VALIDATION REPORT

SPE SALTO GOES ENERGIA S/A

ELECTRICITY GENERATION FROM RENEWABLE SOURCES – SALTO GÓES SMALL HYDRO POWER PLANT

Report No: 8351 – 11/488

Date: 2012-03-09

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Validation Report:	***Report No.***	***Rev. No.***	***Date of 1st issue:***	***Date of this rev.***
	8351 – 11/488	0	2012-03-09	-
Project:	***Title:***		***Initial PDD Version:***	***Final PDD Version***
	Electricity generation from renewable sources – Salto Góes Small Hydro Power Plant		2011-08-24 – v. 01	2011-11-25 – v. 03
Client:	SPE Salto Goes Energia S/A		***Client ref:***	Mr. Tarcísio Borin Junior
Project Participant(s):	***Host Party:***		***Other involved parties:***	
	Brazil		-	
Applied methodology/ies:	***Title:***		***No.:***	***Scope / TA:***
	Consolidated baseline methodology for grid-connected electricity generation from renewable sources		ACM0002 – ver. 12.1.0	01 / 1.2
Validation team / Technical Review and Final Approval	***Validation Team:***		***Technical review:***	***Final approval:***
	Ricardo Lopes Sergio Cruz Gilberto Andrade		Emilio Martin	Martin Saalmann
Expected Emission reductions: [tCO_2e]	***Expected emission reductions over the first crediting period:***		***Expected starting date of the crediting period:***	
	210,658 tCO_2e		2013-01-01	
Confidential content:	☐ Yes		☒ No	
Summary of Validation Opinion:	☒ Positive validation opinion		☐ Negative validation opinion	

In detail the conclusions can be summarized as follows:

☒ The project is in line with all relevant host country criteria (Brazil) and all relevant UNFCCC requirements for CDM. At the time of the completion of the validation, the LoA is pending. For the Brazilian DNA, a positive validation opinion is a prerequisite for the host government approval and thus the LoA could not be considered at the present validation stage.

☒ The project additionality is sufficiently justified in the PDD.

☒ The monitoring plan is transparent and adequate.

☒ The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 210,658 tCO_2e are most likely to be achieved within the (1st renewable) crediting period.

☒ The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

Document information:	*Filename:*	*No. of pages:*
	2012-03-09_FValRep_Salto_Goes_for LoA application.doc	127

Abbreviations

ANEEL	National Electric Energy Agency
BAU	Business as usual
BM	Build Margin
BNDES	National Bank for Social Economic Development
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CCEE	Chamber of Commerce of Electric Energy
CDM	Clean Development Mechanism
CELESC	Company of Electricity Distribution of the State of Santa Catarina
CER	Certified Emission Reduction
CL	Clarification Request
CM	Combined Margin
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CONAMA	National Environmental Council
CP	Certification Program
DNA	Designated National Authority
EB	CDM Executive Board
EIA	Environmental Impact Assessment
ELETROBRÁS	National Electric Utility Company (State Owned)
EPE	Energetic Research Enterprise (National Energy Balance)
FAR	Forward Action Request
FATMA	Foundation of the Environment of the State of Santa Catarina
GHG	Greenhouse gas(es)
GT	Glossary of Terms
IEE	Electric Power Index
IPCC	Intergovernmental Panel on Climate Change
OM	Operating Margin
ONS	National Operator of the Electric System
OSV	On-site visit
PDD	Project Design Document
PPA	Power Purchase Agreement
QA/QC	Quality assurance/Quality control
RAS	Simplified Environmental Report
SIN	National Interconnected System
TFSEE	Tariff of Electric Energy Services Inspection
TUST	Tariff of the Use of the Transmission System
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

Table of Contents *Page*

1 OBJECTIVE / SCOPE

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

- the requirements of Article 12 of the Kyoto Protocol;
- the CDM modalities and procedures as agreed in the Marrakech Accords under decision 3/CMP.1
- the annex to the decision;
- subsequent decisions made by COP/MOP & CDM Executive Board and
- other relevant rules, including the host country legislation and sustainability 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 on the quality of the project and its intended generation of certified emission reductions (CERs).

The validation scope is given as a thorough independent and objective assessment of the project design including especially: the correct application of the methodology, the project's baseline study, additionality justification, local stakeholder commenting process, environmental impacts and monitoring plan, which are included in the PDD and other relevant supporting documents, to ensure that the proposed CDM project activity meets all relevant and applicable CDM criteria.

The information included in the PDD and the supporting documents were reviewed against the requirements as set out by the UNFCCC. The validation team has, based on the requirements in the Validation and Verification Manual[/VVM/], carried out a full assessment of all evidences to assess the compliance of the project with the key areas as outlined in section V.E. and V.F. of the VVM (version 01.2, EB 55).

The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions. TÜV NORD JI/CDM CP cannot be held liable by any entity for making its validation opinion based on any false or misleading information supplied to it during the course of validation.

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

2 GHG PROJECT DESCRIPTION

2.1 Project Characteristics

Essential data of the project is presented in the following Table 2-1.

Table 2-1: Project Characteristics

Item	Data		
Project title	Electricity generation from renewable sources – Salto Góes Small Hydro Power Plant		
Project size	☒ Large Scale ☐ Small Scale		
Project Scope *(according to UNFCCC sectoral scope numbers for CDM)*	☒	1	Energy Industries (renewable- /non-renewable sources)
	☐	2	Energy distribution
	☐	3	Energy demand
	☐	4	Manufacturing industries
	☐	5	Chemical industry
	☐	6	Construction
	☐	7	Transport
	☐	8	Mining/Mineral production
	☐	9	Metal production
	☐	10	Fugitive emissions from fuels (solid, oil and gas)
	☐	11	Fugitive emissions from production and consumption of halocarbons and hexafluoride
	☐	12	Solvents use
	☐	13	Waste handling and disposal
	☐	14	Afforestation and Reforestation
	☐	15	Agriculture
Applied Methodology	*ACM0002 – Consolidated baseline methodology for grid-connected electricity generation from renewable sources – v. 12.1.0*		
Technical Area(s)	1.2: Energy generation from renewable energy sources		
Crediting period	☒ Renewable Crediting Period (7 y) ☐ Fixed Crediting Period (10 y)		
Start of crediting period	2013-01-01		

2.2 Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-2).

Table 2-2: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	Brazil	SPE Salto Goes Energia S/A
		WayCarbon Soluções Ambientais e Projetos de Carbono LTDA.

2.3 Project Location

The details of the project location are given in table 2-3:

Table 2-3: Project Location

No.	Project Location
Host Country	Brazil
Region	State of Santa Catarina
Project location address	City of Tangará
Latitude:	27º 06’ 13’’ S
Longitude:	51º 16’ 56’’ W

2.4 Technical Project Description

The technical key data are provided in table 2-4 below

Table 2-4: Technical data of the project activity

Parameter	Unit	Value
Installed capacity	MW	20
Energy delivered	MWh/y	97,236
Plant load factor		0.555
Turbine		
Type		Kaplan – horizontal axis
Number		2
Nominal power per unit	MW	10.311
Nominal rotation	rpm	327.27
Nominal flow per unit	m³/s	41.96
Generator		
Type		Synchronous, three-phase
Number		2
Nominal power per unit	MVA	11.110
Nominal voltage	kV	13.8
Power factor		0.9
Reservoir		
Area	m²	200,000
Power Density	W/m²	100

3 METHODOLOGY AND VALIDATION SEQUENCE

3.1 Validation Steps

The validation of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the project design document (PDD)
- Desk review of the PDD and supporting documents
- Validation planning
- On-Site assessment
- Background investigation and follow-up interviews with personnel of the project developer and its contractors
- Draft validation reporting
- Resolution of corrective actions (if any)
- Final validation reporting
- Technical review
- Final approval of the validation

The sequence of the validation is given in the table 3.1 below:

Table 3.1: Validation sequence

Topic	Time
Assignment of validation	2011-07-07
Submission of PDD for global stakeholder commenting process	2011-09-14
On site-visit	2011-09-19 to 21
Draft reporting finalized	2011-09-21
Final reporting finalized	2012-01-23
Technical review on final reporting finalized	2012-03-08
Final report with minor corrections as a result of the Technical Review finalized	2012-03-09

3.2 Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the validation can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

3.3 Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a validation team, consisting of one team leader and 2 additional team members, as well as the Technical Review personnel were appointed.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-2 below.

Table 3-2: Involved Personnel

	Name	Company	Function [1]	Qualification Status [2]	Scheme competence [3]	Technical competence [4]	Host country Competence	Team Leading competence	On-site Visit
☒ Mr. ☐ Ms.	Ricardo Lopes	BRTÜV, Sao Paulo	TL	LA	☒	1.2	☒	☒	☒
☒ Mr. ☐ Ms.	Gilberto Andrade	BRTÜV, Sao Paulo	TM	A	☒	1.2	☒	☐	☒
☐ Mr. ☐ Ms.	Sergio Cruz	BRTÜV, Sao Paulo	TM	A	☒		☒	☐	☒
☒ Mr. ☐ Ms.	Martin Emilio	TÜV NORD, Germany	TR[B)]	LA	☒	1.2	☐	☒	☐
☒ Mr. ☐ Ms.	Martin Saalmann	TÜV NORD, Germany	FA[B)]	SA	☒	-	☐	☒	☐

[1] TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR, FA: Final approval

[2] GHG Auditor Status: A: Assessor; E: Expert; SA: Senior Assessor; T: Trainee; TE: Technical Expert

[3] No team member

[4] As per S01-MU03 or S01-VA070 A2 (such as A, B, C.....)

All team members contributed to the review of documents, the assessment of the project activity and to the preparation of this report under the leadership of the team leader.

Technical Experts contributed to the assessment of special aspects of the project activity, e.g. technical or host country aspects.

Statements of competence for the above mentioned team members are enclosed in annex 6 of this report.

3.4 Consideration of Public Stakeholder Comments

Acc. to the modalities and procedures the draft PDD, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the validation activity commenced. Stakeholders have been invited to comment on the PDD within the 30 days public commenting period.

In case comments are received, they are taken into account during the validation process. The comments and the discussion of the same are documented in annex 5 of this report.

3.5 Validation Protocol

In order to ensure consideration of all relevant assessment criteria, a validation protocol is used. The protocol shows, in a transparent manner, criteria and requirements, means of validation and the results from pre-validating the identified criteria. The validation protocol reflects the generic CDM requirements each CDM project has to meet as well as project specific issues as applicable. The validation protocol serves the following purposes:

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

The validation protocol is described in Figure 1.

Validation Protocol Table A-1: Requirement checklist				
Checklist Item	***Validation Team Comment***	***Reference***	***Draft Conclusion***	***Final Conclusion***
The checklist items in Table A-1 are linked to the various requirements the project should meet. The checklist is organized in various sections. Each section is then further sub-divided as per the requirements of the topic and the individual project activity.	*The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the validation team and how the assessment was carried out. The reporting requirements of the VVM shall be covered in this section.*	*Gives reference to the information source on which the assessment is based on*	*Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft validation stage.*	*In case a corrective action or a clarification the final assessment at the final validation stage is given.*

Figure 1: Validation protocol table

The completed validation protocol is enclosed in Annex 1 to this report.

3.6 Review of Documents

The published PDD (version 1) and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

3.7 Follow-up Interviews

The validation team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for CDM.

During validation the validation team has performed interviews to confirm selected information and to resolve issues identified in the document review. The main topics of the interviews are summarized in table 3-3.

Table 3-3: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
Project proponent representatives Project consultant	- Chronological description of the project activity with documents of key steps of the implementation. - Current status of plant design

Interviewed Persons / Entities	Interview topics
	- Technical details of the project realization, project feasibility, designing, operational life time, monitoring of the project - Host Government Approval - Approval procedures and status - Monitoring and measurement equipment and system. - Financial aspects - Crediting period - Project activity starting date - CER allocation / ownership - Baseline study assumptions - Additionality - Sustainable development issues - Monitoring - Analysis of local stakeholder consultation - Roles & responsibilities of the project participants w.r.t. project management, monitoring and reporting - National Legislation - Editorial issues of the PDD

A comprehensive list of all interviewed persons is part of section 7 ‘References’.

3.8 Project comparison

The validation team has compared the proposed CDM project activity with similar projects or technology that have similar or comparable characteristics and with similar projects in the host country in order to achieve additional information esp. regarding:

- Project technology
- Additionality issues
- Reasons for reviews, requests for reviews and rejections within the CDM registration process.

3.9 Resolution of Clarification and Corrective Action Requests

3.9.1 Definition

A **Corrective Action Request (CAR)** will be established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered by the UNFCCC or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

3.9.2 Draft Validation

After reviewing all relevant documents and taken all other relevant information into account, the validation team issues all findings in the course of a draft validation report and hands this report over to the project proponent in order to respond on the issues raised and to revise the project documentation accordingly.

3.9.3 Final Validation

The final validation starts after issuance of the proposed corrective action (CA) of the CARs CLs and FARs by the project proponent. The project proponent has to reply on those and the requests are “closed out” by the validation team in case the response is assessed as sufficient. In case of raised FARs the project proponent has to respond on this, identifying the necessary actions to ensure that the topics raised in this finding are likely to be resolved at the latest during the first verification. The validation team has to assess whether the proposed action is adequate or not.

In case the findings from CARs and CLs cannot be resolved by the project proponent or the proposed action related to the FARs raised cannot be assessed as adequate, no positive validation opinion can be issued by the validation team.

The CAR(s) / CL(s) / FAR(s) are documented in chapter 4.

3.10 Technical review

Before submission of the final validation report a technical review of the whole validation procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the validation team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.11 Final approval

After successful technical review of the final report an overall (esp. procedural) assessment of the complete validation will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

Only after this step the request for registration can be started (in case of a positive validation opinion).

4 VALIDATION FINDINGS

In the following table the findings from the desk review of the published PDD, visits, interviews and supporting documents are summarized:

Table 4-1: Summary of CARs, CLs and FARs issued

Validation topic [1)]	No. of CAR	No. of CL	No. of FAR
General description of project activity (A) - Project specification - Technical project description - Participation - Contribution to sustainable development - PDD editorial aspects - Technology to be employed	-	-	-
Project Baseline, Additionality and Monitoring Plan (B) - Application of the Methodology - Project Boundary - Baseline identification - Calculation of GHG emission reductions Project emissions Baseline emissions Leakage - Additionality determination - Monitoring Methodology - Monitoring Plan - Project management planning	-	12	-
Duration of the Project / Crediting Period (C)	-	-	-
Environmental impacts (D)	-	-	1
Stakeholder Comments (E)	-	-	-
SUM	**-**	**12**	**1**

[1)] The letters in brackets refer to the validation protocol

Table 4-1.2: PDD version available at each assessment round

Version No.	Assessment Round
PDD version 01 (published)	Findings raised in Draft Report
PDD version 02	DOE Assessment #1
PDD version 03	DOE Assessment #2
PDD version 04 (final)	DOE Assessment #3

The following tables include all raised CARs, CLs and FARs. For an in depth evaluation of all validation items it should be referred to the validation protocols (see Annex 1).

The findings of validation process are summarized in the tables below:

Finding	CL B1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	In Section B.2, not all applicability conditions of the methodology and the outcome of each step have been discussed.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	All the applicability conditions required by the methodology ACM0002 have been discussed in the new version of the Project Design Document.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	All the applicability conditions required by the applied methodology (ACM0002) have been included and assessed. **CL is closed**		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding	CL B2		
Classification	☐ CAR	☒ CL	☐ FAR

Finding	CL B2
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	In the beginning of section B.5, a timeline with all relevant milestones to demonstrate the serious consideration of CDM in the decision making is missing as requested by the Guidelines for Completing the PDD.
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The relevant milestones to demonstrate the serious consideration of the CDM in the decision-making were included in the section B.5 of the PDD. Please find attached the file "PDD ERSA PCH Salto Góes v.02".
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	A statement and a detailed timeline with all relevant milestones to demonstrate the serious consideration of CDM in the decision making was included in section B.5. **CL is closed**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	CL B3		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	In section B.5, the outcome of each step has not been included as per the Guidelines for Completing the PDD.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The outcome of each step was included in the Project Design Document. Due to corrections provided, a new version was sent to DOE.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The outcome of each step of the assessment and demonstration of the additionality has been included at the end of the respective step. **CL is closed**		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding	CL B4		
Classification	☐ CAR	☒ CL	☐ FAR

Finding	CL B4
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	In the financial model spreadsheet: 1. there is unnecessary information in the IRR calculation; 2. tabs are difficult to follow and understand; 3. precise reference for the source of all input data is missing; 4. not all assumptions are clearly indicated; 5. some input data is presented in formulas; 6. not everything is in English.
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The financial model was restructured in order to simplify the financial analysis. Please refer to the excel spreadsheet: "Modelo ERSA Simple - Salto Goes_v1.xls". The financial model spreadsheet structured by ERSA is based on international accountability standards, and applies calculation of financial statements, such as income statements, balance sheet and cash flow. The assumptions are clearly indicated in the sheet "Assumptions", so for each input data the project participants have presented to DOE the evidence or rationale applied.
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The whole financial analysis has been revised and simplified. There are references for all input data which are not presented in formulas. An assessment of all financial indicators can be found in the Annex of this report. Nevertheless, an explanation about the "Assumed profit tax regime" and its application to the project activity is missing. **<u>CL remains open</u>**
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The application of Salto Goes SHP under the presumed profit tax regime is a conservative assumption for the investment analysis under the CDM point of view, since it uses a less onerous rule to the entrepreneur throughout the period of analysis project. In Brazil, the income tax paid by companies under the

Finding	CL B4
	presumed profit tax regime is much smaller than when paid in the "real profit" tax regime. If it were made in calculating the income tax based on "real profit regime" from the year in which gross sales exceed R$ 48 million, the return to shareholders would be lower. An important factor that has motivated the project participants continuing applying of the method of presumed tax regime is that the Brazilian economy has shown consistent growth year after year and this fact brings with it consequences as inflation. To maintain the competitiveness of the Brazilian private sector, the Government will certainly carry out reviews on the determinations issued by the Secretariat of the Federal Revenue of Brazil (on aliquots and conditions for determination of Income Tax regime under the "presumed profit regime") in the coming years so that at least the R $ 48 million are adjusted by the accumulated inflation in a given period, i.e., keeping the limit of R$ 48 million may not be adequate to Brazilian reality in the future. Therefore, the investment analysis performed by the proposed CDM project activity is conservative, because even if the Brazilian government to keep the limit of R$48 million for the application under the presumed profit tax regime, the additionality of the project remain robust and appropriate since the payment of income tax under the "real profit regime" is much higher than the payment under the presumed profit tax regime.' Whereas the company took the assumption that will fit in the regime of taxation of income tax by presumed profit regime, the calculation of depreciation is not considered for purposes of calculating income tax. Depreciation would only apply if the tax regime in which the company is framed by Real Income/profit. Therefore, depreciation is not used in calculating the income tax. However, for purposes of calculating the cash flow available for the project and the shareholder (this being chosen indicator in the analysis of additionality), depreciation shall be calculated and was presented in the financial spreadsheet. In addition, the income tax in Brazil is based on a compounded rate. For companies with Earnings below R$240,000.00 per year, the Income Tax is 15% over the amount. For those companies who have the Earnings above R$240,000.00 per year, the income tax is applied in the following manner: 15% of income tax over R$240,000.00 and

Finding	CL B4
	15% plus 10% (totalizing 25%) for the exceeding value. The rate of income tax is available in the website from the Secretariat of the Federal Revenue of Brazil, and such tax is applied for all companies legally established determines in the country.
DOE Assessment #3 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	A general explanation about how and the conditions of the application of the assumed profit regime have been given in the PDD. Moreover, the way depreciation and income tax are applied has also been explained. By the requirements of the Brazilian fiscal legislation, it was demonstrated that the project activity fits the conditions and the financial analysis is correctly demonstrated. **CL is closed**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	CL B5		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	As verified during the site visit, the project activity received the approval for its qualification for the REIDI benefit on October 2010. Such benefit consists of waiving the taxes PIS and COFINS (calculated over sales) from part of the investment costs, i.e. when they are included in the sales invoices of the suppliers, they can be deducted so that the supplier will not have to collect them. So, it is clear that by the time of the management decision, there was already the expectancy for this benefit. Nevertheless, there is no explanation why the REIDI benefit was not applied in the financial analysis.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	By the time of investment decision, the project proponents has considered that they would participate in the program from the federal Government program called REIDI (Regime Especial de Incentivos para o Desenvolvimento da		

Finding	CL B5
	Infraestrutura), which provides benefit for infrastructure projects and consists of waiving taxes PIS and COFINS from part of the investment costs. In this way, the main components of the Capex (based on commercial proposals for Civil construction, Excavation Tunnel and Equipment's suppliers, respectively from the Companies "Seta Engenharia", "Pedra Branca" and "Weg"), have considered the benefit from the REIDI, and presented their proposals discounting such taxes. So, it was considered by the time of investment decision even taking into account that the SPE Salto Góes Energia S.A was not qualified on that time (just on October 2010), instead investment decision took on August 26th, 2010). Therefore, the project participants took the possible measures by the time of investment decision in order to achieve benefits from REIDI. Documents reference: - Commercial Proposal from "Weg": "WEG - Proposta Gerador"; - Commercial Proposal from "Seta Engenharia": "SETA - Proposta Obras Civis_anexo" and "SETA - Proposta Obras Civis"; - Commercial Proposal from "Pedra Branca - Proposta Obras Civis".
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	Give the legal reference about how the benefit of REIDI is applied, as theoretically, the benefits are over the final price of an object that will be restored to the buyer with no supplier's action. **CL remains open**
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	REIDI is regime of tax relief from the federal government that was created by the Law 11488 of June 15th, 2007 ((http://www.receita.fazenda.gov.br/legislacao/Leis/2007/lei11488.htm). According to § 1, Article 3, in the invoices relating to sales it must include the expression "Sale with a suspension of enforceability of the Contribution PIS/Pasep and COFINS, with the specification of the legal provision.

Finding	CL B5
	Furthermore, in accordance with § 2 of the article, the tax suspensions are converted into rate 0 (zero) after use or incorporation of the good or material in the work of building infrastructure. Thus, according to the law establishing REIDI, the supplier of equipment of services to an infrastructure project will issue the invoice with the prices without taxes covered by application of the exemption program. In the same way, the main suppliers of Salto Góes SHP already issued their commercial proposals with values that did not take in to account PIS/COFINS. For example, in the commercial proposal of civil construction from Seta Engenharia, page 4, item "J": the values of PIS and COFINS are not included, it has considered the application of the plant in the Special Regime with Incentives for the Development of Infrastructure (REIDI). Note: the commercial proposals here referred are those presented to the CapEx composition in the financial spreadsheet of the date of investment decision.
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	A clear explanation about the way how the REIDI benefits are applied is given and evidenced by the PP. Therefore, it is deemed correct the approach used by the PP at the financial analysis which reflects the application of REIDI benefits **CL is closed**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	CL B6		
Classification	☐ CAR	☒ CL	☐ FAR

Finding	CL B6
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	In section B.5, Benchmark and CAPM: a. identification and reference of all the input data used for the calculations are missing; b. the results are not stated; c. there is an inconsistency about the value of benchmark, with two different figures presented.
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	In the section B.5 of the PDD version 2, a summary of input data, results and references of evidences were provided in order o clearly reference the data used and steps performed in the application of CAPM methodology, as preconizes the study "COST OF CAPITAL TO SMALL HYDROELETRIC POWER PLANTS (SHPPs) IN THE CLEAN DEVELOPMENT MECHANISM CONTEXT" elaborated and published by Instituto Superior de Administração e Economia – ISAE (in free translation: Superior Institute of Administration and Economy) from Fundação Getúlio Vargas – FGV. Please refer to the file: "PDD ERSA PCH Salto Góes v.02",
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	a. All input data is listed, identified and referenced. The input data are public and/or from renowned and reliable sources. They are widely used for CAPM, a definition which has been used for the benchmark calculations; b. Their values are clearly stated; c. The benchmark was revised and one value corrected to 19.91%. **CL is closed**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	CL B7		
Classification	☐ CAR	☒ CL	☐ FAR

Finding	CL B7
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	In section B.5, Sensitivity Analysis, further to the breakeven point analysis, a variation of +10% or -10% of crucial parameters is required.
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	A variation of +10% or -10% of crucial parameters was included in the section B.5 – Sensitivity Analysis. Please refer to the new version of PDD.
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	A Sensitivity Analysis with a variation of +10% or -10% and a Breakeven Analysis for Electricity Tariff, Energy Generation, Capital Expenditures and Operational Expenditures was included and assessed in section B.5. **CL is closed**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	CL B8		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	In the Common Practice analysis, it was identified that two SHPPs are similar to the project activity – SHP Salto Três de Maio and SHP Engenheiro Ernesto Jorge Dreher. A discussion about the key differences between them and the proposed project is missing.		

Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The other two SHPs that the validation team would consider as similar activities to Salto Góes SHP are implemented in different states from the project activity. Engenheiro Ernesto Jorge Dreher SHP operates in the state of Rio Grande do Sul and Salto Três de Maio SHP in Pará state. The Project Participants have not found information from both SHPs. So, the necessary data/information were not accessible to conduct such analysis, perhaps due to the competitiveness of the energy sector in Brazil and the consequently confidentiality of the data/information. Otherwise it was found that the Ernesto Jorge Dreher SHP is participating of a carbon offset program on the voluntary carbon market. It can be considered an evidence that additional revenues are looked by the SHP's owner. Regarding Salto Três de Maio SHP, the company ELTAN-Eletrotécnica Tangará Ltda. was authorized to construct the plant on Jun 25th, 2002, through the Authorizative Resolution number 343 from ANEEL (Brazilian Electricity Regulatory Agency). The regulatory agency also has approved the SHP Basic Project on November 29th, 2001, through the Dispatch Number 971. Therefore, the Salto Três de Maio SHP cannot be considered a similar project to Salto Góes SHP. Online evidences for the Authorizative Resolution and the Basic Project Approval are below: - http://www.aneel.gov.br/cedoc/dsp2001971.pdf - http://www.aneel.gov.br/cedoc/res2002343.pdf It is clear that activities similar to the project activity are not widely observed nor commonly carried out, and hence the **project activity is not common practice in the relevant sector in the country**.

DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The two SHPPs – SHP Salto Três de Maio and SHP Engenheiro Ernesto Jorge Dreher – present differences from the Project activity, as SHP Salto Três de Maio was authorized before 2004 when the new regulations of the Brazilian Electric Sector had not happened yet, and SHP Engenheiro Ernesto Jorge Dreher is indeed a registered project of a voluntary carbon program. Therefore, they cannot be considered as similar to the project activity. Nevertheless, the capacity range to identify similar power plants under the Common Practice analysis is defined as 15 – 30 MW, which is not adequate as per the latest guidelines on Common Practice Analysis. Moreover, 15 MW as the lower range value defined as per the CDM scale threshold is not applicable, since the project activity is deemed to be compared with similar projects which are NOT CDM projects and this threshold is only defined under the CDM framework. **CL remains open**
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The Common Practice analysis was revised according to the latest guidelines.
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	Step 4 was revised and the Common Practice Analysis used as filter the capacity range according with the latest guidelines which is -/+ 50% on the installed capacity of the project activity (range from 10MW to 30MW). Even with this new approach, only two SHPPs have remained. SHP Engenheiro Ernesto Jorge Dreher has already claimed for CDM benefits, so it is not similar anymore. The remaining two are SHP Salto Três de Maio and SHP Pai Joaquim. Nevertheless, SHP Pai Joaquim is a state owned company with several financial advantages; and SHP Salto Três de Maio had its basic project and authorization for operation approved before 2004, in a different environment than the present project activity as said above. So, none of the plants can be considered as similar to the project activity.Thus, the conclusion is still the same that the project activity is not common practice. **CL is closed**

Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	**CL B9**		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	In section B.6.2, there are parameters required by ACM0002 that are missing.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The parameters GWP_{CH4}, EF_{RES}, CAP_{BL} and A_{BL} have been inserted in the section B.6.2 of the PDD. Please refer to the new version sent to DOE.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The parameters GWP_{CH4}, EF_{RES}, CAP_{BL} and A_{BL} have been included in section B.6.2 and their values have been stated. **CL is closed**		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding	**CL B10**		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The Grid Emission Factor used for the ex-ante estimation of ER is not the most recent updated figure.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Considering that now is available the updated Emission Factors published by Brazilian DNA, the PPs have calculated the Emission Reductions by using the actualized data. The results were presented in the new version of the PDD.		

Finding	CL B10
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The grid emission factor of 2010 is now used for the ex-ante estimation of ERs. All calculations have also been revised. Nevertheless, the grid emission factor is regularly monitored as it is determined ex-post. It needs to be mentioned that the update of the EF almost doubled the ER estimation as the $EF_{grid,CM,y}$ for 2010 is 0.3095 instead of 0.1632 (2009 figure). The new values are official and published by the Brazilian DNA which have been cross checked with the DNA website. **CL is closed**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	CL B11		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	In section B.7.2, the following information has not been included as required by the Guidelines for Completing the PDD: a. quantity and location of the meters that will be used for monitoring the generated electricity; b. a simplified wiring diagram indicating the delivery point, exact location of the meter(s) and tension transformation.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	A simplified wiring diagram was inserted on the new version of the Project Design Document. Please see the changes in the file: “PDD ERSA PCH Salto Góes v.02”.		

Finding	CL B11
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The statement about the Measurement for Invoicing System (SMF) at section B.7.2 clearly defines that there will be two meters (one main and one backup). A wiring diagram was included showing that the two meters will be at Tangará substation where is also the delivery point. The energy will be generated in 13.8 kV, elevated in an internal substation and transmitted and delivered in 138 kV. **CL is closed**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	CL B12		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	A description of the provisions for meeting maintenance needs in Section B.7.2, as required by the Guidelines for Completing the PDD, is missing.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The project operator (CPFL Renováveis S.A) will be responsible for the implementation of the monitoring plan, therefore, a structure required for meeting maintenance needs of metering equipment will be provided by following the rules and standards from the relevant sector organizations: ONS, ANEEL, CCEE, etc). Regarding the monitoring equipment, in order to ensure the effectiveness operation of SMF, preventive maintenance must be carried out and, when necessary, also corrective maintenance. Inspections are also conducted in order to verify the correct operation of meters. The frequency for preventive maintenance of the SMF is a maximum of two years. This schedule may be changed based on the historical occurrence observed in all plants, considering the schedule of stops. The meter that, after calibration, displays errors outside the range specified by the standard must be replaced. The Project Design Document reviewed was sent to DOE.		

Finding	CL B12
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	A statement about the implementation of the monitoring plan and structure to comply with the Brazilian national requirements was added to section B.7.2. As per the national requirements, the calibration periodicity is every two years according to ONS guidance. **CL is closed**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	FAR D1		
Classification	☐ CAR	☐ CL	☒ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The project is a greenfield project which at the moment of validation has not got the operation environmental license yet, just the installation license. The operating license issued by the environmental authority shall be requested during the first verification to ensure that the project complies with all environmental requirements of host country.		
Proposed Corrective Action #1 *This section shall be filled by the PP. It shall address the proposed corrective action in details.*	As required by the DOE, the environmental license for SHPs operation will be available to DOE at the proper time – in the beginning of SHP's operation.		
DOE Assessment #1 *The assessment of the proposed corrective action. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	Proposed action accepted.		
Conclusion *Tick the appropriate checkbox*	☒ To be checked during the first periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

5 VALIDATION ASSESSMENT SUMMARY

5.1 General Description of the Project Activity

5.1.1 Participation

LOA

At the time of the completion of this report, the LoA of the Brazilian DNA (host country) is pending. For the Brazilian DNA, a positive validation opinion is a prerequisite for the host government approval and thus the LoA cannot be considered at the present validation stage.

According to CDM requirements, at the validation stage, a party may or may not have provided its approval by the time of making the PDD public. The approval of the involved parties is required at the time of registration request.

The registration request will not be submitted before the LoA is issued by the DNA.

Project Participants

The involved party and respective PPs are:

- Brazil (host party):
    - SPE Salto Goes Energia S/A;
    - WayCarbon Soluções Ambientais e Projetos de Carbono LTDA.

The LoA can be issued only with a positive validation opinion.

5.1.2 Contribution to Sustainable Development

As stated at the PDD, the contribution to sustainable development of the project activity will be of four types:

- Local environmental sustainability:
    - the project activity uses renewable energy sources (hydro) for electricity generation contributing to a reduction of GHG emissions.
- Net workplace generation:
    - the project activity generates employment, especially during its implementation.

- Better quality of life:
    - the use of a renewable source for electricity generation decreases the dependence upon fossil fuels and associated pollution and social costs.
- Diversification of the electric mix and energetic security:
    - as the period of abundance of wind resources is coincident with the period of the shortage hydraulic availability in Brazil. So, wind based electricity generation is complementary to hydro based electricity generation contributing to the security of renewable electricity supply throughout the year and reducing the dependence upon fossil fuels sources during the dry season.
- Technological learning and development:
    - as this type of project can stimulate similar initiatives in Brazil and encourage the development of modern and more efficient renewable energy units.

The host government approval to the sustainable development will only be confirmed with the LoA issuance which can be requested only with a positive validation opinion.

5.1.3 PDD editorial Aspects

The CDM-PDD template version 3 has been correctly applied and the PDD is filled in compliance with the latest guidance.

5.1.4 Technology to be employed

The description of the project in the PDD is complete and accurate.

The proposed project activity is the implementation of a new small hydro power plant with 20 MW of installed capacity with an expected annual output of 97,236 MWh/year.

The project activity consists of two turbo-generators with horizontal axis Kaplan turbines and synchronous three-phase generators, a capacity factor of 0.555 and reservoir area of 200,000 m².

The complex will be interconnected to the Brazilian National Interconnected Grid.

The employed technology is environmentally safe and sound as well as state of the art, manufactured by a Brazilian and Latin American leading supplier, WEG.

5.1.5 Small Scale Projects

Not applicable as it is a large scale project.

5.2 Project Baseline, Additionality and Monitoring Plan

5.2.1 Application of the Methodology

The project applies the baseline and monitoring methodology ACM0002 – "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" – version 12.1.0 and methodological tools: "Tool to calculate the emission factor for an electricity system" – version 02.2.1; "Tool for demonstration and assessment of additionality" – version 05.2. They are all approved, valid and are derived from the UNFCCC CDM website.

All applicability conditions of ACM0002 version 12.1.0 are met and the project activity is in line with all requirements and stipulations mentioned in all sections of the applied methodologies.

No significant emissions are expected from the project or from leakage.

5.2.2 Project Boundary

The project boundaries (geographic and also related to GHG sources and gases) are correctly given in the PDD as described in section B.3 of the PDD. The methodology does not allow for a choice of which GHG sources / sinks are included, and there are no other sources which are impacted by the project which are not addressed by the applied methodology.

5.2.3 Baseline Identification

The description of the baseline identification in the PDD is transparent and verifiable. According to ACM0002 version 12.1.0, the baseline scenario for the implementation of a new grid-connected renewable power plant/unit (in this case wind) 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 described in the 'Tool to calculate the emission factor for an electricity system'".

5.2.4 Calculation of GHG Emission Reductions

The calculation of ERs is done as per the applied methodology. All data not to be monitored were correctly applied and values were cross-checked with public available data or supporting documents and are thus deemed precise and conservative. The values for the monitoring parameters are plausible. The estimation of emission reductions is deemed plausible and conservative.

5.2.5 Additionality Determination

Consideration of CDM in decision making (if project start before validation)

The management decision was on 2010-08-26 which was the day, when the bid price was offered establishing the acceptance of all conditions and price to operate the plant and generate energy, followed by the first major financial commitment which occurred on 2010-11-30, the date of signature of the contract of purchase of turbines and generators. The PPs representatives presented evidences with internal studies and confirmed by means of interviews that carbon credits have been considered in the calculations of the bid price.

So, the starting date of the project activity is November 30th, 2010. The evidences for this date are solid and the decision was serious and made by personnel authorized to sign the contract of purchase of the main equipment in the name of the company. So, the starting date of the project activity is after August 2nd, 2008 and the notifications to the Brazilian DNA and UNFCCC were sent within the 6 months of the project starting date as required by EB49, Annex 22.

A timeline of relevant milestones has been included at section B.5 of the PDD.

Application of methodology / methodological tools

The additionality was justified in section B.5 of the PDD in accordance with the requirements of the “Tool for the demonstration and assessment of additionality – version 05.2”, following its steps.

Alternatives

The only considered alternatives are the continuity of the current situation and the proposed project activity not undertaken as a CDM project activity.

No other alternative has been considered as a plausible one by the PPs.

Investment analysis

It was demonstrated at the investment analysis that the project activity is not the most attractive alternative for the PPs.

The latest version of the Guidelines on the Assessment of Investment Analysis (EB62 Annex 5) was applied in the assessment and the calculation approach is correct. All parameters are assessed to be plausible and were cross-checked with documental evidence or publicly available sources.

The calculation approach is correct and all assessed parameters are plausible.

The project activity fits the requirements of the Brazilian fiscal legislation to apply the Assumed Tax Regime which is a simplified form of taxation to determine the basis for calculating the income tax and social contribution.

In addition, the sensitivity analysis with a variation from -10% to +10% performed with the following items: capital expenditures, operational expenditures, electricity tariff and energy generation was done and continues to give a lower IRR than the benchmark rate.

The chosen benchmark for the Equity IRR (Required/expected return calculated by applying the methodology presented on the study "Cost of Capital to Small Hydroelectric Power Plants (SHPPs) in the Clean Development Mechanism Context" elaborated and published by *Instituto Superior de Administração e Economia – ISAE* from *Fundação Getúlio Vargas – FGV*, one of ther most respectul and recognized business school in Brazil) was deemed appropriate by the validation team.

For a detailed assessment please see check list section B.5 and Table A-3, Annex 3.

Barrier analysis

Not applicable as the barrier analysis was not chosen by the project participant.

Common practice analysis

The geographical region that was considered for the analysis is the national (Brazil) scenario which is reasonable as small hydropower plants represent 3.00% of the total amount of generated electricity in Brazil and the energy sector rules are the same for the whole country. There were 382 SHPPs in operation in Brazil on 2010-12-15. From these 382, 51 are under PROINFA program (Brazilian official program to stimulate the alternative sources of electric generation) and 82 are being developed as CDM projects. From the remaining 249 SHPPs, 231 started operation before 2004, when was launched the new electric model by the Brazilian government. From the remaining 18, 16 cannot be compared to the project activity due to the installed capacity, as they have installed not in the range of 10 MW to 30 MW (-/+50% of the installed capacity of the project activity). There were two SHPPs that could be considered similar to the project activity (SHP Salto Três de Maio and SHP Pai Joaquim). Nevertheless, SHP Pai Joaquim is a state owned company with several financial advantages; and SHP Salto Três de Maio had its basic project and authorization for operation approved before 2004, in a different environment than the present project activity as said above.

So, none of the plants can be considered as similar to the project activity.

This demonstrates that the project activity is not the common or prevailing practice.

Summary

As described in the PDD and assessed in detail in the Annexes below, the additionality demonstration is based on the investment analysis. The project activity is not the most attractive alternative as its IRR is lower than the chosen benchmark (Required/expected return calculated).

In addition, the project activity is not common practice in Brazil.

5.2.6 Monitoring Methodology

The monitoring plan in the PDD is in compliance with the applied monitoring methodology ACM0002 – version 12.1.0 and it is assessed by the validation team as adequate and feasible. For details see section B.6 of the Annex below.

5.2.7 Monitoring Plan

The monitoring plan in the PDD covers all parameters, which have to be monitored w.r.t. the project boundary, in line with the monitoring methodology ACM0002 – version 12.1.0. The monitoring arrangements were assessed by the validation team and can be implemented and are feasible within the project design. For details see section B.6 of the Annex below.

5.2.8 Project Management Planning

The project management planning is appropriate for the purpose of the project monitoring, as described in section B.7.2 of the PDD.

5.2.9 Crediting Period

The choice of the renewable seven years crediting period was unambiguously given in section C.2.2 of the PDD and the corresponding calculation spreadsheet.

The crediting period starting date is 2013-01-01, but not before project registration which is deemed appropriate.

5.2.10 Environmental Impacts

An Environmental Impact Assessment (EIA) was properly carried out, which was reviewed by the validation team.

No significant adverse impacts are envisaged for this project activity and the mitigatory measures, as stated at the PDD, will be performed in accordance with the activities asked at the final environmental license.

5.2.11 Comments by Local Stakeholders

Relevant local stakeholders have been invited to comment the project activity, as correctly described in section E of the PDD and being in line with host country's DNA rules.

No comments have been received.

6 VALIDATION OPINION

SPE Salto Goes Energia S/A has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "Electricity generation from renewable sources – Salto Góes Small Hydro Power Plant" with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board

In the course of the pre-validation, 12 Clarification Requests (CLs) were raised and successfully closed. In addition, 01 Forward Action Request (FAR) was raised and shall be checked during the first verification.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfillment of the stated criteria.

In detail the conclusions can be summarized as follows:

- The project is in line with all relevant host country criteria (Brazil) and all relevant UNFCCC requirements for CDM. At the time of the completion of the validation, the LoA is pending. For the Brazilian DNA, a positive validation opinion is a prerequisite for the host government approval and thus the LoA could not be considered at the present validation stage.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 210,658 tCO_2e are most likely to be achieved within the (1st renewable) crediting period.

The conclusions of this report show that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

São Paulo, 2012-03-09

Ricardo Lopes
TÜV NORD JI/CDM CP
Validation Team Leader

Essen, 2012-03-09

Martin Saalmann
TÜV NORD JI/CDM CP
Final Approval

7 REFERENCES

Table 7-1: Documents provided by the project participant

Reference	Document
/EIA/	Environmental Impact Assessment of SHPP Salto Góes – issued by ETS – Energia, Transporte e Saneamento LTDA. – 2007

/FD/	Financial Data – general:
	- "Study about the economic lifetime and depreciation rate" – Escola Federal de Engenharia de Itajubá – November 2000
	- Proposal of hydromechanics – Denge Engenharia e Consultoria Ltda. – 2008-02-12
	- Proposal of Engineering Services – MEK Engenharia e Consultoria Ltda. – 2008-05-26
	- Contract for Supplying Equipment between SPE Salto Góes and HISA/WEG – 2008-06-10
	  ○ First Amendment – 2009-06-29
	  ○ Second Amendment – 2010-11-30
	- Proposal of acquisition of turbines – HISA – 2010-01-26
	- Internal estimate of CAPEX – ERSA – February 2010
	- Proposal of acquisition of generators – WEG – 2010-03-05
	- Proposal of Construction – SETA Engenharia S. A. – 2010-03-11
	- Internal estimate costs of bay connection
	- Proposal of Environmental Studies – Socioambiental Consultores Associados Ltda. – 2010-05-14
	- Proposal of Construction – Pedra Branca Escavações Ltda. – 2010-07-10
	- Balance Sheet – SPE Salto Goes Energia S. A. – 2010-07-31
	- Proposals of Implementation of Environmental Programs – ETS – August 2010
	- Reports of land acquisition
	- Sample of BNDES loan contract
	- BNDES Project Financial Conditions – BNDES website
	- BNDES Project General Conditions – BNDES website
	- Proposal of Financial Support – Santander – May 2010

Reference	Document
	- Previous Consultation for the Loan of BNDES – ERSA – September 2010 - "Cost of Capital to Small Hydroelectric Power Plants (SHPPs) in the Clean Development Mechanism Context" elaborated and published by Instituto Superior de Administração e Economia from Fundação Getúlio Vargas (FGV) – November 2010 - Consolidated Financial Statements for the year ended on December 31st, 2010 – Empresa de Investimento em Energias Renováveis S. A. – ERSA - Sample of endorsement contract # 63211.2– Banco Votorantim S. A. – 2010-11-16 - Contract for Adduction Tunnel and Geological Procedures between SPE Salto Góes and Pedra Branca Escavações Ltda. – 2011-03-21 - Directives for SHPP Projects – Eletrobrás
/FDauct/	Financial Data – auction: - Auction 07/2010 Edict – ANEEL - Print Screen of CCEE website with the result of auction 07/2010 - Bid bond #059912010005107450061164000000 – UBF Seguros S.A. – 2010-08-10; - Performance Guarantee #046692010100107750000047 – Fairfax Brasil – 2010-11-22
/FDlegis/	Financial Data – legislation: - Normative Instruction SRF # 093 – Federal Revenue Bureau of Brazil – 1997-12-24 - Law # 9718 – 1998-11-27 - Normative Instruction SRF # 247 – Federal Revenue Bureau of Brazil – 2002-11-21 - Law # 10847 – 2004-03-15 - Law # 10848 – 2004-03-15 - Directive # 5163 – 2004-07-30 - Normative Resolution # 77 – TUSD Reduction – 2004-08-18 - Dispatch # 4774 – ANEEL – TFSEE – 2009-12-22 - Resolution # 856 – ANEEL – TUSD – 2009-08-04 - Directive #18 – Secretary of Energetic Planning and Development – Ministry of Mines and Energy – 2010-08-09 - Authorizative Resolution # 2510 – ANEEL – 2010-08-10

Reference	Document
/FDothers/	Financial Data – other plants (used for estimates and assumptions): - Balance Sheet – PCH Alto Irani Energia – 2009-12-31 - Balance Sheet – PCH Cocais Grande Energia – 2009-12-31 - Balance Sheet – PCH Plano Alto Energia – 2009-12-31 - O&M cost study based on PCH Alto Irani Energia, PCH Cocais Grande Energia and PCH Plano Alto Energia - Environmental Compensation Agreement – PCH Arvoredo and FATMA – 2010-03-16 - Accounting Balance – PCH Arvoredo – 2010-03-30 - Balance Sheet – SPE Arvoredo Energia S. A. – 2010-03-31 - Insurance of PCH Plano Alto Energia # 17.96.0000750.12 – ACE Seguradora S. A. – 2010-04-20 - Insurance of PCH Barra da Paciência # 03.51.0002066.000000 – Allianz Seguros S. A. – 2010-04-24
/IRR/	IRR calculation sheet
/LOA/	Letter of Approval – not yet available
/MOC/	Modalities of Communication – not yet available
/OL/	Licenses: - Previous license – LAP 41/GELUR/09 – issued by FATMA – 2009-03-13 – valid for 12 months - Installation license – LAI 038/2009 – issued by FATMA – 2009-12-21 – valid for 36 months
/PDD/	1. Project Design Document named “Electricity generation from renewable sources – Salto Góes Small Hydro Power Plant” – version 01 (2011-09-08) hosted from 2011-09-14 to 2011-10-13 2. Project Design Document named “Electricity generation from renewable sources – Salto Góes Small Hydro Power Plant” – version 02 (2011-10-03) 3. Project Design Document named “Electricity generation from renewable sources – Salto Góes Small Hydro Power Plant” – version 03 (2011-11-25) 4. Project Design Document named “Electricity generation from renewable sources – Salto Góes Small Hydro Power Plant” – version

Reference	Document
	04 (2012-02-23)
/PLF/	Plant Load Factor: Directive # 18 – Annex 2 – issued by the Ministry of Mines and Energy – 2010-08-09
/PSD/	Evidences of early consideration and project starting date: - Service Consulting contract – sample of the mission statement of ERSA – 2008-01-07 - Minute Meeting of the Board of Administration of ERSA – 2010-08-18 - Second Amendment of the Contract for Supplying Equipment between SPE Salto Góes and HISA/WEG – 2010-11-30 - Print Screen UNFCCC website confirming the communication on 2011-01-14 - Letter to DNA – Prior Consideration Form – 2011-01-14 - Confirmation of Receipt (Brazilian Post) confirming the receipt of the communication by the Brazilian DNA – 2011-01-18 - Contract between TÜV NORD CERT GmbH and SPE Salto Góes Energia S. A. for validation of this project activity, signed by PPs – 2011-07-07
/SHCP/	Stakeholder consultation process evidences: - Invitation letters - Confirmations of Receipt - Brazilian Post
/TD/	- Dispatch # 1044 – ANEEL – Approval of the Basic project - 2010-04-16 - Consolidated technical proposal – 038-10T2 – Turbine Kaplan S – HISA – December 2010 - Generators and associated equipment - 20003637-T7.1 – WEG – December 2010
/XLS/	Emissions reduction calculation spreadsheet

Table 7-2: Background investigation and assessment documents

Reference	Document
/ACM002/	ACM0002: Consolidated baseline methodology for grid-connected electricity generation from renewable sources – version 12.1.0
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/EL/	Environmental Legislation: - CONAMA's Resolution nº 279/2001 - Federal Law 380/2008
/GCP/	UNFCCC: Guidelines for completing CDM-PDD and CDM-NM
/GT/	Glossary of CDM Terms
/IPCC-GP/	IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000
/IPPC-RM/	Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual
/KP/	Kyoto Protocol (1997)
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords & Annex to decision (17/CP.7))
/MT/	Methodological Tools: - Tool to calculate the emission factor for an electricity system – version 02.2.1 - Tool for demonstration and assessment of additionality – version 05.2
/VVM/	UNFCCC Validation and Verification Manual (Version 1.2 as per EB 55)

Table 7-3: Websites used

Reference	Link	Organization
/aneel/	http://www.aneel.gov.br/	National Electric Energy Agency
/bench/	http://finance.yahoo.com/q/hp?s=%5ETYX	Yahoo Finance – USA Treasury bonds

Reference	Link	Organization
	http://www.rateinflation.com/consumer-price-index/usa-historical-cpi.php?form=usacpi	Rate Inflation – USA Historical CPI Index
	http://www.cbonds.info/all/eng/ index_detail/group_id/1/	CBonds Financial Information – Brazilian Country Risk
	http://www.ipeadata.gov.br	IPEA data – Brazilian Country Risk
	http://pages.stern.nyu.edu/~adamodar/	Damodaran on line
	http://www.abce.org.br/downloads/ingleswacc.PDF	"Cost of Capital to Small Hydroelectric Power Plants (SHPPs) in the Clean Development Mechanism Context" – FGV
/bndes/	http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt	National Bank for Social Economic Development
/ccee/	http://www.ccee.org.br/	Chamber of Electric Energy Commerce
	http://www.ccee.org.br/StaticFile/Arquivo/biblioteca_virtual/Leiloes/2_F_A/Resulta_Completo_2_LFA_Resumo_vendedor.pdf	Results of Auction 07/2010
/conama/	http://www.mma.gov.br/port/conama/	National Environmental Council
/cpfl/	http://www.cpflrenovaveis.com.br/	CPFL Renováveis
/dna/	http://www.mct.gov.br	DNA of Brazil
	http://www.mct.gov.br/index.php/content/view/74689.html	Published Emission Factor of the SIN

Reference	Link	Organization
/eletrobras/	http://www.eletrobras.com/elb/main.asp	National Electric Utility Company (State Owned)
/epe/	http://www.epe.gov.br	Energetic Research Enterprise (National Energy Balance)
/fatma/	http://www.fatma.sc.gov.br/	Foundation of the Environment of the State of Santa Catarina
/fazenda/	www.receita.fazenda.gov.br	Federal Revenue Bureau of Brazil
/hisa/	http://www.hisa.com.br/	HISA – supplier of turbines
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications
/ons/	http://www.ons.org.br/home/ http://www.ons.org.br/historico/geracao_energia.aspx	National Operator of the Electric System Historic Generation Data
/unep/	http://cdmpipeline.org/	UNEP RISO CDM Pipeline
/unfccc/	http://cdm.unfccc.int	UNFCCC
/way/	http://www.waycarbon.com/ http://www.munduscarbo.com/projetos.htm	WayCarbon
/weg/	http://www.weg.net/br	WEG – supplier of generators

Table 7-4: List of interviewed persons

Reference	MoI[1]		Name	Organization / Function
/IM01/	V	☒ Mr.	Giovanni Vinciprova	CPFL / Superintendent of

Reference	MoI[1]		Name	Organization / Function
		☐ Ms.		Sustainability
/IM01/	V	☐ Mr. ☒ Ms.	Fernanda Furlan de Gouveia	CPFL / Carbon Credits Project Coordinator
/IM01/	V	☒ Mr. ☐ Ms.	Rafael de Toledo Ribas	CPFL / Financial Analyst
/IM01/	V	☒ Mr. ☐ Ms.	Umberto E. Del Sante	CPFL / Financial Analyst
/IM01/	V	☒ Mr. ☐ Ms.	Paulo César Licks	CPFL / Environmental Coordinator
/IM01/	V	☒ Mr. ☐ Ms.	Edicarlos A. dos Santos	CPFL / Civil Engineer
/IM02/	V	☐ Mr. ☒ Ms.	Luiz Fernando Marchesi Serrano	WayCarbon / Project Manager
/IM02/	V	☒ Mr. ☐ Ms.	Carlos Edson Shiguematsu Júnior	WayCarbon / Consultant

[1] Means of Interview: (**T**elephone, **E**-Mail, **V**isit)

ANNEX

A1: Validation Protocol

A2: Assessment of Baseline Identification

A3: Assessment of Financial Parameters

A4: Assessment of Barrier analysis

A5: Outcome of the GSCP

A6: Statements of competence of all involved Personnel

ANNEX 1: VALIDATION PROTOCOL

Table A-1: Requirements Checklist

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
A. General Description of Project Activity				
A.1. Approval *The written approval of the parties involved is a mandatory requirement*				
A.1.1. Has the project provided written approvals of all parties involved? (EB 55 Annex 1, § 44) *Indicate whether a letter of approval has been received, with a clear reference to the supporting documentation.* *Indicate whether this letter was provided to the DOE by the project participants or directly by the DNA*	*Description:* Brazil is the host party. In accordance with the CDM M&P at the stage of validation a party involved may or may not have provided its approval at the time of making the PDD public. The approval of the parties involved is required at the time of requesting registration. *Justification of evidences:* For the Brazilian DNA a positive DOE opinion is necessary prior to the request of the LoA. *Conclusion:* The LoA will be requested if the project receives a positive opinion.	/dna/	OK	OK
A.1.2. Are the approvals issued from organizations listed as DNAs on the UNFCCC CDM	*See comments at A.1.1 above.*	/dna/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
website? (EB 55 Annex 1, §§ 44, 47, 48, 49 (b), 49 (c), 53) *Indicate the means of validation employed to assess the authenticity, i.e. in case of doubt whether LoA has been verified with the DNA. Further describe which entity submitted the LoA for validation.*				
A.1.3. Do the written approvals confirm that the corresponding party is a Party to the Kyoto Protocol? (EB 55 Annex 1, § 45(a))	*Description:* Brazil, the host country, has ratified the Kyoto Protocol on 23rd August 2002. The Brazilian DNA assigned for CDM is the "Interministerial Commission on Global Climate Change". *Justification of evidences:* Evidenced at UNFCCC website. *Conclusion:* The project complies with the requirement.	/unfccc/	OK	OK
A.1.4. Do the written approvals confirm that the participation is voluntary? (EB 55 Annex 1, § 45(b))	*See comments at A.1.1 above.*	/dna/	OK	OK
A.1.5. Does the written approval from the host country confirm that the project contributes to the sustainable development in the country? (EB 55 Annex 1, § 45(c))	*See comments at A.1.1 above.*	/dna/	OK	OK
A.1.6. Do the written approvals refer to the precise project title in the PDD submitted for registration or an additional specification of the	*See comments at A.1.1 above.*	/dna/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
project activity, e.g. PDD version number? (EB 55 Annex 1, §§ 45(d), 50)				
A.1.7. Are the written approvals unconditional with regard to A.1.3 to A.1.6? (EB 55 Annex 1, § 46)	*See comments at A.1.1 above.*	/dna/	OK	OK
A.1.8. Is the information regarding the project participants listed in section A3 and in Annex 1 of the PDD internally consistent to each other? (EB 55 Annex 1, § 51)	*Description:* Yes, as stated at section A.3 and in Annex 1, the project participants are: • SPE Salto Goes Energia S/A; • WayCarbon Soluções Ambientais e Projetos de Carbono LTDA. *Justification of evidences:* Both sections are consistent. *Conclusion:* The information regarding project participants is consistent.	/PDD/	OK	OK
A.1.9. Are all project participants listed in the PDD approved at least by one Party involved? (EB 55 Annex 1, § 51) *Indicate whether the participation of the project participant(s) has been approved by a Party to the Kyoto Protocol.* *Describe the means of validation employed to draw this conclusion.*	*See comments at A.1.1 above.*	/dna/	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
A.1.10. Are any other project participants approved but not listed in the PDD? (EB 55 Annex 1, § 52)	*See comments at A.1.1 above.*	/dna/	OK	OK
A.1.11. Does the DOE have a direct contractual relationship with the PP? (EB 55 Annex 1, § 51; EB 50 Annex 48, §§ 7–9) *Check whether the PPs listed in the published PDD are still listed in the PDD going to be submitted to request for registration.*	*Description:* There is a signed proposal for carrying out the validation CDM Project "Electricity generation from renewable sources – Salto Góes Small Hydro Power Plant" – # 11CDMBR070460 – between TÜV NORD CERT GmbH and SPE Salto Goes Energia S/A on 2011-07-07. *Justification of evidences:* It is a valid contract between the DOE and PP. *Conclusion:* Yes, there is a signed contract between the DOE and PP.	/PSD/	OK	OK
A.2. Contribution to Sustainable Development *The project's contribution to sustainable development is assessed.*				
A.2.1. Has the host country confirmed that the project assists it in achieving sustainable development? (EB 55 Annex 1, §§ 125–127) *Contains a statement confirming whether the letter of approval by the DNA of the host party confirmed the*	*See comments at A.1.1 above.*	/dna/	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
contribution of the project to the sustainable development of the Host Party.				
A.2.2. Will the project create other environmental or social benefits than GHG emission reductions? (EB 55 Annex 1, §§ 125–127) *Describe the other positive aspects not related to GHG emission reduction on the environment.*	*Description:* The view of the project participants on the contribution of the project activity towards sustainable development is briefly described in section A.2. Besides GHG reduction, the project will: a. produce renewable electricity from low environmental impact hydro power plant, decreasing the dependence from fossil fuel; b. increase job opportunities (especially during its implementation); c. diversify the electric generation mix which will increase the security of the electric system; and d. contribute to technological learning and development. *Justification of evidences:* The project was reviewed in detail, the site was visited by the validation team and operational and managerial staff was interviewed. *Conclusion:* The project creates other social-environmental benefits than GHG emission reductions.	/PDD/ /IM01/ /IM02/ /IM03/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
A.3. PDD editorial aspects *The PDD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website.*				
A.3.1. Has the latest version of the PDD form been applied? (EB 55 Annex 1, § 55)	*Description:* Yes, it has been used the version 3 of CDM-PDD. No deviations thereof have been observed. *Justification of evidences:* The website if the UNFCCC was checked. *Conclusion:* The latest PDD template has been used.	/unfccc/ /PDD-T/	OK	OK
A.3.2. Has the PDD been duly filled in accordance with the latest guidance(s)? (EB 55 Annex 1, §§ 56–57)	*Description:* The PDD has in general been filled in accordance with the PDD guidelines. Some revisions are necessary, so CL B1, CL B2, CL B11 and CL B3 were raised. *Justification of evidences:* The PDD has been reviewed against the Guidance for Completing the PDD. *Conclusion:* **(CL B1)** In Section B.2, not all applicability conditions of the methodology and the outcome of each step have been discussed. **(CL B2)** In the beginning of section B.5, a timeline with all	/PDD/ /unfccc/ /GCP/	~~CL B1~~ ~~CL B2~~ ~~CL B3~~ ~~CL B11~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	relevant milestones to demonstrate the serious consideration of CDM in the decision making is missing as requested by the Guidelines for Completing the PDD. **(CL B3)** In section B.5, the outcome of each step has not been included as per the Guidelines for Completing the PDD. **(CL B11)** In section B.7.2, the following information has not been included as required by the Guidelines for Completing the PDD: a. quantity and location of the meters that will be used for monitoring the generated electricity; b. a simplified wiring diagram indicating the delivery point, exact location of the meter(s) and tension transformation			
A.4. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The DOE should ensure that environmentally safe and sound technology and know-how is used.*				
A.4.1. Does the PDD contain a clear, accurate and complete project description? (EB 55 Annex 1, §§ 58–59)	*Description:* Yes, a comprehensive project description is given in sections A.2 and A.4.3 of the PDD. The project description is compatible with the type and category of the project activity	/PDD/ /aneel/	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
The PDD shall contain a clear description of the project activity which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation. *Pl. consider esp.* chapters *A.2, A.4.2 and A.4.3 (in case of LSC PDD) for assessment.* *Describe the process undertaken to validate the accuracy and completeness of the project description.* *Contain the DOE's opinion on the accuracy and completeness of the project description.*	as described in item A.4.2 of the PDD. *Justification of evidences:* For the assessment the validation team has: a) reviewed the PDD in detail; b) carried out interviews with technical and operational personnel of CPFL Renováveis and the project consultants. *Conclusion:* The PDD presents an accurate and clear and complete description of the project activity.	/IM01/ /IM02/ /TD/		
A.4.2. Is this description in accordance with the real situation or (in case of greenfield projects) is it most likely that the project will be implemented acc to the project description?	*Description:* Yes, it seems that the project will be implemented according to the project description. *Justification of evidences:* As a greenfield project, it seems that the project will be implemented according to the project description. *Conclusion:* It seems that the project will be implemented according to the project description.	/PDD/ /IM01/ /IM02/	OK	OK
A.4.3. In case the project involves alteration of the existing installation or process, is a clear description available regarding the differences between the project and the pre-project situation? (EB 55 Annex 1, §§ 63–64)	*Not applicable, since the project does not involve alteration of the existing installation or process. It is a greenfield project.*	/PDD/	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
Describe the steps taken to validate this issue.				
A.4.4. Does the project design engineering reflect current good practices? *Consider the equipment specifications, literature (e.g. EU BREF papers) and professional experiences. Describe the process undertaken to assess the engineering.*	*Description:* Yes, it is a greenfield which consists in the implementation and operation of a new SHPP which will produce electricity from renewable sources In Section A.4.2, a description of the technology is provided. The technology of the turbines and generators is provided by Brazilian leading suppliers (HISA and WEG) and the project design is environmentally safe and sound. *Justification of evidences:* The validation team could verify the information above by reviewing technical data of the turbine-generators/TD/ and the project lay-out as well as the Simplified Environmental Report/EIA/ prepared by a third party as part of the environmental licensing process. *Conclusion:* The project design reflects current good practices.	/PDD/ /IM01/ /IM02/ /TD/ /EIA/	OK	OK
A.4.5. 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? *Describe the process undertaken to assess the state of the art technology.*	*Description:* Yes, the main equipment will be provided by HISA and WEG, which are leading in Brazil of turbines and generators. *Justification of evidences:* The validation team could verify the information above by reviewing technical data of the turbines and generators/TD/ and the project lay-out and interviewing project manager of the project and representatives of CPFL. *Conclusion:* The project design uses Brazilian state of the art	/PDD/ /TD/ /IM01/ /hisa/ /weg/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	technology.			
A.4.6. Does the project make provisions for meeting training and maintenance needs? *Describe the process undertaken to assess the maintenance and training needs.*	*Description:* The training procedures are described in Section B.7.2. But, as no reference has been made about the maintenance provisions, CL B12 was raised. *Justification of evidences:* The training procedures are described in section B.7.2 of PDD and confirmed by interviews with representatives of PPs. *Conclusion:* **(CL B12)** It is missing a description of the provisions for meeting and maintenance needs in Section B.7.2, as required by the Guidelines for Completing the PDD.	/PDD/ /IM01/ /IM02/	~~CL B12~~	OK
A.5. Small scale project activity *It is assessed whether the project qualifies as small-scale CDM project activity*				
A.5.1. Does the project qualify as a small scale CDM project activity as defined in decision 4 /	*The project does not qualify as small-scale CDM project*	/PDD/	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
CMP.1 annex II? (EB 55 Annex 1, §§ 135–136 (a))	*activity.*			
A.5.2. Does the project apply one of the approved small scale categories and any methodology and tool referred therein? (EB 55 Annex 1, § 136 (b)) *Check, if applicable the expiry dates of the applied methodology. Further, take into consideration the general guidance to the methodologies[1], which provide guidance on equipment capacity, equipment performance, sampling and other monitoring related issues.*	*The project does not qualify as small-scale CDM project activity.*	/PDD/	N/A	N/A
A.5.3. Is the small scale project activity not a debundled component of a larger project activity? (EB 55 Annex 1, § 136 (c)) *Describe the steps taken to validate this issue. PI refer to the Compendium of guidance on debundling (EB 54, Annex 13).*	*The project does not qualify as small-scale CDM project activity.*	/PDD/	N/A	N/A
A.5.4. Is an assessment of the environmental impacts of the proposed SSC CDM project activity required by the host Party? (EB 55 Annex 1, § 136 (d))	*The project does not qualify as small-scale CDM project activity.*	/PDD/	N/A	N/A

[1] http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B. Project Baseline, Additionality and Monitoring Plan				
B.1. Application of the Methodology				
B.1.1. Does the project apply an approved and applicable CDM methodology and a valid version thereof? (EB 55 Annex 1, § 65) *Describe the steps taken to validate this issue.*	*Description:* Yes, the project activity applies the approved methodology ACM0002 version 12.1.0. *Justification of evidences:* To ensure that the applied methodology is approved by the executive board and the PP has chosen the latest version, the methodologies section of UNFCCC CDM website (http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html) was visited. *Conclusion:* The project applies an approved and applicable version of a CDM methodology	/PDD/ /ACM002/ /unfccc/	OK	OK
B.1.2. Is the applied CDM methodology identical with the version available on the UNFCCC website? (EB 55 Annex 1, §§ 65, 70) *Describe the steps taken to validate this issue.*	*Description:* The methodology applied by the PPs follows stipulations of the version available on UNFCCC website. *Justification of evidences:* The PDD was reviewed against the stipulations of the methodology. *Conclusion:* The stipulations of the published version have been followed.	/PDD/ /ACM002/ /unfccc/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.1.3. Are all applicability criteria in the methodology, the applied tools or any other methodology component referred to therein fulfilled? (EB 55 Annex 1, §§ 66(a)–(b), 68, 71, 76) *Describe for <u>each</u> applicability criterion listed in the selected approved methodology the steps taken to assess the information contained in the PDD.*	*Description:* In order to assess the applicability of the project, the PDD was reviewed and the applicability determination of the PDD was counter checked against the criteria given in the applicability section of the methodology. The information in the PDD was checked to prove that such information is valid and reflects the reality of the project. Nevertheless, CL B1 was raised to discuss the outcome of each applicability condition. *Justification of evidences:* The methodology is applicable under the following conditions: **• For grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).** The project activity fits option (a), as it consists of the implementation of a new run of river hydro power plant/unit. **• 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**	/PDD/ /ACM002/ /unfccc/	~~CL B1~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit; The project activity is the installation of a new hydro power plant/unit. **• 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;** Not applicable to the project activity as it consists of a new hydro power plant. **• In case of hydro power plants, one of the following conditions must apply:** **• The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; or**			

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	Not applicable to the project activity. • **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** Not applicable to the project activity. • **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.** The project activity results in new reservoir and the power density is above 4W/m^2, as described in the calculations in section B.6. **The methodology is not applicable to the following:** **• 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;**			

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	Not applicable to the project activity. **• Biomass fired power plants;** Not applicable to the project activity. **• Hydro power plants1 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.** Not applicable to the project activity. *Conclusion:* Project fulfils applicability criteria of the methodology as described in section B.1 of the PDD. Nevertheless, CL B1 was raised. **(CL B1)** In Section B.2, not all applicability conditions of the methodology and the outcome of each step have been discussed.			

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
B.1.4. In case one or more applicability criteria have not been met, has the validation team requested clarification to, revision of or deviation from the methodology in accordance with the latest guidelines? (EB 55 Annex 1, §§ 72–75)	*Description:* Not applicable as project meets all applicability conditions of ACM0002. *Justification of evidences:* See comment just above. *Conclusion:* Not applicable.	/PDD/ /ACM002/	N/A	N/A
B.1.5. Is the project in accordance with every other stipulation or requirement mentioned in all sections of the methodology and in guidances for approved methodologies provided by the CDM EB? (EB 55 Annex 1, § 69, 71) *Describe the steps taken to check whether the proposed project activity meets all the other possible stipulations and /or limitations mentioned in all sections of the approved methodology selected.*	*Description:* In general, the project is in accordance with ACM0002. However, all findings raised must be closed to form an opinion. *Justification of evidences:* See findings of this report. *Conclusion:* Please refer to all findings raised.	/PDD/ /ACM002/	~~Not yet OK~~	OK
B.2. Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project*				
B.2.1. Are the project's spatial boundaries (geographical) clearly defined?	*Description:* The spatial boundaries are clearly described. *Justification of evidences:* The boundaries are clearly defined	/PDD/ /ACM002/	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
(EB 55 Annex 1, §§ 67(a), 78–80) *Provide information on how the validation of the geographical boundary has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.*	and flow diagram in section B.3 illustrates this issue. *Conclusion:* The spatial and physical borders are clearly defined in the PDD.			
B.2.2. Are all sources and GHGs included in the project boundary as required in the applied methodology? (EB 55 Annex 1, §§ 67(a), 78–80) *Provide information on how the validation of the GHGs and sources has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.*	*Description:* Yes, all sources and GHGs included in the project boundary are included in the table in section B.3 of the PDD in line with ACM0002. *Justification of evidences:* The PDD was revised against sources and gases defined in ACM0002. *Conclusion:* The sources are in compliance with the applied methodology as well as with the real situation.	/PDD/ /ACM002/	OK	OK
B.2.3. In case the methodology allows to choose whether a source and/or gas is to be included, is the choice sufficiently explained and justified? (EB 55 Annex 1, §§ 67(a), 78–80) *Confirm if the justification provided by the PPs is reasonable, based on assessment of supporting documented evidence provided by the PPs or by onsite observations.*	*Not applicable, since the methodology does not allow such choices*.	/PDD/ /ACM002/	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.3. Baseline Identification *The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.*				
B.3.1. What possible baseline scenarios have been considered? (EB 55 Annex 1, §§ 67(b), 83) *Fill in all alternatives in table A-2.*	*Description:* The baseline is determined according to the applicable methodology and does not require alternative baseline consideration. See definition of baseline in B.3.3 below. *Justification of evidences:* ACM0002 provides a definition of the baseline for the installation of a new grid-connected renewable power plant/unit. *Conclusion:* See definition of baseline in B.3.3 below.	/PDD/ /ACM002/	OK	OK
B.3.2. Is the list of alternatives complete? (EB 55 Annex 1, §§ 67(b), 83) *Describe how it was validated that all alternatives are plausible and no plausible alternative is excluded from the consideration*	*Not applicable, as the baseline is given by the methodology.*	/ACM002/	N/A	N/A
B.3.3. What has been identified as the baseline scenario? (EB 55 Annex 1, §§ 81–82, 86)	*Description: '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*	/PDD/ /ACM002/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
Describe the chosen BL scenario, taking into consideration the technology that would be employed and / or the activities that would take place in the absence of the proposed CDM project activity.	*of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".'* *Justification of evidences:* The definition of ACM002 was applied. *Conclusion:* The definition of ACM002 was applied.			
B.3.4. Has the baseline scenario been determined according to the methodology? (EB 55 Annex 1, §§ 82, 87(e)) *Describe how it is validated that the identification of the most plausible baseline scenario is carried out in accordance with the applied methodology and applied methodological tools. Please refer to table A-2.*	For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2. ☒ The determination has been carried out as per the procedure contained in the applied methodology. ☐ The following CARs / CLs have been identified with respect to the selection of the baseline scenario: *Description:* The baseline is the electricity that would have otherwise been generated by the operational plants connected to the National Interconnected System. *Justification of evidences:* The definition of ACM002 was applied. *Conclusion:* The definition of ACM002 was applied.	/PDD/ /ACM002/	OK	OK
B.3.5. Has any plausible alternative scenario been excluded?	*Not applicable, as the baseline is given by the methodology.*	/PDD/ /ACM002/	N/A	N/A

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
(EB 55 Annex 1, § 83) *Describe how it is validated that no plausible alternative scenario has been excluded.*				
B.3.6. Is the identified baseline scenario reasonable and has the baseline scenario been determined using conservative assumptions where possible, including relevant references and sources? (EB 55 Annex 1, §§ 84–86(a)–(c)) *Describe whether the choice of the identified baseline scenario is reasonable by validating the key assumptions, calculations and rationales used in the PDD. Describe whether these are listed, relevant and conservatively interpreted in the PDD.*	*Not applicable, as the baseline is given by the methodology.*	/PDD/ /ACM002/	N/A	N/A
B.3.7. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations? (EB 55 Annex 1, §§ 85, 87(d)) *Describe whether the PP has shown that all relevant policies and circumstances have been identified and correctly considered in the PDD in accordance with the guidance by the Board. Pl. consider the guidance EB 22 annex 3 (regarding E+ and E- policies).*	*Not applicable, as the baseline is given by the methodology.*	/PDD/ /ACM002/	N/A	N/A

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
B.3.8. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced? (EB 55 Annex 1, § 87(a)–(c)) *Describe whether the documents and sources referred to in the PDD are correctly quoted and clearly referenced.*	*Not applicable, as the baseline is given by the methodology*.	/PDD/ /ACM002/	N/A	N/A
B.3.9. Does the PDD contain 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. (EB 55 Annex 1, § 86)	*Not applicable, as the baseline is given by the methodology*.	/PDD/ /ACM002/	N/A	N/A
B.4. Additionality Determination *The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.*				
B.4.1. Methodology				
B.4.1.1. Does the PDD describe how the project is additional and does the additionality justification follow the requirements of the applied methodology and/or methodological tools?	*Description:* Yes, the sequence utilized by the PPs to demonstrate the additionality of the project has followed the step-wise approach described in version 5.2 of the "Tool for the demonstration and assessment of additionality". The additionality is demonstrated by benchmark analysis	/PDD/ /TA/	~~Not yet OK~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
(EB 55 Annex 1, §§ 67(d), 94–95) *Describe how it is validated that additionality justification is carried out in accordance with the applied methodology and/or applied methodological tools. Further focus your assessment on the reliability and credibility of data, rationales and assumptions, justifications and documentations provided by the PP.*	calculating Equity IRR. *Justification of evidences:* The PDD was reviewed in detail and supporting evidences cross-checked. However, the CLs indicated below in this section have to be closed out to allow a final and conclusive assessment by the validation team. *Conclusion:* Refer to findings raised below in this section.			
B.4.2. Consideration of CDM before project start				
B.4.2.1. Is the project starting date reported in accordance with the CDM glossary of terms? (EB 55 Annex 1, § 104(a)) *Assess why the chosen starting date can be considered as the earliest date at which either the implementation or construction or real action of a project has begun or will begin.* *Check that no other activities related to the project that happened before the identified start date can be considered as start date. In this context please also take into consideration infrastructural expenses if they are relevant (in terms of costs and importance for the project implementation) in the specific context of the project activity.*	*Description:* Yes, as the starting date of the project is 2010-11-30 which is the date when the project owner made the first major financial commitment which is the signature for purchasing the main equipment (turbines and generators) for the SHPP. *Justification of evidences:* The starting date of the project could be evidenced by the contract of purchase of main equipment and by the interviews performed with PP representatives. *Conclusion:* The starting date of the project is in accordance with the CDM Glossary of Terms.	/PDD/ /PSD/ /GT/ /IM01/ /FD/	OK	OK
B.4.2.2. In case the project start date is on or after 2nd August 2008 has the PP informed the DNA and UNFCCC about the intension to	*Description:* The project starting date is on 2010-11-30 (after 2008-08-02). Therefore, a formal notification of the intention to proceed with the project implementation both for the local	/PDD/ /IM01/	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
seek CDM status? (EB 55 Annex 1, §§ 99–101) *Describe whether such a notification has been provided by the project participants within six months of the project activity start date; if NOT it shall be determined that the CDM was not seriously considered.*	DNA and UNFCCC were sent on 2011-01-14. *Justification of evidences:* It was provided the proof of receipt of the letter sent to the local DNA, the letter to the DNA and the website of UNFCCC confirming the communication. *Conclusion:* The intention to seek CDM status was correctly informed to UNFCCC and to the local DNA.	/PSD/ /unfccc/		
B.4.2.3. In case the project start date is before commencing of validation and 2nd August 2008, was the incentive from the CDM seriously considered and are details given in the PDD? (EB 55 Annex 1, §§ 100, 102) *Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.*	*Not applicable as the project starting date is in 2010.*	/PDD/	N/A	N/A
B.4.2.4. How and when was the decision to proceed with the project taken? *Describe the steps taken to validate the starting date.*	*Description: :* The decision to proceed with the project was taken on 2010-08-26 exactly when the bid price was offered at the Auction of Energy establishing the acceptance of all conditions and price to operate the SHPP and generate energy. *Justification of evidences:* The validation team has evidenced that the bid price is indeed the exact moment when the PP has truly decided to proceed with the project.	/PDD/ /PSD/ /IM01/ /FDauct/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	Conclusion: The management decision was on 2010-08-26.			
B.4.2.5. Is the project start date consistent with the available evidences? (EB 55 Annex 1, § 102) *Describe the evidence assessed regarding the prior consideration of the CDM (if necessary). Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.*	*Description:* Yes, the project start date is the date of the first major financial commitment, contract of purchase of turbines and generators on 2010-11-30, and there are evidences to support this. *Justification of evidences:* The contract of purchase of turbines and generators were presented to the validation team. *Conclusion:* The project start date is consistent with the available evidences.	/PDD/ /PSD/ /IM01/ /FD/	OK	OK
B.4.2.6. Was the decision to proceed with the project taken by a person which has the authority to do so? (EB 55 Annex 1, § 102(a) *Describe the steps taken to validate this issue.*	*Description:* Yes, the bid price was offered for a qualified person authorized by the decision makers of the company (Board of Directors) to represent them at the auction. *Justification of evidences:* All documents from ANEEL with the ratification of the auction and the contract of purchase of turbines and generators have been submitted and verified by the validation team. *Conclusion:* The decision has been taken by a person with the authority to do so.	/PDD/ /PSD/ /IM01/	OK	OK
B.4.2.7. How was the CDM involved in the decision making process? (EB 55 Annex 1, § 102) *Describe why CDM was a decisive factor in the decision*	*Description:* As described in Step 4 in section B.5, almost no SHPPs in Brazil of similar scale to the project activity has been developed without the incentives of the PROINFA program or CDM. As PROINFA has not been available for the project activity, and the project is not financially attractive	/PDD/ /PSD/ /IM01/	~~Not yet OK~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
making process.	as described in Step 2 of section B.5, the CDM benefits are necessary to improve the IRR and hence the financial attractiveness of the project. The CDM consideration was even demonstrated and clearly stated at the PP's mission statement. *Justification of evidences:* Representatives of the PP state that CDM benefits have been essential for the calculation of the winning bid price made by the PP in the auction, at which the project was running against projects with other sources which were not hydro energy. In addition the mission statement of the company has been presented *Conclusion:* DNA and UNFCCC have been communicated by PPs of the intention to seek the CDM status before the decision to proceed with the project. Although it was evidenced that CDM was considered prior to the starting date, the ultimate conclusion on the subject shall be based upon the assessment of the financial analysis, depending on the responses to the corresponding findings raised.			
B.4.2.8. Do the evidences provided doubtlessly prove that continuous and real actions were taken in order to secure the CDM status? (EB 55 Annex 1, § 102; EB 49 Annex 22 § 7)	*Description*: Indeed. The management decision was on 2010-08-26, the starting date of the project activity is on 2010-11-30, the DNA and UNFCCC were notified of intention to seek CDM status on 2011-01-14; the validation contract with TÜV was proposed on 2011-07-07. *Justification of evidences:* All documents and interviews reflect	/PDD/ /PSD/ /IM01/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	the information above. *Conclusion*: The starting date of the project activity is after Aug 2nd 2008 and the notifications were sent within the 6 months of the project starting date required by EB49, Annex 22.			
B.4.2.9. Is the gap of documented evidences to secure the CDM status less than 3 years and are the evidences relevant for substantiating the action taken, credible, reliable and complete? (EB 49 Annex 22 § 8)	*Not applicable to project activity, as the starting date is after 2008-08-02.*	/PDD/ /PSD/	N/A	N/A
B.4.2.10. Did implementation of the project ceased after its commencement and did implementation recommence after consideration of the CDM? (EB 51 Annex 58, § 7) *Describe the reasons for ceasing the project and explain why the incentive from CDM was necessary to recommence the implementation.*	*Not applicable to project activity.*	/PDD/	N/A	N/A
B.4.2.11. Can the CDM involvement in the decision assessed as serious? (EB 55 Annex 1, § 104(b)–(c)) *Describe whether or not the project would have been*	*Description:* If there was no possibility of CDM benefits, it is reasonable to assume that the price would not be the one which was offered at the bid price (winning price), and probably the auction result would have been different, i.e. the project would not be winner, which means no long term PPA	/PDD/ /PSD/ /IM01/	~~Not yet OK~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
undertaken without the incentive of the CDM.	for a fixed price would be available which in turn would make project finance rather unlikely, as without a reasonably reliable cash flow, it would be very difficult to obtain finance for the project. In addition, without CDM incomes it has been demonstrated that the project is not financially attractive as its IRR is below the benchmark. *Justification of evidences:* Representatives of the PP state that CDM benefits have been essential for the decision to proceed with the project. In addition, the communications with DNA and UNFCCC have been presented and reviewed and evidenced in UNFCCC website. *Conclusion:* DNA and UNFCCC have been communicated by PPs of the intention to seek the CDM status before the decision to proceed with the project. Although it was evidenced that CDM was considered prior to the starting date, the ultimate conclusion on the subject shall be based upon the assessment of the financial analysis, depending on the responses to the corresponding findings raised.			
B.4.3. Identification of alternatives Step 1 (in case of SSC projects pl. skip steps 1 and 2 if appropriate)				
B.4.3.1. Does the list of alternatives contain the status-quo situation, the project not undertaken as a CDM project as well as all other viable means of supplying the outputs or sevices that are to be supplied	*Description:* The list of alternatives contains the status-quo and the project activity not undertaken as a CDM project. *Justification of evidences:* No other alternatives have been	/PDD/ /ACM002/ /MT/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
by the proposed CDM project activity? (EB 55 Annex 1, §§ 105–107) *Describe the steps taken to validate this issue on the basis of your local and sectoral knowledge.*	analyzed as viable. *Conclusion:* The list of alternatives contains only the status-quo and the project activity not undertaken as a CDM project because no other alternatives are viable. Without CDM benefits, the PP states that the project could not be developed.			
B.4.3.2. Have all realistic alternatives been identified to the project? (EB 55 Annex 1, §§ 105–107) *Describe whether the list of alternatives is credible and complete. Describe how it is validated that the alternatives are realistic.*	*Description:* As the baseline is directly given by the methodology ACM0002, the selection of alternatives is not required, otherwise all possible market alternatives for generation of electricity would have to be listed, such as wind, biomass, fossil fuel based thermo electric power plants, etc. which would not add a relevant point for assessment of additionality. *Not applicable to project activity.*	/PDD/ /ACM002/	N/A	N/A
B.4.3.3. Do all identified alternatives comply with enforced legislations? (EB 55 Annex 1, §§ 106(c)) *Describe the steps taken to validate this issue. Refer to the legislations.*	*Description:* Yes, all alternatives described in the PDD are in agreement with mandatory laws and regulations. *Justification of evidences:* There is no legislation in Brazil preventing any of the identified alternatives. *Conclusion:* All alternatives described in the PDD comply with mandatory laws and regulations.	/PDD/ /aneel/ /fatma/ /conama/ /EL/	OK	OK
B.4.4. Investment analysis Step 2				

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
In case the investment analysis as per step 2 is chosen to justify the additionality Annex 2 "Assessment of Financial Parameters" has to be used to provide additonal details of the the calculation parameters..				
B.4.4.1. Does the PDD provide evidence that the project would not be the most economically or financially attractive alternative or economically / financially feasable without the revenues from the sale of CERs? (EB 55 Annex 1, § 108)	*Description:* Yes, at the PDD, a benchmark analysis is the basis of additionality determination and Equity IRR is the financial indicator chosen. According to Draft PDD the IRR is below the benchmark, and hence not financially attractive. However, findings have been raised and need to be closed before forming an opinion. *Justification of evidences:* The findings raised need to be closed to form an opinion. *Conclusion:* Refer to the CLs raised in this section.	/PDD/ /IRR/	~~Not yet OK~~	OK
B.4.4.2. Is an appropriate analysis method chosen for the project (simple cost analysis, investment comparison analysis or benchmark analysis)? (EB 55 Annex 1, § 108; EB 39 Annex 10) *Describe why the selected analysis method is appropriate under consideration of potential revenues and costs, potential project alternatives and potential available benchmark values.*	*Description:* The chosen approach for demonstrating the additionality of the project is the Benchmark Analysis (Option III). *Justification of evidences:* The project activity generates economic benefits with the sale of energy, therefore the simple cost analysis (Option I) cannot be used. As other options were not analyzed in the decision making, the investment comparison analysis (Option II) cannot be used. Benchmark analysis (Option III) is appropriate and the best method to demonstrate additionally for a project implemented with the sole purpose of energy generation for	/PDD/ /TA/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	commercialization. *Conclusion:* Benchmark Analysis has been appropriately chosen as method of analysis.			
B.4.4.3. Is a clear, viewable and unprotected Excel spreadsheet available for the investment calculation? (EB 55 Annex 1, § 110; EB 51, Annex 58, §8) *Describe the steps taken to validate this issue.*	*Description:* A viewable and unprotected excel spreadsheet document was made available to validation team and was reviewed about clarity and access of calculation and data. However, CL B4. *Justification of evidences:* The Excel spreadsheet has been checked. *Conclusion:* **(CL B4)** In the financial model spreadsheet: 1. there is unnecessary information in the IRR calculation; 2. tabs are difficult to follow and understand; 3. precise reference for the source of all input data is missing; 4. not all assumptions are clearly indicated; 5. some input data is presented in formulas;	/PDD/ /IRR/	~~CL B4~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	6. not everything is in English.			
B.4.4.4. Does the period chosen for the investment analysis reflect the technical lifetime of the project activity or in case a shorter period is chosen, is the fair value of the project activity's assets at the end of the investment analysis period (as a cash inflow) included? (EB 55 Annex 1, § 109; EB 51 Annex 58 § 3 – 4) *Describe how the technical lifetime / period chosen for calculating financial parameter(s) is reviewed and which documents were utilized in the course of review. Describe furthermore the approach used to check the inclusion of a potential fair value.*	*Description:* The period of investment analysis considers 30 years, which is the length of the authorization contract for generation of energy and the expected lifetime of the turbines indicated by the "Study about the economic lifetime and depreciation rate" done by Escola Federal de Engenharia de Itajubá to ANEEL. *Justification of evidences:* According to Brazilian accounting regulations the assets will be fully depreciated before the end of the analysis period. *Conclusion:* The period of assessment is 30 years and it reflects the economic lifetime of the turbines as well as it is in line with the long term PPA signed for the project.	/PDD/ /TD/ /FDlegis/ /fazenda/	OK	OK
B.4.4.5. Is the (remaining) technical lifetime of existing or project equipment defined in accordance with the guidance of the *Tool to determine the remaining lifetime of equipment*? (EB 50 Annex 15)	*Not applicable to the project activity.*	/PDD/	N/A	N/A
B.4.4.6. Is the fair value calculated in accordance with local accounting regulations (where available) or international best practice? (EB 55 Annex 1, § 109; EB 61 Annex 13, § 4)	*Description:* The period of analysis is conservative (30 years), and in line with EB61 Annex 13. All assets will be fully depreciated before the end of the period, so book value will be zero according to local accounting regulations and thus no	/PDD/ /IRR/ /FDlegis/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
State the accounting regulations applied for calculating the fair value and describe why these are applicable under the project specific circumstances. Describe potential mismatches between regulations and the approach applied for calculating the fair value.	fair value was considered. *Justification of evidences:* According to Brazilian accounting regulations, the assets will be fully depreciated before the end of the analysis period, therefore no fair value is considered and a full depreciation will happen in 30 years as this is the lifetime of the main equipment as stated by the supplier. *Conclusion:* Fair value is in line with accounting regulations and equipment technical lifetime.	/fazenda/		
B.4.4.7. Is the book value as well as the expectation of the potential profit or loss included in the fair value calculation? (EB 55 Annex 1, § 109; EB 51 Annex 58, § 4)	*Description*: The period of analysis is conservative (30 years), and in line with EB61 Annex 13. All assets will be fully depreciated before the end of this period, so book value will be zero according to local accounting regulations and thus no fair value was considered. *Justification of evidences:* A full depreciation will happen in 30 years as this is the lifetime of the main equipment as stated by the supplier. It is reasonable to assume that the turbine and generators (which represent a significant amount of the CAPEX of the project will not have residual value after 30 years. *Conclusion:* The book value is considered and there is no expectation of potential profit or loss included in the fair value calculation.	/PDD/ /IRR/ /FDlegis/ /fazenda/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.4.4.8. Are depreciation and other non-cash related items added back to net profits for the purpose to calculate the financial indicator? (EB 55 Annex 1, § 109; EB 51 Annex 58, § 5)	*Description:* Not applicable as the project uses assumed profit for calculation of income tax, additional income tax and social contribution. Thus, the income tax is completely independent from any other parameters. *Justification of evidences:* In line with tax legislation, the above mentioned taxes are calculated based on an assumed profit of total revenues; therefore depreciation does not impact the cash flow, as the taxes are calculated based on gross sales. *Conclusion:* Not applicable, as depreciation does not have any impact in the cash flow and IRR calculation.	/PDD/ /IRR/ /FDlegis/ /fazenda/	N/A	N/A
B.4.4.9. Is taxation excluded in the investment analysis or is the benchmark intended for post tax comparisons? (EB 55 Annex 1, § 109; EB 51 Annex 58, § 5)	Description: The taxation is included in the benchmark analysis because the benchmark intends for post tax comparisons. Justification of evidences: The investment analysis has been checked in detail. For more details about the benchmark, see assessment in Table A-3, Annex 3. Conclusion: The benchmark is for post tax comparison.	/PDD/ /IRR/ /FDlegis/ /fazenda/	OK	OK
B.4.4.10. Were the input values used in the investment analysis valid and applicable at the time of the investment decision? (EB 55 Annex 1, § 109,112; EB 51 Annex 58, § 6) *In case the basis for input values is a Feasibility Study Report*	*Description:* Yes, all input data were valid at the moment of management decision, marked by the date of the energy auction when the (winning) Bid Price was given by project owners.	/PDD/ /FD/ /FDlegis/ /FDauct/	~~CL B5~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
(FSR) describe how it has been ensured that the period in time between the finalization of the FSR and the investment decision is sufficiently short so that it is unlikely that input values would have materially changed. Further confirm the consistency of values in FSR and PDD.	Nevertheless, CL B5 was raised. *Justification of evidences:* The investment analysis has been checked. All input data is clearly referenced in excel sheet. For a detailed analysis please refer to Table A-3 Annex 3. *Conclusion:* **(CL B5)** As verified during the site visit, the project activity received the approval for its qualification for the REIDI benefit on October 2010. Such benefit consists of waiving the taxes PIS and COFINS (calculated over sales) from part of the investment costs, i.e. when they are included in the sales invoices of the suppliers, they can be deducted so that the supplier will not have to collect them. So, it is clear that by the time of the management decision, there was already the expectancy for this benefit. Nevertheless, there is no explanation why the REIDI benefit was not applied in the financial analysis.	/IRR/		
B.4.4.11. Is the plant load factor (PLF) chosen in a conservative manner, taking into account that the PLF may be different in the framework of demonstrating additionality and calculating the ex-ante ER? (EB 48, Annex 11)	*Description:* The PLF has been calculated by the assured energy given by an official certification of the Brazilian Ministry of Mines and Energy/PLF/ and it was used for demonstration of additionality and calculating the ex-ante ER *Justification of evidences:* The Directive # 18 – Annex 2 – issued by the Ministry of Mines and Energy has determined	/PDD/ /IRR/ /PLF/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	the PLF of the project. *Conclusion:* PLF has been calculated by the assured energy given of an official certification in line with EB 48, Annex 11.			
B.4.4.12. In case of project IRR: Are the costs of financing expenditures (loan repayments and interests) excluded from the calculation of project IRR? (EB 55 Annex 1, § 109; EB 51 Annex 58, § 9)	*Not applicable as Equity IRR was chosen by project participant as financial indicator.*	/PDD/	N/A	N/A
B.4.4.13. In cases where a post-tax benchmark is applied please ensure that actual interest payable is taken into account in the calculation of income tax. (EB 51 Annex 58, § 11) *As per the guidance it is recommended to select a pre tax benchmark in order to Describe the steps taken in assessing this requirment.*	*Not applicable as the taxes are considered in the EBIT calculation, but as the Presumed Profit Regime is applied, the income tax calculation is not based in the EBIT.*	/PDD/	N/A	N/A
B.4.4.14. In case of equity IRR: Is the part of the investment costs, which is financed by equity considered as net cash outflow and is the part financed by debt excluded in net cash outflow? (EB 55 Annex 1, § 109; EB 51 Annex 58, § 10)	*Description:* Yes, the part of the investment costs, which is financed by equity, is considered as net cash outflow and the part financed by debt is excluded from the calculation of equity IRR. *Justification of evidences:* As per financial model spreadsheet. *Conclusion:* The IRR calculation has been properly	/PDD/ /IRR/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	elaborated.			
B.4.4.15. Is the type of benchmark chosen appropriate for the type of IRR calculated (e.g. local commercial lending rates or weighted average costs of capital for project IRR; required/expected returns on equity for equity IRR)? (EB 55 Annex 1, § 111; EB 51 Annex 58, §§12 – 15) *In case risk premiums are applied precisely describe its suitability to reflect the risks associated with the project activity, considering the project type and market situation.*	*Description:* The chosen benchmark is the required/expected return on equity for the Equity IRR. *Justification of evidences:* The IRR and CAPM calculations have been reviewed. *Conclusion:* The required/expected return on equity was calculated according to the Capital Asset Pricing Model (CAPM).	/PDD/ /IRR/	OK	OK
B.4.4.16. Is the benchmark value suitable for the project activity and is it reasonable to assume that no investment would be made at a rate of a lower return than the benchmark? (EB 55 Annex 1, § 109; EB 51 Annex 58, §§13 – 15) *Describe whether it is reasonable to assume that a lower rate of return would consequently result in the baseline scenario.*	*Description:* The value of the benchmark is 19.91% and it is reasonable by the methodology and calculations used by the PP. Nevertheless, CL B6 was raised to be clear all input data used. *Justification of evidences:* The IRR and CAPM calculations have been reviewed. *Conclusion:* The benchmark value is suitable for the project activity and it is reasonable to assume that no investment would be made at a rate of a lower return than the benchmark. Nevertheless, CL B6 was raised. **(CL B6)** In section B.5, Benchmark and CAPM: a. identification and reference of all the input data used	/PDD/ /FD/ /IRR/ /bench/	~~CL B6~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	for the calculations are missing; b. the results are not stated; c. there is an inconsistency about the value of benchmark, with two different figures presented.			
B.4.4.17. Is it ensured that the project cannot be developed by other developers than the PP? (EB 55 Annex 1 § 109; EB 51 Annex 58, §§ 13 – 14) *Describe why the benchmark does not include the subjective profitability expectations or risk profile of the project developer. If applicable assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects.*	*Description:* As described in B.4.4.15, the chosen benchmark is the required/expected return on equity. The applied methodology for its calculations is from the Instituto Superior de Administração from Fundação Getúlio Vargas, one of the most renowned educational institutions of Administration in Brazil. In addition, the input data used for the calculations are the risk free rate, from the quotes of United States Treasury bonds; Brazilian country risk; stock market return; annual return of American T bonds; proportion of loan offered by BNDES; inflation rate and taxes. *Justification of evidences:* The PDD, IRR and CAPM calculations have been reviewed. *Conclusion:* As all data is public, there are no subjective profitability expectations.	/PDD/ /FD/ /IRR/ /bench/	OK	OK
B.4.4.18. Was the benchmark consistently used in the past for similar projects with similar risks?	*Not applicable as the benchmark used public and official input data.*	/PDD/ /FD/	N/A	N/A

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
(EB 55 Annex 1, § 112(c))		/IM01/		
B.4.4.19. Does the PDD and related spreadsheets contain a sensitivity analyis and does the same contain variation of parameters which may vary throughout the project lifetime, (EB 55 Annex 1, §§ 109–110(e); EB 51 Annex 58, § 17–18) *Describe relevance of parameters used in the sensitivity analysis as well as their likeliness to vary during the project's lifetime. Parameters which are fixed on the basis of contracts, PPAs etc. may not be subject to variation and not adequate.*	*Description:* Yes, a sensitivity analysis is included in the PDD and financial spreadsheet. Key parameters which may vary throughout the project lifetime were included: Capital Expenditures (CAPEX), Price of Electricity, Operational Expenditures (OPEX) and Energy Generation. Nevertheless, CL B7 was raised. *Justification of evidences:* PDD and spreadsheet were reviewed in detail. For more details of assessment of each financial parameter, please refer to Table A-3 Annex 3. *Conclusion:* **(CL B7)** In section B.5, Sensitivity Analysis, there is no variation of +10% or -10% of crucial parameters.	/PDD/ /FD/ /IRR/	~~CL B7~~	OK
B.4.4.20. Were only variables that constitute more than 20% of either total project costs or total project revenues subjected to reasonable variation? (EB 55 Annex 1, § 109; EB 61 Annex 13)	*Description:* Yes, see comment above. All parameters above the 20% threshold were included and subject to a reasonable variation. Although the parameters may vary during the project's lifetime, the required variation to achieve the benchmark is quite high. *Justification of evidences:* PDD and spreadsheet were reviewed in detail.	/PDD/ /IRR/	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
	Conclusion: The parameters included and the variations applied are reasonable and in line with EB 61 Annex 13. For more details of assessment of each financial parameter, please refer to Table A-3 Annex 3.			
B.4.4.21. Have parameters, constituting less than 20% of total project costs or revenues, been identified with potential material impact on the financial parameter? (EB 55 Annex 1, § 109; EB 51 Annex 58, § 17) *Describe whether those parameters are considered in the sensitivity analysis?*	*Description:* Yes, the OPEX represent less than 20% but was conservatively also included in the sensitivity analysis. No other parameters with material impact were identified. *Justification of evidences:* PDD and spreadsheet were reviewed in detail. *Conclusion:* OPEX represent less than 20% but were also included in the sensitivity analysis.	/PDD/ /IRR/	OK	OK
B.4.4.22. Is the range of variation reasonable in the specific context of the project activity, taking into consideration historic trends in the business sector? (EB 55 Annex 1, § 109; EB 51 Annex 58, § 18) *Describe whether the range of variation is appropriate with focus on historic developments, e.g. price of oil / labour etc., energy potential in the region in question.*	*Description:* Yes, the range of variation applied is deemed appropriate by the validation team, considering that the input values applied are deemed adequate and conservative, as described in the assessment of each financial parameter in Table A-3 Annex 3. The PP performed a breakeven analysis which represent a lot more than the -/+10% variation required by the Guidelines. *Justification of evidences:* PDD and spreadsheet were reviewed in detail. Each financial parameter was reviewed and validated carefully considering submitted evidences, public available sources of information and the local expertise of the validation team. The variation is in line with latest EB	/PDD/ /IRR/	~~CL B7~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	guidance. Registered CDM projects were checked and the variation is in line with other similar registered CDM projects. *Conclusion:* The variation applied is considered appropriate in the context of the project activity, taking in consideration historic trends in the business sector. Nevertheless, CL B7 was raised *(see above in B.4.4.19).*			
B.4.5. **Barrier analysis Step 3 or SSC additionality assessment**				
B.4.5.1. Are there any barriers given which have a clear and direct impact on the financial returns of the project? (EB 55 Annex 1, §§ 115, 134, 137) *In case of LSC projects those issues cannot be considered as barriers and shall be assessed in the investment analysis. In case of SSC projects the same fundamentals as for LSC projects shall apply, i.e. the assessment of the investment barrier according to EB 51 Annex 58.*	*Not chosen by PPs.*	/PDD/	N/A	N/A
B.4.5.2. Are the barriers described risk related (e.g technology failure, other performance related risks)? (EB 55 Annex 1, §§ 116, 134, 137) *Are there other barriers or barriers due to prevailing practice existent which would have led to higher emissions?*	*Not chosen by PPs.*	/PDD/	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.4.5.3. Has the unavailabilty of means of finance for the proejct been described and adequately substantiated? Do evidences doubtlessly prove that the financing of the project was assured only due to the benefit of the CDM? (EB 55 Annex 1, §§ 116, 137, EB 50 Annex 13, § 9)	*Not chosen by PPs.*	/PDD/	N/A	N/A
B.4.5.4. How is it justified and evidenced that the barriers given in the PDD are real? (EB 55 Annex 1, § 116(a))	*Not chosen by PPs.*	/PDD/	N/A	N/A
B.4.5.5. How is it justified that one or a set of real barriers prevent(s) the implementation of the project activity and do not prevent the implementation of at least one of the alternatives? (EB 55 Annex 1, § 116(b))	*Not chosen by PPs.*	/PDD/	N/A	N/A
B.4.5.6. Does the review of relevant background information on the nature of the company(ies) and entitiy(ies) involved in the financing and implementation of the project sufficiently justify that the barriers related to the lack of access to capital, technologies and skilled labour are real? (EB 50 Annex 13, § 4)	*Not chosen by PPs.*	/PDD/	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.4.5.7. Has it been demonstrated in an objective way how the CDM alleviates each of the identified barriers to a level that the project is not prevented anymore from occurring by any of the barriers? (EB 50 Annex 13, § 5)	*Not chosen by PPs.*	/PDD/	N/A	N/A
B.4.5.8. Would provision of additional financial means lead to the mitigation of the barrier(s) demonstrated? (EB 50 Annex 13, § 7) *Describe why provision of additional financial means would not lead to mitigation of the barrier(s) demonstrated and hence analyzing the project's additionality within the framework of an investment analysis is inappropriate. .*	*Not chosen by PPs.*	/PDD/	N/A	N/A
B.4.6. Common practice analysis Step 4 (in case of SSC projects skip this step)				
B.4.6.1. Is the defined region for the common practice analysis appropriate for the technology/industry type? (EB 55 Annex 1, § 120(a)) *Describe why the project activity is not common practice in a transparent and unambiguous manner. If a region other than the entire host country is chosen, describe why this region is more appropriate.*	*Description:* Yes, the defined region is Brazil and it is appropriate because the energy generation regulation framework applies at national level. *Justification of evidences:* ANEEL's regulations have been checked *Conclusion:* The choice of the whole country is justified as the ANEEL's regulations are the same for the whole country.	/PDD/ /aneel/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.4.6.2. To what extent similar projects have been undertaken in the relevant region? (EB 55 Annex 1, § 120(b))	*Description:* There were 382 SHPPs in operation in Brazil on 2010-12-15. From these 382, 51 are under PROINFA program (Brazilian official program to stimulate the alternative sources of electric generation) and 82 are being developed as CDM projects. From the remaining 249 SHPPs, 231 started operation before 2004, when was launched the new electric model by the Brazilian government. From the remaining 18, 16 cannot be compared to the project activity due to the installed capacity, as they have installed capacity under or equal to 10 MW. So, there are 2 plants that can be considered similar to the proposed project activity.CL B8 was raised for further clarifications. . *Justification of evidences:* The websites of UNFCCC, ANEEL and Eletrobrás were checked. *Conclusion:* There are just two projects that can be considered similar to the project activity. Refer to CL B8 below in B.4.6.3.	/PDD/ /aneel/ /unfccc/ /eletrobras/ /ACM002/	~~CL B8~~	OK
B.4.6.3. In case similar projects are identified, are there any key differences between the proposed project and existing or ongoing projects and what kind of differences are observed? (EB 55 Annex 1, § 120(c))	*Description:* As discussed above, from 382 SHPPs in operation in Brazil, 2 can be considered similar to the proposed project activity, so CL B8 was raised. *Justification of evidences:* The websites of UNFCCC, ANEEL and Eletrobrás were checked.	/PDD/ /aneel/ /unfccc/ /eletrobras/ /ACM002/	~~CL B8~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	Conclusion: **(CL B8)** In the Common Practice analysis, it was identified that two SHPPs are similar to the project activity – SHP Salto Três de Maio and SHP Engenheiro Ernesto Jorge Dreher. A discussion about the key differences between them and the proposed project is missing.			
B.5. Ex-Ante Calculation of GHG Emission Reductions *It is assessed whether the ex-ante calculations of project emissions, baseline emissions, leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified. Furthermore calculation of emission reductions shall be assessed.*				
B.5.1. Are the equations applied correctly according to the applied approved methodology? (EB 55 Annex 1, §§ 67(c), 89–90, 92) *Describe clearly the steps taken to assess whether the methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. Further take into consideration that all estimates of the baseline emissions can be replicated using the data*	☒ The equations applied for calculation are correctly applied according to the approved methodology. ☐ The following mistakes have been identified in this context:	/PDD/ /ACM002/	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
and parameter values provided in the PDD.				
B.5.2. In case the methodology allows for different methodological choices, are the equations applied properly justified and have they been used reflecting the other methodological choices (i.e. baseline identification)? (EB 55 Annex 1, §§ 90–91) *Assess the correct selection and application of methodological choices. Describe whether proper justification has been provided (based on the choice of the baseline scenario, context of the project activity and other evidence provided) and whether the correct equations have been used reflecting the relevant methodological choices.*	*Not applicable as the methodology does not allow such choices.*	/ACM002/	N/A	N/A
B.5.3. Have conservative assumptions been used when calculating the project emissions? (EB 55 Annex 1, §§ 90–91) *Describe clearly the steps taken to assess whether all the assumptions and data used by the PP are listed in the PDD including references and sources and are conservatively interpreted in the PDD.*	*Description:* The baseline emissions are calculated based on net energy generated multiplied by the combined margin emission factor (EF) calculated according to the Tool to Calculate the emission factor for an electric system and published by Brazilian DNA. *Justification of evidences:* Data used is adequate as the EF value is publicly available and calculated by the Ministry of Science and Technology and published by the Brazilian DNA and the energy generation is calculated using the PLF calculated by the assured energy given by the directive of the Ministry of Mines and Energy. *Conclusion:* Conservative assumptions have been used when	/PDD/ /dna/ /PLF/ /MT/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	calculating the project emissions.			
B.5.4. Does the implementation of the project activity lead to GHG emissions within the project boundary which are expected to contribute more than 1% of the overall expected average annual emission reductions, which are not addressed by the methodology? (EB 55 Annex 1, § 77)	*Description:* No, as no other emission sources than those described in the methodology have been identified. *Justification of evidences:* The applied methodology and performed interviews have been used to check this issued. *Conclusion:* No other emission sources than those described in the methodology have been identified.	/PDD/ /ACM002/ /IM01/	OK	OK
B.5.4.1. Has a plant load factor (PLF) been defined ex-ante and considered for determination of baseline emissions? (EB 48 Annex 11, §§ 1, 3–4) *Describe why the PLF is conservative in the framework of calculating emissions reductions and whether the PLF is the same in the framework of demonstrating additionality by applying the investment analysis. Note, in order to be conservative in both cases the PLF may be different.*	*Description:* Although the energy generated will be monitored ex-post, an ex-ante value has been defined. A directive of the Brazilian Ministry of Mines and Energy was issued giving the assured energy (long term average generation discounting programmed and unprogrammed stops for maintenance), which is 11.10 MW_{avg}. As the installed capacity of the plant is 20MW, the PLF has been calculated as 0.555. *Justification of evidences:* A directive of the Ministry of Mines and Energy and the calculations were checked. *Conclusion:* The PLF has been estimated ex-ante and considered for determination of baseline emissions. It has been calculated by the official value of the assured energy given by the Brazilian Ministry of Mines and Energy.	/PDD/ /PLF/ /XLS/	OK	OK
B.5.5. Are all data sources and assumptions appropriate and parameters which remain	*Description:* Yes, the fixed parameters will lead to a conservative estimation of emission reductions.	/PDD/ /ACM002/	~~CL B9~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
fixed throughout the crediting period correct, applicable to the project and will lead to a conservative estimation of emission reductions? (EB 55 Annex 1, § 91) *Describe clearly the steps taken to assess whether the values used for the fixed parameters are considered reasonable, correct and applicable in the context of the project activity. Check esp. chapter 6.2 of the PDD.*	Nevertheless, there are parameters that have to be included, so CL B9 was raised. *Justification of evidences:* The fixed parameters are given by the applied methodology. *Conclusion:* **(CL B9)** In section B.6.2, there are parameters required by ACM0002 that are missing.			
B.5.6. Are all ex-ante calculation values for monitoring parameters (as defined as per chapter B.7.1) reasonable? (EB 55 Annex 1, § 91) *Describe clearly the steps taken to assess whether the values used for the monitoring parameters are considered reasonable, applicable and conservative in the context of the project activity*	☐ All "Values of data to be applied for the purpose of calculating expected emissions reductions" are considered to be reasonable, applicable and conservative. ☒ The following mistakes have been identified in this context: **(CL B10)** The Emission Factor used for the ex-ante estimation of ER is not the most recent updated figure.	/PDD/ /dna/	~~CL B10~~	OK
B.5.7. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change. *Describe the steps taken to validate this issue.*	*Description:* Several findings have been raised and have to be closed out before forming an opinion. *Justification of evidences:* See comment above in this section. *Conclusion:* Please refer to the CARs and CLs raised above	/PDD/ /XLS/	~~Not yet OK~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.6. Monitoring of Emission Reductions *It is assessed whether the monitoring plan is appropriate for the project activity and in line with the applied methodology.*				
B.6.1. Are all monitoring parameters required by the applied methodology contained in the monitoring plan? (EB 55 Annex 1, §§ 67(e), 121, 123(a), 124) *Assess whether all applicable parameters listed in the methodology are included in the monitoring plan.* *Pl. check further whether the selection of parameters not to be monitored (section B.6.2) is appropriate and in line with the applied methodology.* *In case of different approaches can be chosen acc. to the methodology assess whether the selection of parameters is justified and correct.*	*Description:* The monitoring parameters required by the methodology: $EG_{facility,y}$, $EF_{grid,OM,y}$, $EF_{grid,BM,y}$, $EF_{grid,CM,y}$, Cap_{PJ} and A_{PJ} are in the monitoring plan. *Justification of evidences:* The applied methodology was checked. *Conclusion:* All monitoring parameters required by the applied methodology are in the monitoring plan.	/PDD/ /ACM002/ /dna/	OK	OK
B.6.2. Are the means of monitoring of all parameters contained in the monitoring plan feasible and in accordance with the requirements of the applied methodology? (EB 55 Annex 1, § 123(a)–(b), 124) *Assess whether the provided information for all parameters w.r.t.*	*Description:* Parameter $EF_{grid,CM,y}$ is calculated using $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ which are given by the Brazilian DNA. The monitoring description of $EG_{facility,y}$, Cap_{PJ} and A_{PJ} are described in the MP and is feasible and in accordance with the requirements of ACM002. Nevertheless, some clarifications are necessary. *Justification of evidences:* The procedures for monitoring and	/PDD/ /ACM002/ /dna/	~~CL B11~~	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
a) Label (name of the data / parameter) *b) data unit* c) *description* d) *source of data* e) *measurement equipment / method / procedure* f) *monitoring frequency* g) *QA/QC procedures* *are appropriately described and in compliance with the requirements of the methodology..*	calculating the monitored parameters are described in the monitoring plan and are feasible and in accordance with the requirements of ACM0002. *Conclusion:* **(CL B11)** In section B.7.2, the following information has not been included as required by the Guidelines for Completing the PDD: a. quantity and location of the meters that will be used for monitoring the generated electricity; b. a simplified wiring diagram indicating the delivery point, exact location of the meter(s) and tension transformation.			
B.6.3. Have all means of implementing the monitoring plan, e.g. equations necessary for ex-post emission reduction calculation, been described clearly and in line with the methodology? (EB 55 Annex 1, §§ 123(b), 124) *Check whether all necessary equations have been provided in the PDD. Pl. consider that ex-post and ex-ante calculations might be different.* *Please consider that additional equations might be necessary to calculate auxiliary parameters.*	*Description:* Yes, all equations necessary to ex-post emission reduction calculation are clearly defined. *Justification of evidences:* Equations are clearly defined in section B.6.1 *Conclusion:* All means of implementing the monitoring plan have been clearly described and are in line with the methodology. The equations used for ER calculations are correctly and clearly defined.	/PDD/ /ACM002/	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
B.6.4. Is it likely that the monitoring arrangements described in the PDD can properly be implemented in the context of the project activity? (EB 55 Annex 1, § 124(c)) *Assess whether the described monitoring arrangements are sufficient and realistic to enable a thorough monitoring. Pl. consider also special monitoring conditions, e.g. downtimes of monitoring equipment etc.*	*Description:* The monitoring arrangements described in the PDD can be properly implemented, but some clarifications are necessary, so CL B11 was raised. *Justification of evidences:* Sections B.7.1 and B.7.2 of the PDD have been checked against the applied methodology. *Conclusion:* Refer to CL B11 above.	/PDD/ /ACM002/	~~CL B11~~	OK
B.6.5. Are the QA/QC procedures appropriate sufficient to ensure the emission reductions achieved from the project activit can be reported ex-post and verified? (EB 55 Annex 1, § 124(b)) *Please consider the description given in section B.7.2. Describe which QA/QC provisions are considered. Address Quality Management System provisions, calibration and maintenance of equipment. Address further any review procedures.*	*Description:* The QA/QC procedures are appropriate for the presented parameters. Nevertheless, it is necessary to demonstrate if provisions are predicted for maintenance needs, so CL B12 was raised. *Justification of evidences:* Sections B.7.1 and B.7.2 of the PDD have been checked and interviews with PPs representatives have been performed to assess this issue. *Conclusion:* **(CL B12)** A description of the provisions for meeting and maintenance needs, as required by the Guidelines for Completing the PDD, is missing in Section B.7.2,.	/PDD/ /ACM002/ /IM01/ /ccee/	~~CL B12~~	OK
B.6.6. Are procedures identified for data management? (EB 55 Annex 1, § 124(b)) *Check whether appropriate provisions are considered for*	*Description:* Yes, procedures, type of data and responsibilities are identified and provisions for data archiving are made. *Justification of evidences:* There are identified procedures for data management system described in Section B.7.2 of the	/PDD/	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
data management including responsibilities, what records to keep, storage area of records and how to process performance documentation *Check further the data archiving provisions for the project activity and ensure that provisions are made to archive data for the whole crediting period + 2 years.*	PDD. *Conclusion:* The procedures for data management are properly identified.			
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*				

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
C.1. Is the project's starting date clearly defined and evidenced? (EB 55 Annex 1, § 99) *Check whether the starting date is correct. Apply the definition of the project starting date as per the "Glossary of CDM terms".*	*Description:* Yes, the starting date of the project is clearly defined in section C.1.1 of the PDD. The starting date of the project is 2010-11-30 which is the date of the first major financial commitment which is the signature of the contract of purchase of the turbines and generators. *Justification of evidences:* The contract of purchase of the turbines and generators had been analyzed. *Conclusion:* The starting date of the project is in accordance with the CDM Glossary of Terms.	/PDD/ /PSD/ /GT/ /IM01/ /FD/	OK	OK
C.2. Is the project's operational lifetime clearly defined and evidenced? *Check whether the project lifetime is correctly defined. Consider the guidance on the assessment of investment analysis (annex to the additionality tool).* *Check in case of phased implementation this has been reflected throughout the whole PDD incl. the financial assessment, if applicable.*	*Description:* The operational lifetime is clearly defined as 30 years in section C.1.2. It refers to the length of the contractual agreement set in the PPA and it is also the lifetime of the main equipments as per manufacturer specifications. *Justification of evidences:* The PPA of the project activity and the technical data of the turbine were checked. *Conclusion:* Operational lifetime is clearly defined and evidenced.	/PDD/ /FD/ /TD/	OK	OK
C.3. Is the start of the crediting period clearly defined and reasonable? *Check whether the envisaged starting date of the crediting period is realistic, taking into consideration the times needed*	*Description:* The starting date of the crediting period is clearly defined at section C.2.1.1 as 2013-01-01. *Justification of evidences:* It is reported in section C.2.1.1 of	/PDD/ /IM01/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
for validation and registration.	PDD. *Conclusion:* Starting date of the crediting period is clearly defined and realistic considering time needed for validation and beginning of operation of project activity.			
D. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the DOE.*				
D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)? (EB 55 Annex 1, §§ 131–133) *Check the host party regulations, regarding EIA.*	*Description:* For this type of project, the host party requires an EIA/EIA/ which was prepared by a third party and submitted to the state environmental authority to start the licensing process. *Justification of evidences:* The EIA was reviewed, as well as the federal and state legislation concerning environmental licensing process applicable for hydro projects. *Conclusion:* The project complies with host party legislation regarding EIA.	/PDD/ /EIA/ /EL/ /fatma/ /conama/	OK	OK
D.1.2. In case an Environmental Impact Assessment (EIA) is requested by the host party, has it been carried out and if applicable duly approved?	*Description:* As explained above an EIA was conducted by a third party and dully approved by FATMA, which issued the Installation Licenses for the plant. *Justification of evidences:* The EIA, licenses and legislation	/PDD/ /EIA/ /EL/	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
(EB 55 Annex 1, §§ 131–133) *Check the EIA and its approval, if applicable.*	were reviewed. *Conclusion:* The EIA was approved by FATMA.	/OL/ /fatma/		
D.1.3. Has an analysis of the environmental impacts of the project activity been sufficiently described and in line with the host party environmental legislation? (EB 55 Annex 1, §§ 130–132) *Check the PDD (section D). Check whether the project will create any adverse environmental effects.* *Check the relevant national environmental legislation.*	*Description:* Although there are no significant environmental impacts envisaged for this project, all impacts identified corresponding mitigation measures were described in section D.1 of the PDD. In addition, as the final approval from environmental authority will be obtained just after the construction of the plant, FAR D1 was raised. *Justification of evidences:* The EIA, licenses and legislation were reviewed. *Conclusion:* **(FAR D1)** The project is a greenfield project which at the moment of validation has not get the operation environmental license yet, just the installation license. The operating license issued by the environmental authority shall be requested during the first verification to ensure that the project complies with all environmental requirements of host country.	/PDD/ /EIA/ /IM01/ /IM02/ /IM03/ /EL/ /OL/	~~FAR D1~~	OK
D.1.4. Are transboundary environmental impacts considered in the analysis?	*Not applicable, since no transboundary environmental impacts are envisaged for such type of project.*	/PDD/ /EIA/	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
(EB 55 Annex 1, §§ 131–133) *Check the documents and local official sources / expertise regarding transboundary environmental impacts.*				
E. Stakeholder Comments *The DOE should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.*				
E.1. Have relevant local stakeholders been invited to consultation prior to the publication of the PDD? (EB 55 Annex 1, § 128) *Check by means of document review and interviews with local stakeholders if and when a local stakeholder consultation process has been carried out.*	*Description:* Yes, as described in section E.1, several relevant stakeholders have been communicated by letter about the project activity and had the possibility to express their doubts and concerns prior to the publication of the PDD: I. Town Hall of Tangará; II. City Hall of Tangará; III. Municipal Secretary of Tourism of Tangará; IV. Municipal Secretary of Agriculture, Cattle raising, Industry, Commerce and Environment of Tangará; V. Secretary of Economical Development of the State of Santa Catarina; VI. Foundation of the Environment of the State of Santa	/PDD/ /SHCP/ /way /	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
	Catarina (FATMA); VII. Brazilian National Association of Renewable Energies and Environment; VIII. FBOMS - Forum of Brazilian NGOs; IX. State Attorney for Public Interest (Santa Catarina); X. State Attorney for Public Interest (Federal); XI. Brazilian Association of Environmental Engineering; XII. Industrial and Commercial Association of Tangará; XIII. Association of Entities of Selling Agricultural Products of the VI Valley. *Justification of evidences:* Invitations and confirmations of receipt have been presented to the validation team. *Conclusion:* Relevant stakeholders have been invited to consultation prior to the publication of PDD for GSC.			

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
E.2. Can the local stakeholder consultation process be assessed as adequate? (EB 55 Annex 1, § 129(a)–(c)) *Describe what assessment steps have been undertaken to assess the adequacy of the stakeholder consultation process. Give a final opinion on the adequacy.* *Please consider the following requirements in this context:* *(a) Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity, have been invited;* *(b) The summary of the comments received as provided in the PDD is complete;* *(c) The project participants have taken due account of any comments received and have described this process in the PDD.*	*Description:* All relevant stakeholders have been invited to consultation following host country DNA rules (Resolution 1 and 7) prior to the publication of PDD for GSC and according to PP there was no negative comment from local stakeholders received to date. *Justification of evidences:* Invitations letters and confirmations of receipt were evidenced. The website indicated in the PDD was checked and the Portuguese version of the PDD as well as the Annex describing the contribution of the project to the sustainable development were both available, confirming compliance with host country DNA rules for CDM local SHC, about who shall be communicated and availability of the PDD in Portuguese for full understanding. *Conclusion:* The local stakeholder consultation process can be assessed as adequate.	/PDD/ /SHCP/ /way/ /unfccc/	OK	OK

ANNEX 2: ASSESSMENT OF BASELINE IDENTIFICATION

Table A-2: Assessment of Baseline Identification (EB 51 Annex 3, §§ 82 – 85)

☒	Baseline is not identified (i.e. it is given by the baseline methodology)
☐	Assessment of baseline see below

Baseline Alternatives identified	In line with the Methodology?	Eliminated	Reasons for elimination / non-elimination from list of alternatives	Evidence used	DOE Assessment	
					Appropriateness of elimination	Assessment of validation team (results and means of assessment)
	☐	☐			☐	

ANNEX 3: ASSESSMENT OF FINANCIAL PARAMETERS

Table A-3: Assessment of Financial Parameters (EB 51 Annex 3, §§110, 111, 113/ in case financial parameters stem from FSR §112)

☐	No financial parameters are used for additionality justification
☒	Assessment of all financial parameters see below

Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT		
					Correctness of value applied	Appropriateness of information source	Comment
Installed Capacity	20	MW	Directive #18 – Secretary of Energetic Planning and Development – Ministry of Mines and Energy	/FDlegis/ /TD/ /FD/	☒	☒	*Description:* the value is the total installed capacity of the plant authorized by the Secretary of Energetic Planning and Development – Ministry of Mines and Energy. *Justification of Evidences:* this value can be evidenced by the technical specifications of the turbines and generators supplier. *Conclusion:* the value is authorized by the Secretary of Energetic Planning and Development – Ministry of Mines and Energy, approved by ANEEL and counterchecked by the contract of acquisition of the turbines and generators.

Total Investment	117,909,136.23	R$	- Internal estimates of CAPEX; - Proposal of hydromechanics – Denge Engenharia e Consultoria Ltda.; - Proposal of acquisition of turbines – HISA; - Proposal of acquisition of generators – WEG; - Proposal of Construction – Seta Engenharia S. A.; - Internal estimate costs of bay connection; - Proposal of Environmental Studies – Socioambiental Consultores Associados Ltda. - Proposal of Construction – Pedra Branca Escavações Ltda.;	/FD/ /FDothers/	☒	☒	*Description:* total investment cost reported is composed of all costs of CAPEX. All items have been described and supporting evidences submitted to validation team along with the financial analysis of the project. The Capital Expenditure (Investment Cost) at the moment of taken investment decision, used on the financial model, was R$117,909,136.23. This value was determined by the investor, based on its experience in the implementation of other SHPPs, using values prevailing in the market. Some evidences are described below (some have been indexed by inflation rates until the management decision date): - Proposal of hydromechanics – Denge Engenharia e Consultoria Ltda.; - Proposal of acquisition of turbines – HISA; - Proposal of acquisition of generators – WEG; - Proposal of Construction – Seta Engenharia S. A.; - Internal estimate costs of bay connection; - Proposal of Construction – Pedra Branca Escavações Ltda. (excavation tunnel and other services of

			- Balance Sheet – SPE Salto Goes Energia S. A.; - Proposals of Implementation of Environmental Programs – ETS; - Reports of land acquisition; - Other projects documents				construction); - Balance Sheet – SPE Salto Goes Energia S. A. (license authorization); - Other proposals, assumptions and estimates. *Justification of Evidences:* the proposals, contracts and studies have been checked by the validation team. The project activity has an investment cost around **US$ 3,350** per installed kW *(conversion rate on 26-08-2010: US$ 1.00 = R$ 1.76)*. When comparing this value with other SHPP investments per installed kW, official sources of information and specialized articles, it is possible to conclude that the project activity has an investment cost compatible with the market, as can be verified below: • Examples of CDM Registered projects in Brazil[/unfccc/] (conversion from R$ to US$ by the time of registration):

Ref.	Title	MW	MUS$	US$/kW
1526	Saldanha SHP	4.8	15	**3,028**
3316	Queluz and Lavrinhas	60	160	**2,663**

2500	Moinho and Barracão	26	67	**2,619**
2165	Santa Edwiges III	12	30	**2,559**
0831	Santa Edwiges II	12	22	**1,823**
4676	Malagone SHP	19	58	**3,038**
3486	Goiandira, Pedra do Garrafão, Pirapetinga and Sítio Grande SHPs	27	61	**2,264**
		16.5	47	**2,822**
		15.7	44	**2,833**
		25	93	**3,720**
3898	Ganhães	44	152	**3,448**

- Investment in Projects for Generation of Electric Energy – PAC (Brazilian Government Plan for Development Acceleration) – Sept/2010 – publication of Eletrobrás[/eletrobras/] (state owned company of energy):

  i. SHPP João Borges (Eletrosul): **US$ 3,547,987/MW** *(conversion rate on Sept/2010 US$ 1.00 = R$ 1.70)*;

  ii. SHPP Barra do Rio Chapéu (Eletrosul): **US$ 3,235,294/MW** *(conversion rate on Sept/2010: US$ 1.00 = R$ 1.70)*.

- Stakeholders Public Consultation of

							PROINFA (Brazilian government program which was launched in 2002 with the objective of increasing the participation of electricity produced from wind, biomass and small hydroelectric plants in the National Interconnected System) – Ministry of Mines and Energy: **US$ 2,290/kW** – July /2003 *(corrected by Brazilian rate IGPM and conversion rate on Set/2011: US$ 1.00 = R$ 1.84)*; • Articles: i. "Producers and Funds make their bets on SHPs" – Newspaper "Valor Ecônomico" – Maurício Capela – 18-07-2008 – available at http://www.investe.sp.gov.br/noticias/lenoticia.php?id=3679&c=6&lang=1 – **US$ 2,515/kW** *(conversion rate on 18-07-2008: US$ 1.00 = R$ 1.59)*; ii. "SHPs shall multiply by three the production of energy in Brazil" – Ricardo Pigatto (President of the Brazilian Association of Small and Medium Producers of Electric Energy) – 20-07-2009 – available at http://www.riosvivos.org.br/Noticia/PCHs+devem+triplicar+geracao+de+energia+no+Brasil/14029 – **US$ 2,631/kW** *(conversion rate on 20-07-2009: US$ 1.00 = R$ 1.90)*; iii. "Wind Energy" – Charles Lenzi (President of the Brazilian Association of

							Clean Energy) – 20-10-2010 – available at http://www.fatorambiental.com.br/portal/index.php/2010/10/25/energia-eolica-21/ – **US$ 3,592/kW** *(conversion rate on 20/10/2010: US$ 1.00 = R$ 1.67)*. *Conclusion:* the total investment has been evidenced and this has been considered reasonable and consistent by the validation team. All calculations have been demonstrated in the Financial Analysis and the evidences have been presented to validation team. All rules for BNDES loan are public and can be found on its website. In addition, the comparison of the investment value with other SHPP investments, official sources of information and specialized articles reveals that the used investment values of the project activity are compatible with the market and official sources, in line with paragraph 111 (b) of the VVM 1.2. The value could also be counter checked by the previous consultation for the loan of BNDES, sent after the investment decision and also by the "Consolidated Financial Statements for the year ended on December 31st, 2010" from Empresa de Investimento em Energias Renováveis S. A. – ERSA (holding that was previously the owner of SPE Salto

							Góes Energia S. A.) which reveals that four months after the investment decision, the cost of investment planned by the company was R$ 128,100 Million. As per the DOE's understanding the value used for the investment analysis is adequate and conservative and can be assessed as valid at the time of the management decision and compatible with the SHPPs market in Brazil.
Plant Load Factor	55.5	%	Directive #18 – Secretary of Energetic Planning and Development – Ministry of Mines and Energy	/FDlegis/	☒	☒	*Description:* the value is calculated by the equivalent capacity necessary to produce the assured energy at full load (long term average generation discounting programmed and unprogrammed stops for maintenance) divided by the installed capacity of the plant. *Justification of Evidences:* all data are official and approved – 11.1 MW_{avg} / 20 MW = 55.5% *Conclusion:* it is a calculation based on assured energy and installed capacity which is given by Ministry of Mines and Energy and approved by ANEEL.
Energy Generation	97,236	MWh	Directive #18 – Secretary of Energetic Planning and Development – Ministry of Mines and Energy	/FDlegis/	☒	☒	*Description:* the value is the total energy that will be delivered to the grid by the plant. It is calculated by the equivalent capacity necessary to produce the assured energy at full load (long term average generation discounting programmed and unprogrammed stops for maintenance) times number of hours

							in the year. *Justification of Evidences:* 11.1 MW X 8760 hours = 97,236 MWh per year. *Conclusion:* it is a calculation based on assured energy which is given by Ministry of Mines and Energy.
Price of energy	147.47	R$/MWh	Print Screen of CCEE website with the result of auction 07/2010	/Fdauct/ /ccee/	☒	☒	*Description:* electricity price of the plants given by the 2nd Alternative Energy Auction. *Justification of Evidences:* the price is the official result of the auction. *Conclusion:* the price has been defined by the bid price and it is official and valid for 30 years according to the rules of the auction that automatically defines the PPA.
O&M costs	18.67	R$/MWh/year	- O&M cost study based on PCH Alto Irani Energia, PCH Cocais Grande Energia and PCH Plano Alto Energia - Balance Sheet – PCH Alto Irani Energia - Balance Sheet – PCH Cocais Grande Energia - Balance Sheet – PCH	/FD/	☒	☒	*Description:* other O&M costs are maintenance and repair of the installations, equipment and machinery, third party operation services, security and surveillance, cleaning services, environmental services related to the commitment to social and environmental programs, equipment rental, consumption and use of materials, civil liability insurance and operational risk insurance. They are estimates based on the PP's experience in other plants. *Justification of Evidences:* the estimates are based in PP's experience in other plants by their official Balance Sheets.

			Plano Alto Energia				*Conclusion:* when calculated the total O&M, the amount represents around 1.5% per year of the total investment. The value is adequate to the type of project and quite low when compared with the Directives for SHPP Projects, from Eletrobrás which considers an annual O&M costs around 5% of the total investment for projects in Brazil.
Benchmark	19.91	%	- "Cost of Capital to Small Hydroelectric Power Plants (SHPPs) in the Clean Development Mechanism Context" – FGV - Yahoo Finance – USA Treasury bonds *http://finance.yahoo.com/q/hp?s=%5ETYX* - Rate Inflation – USA Historical CPI Index *http://www.rateinflation.com/consumer-price-index/usa-historical-cpi.php?form=usacpi* - CBonds Financial Information – Brazilian Country Risk *http://www.cbonds.info/all/eng/index_detail/group_id/1/*	/FD/ /bench/ /bndes/	☒	☒	*Description:* the chosen benchmark is the required/expected return on equity which is appropriate as per the *Guidelines on the Assessment of Investment Analysis*. The benchmark was calculated using the Capital Asset Pricing Model (CAPM) applying the methodology presented on the study of FGV, a renowned business school in Brazil. <u>Risk free rate</u> (4.16%): - United States Treasury bonds with a 30-year maturity: the annual average of quotes for the 30-year bonds (4.08% per year) results in the nominal Risk Free Rate. To obtain the Risk Free Rate in real terms, the US inflation (2.72%) is considered. The value of Risk Free (real) is 1.32% per year. Those values are official and public; - Brazilian Country Risk: EMBI+ five year average will be used which is

			- IPEA data – Brazilian Country Risk *http://www.ipeadata.gov.br* - Damodaran on line *http://pages.stern.nyu.edu/~adamodar/*				2.84% per year. This value is official and public. Market Risk Premium (market return minus risk free rate. The difference between the arithmetic average stock market return (11.27%) and the arithmetic average return of the government securities in the long term – American Treasury Bonds –(5.24%) from 1928 to 2009: 6.03%. Those values are official and public; Investment Risk Compared to Market: (Brazilian Beta – starts with the Unlevered Beta of the companies in the United States and relever it using the Brazilian tax data and capital structure). The result of unleveraging is a value of Beta that does not take into account leverage and that is not biased towards the conditions of differently financially structured companies. The result of releveraging is obtained by applying to the Unleveraged Beta the debt/equity (70% / 30%) ratio that is specific for the Electricity Sector Benchmark, defined by BNDES and FGV assumptions (maximum structure for the third party capital. Value considered by financial institution of the maximum capital that can be) and using the Brazilian tax data and capital structure is the value that reflects the investment risk compared to the market in a more accurate way. The result is 2.61. Benchmark (calculated applying the methodology presented on the FGV's study):

							19.91%. *Justification of Evidences:* all indicated websites and study were checked. *Conclusion:* the chosen benchmark Required/expected return calculated by the Capital Asset Pricing Model using FGV's methodology (with publicly available input data) is adequate for the type of project activity, it uses public and consolidated available information and it is calculated in line with EB62 Annex 5. The use of the sectoral benchmark (Electricity Sector) provides a basis for any investor, without individual profitability expectations.
Technical Lifetime	30	years	"Study about the economic lifetime and depreciation rate" *http://www.aneel.gov.br/aplicacoes/audiencia/arquivo/2006/012/documento/relatorio_vida_util_volume_2.pdf*	/FD/	☒	☒	*Description:* it is the operational lifetime of the main equipment given by a third party (Escola Federal de Engenharia de Itajubá) study for ANEEL. *Justification of Evidences:* the specialized study was checked. *Conclusion:* third party study for ANEEL.
TUSD	2.42	R$/kW/ month	Resolution # 856 – ANEEL	/FDlegis/	☒	☒	*Description:* it is a fee charged by ANEEL over the use of transmission line. The value is charged by kW per month. *Justification of Evidences:* it is an official fee charged regulated ANEEL's Resolution # 856. *Conclusion:* the value estimated is correctly

							applied according to Resolution # 856.
Discount on TUSD	50	%	Normative Resolution # 77	/FDlegis/	☒	☒	*Description:* it is a reduction on transmission fee given to plants with less or equal installed capacity of 30 MW. *Justification of Evidences:* it is established by ANEEL's Normative Resolution #77. *Conclusion:* the reduction is correctly applied according to ANEEL's rules.
TFSEE	363.60	R$/kW/year	Dispatch # 4774 – ANEEL	/FDlegis/	☒	☒	*Description:* it is a fee paid over the annual income resulted from the generation service. It is charged in Brazil by the ANEEL. It is 0.5% over the total income of the plant. *Justification of Evidences:* ANEEL regulation was checked. *Conclusion:* the value is established by ANEEL's Dispatch #4774
Debt – financing BNDES % Equity	40.3%	%	BNDES Project Financial Conditions BNDES Project General Conditions Proposal of Financial Support – Santander Sample of BNDES loan	/FD/	☒	☒	*Description:* Maximum structure for the third party capital. Values considered by financial institution (BNDES). Data obtained through the calculation of the maximum capital that can be obtained from BNDES and it is the capital structure to the investment analysis was determined by the project proponent and is the expected structure by the company. *Justification of Evidences:* all loan documents and requests were reviewed
Debt – financing BNDES % Debt	59.7%	%			☒	☒	

			contract			*Conclusion:* the value is established by loan rules.
Debt – financing BNDES Spread over index	1.95	%		☒	☒	*Description:* Value given by the model of loan contract (1.95%) rounded up considering the type of the project and that the project owner has expertise on SHP construction. *Justification of Evidences:* all loan documents and requests were reviewed *Conclusion:* the value is established by loan rules.
Debt – financing BNDES Grace period	6	months		☒	☒	*Description:* grace period given for the start of payments. *Justification of Evidences:* all loan documents and requests were reviewed *Conclusion:* the value is established by loan rules.
Debt – financing BNDES Advisory fee	0.6	%		☒	☒	*Description:* Advisory fee charged. *Justification of Evidences:* all loan documents and requests were reviewed *Conclusion:* the value is established by loan rules.
Debt – financing BNDES	50	%		☒	☒	*Description:* letter of credit over the financing value.

Letter of credit							*Justification of Evidences:* all loan documents and requests were reviewed *Conclusion:* the value is established by loan rules.
Debt – financing BNDES Letter of credit commission	2.0	%			☒	☒	*Description:* commission charged over the letter of credit. *Justification of Evidences:* all loan documents and requests were reviewed *Conclusion:* the value is established by loan rules. The value can be crosschecked with the Sample of endorsement contract # 63211.2
Performance guarantee - Letter of credit	5	%	Auction 07/2010 Edict – ANEEL	/FDauct/	☒	☒	*Description:* letter of credit of 5% over CAPEX due to requirements of the auction to ratify the bid price. *Justification of Evidences:* auction edict was checked. *Conclusion:* payment required by the auction edict.
Performance guarantee - Letter of credit commission	2	%	Performance Guarantee	/FDauct/	☒	☒	*Description:* commission that shall be paid to the financial agent that guarantees the letter of credit of 5%, necessary to ratify the bid price. The value of 2% over the value of the letter of credit is an assumption of the PP by using their experience in other projects.

							Justification of Evidences: the examples of performance guarantee were checked. *Conclusion:* rates have been applied according to the Brazilian tax law. The rates are in accordance with the Brazilian market.
Auction participation guarantee - Letter of credit commission	1,383,060	R$	Bid bond	/FDauct/ /fazenda/	☒	☒	*Description:* commission paid to the financial agent as guarantee of the letter of credit for the auction participation. The value is approximately 1% of the CAPEX. *Justification of Evidences:* the performance guarantee of each plant was checked. *Conclusion:* correct rates have been applied according to the Brazilian tax law.
PIS/PASEP,COFINS	3.65	%	- Article 52 of the Normative Instruction #247 - http://www.receita.fazenda.gov.br/Aliquotas/ContribPj.htm	/FD/ /fazenda/	☒	☒	*Description:* Brazilian tributes charged over the company's presumed profit (companies with gross revenue below R$ 48 million can apply the modality of tax call "Presumed (vain) tax profit"). *Justification of Evidences:* the presumed profit and the taxes are calculated as follows: - PIS / PASEP (Social Integration Program): 0.65% over the gross profit; - COFINS (Contribution for Financing Social Security): 3% over the gross profit; - Income tax: 15% over 8% (presumed profit)
Income Tax	25	%	- Article 46 of the Law #10637 - http://www.receita.fazenda.gov.br/Aliquotas/ContribPj.htm	/FD/ /fazenda/	☒	☒	

							over the gross profit; - Additional Income tax: 10% over the presumed profit (8%) of which exceeds R$ 240 thousand/year. *Conclusion:* correct rates have been applied according to the Brazilian tax law.
Period of Assessment	30	years	Auction 07/2010 Edict – ANEEL	/FDauct/	☒	☒	*Description:* it is the operational lifetime given by the concession contract and PPA. *Justification of Evidences:* the auction documentation was checked. *Conclusion:* the period is established by the auction rules. It is in compliance with the *Guidelines on the Assessment of Investment Analysis* (EB 62, Annex 5).

ANNEX 4: ASSESSMENT OF BARRIER ANALYSIS

Table A-4: Assessment of Barrier Analysis (EB 51 Annex 3, § 117)

☒	No barrier parameters are used for additionality justification
☐	Assessment of barriers see below

Kind of Barrier (invest, tech, other)	Description of Barrier	Evidence used	Assessment of validation team	
			Appropriateness of information source	Explanation of final result
			☐	

ANNEX 5: OUTCOME OF THE GSCP

Table A-5: Outcome of the Global Stakeholder Consultation Process

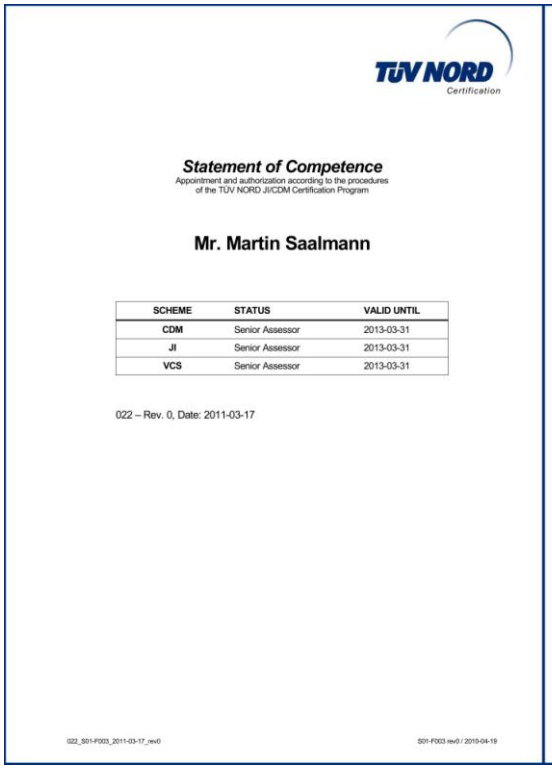
(§§ 40-42, VVM Version 1.2)

☒	No comments were received during the global stakeholder consultation period
☐	Comments were received during the global stakeholder consultation period. The comments (in unedited form) and the consideration/response of the validation team are presented below:

Comment No.:	Comment by:	Inserted on:	Subject	Comment *)	Action taken by the validation team to take due account on the comment *)	Conclusion (incl. CARs CLs or FARs)

*) In case clarifications have been requested by the validation team corresponding rows shall be added

ANNEX 6: STATEMENTS OF COMPETENCE OF ALL INVOLVED PERSONNEL



TÜV NORD Certification

Statement of Competence

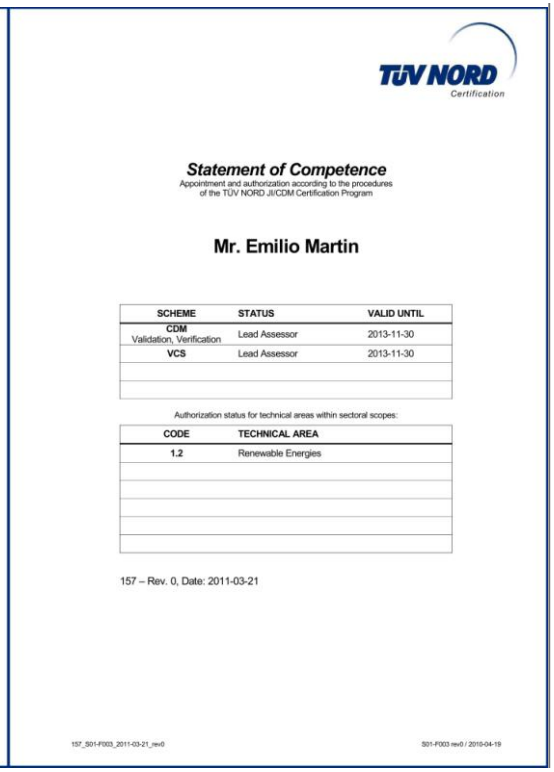
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Martin Saalmann

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor	2013-03-31
JI	Senior Assessor	2013-03-31
VCS	Senior Assessor	2013-03-31

022 – Rev. 0, Date: 2011-03-17

022_S01-F003_2011-03-17_rev0 S01-F003 rev0 / 2010-04-19



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Emilio Martin

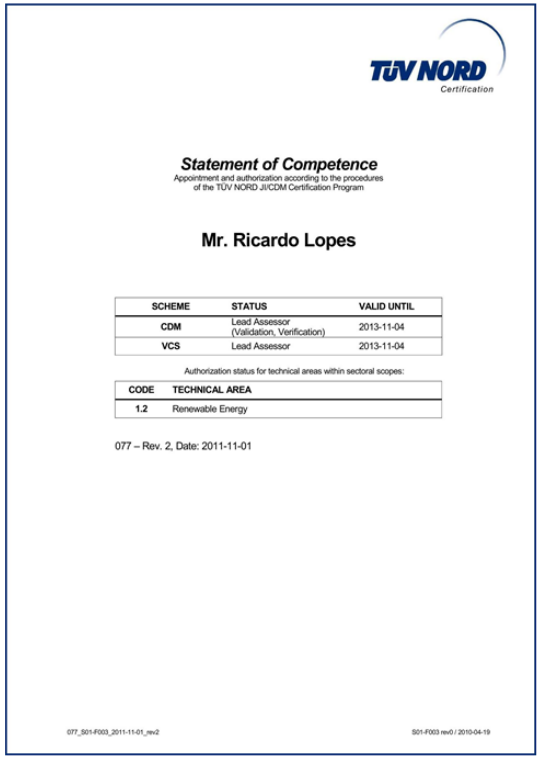
SCHEME	STATUS	VALID UNTIL
CDM Validation, Verification	Lead Assessor	2013-11-30
VCS	Lead Assessor	2013-11-30

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewable Energies

157 – Rev. 0, Date: 2011-03-21

157_S01-F003_2011-03-21_rev0 S01-F003 rev0 / 2010-04-19



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Ricardo Lopes

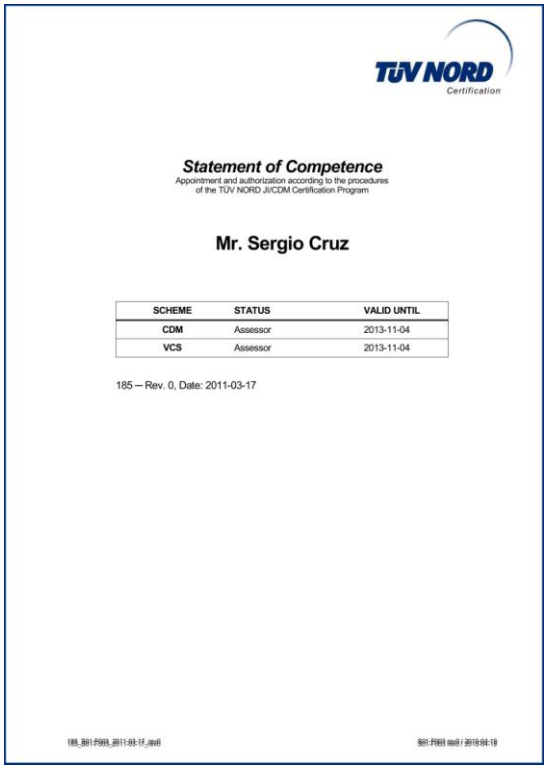
SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2013-11-04
VCS	Lead Assessor	2013-11-04

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewable Energy

077 – Rev. 2, Date: 2011-11-01

077_S01-F003_2011-11-01_rev2 S01-F003 rev0 / 2010-04-19



TÜV NORD Certification

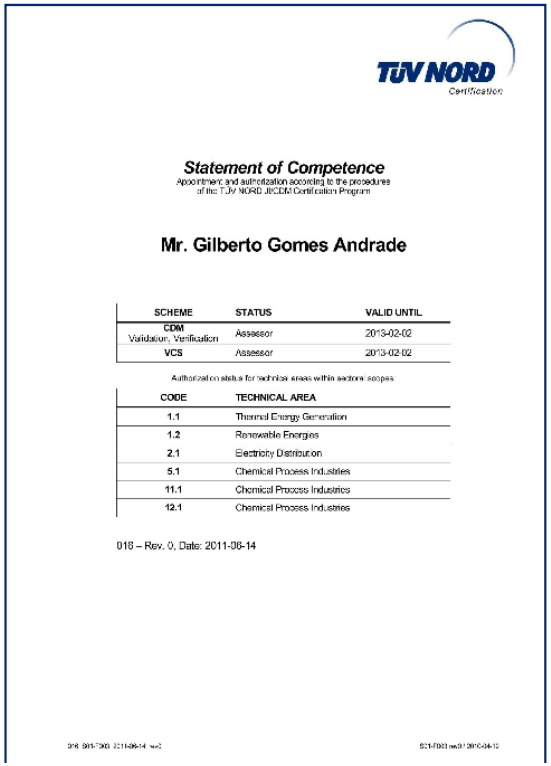
Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Sergio Cruz

SCHEME	STATUS	VALID UNTIL
CDM	Assessor	2013-11-04
VCS	Assessor	2013-11-04

185 – Rev. 0, Date: 2011-03-17



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Gilberto Gomes Andrade

SCHEME	STATUS	VALID UNTIL
CDM Validation, Verification	Assessor	2013-02-02
VCS	Assessor	2013-02-02

Authorization status for technical areas within sectoral scopes

CODE	TECHNICAL AREA
1.1	Thermal Energy Generation
1.2	Renewable Energies
2.1	Electricity Distribution
5.1	Chemical Process Industries
11.1	Chemical Process Industries
12.1	Chemical Process Industries

016 – Rev. 0, Date: 2011-06-14