8 was	CAR 8	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			closed out.		
8.1.2 Substantive issues: does the PDD address all the specific requirements under each header. If requirements are not applicable / not relevant, this must be stated and justified	PDD	DR	Yes.	Ok	Ok
<b>8.2 Technology to be employed</b>					
8.2.1 Does the project design engineering reflect current good practices?	PDD	DR	Yes.	Ok	Ok
8.2.2 Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	PDD	DR/s ite visit	Yes. The facility is a hydro power plant.	Ok	Ok
8.3 Is the project technology likely to be substituted by other or more efficient technologies within the project period?	PDD	DR/s ite visit	It is not expected.	Ok	Ok
8.2.4 Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	PDD	DR/I	It was verified during the site visit, by interviews.  Operators will be trained on the operational, monitoring and maintenance procedures before the hydropower plant starts the operation.	Verify	Ok
<b>8.3 Duration of the Project/ Crediting Period</b>					
8.3.1 Are the project's starting date and operational lifetime clearly defined and reasonable?	PDD	DR	Section C.1.1 – starting date of the project activity: 17/06/2005.  CAR 4: To correct the lifetime of the project according documents presented during validation assessment.  The lifetime was revised in version 2 of the PDD. CAR 4 was closed out.	CAR 4	Ok
8.3.2 Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two x 7 years or fixed crediting period of max. 10 years)?	PDD	DR	Renewable crediting period: first period 7 years.	Ok	Ok
8.3.3 Does the project's operational lifetime exceed the crediting period	PDD	DR	Yes.	Ok	Ok



**Table 12 Additional information to be verified by local assessors / site visit**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
Verify operation licence from ANEEL (national energy agency).	DR	DR/ site visit	Verified ANEEL licenses: ANEEL number 406, 18 October 2000.	Ok	Ok
Verify PPA (Power purchase agreement)	DR	DR/ site visit	Verified the power purchase agreement signed between Escelsa (energy buyer) and Castelo Energética SA (CESA). Escelsa and CESA are part of the EDP group.	Ok	Ok
Verify project like described in the PDD.	DR	DR/ site visit	<p>The hydro power plant São João was planned in 1999. The Engineering Procurement and Construction (EPC) plan was made, but due to economic problems faced, the project stopped before start the construction.</p> <p>After that a new EPC was made and the project started the process to obtain ANEEL license, environmental license and the power purchase agreement. During these years more financial and economic barriers were faced. In 2005 a new EPC was made and Energest (EDP group) decided to re-take the hydro power plant, at this time the costs were much higher than other EPC made.</p> <p>In 2003 the EDP group decided to consider the CER revenue in all projects. It was possible to re-take the hydro power plant as a CDM project, considering CER to make the project financial viable due to the barriers faced in the past and actually.</p> <p>Verified:</p> <p>Contract between Castelo Energética S.A and Va Tech, Engevix, Metalmec, RDJ, 30 September 2005 (contract with suppliers and</p>	Ok	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			<p>services to re-take the construction of the hydro power plant).</p> <p>Turbines: VaTech, 13509kW, serial number 2-020202 and 1-020202.</p> <p>Generators: Weg SLW 1250, 14000kVA, serial number 115095 and 115096.</p> <p>The meters will send the information directly to Escelsa (concessionary) in Vitória and the information is transferred electronically to the internal system.</p>		
Verify the reservoir area.	Site visit	DR/visit	<p>It was verified the reservoir area: 21ha.</p> <p>Verified the technical description of the hydro power plant (General description PCH São João).</p>	Ok	Ok

### A.3 Annex 3 - Findings Overview

Each Table below represents a finding from the validation assessment. The findings are numbered consecutively, approximately in the order that they have been identified.

Description of table:

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

Rows for comments and further response will be appended to the table until the Findings has been addressed to the satisfaction of the Lead Assessor.

Date: 28/08/2006

Raised by: Fabian Gonçalves

No.	Type	Issue	Ref
1	CAR	Step 0 of the Tool for the demonstration and assessment of additionality is not applicable, because the crediting period will not start prior registration. To include the information under sub-step 4a.	3.1
Date: Information on step 0 was relocated for other barrier (step c – barrier due to difficulties on construction). Information was included under sub-step 4a			
Date: 21/11/2006 – Fabian Gonçalves. [Acceptance and close out] The information was revised in the version 2 of the PDD. CAR 1 was closed out.			

Date: 28/08/2006

Raised by: Fabian Gonçalves

No.	Type	Issue	Ref
2	CAR	In the discussion of additionality, the project uses a benchmark analysis. The decision to go on with the project activity in 2005 does not consider the carbon credit revenue. To revise the IRR using the data that was used by Energest in the decision to re-take the construction of São João plant. Provide copy of the EPC signed in 2002 and 2005.	3.2
Date: Table demonstrating the importance of carbon credit revenue to the project was sent to SGS. The copy of the EPC was requested to EDP. The real data were used.			
Date: 21/11/2006 - [Acceptance and close out] Copy of the financial study was provided. The project uses benchmark analysis as a tool to assess the potential generation project. The internal benchmark (Energest) for the year 2005 is 15% and the project used another value as reference, the National treasury notes (NTN-C), reference year 2005 = 16.42%. The NTN-C is an option for the project activity to invest in the Brazilian financial market which is the government bond rates. The NTN-C IRR is higher than the internal benchmark. The financial analysis demonstrates that the IRR without CDM revenue is 10.71% and with CDM revenue is 13.51% which is lower than internal benchmark or NTN-C. CAR 2 was closed out.			

Date: 28/08/2006

Raised by: Fabian Gonçalves

No.	Type	Issue	Ref
3	NIR	Barrier analysis: To provide more information regarding why Escelsa was focused exclusively on the distribution activities due to the increasing opportunities on the energy market. It was verified during site visit the infrastructure barrier: the location of the project and the condition to build the generation room, to install the equipments, the	3.2

		tunnel (7Km) inside the rock.	
Date: It was provided more information. The barrier due to difficulties on construction was added			
Date: 21/11/2006 – Fabian Gonçalves. [Acceptance and close out] A barrier analysis was made to prove additionality of the project activity. The barriers presented were investment and uncertainties on the energy regulatory market, prevailing business practice, difficulties on construction. The information was provided in the revised PDD. NIR 3 was closed out.			

Date: 28/08/2006

Raised by: Fabian Gonçalves

No.	Type	Issue	Ref
4	CAR	To correct the lifetime of the project activity.	8.3.1
Date: The lifetime was corrected.			
Date: 21/11/2006 – Fabian Gonçalves. [Acceptance and close out] The lifetime was revised. CAR 4 was closed out.			

Date: 28/08/2006

Raised by: Fabian Gonçalves

No.	Type	Issue	Ref
5	CAR	To correct table presented in section D of the PDD according to project scenario and considering that Emission Factor was calculated ex-ante. Recording frequency for items 2, 3, 4 and 10: At the validation and will be recalculated at any renewal crediting period. Some items are not applicable for this project. To revise the QC/QA according section D.2.1.3 when revised.	4.2, 4.5
Date: The table was adapted to the new template of the PDD. The QC/QA was reconsidered.			
Date: 21/11/2006 – Fabian Gonçalves. [Acceptance and close out] The PDD was revised; all item related to the EF was defined as ex-ante. CAR 5 was closed out.			

Date: 28/08/2006

Raised by: Fabian Gonçalves

No.	Type	Issue	Ref
6	CAR	To provide copy of the letters and delivery receipts sent to local stakeholders and up dated the PDD with comments received.	7.3
Date: These documents were sent to SGS.			
Date: 21/11/2006 – Fabian Gonçalves. [Acceptance and close out] Copy of the letters and delivery receipts were provided. CAR 6 was closed out.			

Date: 28/08/2006

Raised by: Fabian Gonçalves

No.	Type	Issue	Ref
7	CAR	The methodology mentions that the baseline emission factor is calculated considering the generation for the most recent 3 years available at the time of the PDD submission. Annex 3 of the PDD presents data for the most recent 4 years. To revised the baseline emission factor (2003-2005).	2.3
Date: Data from 2002 was excluded. Annex 3 presented data for the most recent 4 years, but only the most recent 3 years data were used to calculate the baseline emission factor.			
Date: 21/11/2006 – Fabian Gonçalves. [Acceptance and close out] The baseline emissions factor were calculated using the most recent 3 years data available, copy of the EF worksheet was provided and the PDD was revised. CAR 7 was closed out.			

Date: 29/08/2006

Raised by: Fabian Gonçalves

No.	Type	Issue	Ref
8	CAR	Section E.6 of the PDD version 1: to present the correct table, according PDD template.	8.1.1
Date: The table according to the new template was provided.			

Date: 21/11/2006 – Fabian Gonçalves.

[Acceptance and close out] The PDD was revised using the new template (version 3). Table was revised.  
CAR 8 was closed out.

Observations:

- 1- Specific procedure needs to be available before project operation and during verification assessment (procedures for monitoring data adjustments, review of reported data/ results, internal audit, review data before verification assessment, corrective action).

## A.4 Annex 4 – Validation Team Members Statement of Competency

### Statement of Competence

Name: Fabian Goncalves

SGS Affiliate: SGS Brazil

#### Status

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

#### Validation

#### Verification

- |                         |                                     |                                     |
|-------------------------|-------------------------------------|-------------------------------------|
| - Local Assessor        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| - Lead Assessor         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| - Assessor              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| / Trainee Lead Assessor |                                     |                                     |

#### Scopes of Expertise

- |  |                                     |
|--|-------------------------------------|
| 1. Energy Industries (renewable / non-renewable)   | <input checked="" type="checkbox"/> |
| 2. Energy Distribution   | <input type="checkbox"/>            |
| 3. Energy Demand   | <input type="checkbox"/>            |
| 4. Manufacturing   | <input checked="" type="checkbox"/> |
| 5. Chemical Industry   | <input type="checkbox"/>            |
| 6. Construction  | <input type="checkbox"/>            |
| 7. Transport   | <input type="checkbox"/>            |
| 8. Mining/Mineral Production   | <input type="checkbox"/>            |
| 9. Metal Production  | <input type="checkbox"/>            |
| 10. Fugitive Emissions from Fuels (solid,oil and gas)  | <input type="checkbox"/>            |
| 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride | <input type="checkbox"/>            |
| 12. Solvent Use  | <input type="checkbox"/>            |
| 13. Waste Handling and Disposal  | <input checked="" type="checkbox"/> |
| 14. Afforestation and Reforestation  | <input type="checkbox"/>            |
| 15. Agriculture  | <input type="checkbox"/>            |

Approved Member of Staff by: Siddharth Yadav

Date: 18/10/2007

## Statement of Competence

Name: Geisa Principe

SGS Affiliate: SGS Brazil

### Status

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

### Validation

### Verification

- |                         |                                     |                                     |
|-------------------------|-------------------------------------|-------------------------------------|
| - Local Assessor        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| - Lead Assessor         | <input type="checkbox"/>            | <input type="checkbox"/>            |
| - Assessor              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| / Trainee Lead Assessor |                                     |                                     |

### Scopes of Expertise

- |  |                                     |
|--|-------------------------------------|
| 1. Energy Industries (renewable / non-renewable)   | <input checked="" type="checkbox"/> |
| 2. Energy Distribution   | <input type="checkbox"/>            |
| 3. Energy Demand   | <input type="checkbox"/>            |
| 4. Manufacturing   | <input type="checkbox"/>            |
| 5. Chemical Industry   | <input type="checkbox"/>            |
| 6. Construction  | <input type="checkbox"/>            |
| 7. Transport   | <input type="checkbox"/>            |
| 8. Mining/Mineral Production   | <input type="checkbox"/>            |
| 9. Metal Production  | <input type="checkbox"/>            |
| 10. Fugitive Emissions from Fuels (solid,oil and gas)  | <input type="checkbox"/>            |
| 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride | <input type="checkbox"/>            |
| 12. Solvent Use  | <input type="checkbox"/>            |
| 13. Waste Handling and Disposal  | <input type="checkbox"/>            |
| 14. Afforestation and Reforestation  | <input type="checkbox"/>            |
| 15. Agriculture  | <input type="checkbox"/>            |

Approved Member of Staff by: Siddharth Yadav

Date: 22/08/2007

## Statement of Competence

Name: Aurea Nardelli

SGS Affiliate: Brazil

### Status

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

### Validation

### Verification

- Local Assessor ☒
- Lead Assessor ☒
- Assessor ☒
- / Trainee Lead Assessor

### Scopes of Expertise

- |  |                                     |
|--|-------------------------------------|
| 1. Energy Industries (renewable / non-renewable)   | <input checked="" type="checkbox"/> |
| 2. Energy Distribution   | <input type="checkbox"/>            |
| 3. Energy Demand   | <input type="checkbox"/>            |
| 4. Manufacturing   | <input checked="" type="checkbox"/> |
| 5. Chemical Industry   | <input type="checkbox"/>            |
| 6. Construction  | <input type="checkbox"/>            |
| 7. Transport   | <input type="checkbox"/>            |
| 8. Mining/Mineral Production   | <input type="checkbox"/>            |
| 9. Metal Production  | <input type="checkbox"/>            |
| 10. Fugitive Emissions from Fuels (solid, oil and gas)   | <input type="checkbox"/>            |
| 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride | <input type="checkbox"/>            |
| 12. Solvent Use  | <input type="checkbox"/>            |
| 13. Waste Handling and Disposal  | <input checked="" type="checkbox"/> |
| 14. Afforestation and Reforestation  | <input checked="" type="checkbox"/> |
| 15. Agriculture  | <input type="checkbox"/>            |

Approved Member of Staff by: Marco van der Linden Date: 16-03-2007

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