

VALIDATION REPORT

CENTRAL ELÉTRICA ANHANGUERA S. A.

ANHANGUERA HYDRO POWER PROJECT

Report No: 7668 - 10/490

Date: 2011-03-16

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Validation Report:	Report No.	Rev. No.	Date of 1 st issue:	Date of this rev.
	7668 – 10/490	0	2011-03-16	2011-03-16
Project:	Title:		Initial PDD Version:	Final PDD Version
	Anhanguera Hydro Power Project		2010-10-14	-
Client:	Central Elétrica Anhanguera S. A.		Client ref:	
Project Participant(s):	Host Party:		Other involved partie	es:
	Brazil		-	
Applied	Title:		No.:	Scope / TA:
methodology/ies:	Consolidated baseline methodology f grid-connected electricity generation renewable sources	or from	ACM0002 – ver. 12.1.0	01 / S
Validation team /	Validation Team:		Technical review:	Final approval:
Technical Review and Final Approval	Ricardo Lopes Gilberto Andrade Sergio Cruz		Alex Nebel Emilio Martin	Rainer Winter
Expected Emission reductions: [tCO ₂ e]	Expected emission reductions over the crediting period:	e first	Expected project sta	rting date:
	162,848 tCO ₂ e		2008-03-20	
Confidential content:	Yes		No No	
Summary of Validation Opinion:	Positive validation opinion		Negative validation opinion	
	Central Elétrica Anhanguera S. A. has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "Anhanguera Hydro Power Project" 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 05 Corrective Action Request (CAR) and 18 Clarification Requests (CLs) were raised and successfully closed.			
	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 162,848 tCO2e are most likely to be achieved within the 10 years fixed 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. The request for registration will only be issued after the LoA from host country DNA is obtained.			cribed in the project request for registration
Document	Filename: No. of pages:		No. of pages:	
information:	2011-03-16 7668_Final_ValR_Anhar	iguera_	to DNA	143

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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
CELAN	Anhanguera Electric Company
CER	Certified Emission Reduction
CL	Clarification Request
СМ	Combined Margin
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CONAMA	National Environmental Council
СР	Certification Program
DNA	Designated National Authority
EB	CDM Executive Board
EIA	Environmental Impact Assessment
ELETROBRÁS	National Electric Utility Company (State Owned)
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GT	Glossary of Terms
IEE	Electric Power Index
IPCC	Intergovernmental Panel on Climate Change
JUCESP	Trade Registration Council of the State of São Paulo
OM	Operating Margin
OSV	On-site visit
	Project Design Document
PROINFA	Program of Incentive for Alternative Sources of Electric Energy
	Quality control/Quality assurance
	Simplined Environmental impact Assessment
	Sinali Hydroelectric Fower Flant
	Danuellantes Energy Society
	National Interconnected System
	Validation and Vorification Manual
	Weighted Average Costs of Capital
WACC	Weighted Average Ousis of Capital

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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	Anhanguera Hydro Power Project		
Project size	🛛 Large Scale		
	1 Energy Industries (renewable- /non-renewable sources)		
	2 Energy distribution		
	3 Energy demand		
	4 Manufacturing industries		
	5 Chemical industry		
	6 Construction		
Project Scope	7 Transport		
(according to UNFCCC	8 Mining/Mineral production		
sectoral scope numbers for	9 Metal production		
CDM)	10 Fugitive emissions from fuels (solid, oil and gas)		
	Image: The second sec		
	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 – version 12.1.0		
Technical Area(s)	S - Renewable Hydro		
Crediting period	Renewable Crediting Period (7 v)		
	Fixed Crediting Period (10 y)		
Start of crediting period ¹	2011-08-01		

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
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Characteristic	Party	Project Participant
Host party	Brazil	Central Elétrica Anhanguera S. A.

¹ As per the published PDD (version 1)

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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 São Paulo
Project location address:	Towns of São Joaquim da Barra and Guará – on the Sapucaí River
Latitude:	20º 29.55' S
Longitude:	47º 51.53' 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 activit
--

Parameter	Unit	Value
Installed capacity	MW	22.5
Assured energy	MW	11.37
Reservoir area	km²	2.05
Turbine Voith	unit	3
. Туре		Kaplan – horizontal axis
. Serial		19650
		19651
		19652
. Nominal flow rate of turbines	m³/s	50.07
. Nominal rotation of turbines	rpm	240
. Power (each)	MW	7.5
Generators Hyundai Ideal	unit	3
. Туре		SAB
. Serial		0810035-01
		0810035-02
		0810035-03
. Power (each)	MVA	8.823
	MW	7.5

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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

Торіс	Time
Assignment of validation	2010-10-05
Submission of PDD for global stakeholder commenting process	from 2010-11-12
	to 2010-12-11
On-site visit	from 2010-12-14
	to 2010-12-17
Draft reporting finalized	2010-12-20
Final reporting finalized	2011-01-28
Technical review on final reporting finalized	2011-03-16

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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, consistent of one team leader and 3 additional team members, were appointed. Furthermore also the personnel for the technical review and the final approval were determined.

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

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence	Technical competence ⁴⁾	Host country Competence	Team Leading competence
⊠ Mr. □ Ms.	Ricardo Lopes	BRTÜV, Sao Paulo	TL	А	\boxtimes	-	\boxtimes	\boxtimes
⊠ Mr. □ Ms.	Gilberto Andrade	BRTÜV, Sao Paulo	ТМ	TE	\boxtimes	S	\boxtimes	
⊠ Mr. □ Ms.	Sergio Cruz	BRTÜV, Sao Paulo	ТМ	E	\boxtimes	-	\boxtimes	
☐ Mr. ⊠ Ms.	Alex Nebel	TÜV NORD, Germany	TR ³⁾	A	\boxtimes	-		\boxtimes
☐ Mr. ☐ Ms.	Martin Emilio	TÜV NORD, Germany	TR ³⁾	E	\boxtimes	S		
☐ Mr. ☐ Ms.	Rainer Winter	TÜV NORD, Germany	FA	SA	\boxtimes	S		\boxtimes

Table 3-2:Involved Personnel

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¹⁾ TL: Team Leader; TM: Team Member, TR: Technical review; 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.....)

Certificates of appointment 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.



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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 assessmen t 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

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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.

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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).

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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	ł
------------	---------	----------	-----------------------	---

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 	1	3	-
 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 	2	12	
Duration of the Project / Crediting Period (C)	-	1	-
Environmental impacts (D)	1	2	0
Stakeholder Comments (E)	1	-	-
SUM	5	18	0

¹⁾ The letters in brackets refer to the validation protocol

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).

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

Finding:		CAR A1	
Classification	🖂 CAR		🗌 FAR
Description of finding Describe the finding in unam-	Please, revise the f	ollowing sections:	
biguous style; address the context (e.g. section)	a. Section A.3: indic by the guidelines	ate (host) for the hos for completing PDD;	t country as required
	b. Section B.6.1: t displayed correct	he formula Baseline ly: BE _y = EG _{PJ,y} * EF _g	e Emissions is not ^{rid,CM<y;}
	c. All sections: year down to 16,284 to	rly emission reductio CO ₂ ;	ns shall be rounded
	d. Annex 1: the nan the same as in se	ne of the PP in the ta ection A.3.	able must be exactly
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	a. In Section A.3 the the guidelines	e word (host) was inc	luded as required by
	b. The formula was	corrected	
	c. The emission re tCO ₂	ductions were round	led down to 16,284
	d. The name was c the same	orrected and the nar	nes are now exactly
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A- 2 In case of non-closure	All sections have bee	en properly revised a	nd corrected.
additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	CAR is closed		
Conclusion	To be checked durin	g the next periodic verific	ation
Tick the appropriate checkbox	Appropriate action w	as taken	
	Project documentation	on was corrected correspo	ondingly
	Additional action sho	uld be taken	
	The project complies	with the requirements	

Finding:	CAR B1			
Classification	🖂 CAR		🗌 FAR	



Finding:	CAR B1
Description of finding Describe the finding in unam-	In section B.5, please:
biguous style; address the context (e.g. section)	 a. the timeline on early consideration at the end of section B.5 shall be transferred to the beginning of the section B.5. Having two sections with timelines (beginning and end of B.5) is confusing;
	 b. in addition, at the early consideration timeline, include the following events: purchase of land and purchase of main equipment (turbine, generators);
	c. clarify if the event "18/07/2008: Pro-forma invoice of generators" is the purchase date or the delivery date or any other what kind of event?
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	a. Ok. The timeline was transferred to the beginning of the section B.5
rective action taken in details.	 b. Land purchase was not a single event and negotiations involved more than 40 parties. The first contract was signed in August 2007 and negotiations were still being carried until May 2010. By the time of the management decision (15/12/2007) the negotiations had covered less than 10% of the total required land corresponding to less than 5% of total capital expenditure with land. Supporting documentation was sent to validator.
	indicates the purchase of the equipment.
	c. See above



Finding:		CAR B1
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A- 2. In case of non-closure.	a.	The timeline was properly transferred to the beginning of the section B.5;
additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	b.	At the timeline, the last event of purchasing the land was included to define the final date when the entire property of the project activity has been acquired (2010-05-25). Further it can be confirmed that the land purchase before the defined start date must not be considerd as a significant investment to the project and therefore does not qualify as project start date. The start date is confirmed with the construction contracts on 10/02/2008.
	c.	The event 'Pro-forma invoice of generators' refers to the purchase of the generators and was rephrased.
	<u>C/</u>	AR is closed
Conclusion		To be checked during the next periodic verification
Tick the appropriate checkbox	\square	Appropriate action was taken
	\square	Project documentation was corrected correspondingly
		Additional action should be taken
	\square	The project complies with the requirements

Finding:		CAR B2	
Classification	🖂 CAR		🗌 FAR
Description of finding Describe the finding in unam- biquing style: address the	In section B.7.1, ple	ease:	
context (e.g. section)	a. in line with the guidance for completing the tables shall contain for each parameter the s of data applied for ex-ante estimation". When the respective value shall be given (i.e. EF_{OM} CAP_{PJ}, A_{PJ});		
	 b. parameters EG_f ACM0002, the m not hourly. 	_{acility} and <i>TEG_y</i> : as onitoring frequency r	s required by the nust be continuously
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	a. It was included t ante estimation" the respective va	he section "Value of in the parameters wl lues were given.	data applied for ex- nere applicable. And
	b. It is now state continuously and TEGy.	ed that the monit not hourly for paran	oring frequency is neters EGfacility and



Finding:	CAR B2
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A- 2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	 a. The cell 'Value of data applied for ex-ante estimation' was added for all parameters and the respective values for the parameters EG_{facility,y}, EF_{CM}, EF_{OM}, EF_{BM}, Cap_{PJ} and A_{PJ}; b. The monitoring frequency for parameters EG_{facility} and TEG_y was properly corrected and ha sbeen verified as applicable for the installed equipment. <u>CAR is closed</u>
Conclusion Tick the appropriate checkbox	To be checked during the next periodic verification
	Project documentation was corrected correspondingly Additional action should be taken
	The project complies with the requirements

Finding		CAR D1	
Classification	🖂 CAR		🗌 FAR
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	At pre-validation sta- license) was not avail first verification.	ge, the Operation Li able and shall be verif	cense (environmental ied later or during the
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	The Operational Licen	se is now available and	I is sent to the DOE.
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A- 1. In case of non-closure,	The Operational Lice November 26 th , 2010,	nse # 106150 was is valid for two years.	sued by CETESB on
additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	validation stage.		tion toam during the
Conclusion	To be checked durin	g the first periodic verifica	tion
Tick the appropriate checkbox	Appropriate action w	as taken	
	Project documentation	on was corrected correspo	ondingly
	Additional action sho	ould be taken	
	The project complies	with the requirements	

Finding		CAR E1	
Classification	🖂 CAR		🗌 FAR



Finding	CAR E1		
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	Please, it is necessary to send again invitation letters to all local stakeholders (designated by the Brazilian Interministerial Commission on Climate Change) informing that a new version of the PDD has been published, giving the website information and asking for their comments.		
	In addition, please evidence these invitations with the new letter, confirmations of receipt and website, including all information at Section E of the PDD.		
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	Invitation letters were sent to stakeholders on December 21 st 2010. The website information was made available to stakeholders and comments were requested.		
	The new letter, website address (<u>www.celan.com.br</u>) and sending confirmation was sent to validator. All information was included at Section E of the PDD.		
DOE Assessment #1 The assessment shall encom- pass 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 invitation letters were sent again to all relevant stakeholders informing that a new version of the PDD is available at the CELAN's website and asking for their comments. The letter and the confirmation receipts of all the invited		
	stakeholders were presented to the validation team.		
Conclusion	To be checked during the first periodic verification		
lick the appropriate checkbox	Appropriate action was taken		
	Additional action should be taken		
	\square The project complies with the requirements		

Finding	CL A1		
Classification	🗌 CAR	🛛 CL	🗌 FAR
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	In Section A.4.3 accord PDD, please include "a sound technology, and Host Party."	ording to the Guideling a description of how en d know-how to be use	es for Completing the vironmentally safe and d, is transferred to the
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	In Section A.4.3 it was included the description about the safeness and technology of the equipments. The only technology transferred to the Host Party is the technology from the generators; the other equipments are domestically-made.		



Finding	CL A1
DOE Assessment #1 The assessment shall encom- pass 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 that the project is environmentally safe and that the technology is well known in Brazil as it is used in several other projects was included in section A.4.3.
Conclusion <i>Tick the appropriate checkbox</i>	 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 A2		
Classification		🛛 CL	🗌 FAR
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	The value for plant loa with the Basic Project please revise the plar (53.3%) in relevant calculations.	ad factor given in Sect ^{/PBC/} . Therefore, in line nt load factor according Sections of PDD	ion A.4.3 is not in line with EB48 Annex 11, g to the Basic Project and corresponding
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	Power factor of 50%, of the guaranteed value and is used to estimate project estimates gen- used in the investme PDD.	corresponding to gener attributed by the nati- e emission reductions. eration at 105,032 MW ent analysis and refer	ating 99,601 MWh/y is onal regulator (Aneel) The Basic engineering /h/y (53.3%) and was red to throughout the
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A-	The plant load factor of 53.3% estimated at the Basic Project was used in section A.4.3 (General project data).		
<i>I. In case of non-closure,</i> additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	The plant load factor the calculations of emi it is a more conservation	of 50%, guaranteed by ssion reductions and is ve assumption.	ANEEL, was used in deemed adequate, as
	<u>CL is closed</u>		
Conclusion	To be checked during	g the first periodic verifica	tion
Tick the appropriate checkbox	Appropriate action w	as taken	
	Project documentatio	on was corrected correspo	ondingly
	Additional action sho	uld be taken	
	I → The project complies	with the requirements	

Finding:		CL A3	
Classification	🗌 CAR	🖂 CL	🗌 FAR



Finding:	CL A3
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	In Annex 5: for transparency, please clarify in this section why the values of single parameters differ from the actual values of installed equipment (e.g. unit nominal capacity, Power factor, Plant capacity, Indirect jobs).
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	The technical specs Annex 5 are from the basic engineering project of 2002. Since then some adjustments were made.
	1. Nominal Capacity: remains the same value of 22.5 MW throughout the PDD, corresponding to 3x7.5MW turbines.
	2. Power factor and Energy Generation: The national regulator, ANEEL, issues a guaranteed value of annual energy generation based on worst-case hydrology scenarios. The power factor (50.5%) and annual generation (99,601 MWh/y) in Annex 5 correspond to this scenario. These values were used to estimate the CER volume of the project as they are more conservative. On the other hand, the demonstration of additionality used PP projections of the average expected generation (105,032) and a power factor of 53.3%.
	3. Plant Capacity: Plate value of each of the 3 turbines is 7.56 MW that is reduced to 7.5 when operation at the same time. The plant capacity value of 22.68 in Annex 5 is simply 3 x 7.56.
	4. Head: The operational level (17.07m) is 2% lower than the initial projected value (17.43m). The official authorized value issued by ANEEL is 17.38m.
	5. Other equipment specs suffered minor changes from the 2002 project to the 2010 plant because the actual suppliers offered better technical performance and financial conditions than expected in the original project.
	The number of jobs refers to the estimate for the construction of the plant. The difference between the values in Annex 1 and in section A.2 is again due to the adjustment between the 2002 project and the actual construction.



Finding:	CL A3	
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A- 2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	A statement was added at Annex 5 that explains the va differ are based on the Basic Project of 2002 and s adjustments have been made during the construction of plant (from 2008 to 2010) to be in accordance with requirements established by the equipment specifications the concession granted by ANEEL. For ER calculation financial analysis the most conservative assumptions h been taken.	
Conclusion Tick the appropriate checkbox	 To be checked during the next periodic verification Appropriate action was taken 	
	Project documentation was corrected correspondingly	
	The project complies with the requirements	

Finding	CL B1		
Classification	🗌 CAR	🖂 CL	🗌 FAR
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	In Section B.2, please why the project activity	list each applicability of complies with it.	condition and describe
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	All applicability conditi referred to in it are now	ions stated in ACM000 v described in the PDD	2 v12.1 and the tools
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A- 1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.)	All applicability condit B.2 of the PDD. CL is closed	ions were included an	d assessed in section
shall be added. Conclusion Tick the appropriate checkbox	 To be checked during Appropriate action w Project documentation Additional action shot The project complies 	g the first periodic verifica as taken on was corrected correspo ould be taken s with the requirements	tion ondingly

Finding	CL B2	
Classification	🖂 CL	🗌 FAR



Finding	CL B2
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	 At Section B.5, Early Consideration: 1. It is necessary to indicate/include in the PDD the date and event that marks the investment decision (management decision) and submit the corresponding evidence to the validation team; 2. Further, according to the VVM, paragraph 100 (a) "evidence must indicate CDM awareness and that the benefits of CDM were a decisive factor in the decision to proceed with the project. Evidences to support this would include, inter alia, minutes and/or notes". Please provide evidences supporting the claim that CDM benefits were a decisive factor for the implementation of the project activity demonstrating that CDM was decisive for the investment decision.
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	 Management decision date is 15/12/2007. Board meeting minutes are available for DOE check. These minutes plainly state that the CERs are essential for the implementation of the project. CELAN sought loan from the national development bank (BNDES) from a dedicated line for renewable energy projects. This line finances 80% of investment (excluding purchase of land). One of the banks conditions was to demonstrate the existence of own capital to cover the remaining 20% plus land. CERs were necessary to complete the company's capital portfolio.
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A- 1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	 Early Consideration: 1. The management decision date is clearly evidenced with the minute of board of directors meeting of 2007-12-15, where it is stated that with the issuance of the installation license the board decides to implement the SHPP. In this meeting, roles and responsibilities were defined, as well as the signature of the contract of construction. 2. The board of directors meeting minute clearly states that the estimative of carbon credits are accounted to provide feasibility to the project implementation.
Conclusion <i>Tick the appropriate checkbox</i>	 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			🖂 CL	🗌 FAR
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	At Sec 1.	tion B.5: Please, revise Anhanguera as 2007 which is that the projec Anhanguera Lt changed to Ce 01;	the date of the constit at sub step 2b it is st not consistent with T t owner was establist da. on 2003-12-22 a ntral Elétrica Anhangu	ution of Central Elétrica tated that it exists since able 4 where it is said ned as Central Elétrica nd also that the name uera S. A. on 2008-10-
	2.	Please, revise of project imple	Table 13, including ot mentation;	her relevant milestones
	3.	Please, revise the parameters	Table 8 and all the sou ;;	urces and references of
	4.	At Sub-step 20 calculation and information is a	c, please include the d comparison of fina Ilso given in other part	information about the ancial indicators (such s of the Section B.5);
	5.	Please, clearly (project) chose	 document in the I n as financial indicator 	PDD the type of IRR r.
	6.	In addition, ple step.	ease clearly documen	t the outcome of each
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	1.	Dates and na revised.	mes of Central Eléti	rica Anhanguera were
	2.	Table 13 – Pro table 4 and co implementation	ject Milestones (now to ontain all the relevan	able 14) is merged with t milestones of project
	3.	Table 8 (now ta	able 6) now shows all r	references and sources
	4.	All financial i referenced and	ndicators in section explained.	2.c are adequately
	5.	PDD now clear	ly states that Project II	RR was used.
	6.	PDD now clear	ly states the outcome	of each step.



Finding	CL B3
DOE 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.	 At Section B.5: 1. The dates about Central Elétrica Anhanguera are not clear. The statements at Table 12, Section B.5, that the Central Elétrica Anhanguera Ltda. was officially established on 2003-12-12 and that with the inclusion of new partners the company became Central Elétrica Anhanguera S. A. (2008-12-31) is clear. But the statement at sub step 2b that the company exists since 2007 is not consistent. Please clarify. 2. Table 12 was revised and presents the relevant project milestones. 3. All parameters presented at table 6 are now referenced. 4. At Sub-step 2c, the information about the calculation and comparison of financial indicators and references were included. 5. It is clearly stated in all section B.5 that the Project IRR was chosen as financial indicator. 6. The outcomes of the steps are stated.
Corrective Action #2 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	To avoid any misunderstanding, the initial part of the phrase regarding CELAN was removed. This does not alter the line of thought.
DOE Assessment #2 The assessment shall encom- pass 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 phrase was excluded and this does not alter the meaning of the statement. 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	In the Excel spreadsheet calculations:		
biguous style; address the context (e.g. section)	1. F	or the input data, please:	
	a.	All input data shall be valid and applicable at the time of investment decision. Please, clearly indicate such date in Section B.5	
	b.	Revise the depreciation criterion;	
	C.	Revise the insurance value;	
	d.	Revise the total investment of SHPP and evidence the items with supplier's proposals and contracts;	
	e.	Use the fair value in the analysis, according to the Guidelines on the Assessment of Investment Analysis;	
	f.	Revise the investment horizon assumption;	
	g.	Revise the plant load factor according to the Guidelines for the Reporting and Validation of the Plant Load Factor (EB 48, Annex 11) as the value is not consistent with the one presented at the Basic Project or justify why the values do not match;	
	h.	Revise the assured power generated value to make it consistent with the used plant load factor or justify the choice;	
	i.	Consider the use of the modality of tax call "Presumed (vain) tax profit" as Brazilian tributes are charged over the company's presumed profit (companies with gross revenue below R\$ 48 million). Therefore, if used, please make the consequent changes resulted from this modality;	
	j.	Revise the price of energy as it was evidenced during the site visit that a contract for energy sale was being negotiated during the period with a price of R\$ 140.00;	
	k.	Revise the application or not of specific energy taxes (e.g. TUSD);	
	Ι.	Revise the assumption that only 70% of the equipment is subject to financing, as it was evidenced during the site visit that the construction was also included in the loan request;	
	m.	Clarify the assumption of the debt and equity ratio as 51/49.	
	2. In	addition, in all tabs please:	
	a.	Delete all unused data;	
	b.	Translate all sections to English;	
	C.	Please, reference transparently and precisely the sources for all input data used in the Financial Analysis in the financial spreadsheet and/or PDD.	



Finding	CL B4
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	 In the Excel spreadsheet calculations: 1) Management investment decision date is 15/December/2007 and all input data is consistent with it are presented in the Milestones table. 2) Please see (9), below;



3)	Insurance was estimated applying an annual value of 0.3% of investment as per guidance of the Ministry of Energy and Mines – Instituto Nacional de Eficiência Energética /MME - Audiência Pública Proinfra 2003 pg14 – http://www.inee.org.br/down_loads/forum/Parecer%20INEE%20 Proinfra.pdf
4)	Capex (without land) as of Dec07 at 78MR\$ is a conservative estimate:
	a) Basic engineering project (2001) estimated capex, without land and without engineering & services and based on proposals for equipments, in 44MR\$ which, carried to Dec07 using IGP-M and IPCA is equivalent to 92MR\$.
	 b) Documents sent to BNDES in 2009 set capex at 107MR\$. Deflating and taking exchange rates into account, brings capex to Dec07 to 99MR\$.
5)	The "Guidelines on the Assessment of Investment Analysis version 03 - EB 51, annex 58" states that "In general a minimum period of 10 years and a maximum of 20 years will be appropriate". As in (6) below, the investment horizon is 30 years.
	Furthermore, it states that "The fair value should be calculated in accordance with local accounting regulations where available". Eletrobrás, in the guidelines it developed for small hydro projects in Brazil recommends using a fair value calculated as a fraction of the total invested ((Construction depreciation period) – (Investment horizon)) / (Construction depreciation period). See chap.9 p.295
	(http://www.eletrobras.com/ELB/data/Pages/LUMIS4AB3DA57P TBRIE.htm)
	Aneel defined depreciation rates for the electric sector in:
	http://www.aneel.gov.br/aplicacoes/leitura_arquivo/arquivos/MANUAL-ONS- Cont-Versão15-01-03FINAL.pdf - pgs 211 - 216
	in which the power house and substation are depreciated in 50 years.
	The fair value is $((50-30)/50) = 40\%$ of the investment.



·	
6	Investment horizon – Eletrobrás, the main Brazilian state electric company recommends the use of the authorization period of 30 years issued by the Brazilian regulatory agency (Aneel). See chap.9 pg 294 of:
	(http://www.eletrobras.com/ELB/data/Pages/LUMIS4AB3DA57PTBRIE.htm);
	Brazilian laws dealing with authorization and concession periods for the electric sector are Law 9074/1995, Law 9327/1996 and Decree 2003/1996. The former in its actual writing, deleted Article 10 that used to deal with extending the authorization period. After the 30 year period, all equipments and other assets are automatically transferred to the State. The 30 year investment horizon is therefore a value consistent with Brazilian laws
	The "Guidelines on the Assessment of Investment Analysis
	version 03 - EB 51, annex 58" states that "In general a minimum period of 10 years and a maximum of 20 years will be appropriate", therefore the adopted value of 30 years is conservative (10 additional years of revenues) regarding the Guidelines.
7	The value was changed to 53.3% which was used in the 2002 basic engineering project based on official inventory of the Sapucaí River and its hydrology. This basic engineering project was presented to the national electricity regulator (Aneel) and the environment agency in order to require the Installation License. This is consistent with the Guidelines for the Reporting and Validation of the Plant Load Factor (EB 48, Annex 11) paragraph 3.a – "The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval";
8	The baseline energy generated is now 105,032 MWh/year, consistent with the above power factor and the installed capacity of 22.5MW;
9	Tax calculation now is based on "Presumed Profit" modality in which no depreciation nor interests are accounted for. Therefore the spreadsheet no longer has lines regarding depreciation and interest on loans;



10) Price is now R\$140/MWh as in the July/2008 PPA. This value is above the R\$ 135/MWh price achieved in the first Alternative Energy auction carried out in July by the federal electric market chamber of commerce (CCEE - http://www.ccee.org.br/cceeinterdsm/v/index.jsp?vgnextoid=3cb 3f87495bd1110VgnVCM1000005e01010aRCRD)
This is, therefore, a conservative value.
11) TUSD is now included in the IRR calculations.
12) This was corrected. BNDES loan cover 80% of capital requirements except land as long as the company demonstrates the availability of the remaining 20%.
13) Using total capital requirements, the debt / equity ratio is now 72/28.
2. In addition:
a. Unused data has been deleted;
b. All sections of the spreadsheet are in English;
All sources for all input data used in the Financial Analysis in the financial spreadsheet and/or PDD are referenced transparently and precisely. When appropriate, the exact page on websites is given.



DOE Assessment #1	In the Excel spreadsheet calculations:		
The assessment shall encom- pass all open issues in annex A- 1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	1. For the input data:		
	 a. all data used in the financial analysis is properly based in the management decision date which was defined as the date of the board of directors meeting on 2007-12-15, in accordance with EB51 – Annex 58 – item 6; 		
	 b. as the modality of tax call "Presumed tax profit" was applied, no depreciation is accounted for; 		
	c. the insurance value was revised and estimated in an annual value of 0.3% of the investment referenced by the Ministry of Energy and Mines guidance;		
	 d. a conservative assumption was made about the investment of the SHPP (values from Dec/2007 – management decision), as the value used for the calculations is R\$ 78,000,000, and the bases are R\$ 92,000,000 (as per the Basic Project of 2001) and R\$ 99,000,000 (as per the request for loan of the BNDES); 		
	 e. a fair value of 40% of the investment for a period of 30 years was applied and referenced by official guidance; 		
	 f. an investment horizon of 30 years is applied for the analysis and deemed conservative and referenced by official guidance; 		
	g. the plant load factor of 53.3% given by the Basic project was applied;.		
	 h. the assured power generated value is now consistent with the plant load factor and installed capacity of the SHPP; 		
	i. the modality of tax call "Presumed tax profit" was applied;		
	j. the value of R\$ 140.00 was applied;		
	k. the energy tax TUSD was included in the calculation;		
	 the figure of 80% of the investment (except land) is applied as loan; 		
	m. with all revisions the debt / equity ratio is 72/28.		
	2. In addition, in all tabs please:		
	a. unused data have been deleted;		
	 b. all sections have been translated to English (except names); 		
	c. all input data used in the Financial Analysis are referenced.		
	CL is closed		



Conclusion	To be checked during the first periodic verification
Tick the appropriate checkbox	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 unam- biguous style; address the context (e.g. section)	Please, explain and justify the appropriateness of the use of the lbovespa (Brazilian stocks market) indexes in the WACC calculation, considering the risk profile of the project.			
	In addition, explain why the choice of 3 years is a conservative and appropriate time period for comparison.			
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	With very rare exceptions, choosing benchmarks or parameters to calculate them are limited by the availability of reliable and public data.			
	Seband / CELAN are new small companies and Anhanguera is their first SHP. VW has also no prior SHP projects in Brazil from where to extract a consistent benchmark.			
	Other Brazilian PDDs on SHPP registered and in the pipeline, calculated a WACC based on the country and US market risks and adjusting for inflation.			
	It seems rational to use data from the Brazilian stock exchange as the market reference and the specific index for the electric sector as a proxy for the CELAN.			
	Another alternative would be to use stock data for the utility company that operates in the region and that even owns two SHPPs in the same river and other 10 plants in the state of São Paulo. It seems, although, that this would reflect the risk perception of one of the best managed companies in Brazil. Therefore it was thought to be best to use the electric sector's index.			
	The WACC calculations now use a 5 year period. The Guidelines on the Assessment of Investment Analysis (version 3.1, EB51 annex 58) recommends using a period of at least 3 years.			



Finding	CL B5
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A- 1. In case of non-closure,	The use of Ibovespa index was explained as the companies have no former experiences in this market and because it is regulated by BM&FBovespa, which indicates that the data is reliable.
additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	In addition, as IEE, the specific electric sector index, which is also used for the WACC calculation is regulated by BM&FBovespa, it is deemed justified the option for the Ibovespa index instead of US market risks.
	Nevertheless, as the Ibovespa is a stock market index, and by definition, it is variable, it is necessary to clearly state at the PDD that even with its normal variation it is reliable, its composition is totally regulated and it can clearly reflect the risk of the electric sector in Brazil. Please, revise the section.
	A 5 years period of comparison for the WACC calculations was applied, which is more conservative, appropriate and in compliance with the EB guidelines.
	<u>CL remains open</u>
Corrective Action #2 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	The Ibovespa's variability represents the market fluctuations due to macro economic factors that essentially affect all companies or the systemic risk of a market. Beta then represents the risk of a given investment (or asset / stock) in relation to this market risk.
	Several papers on financial modeling and CAPM in Brazil use lbovespa as the market risk index.
	See:
	"O Retorno Justo Segundo o CAPM"; A.M.T.Limão, S.L.Cardoso, D.L.Souza; Adcontar, Belém, v. 2, nº 1, p. 7-10, maio 2001 http://www.nead.unama.br/site/bibdigital/pdf/artigos_revistas/237.pd f.;
	"Teste do CAPM Zero-Beta no Mercado de Capitais Brasileiro", Jacques da Motta, L.F. and Silva, F.F. in
	http://www.iag.puc- rio.br/sobre/tds/TD09_TESTE%20DO%20CAPM%20ZERO.pdf;
	"Risk of public and private financial institutions shares of the Brazilian bank system" Taffarel, M; Pacheco, V.; Clemente, A.; Gerigk, W., 2008, <u>http://www.admpg.com.br/revista2008/artigos/ARTIGO%2014%20A REA%207%20-%20RESUMO.pdf</u> .
DOE Assessment #2 The assessment shall encom- pass all open issues in annex A- 1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.)	The explanation about the intention of seeking an index that represents the market fluctuations was added to Section B.5, Substep 2c of the PDD and is deemed appropriate for the project activity.
shall be added.	CL is closed



Finding	CL B5		
Conclusion	To be checked during the first periodic verification		
Tick the appropriate checkbox	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		
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	Please, at Section B.5, sub-step 2.d.2, revise and clarify the sensitivity analysis as the information is not clear and Table 9 presents +/- percentage together.				
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	 Sensitivity analysis is carried out along two lines: One applying +/- percentage to critical parameters (only on one direction). The table shows clearly the direction of the variation applied. A second line where each parameter is stressed to the point where the IRR reaches the benchmark and discussing the likeliness of such event happening. 				
DOE Assessment #1 The assessment shall encom- pass 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 sensitivity analysis was revised and the information is clearly stated in Table 7 of Sub-step 2d. CL is closed				
Conclusion <i>Tick the appropriate checkbox</i>	 To be checked durin Appropriate action w Project documentation Additional action shot The project complies 	g the first periodic verifica as taken on was corrected corresp ould be taken s with the requirements	ation ondingly		

Finding	CL B7		
Classification	🗌 CAR	🖂 CL	🗌 FAR


Finding	CL B7
Description of finding Describe the finding in unam-	In Section B.5, Common Practice Analysis, please:
biguous style; address the context (e.g. section)	 justify why São Paulo and not the host country, is chosen for the common practice analysis;
	 2. include into the assessment first all small hydropower plants <u>operating</u> (not under construction only) in São Paulo and then provide a detailed assessment for projects with a similar scale (<i>a range of at least +/- 50% of the project scale should be considered</i>), explaining key differences between proposed project and existing or ongoing projects and what kind of differences can be observed;
	In addition, please rephrase the 1 st paragraph of Sub-step 4b and check its consistency with tables 10 and 11.



Finding	CL B7
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	A new discussion on common practice. Both reviewed sub-steps 4a and 4b, are presented in the PDD. Instead of the State of São Paulo, the analysis covers the entire basin of the Paraná River where Anhanguera is located. Brazil has 12 drainage basins that are very different regarding climate, geology, topography. Additionally, the distribution of small hydros in Brazil also distinguishes the Paraná basin from the rest of the country – more than 70% of its potential for generation has already been tapped while the average in the second densest (São Francisco) is less than 60% (Atlas de energia elétrica do Brasil / Agência Nacional de Energia Elétrica, 2008, pg.58-60 - http://www.aneel.gov.br/aplicacoes/Atlas/index.html).
	Scale was limited to a range of 8 – 30MW. The lower limit was adopted in order to include more plants (range of -35% instead of -50%). The upper limit is because that is the limit of what the Brazilian law defines as Small Hydro Power Plant (Aneel's Resolution 652/2003 – <u>http://www.aneel.gov.br/cedoc/res2003652.pdf</u>). The legal framework changes significantly above this limit and, consequently, the financial structuring of the plants. For instance, Proinfa, the federal program for alternative energy sources, only accepted hydros plants with capacity not larger than 30MW.
	Technology was not taken in to account because of the vast engineering experience and equipment suppliers that exist in Brazil (there are now more than 700 small hydro plants operating or being built).
	The timeframe is now from 2002 (when the Anhanguera's first basic engineering project was concluded) up to 2010.
	All small hydros that started either construction or operation in this period, and that complied with the location and size criteria were taken in to account.
	28 plants were found to fit the selection. Of these, 7 applied for Proinfa, 18 submitted a PDD, 1 tried both and 2 didn't require external incentives to be built.
	These last two plants are shown to be exceptions and not comparable to a project like Anhanguera.
	The conclusion is that external incentives, like CDM or Proinfa, are needed.
	Proinfa closed its first phase in 2004 (before Anhanguera's management decision) and, as of 2010, hasn't opened a second phase.
	CDM projects are not being taken in account.
	Anhanguera's development can safely be said not be common practice.



Finding	CL B7	
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A- 1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	In Section B.5, Common Practice Analysis:	
	1. A full revision was performed and the analysis is with all Brazilian SHPP and then with the Paraná River Basin, what is deemed acceptable since there is a concentration of SHPPs, as it is close to the major consuming areas in Brazil.	
	 To be correctly performed, the assessment of the common practice needs one major information: <u>the total amount of</u> <u>SHPPs that is being considered</u>. 	
	Only with the comparison of the 28 SHPPs (listed in Table 11), where:	
	- 7 have PROINFA benefits,	
	- 01 has PROINFA + CDM benefits,	
	- 18 have CDM benefits,	
	 - 2 have no benefits (as they have different operation conditions considered special) 	
	the assessment may be not consistent.	
	Please, revise the analysis.	
	<u>CL remains open</u>	
Corrective Action #2 This section shall be filled by	The sequence of filters applied is now shown in a separate table.	
the PP. It shall address the cor- rective action taken in details.	It starts with the 194 SHPs operating in Brazil in 2002.	
	The total SHPs registered in Aneel in October 2010 is 588.	
	Of these, operating and in construction are 442.	
	Of these, those between 8 – 30 MW are 180.	
	Of these, those in the Paraná Basin are 33.	
	Exclude the 8 plants that were operating before 2002.	
	There are the 25 plants used to analyze common practice.	



Finding	CL B7
DOE Assessment #2 The assessment shall encom- pass 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 section was revised and from 442 SHPP operating or in construction in Brazil, there are 180 with installed capacity between $8 - 30$ MW. From those, 33 are in the Paraná River Basin, from which 8 have been operating since before 2002 (when the legislation was changed).
	With this situation, from the remaining 25 SHPP:
	- 07 have PROINFA benefits,
	- 01 has PROINFA + CDM benefits,
	- 15 have CDM benefits,
	 - 02 have no benefits (as they have different operation conditions, considered special).
	The Common Practice Analysis is now consistent and clear.
	<u>CL is closed</u>
Conclusion	To be checked during the first periodic verification
Tick the appropriate checkbox	Appropriate action was taken
	Project documentation was corrected correspondingly
	Additional action should be taken
	\bowtie The project complies with the requirements

Finding		CL B8	
Classification			🗌 FAR
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	In Section B.6.1 please remove the ex-ante estimation of emission factor, leaving just brief description about the methodological choices used by the Brazilian DNA.		
	As this will be monitor in Section B.6.3.	ed ex-post, the actual	values shall be placed
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	In Section B.6.1 the ex-ante estimation was removed and a brief description about methodological choices used by the Brazilian DNA is presented.		
	The actual values were	e placed in Section B.6	.3
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A- 1. In case of non-closure, additional corrective action and	In Section B.6.1 there DNA's methodological to Section B.6.3.	is only a brief descript procedures and the va	tion about the Brazilian alues were transferred
DOE assessments (#2, #3, etc.) shall be added.	CL is closed		



Finding	CL B8
Conclusion	To be checked during the first periodic verification
Tick the appropriate checkbox	Appropriate action was taken
	Project documentation was corrected correspondingly
	Additional action should be taken
	\boxtimes The project complies with the requirements

Finding		CL B9	
Classification	🗌 CAR	🖂 CL	🗌 FAR
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	In Section B.7.1, for frequency.	all parameters includ	de a clear monitoring
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	It was included a clea Section B.7.1	ar monitoring frequenc	y for all parameters in
DOE Assessment #1 The assessment shall encom- pass 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 monitoring freque in section B.7.1. <u>CL is closed</u>	ncy for each paramete	er is now clearly stated
Conclusion <i>Tick the appropriate checkbox</i>	 To be checked durin Appropriate action w Project documentation Additional action shot The project complies 	g the first periodic verifica as taken on was corrected corresp ould be taken s with the requirements	ation ondingly

Finding	CL B10		
Classification	🗌 CAR	🖂 CL	🗌 FAR
Description of finding Describe the finding in unam-	In Section B.7.1, for parameter EG _{facility,y} , please indicate:		se indicate:
context (e.g. section)	a. How many me	ters;	
	b. Function (mair	n, back-up);	
	c. Type (uni-bidir	ectional);	
	d. Accuracy class	s or max error range of	meters;
	e. Calibration fre ONS regulation	quency (at least every ns).	2 years according to
	f. Indicate that it	is the same as $EG_{PJ,y}$.	



Finding	CL B10
Corrective Action #1	In Section B.7.1 for parameter EG _{facility,y} it was included:
the PP. It shall address the cor- rective action taken in details.	a. the quantity of meters (2),
	b. the function - one is main and the other one is spare meter,
	c. type is bi-directional,
	d. precision is Class 0.2% complying with Norma Brasileira Medidores Eletrônicos de Energia Elétrica NBR 14519
	e. calibration frequency is every two years and it is in compliance with ONS regulations,
	f. $EG_{facility,y}$ was indicated as the same as $EG_{PJ,y}$.
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A- 1. In case of non-closure, additional corrective action and DOE assessments (#2 #3 etc.)	The information about the measurement procedures of parameter $EG_{facility,y}$ were included:
	a. Two meters;
shall be added.	b. One main meter and one backup;
	c. Bidirectional type;
	d. Accuracy class 0.2%;
	e. Frequency of calibration: every 2 years;
	f. It is indicated that $EG_{facility,y}$ is the same as $EG_{PJ,y}$.
	CL is closed
Conclusion	To be checked during the first periodic verification
пск те арргоргіате спесквох	Appropriate action was taken
	Additional action should be taken
	\square The project complies with the requirements

Finding		CL B11	
Classification	🗌 CAR	🖂 CL	🗌 FAR



Finding	CL B11	
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	In Section B.7.2, please include a simplified wiring diagram indicating the delivery point, exact location of the meters and tension transformation.	
	In addition, it was evidenced in site visit that there is no energy meter at the entrance of the substation, so revision is necessary to describe the precise situation, i.e. only 2 meters measuring net energy in high tension at the output of the substation.	
	Please include more detailed information about organization structure and responsibilities and also training and maintenance measures that will be in place.	
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	 A simplified unifilar diagram was included showing: Turbogenerators, Powerhouse with TEGy calculated from power and current transducers 	
	 Substation with main and backup measurements, and Point of delivery to the National Grid. 	
	In Section B.7.2 a revision was made and the precise situation is now in place and more details were given.	
DOE Assessment #1 The assessment shall encom- pass all open issues in annex A-	A simplified wiring diagram was included and indicates the delivery point, exact location of the meters and tension transformation.	
additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	The statement about the existence of meters at the entrance of the substation was revised.	
	The responsibility of collection and archiving the data is stated, but there is no information about the organization structure, training and maintenance procedures. Please, revise the section.	
	<u>CL remains open</u>	
Corrective Action #2 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	The information about the organization structure was included and the training and maintenance procedures were specified in a separated item.	
DOE Assessment #2 The assessment shall encom- pass all open issues in annex A- 1. In case of non-closure, additional corrective action and	The required information was added in section B.7.2 of the PDD. An organizational chart, responsibilities, maintenance and training procedures are now clearly stated.	
DOE assessments (#2, #3, etc.) shall be added.	CL is closed	



Finding	CL B11
Conclusion	To be checked during the first periodic verification
Tick the appropriate checkbox	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 unam- biguous style; address the context (e.g. section)	In Excel calculations, p a. All cells shall be "assump" cell C4 b. The results of calculation can n the results; c. All cash flow valu to cells on the se d. Tab "projIRR" ca Expenses" been	 blease: translated into Englise the sensitivity analyse the sensitivity analyse the followed. Please be followed. Please	sh language (e.g. tab is are not linked so use formulas to show ab "assump" sheet but e "General Production ole 12 month as the



Finding	CL B12
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	a. The terms in sheet "assump" are now in English, The remaining ones in Portuguese are titles of papers or articles that should not be deleted otherwise they won't be found in the referenced site. But these name are also in English to help non-Portuguese speakers to understand what they are about.
	b. The sensitivity sheet was sent with lines 10-16 hidden. There is a table there used to calculate the IRRs for different values of the sensitivity parameters. In the block highlighted in yellow, input a multiplication factor corresponding to the percentage of variation of the parameters – input 0.8 under investment to reduce 20% in the investment value. For each new value of each parameter, the corresponding IRR is calculated and shown in the upper right corner of the sheet. The final sensitivity table is made of the fixed values obtained using the variable table.
	c. For the parameters used in the sensitivity analysis, both the 'projIRR' and 'assump' sheets are linked to the values shown in sheet 'sensitivity'. For example, input 0.8 under the investment line in 'sensitivity' and check the new value for investment in 'projIRR'. This simplifies the sensitivity analysis calculations.
	d. Operational costs are basically labour costs (wages, taxes and related contributions and fees). The spreadsheet assumed that the operating team must be hired a year before startup in order to be trained and to assist plant commissioning.



Finding	CL B12
DOE Assessment #1 The assessment shall encom-	a. The required translations have been made;
pass all open issues in annex A- 1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	 b. There were hidden lines which presented the calculations. The lines and consequent calculations of the sensitivity analysis are now visible;
	 Both tables presented in tab 'assump' and tab 'projIRR are linked;
	d. The PP assumed that the preparatory costs (in special labour costs) have started before the actual operation of the plant, which was deemed appropriate by the validation team for the type of project. For the last version of the excel spreadsheet, the considered time is 12 months, or 10 months before the start of the operation.
	<u>CL is closed</u>
Conclusion	To be checked during the first periodic verification
Tick the appropriate checkbox	Appropriate action was taken
	Project documentation was corrected correspondingly
	Additional action should be taken
	I he project complies with the requirements

Finding	CL C1		
Classification	CAR	🖂 CL	🗌 FAR
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	In Section C.1.1, the information in Section Glossary of Terms. Ple	e starting date is nei n B.5 nor with the d ease revise.	ther in line with the lefinition of the CDM
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	The starting date is no	w 10/02/2008 througho	ut the PDD.
DOE Assessment #1 The assessment shall encom- pass 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 starting date was revised and it is now consistent with Section B.5 and the definition of the CDM Glossary of Terms.		
Conclusion Tick the appropriate checkbox	 To be checked during Appropriate action w Project documentation Additional action shot The project complies 	g the first periodic verifica as taken on was corrected correspo ould be taken s with the requirements	tion



Finding		CL D1	
Classification		🖂 CL	🗌 FAR
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	In Section D.1, please clarify/rephrase first paragraph as it is not clear why an EIA ^{/EIA/} was carried out in 1989 and a RAP ^{/EIA/} (in theory simpler than an EIA) was carried out later because the EIA was not required any more for the project activity.		
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	It was clarified in Sector by CPFL (which had to of Anhanguera); and was carried out by Sector exploit Anhanguera (tr required only the simp	tion D.1 why an EIA whe rights to exploit the later a simplified Envir eband because it had ransferred by ANEEL) a lified assessment.	as carried out in 1989 hydroelectric potential onmental Assessment received the rights to and the new legislation
DOE Assessment #1 The assessment shall encom- pass all open issues in appex A-	Footnote 35 was inclue	ded and explains the hi	story of the project.
1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added	The former owner (CF developed the RAP, as	PFL) developed the EL s the legislation had be	A and SEBAND later en modified.
	CL is closed		
Conclusion -Tick the appropriate checkbox	 To be checked durin Appropriate action w Project documentation Additional action shot The project complies 	g the first periodic verifica ras taken on was corrected correspo ould be taken s with the requirements	tion ondingly

Finding		CL D2	
Classification		🛛 CL	🗌 FAR
Description of finding Describe the finding in unam- biguous style; address the context (e.g. section)	In Section D.2, please the EIA ^{/EIA/} and RAP ^{/E} reflected in the respe Secretary of the Enviro	briefly describe the ma ^{EIA/} and the correspond ective environmental p onment of the State of S	in impacts identified in ling mitigation actions rograms approved by São Paulo.
Corrective Action #1 This section shall be filled by the PP. It shall address the cor- rective action taken in details.	In Section D.2 the main impacts were identified and the corresponding mitigation actions reflected in the respective environmental programs approved by the Secretary of the Environment of the State of São Paulo.		
DOE Assessment #1 The assessment shall encom- pass 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 main impacts ide section D.1 and the co	ntified by the EIA and rresponding mitigation	RAP were included in actions in Section D.2.



Finding	CL D2
Conclusion	To be checked during the first periodic verification
Tick the appropriate checkbox	Appropriate action was taken
	Project documentation was corrected correspondingly
	Additional action should be taken
	\boxtimes The project complies with the requirements

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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 is:

• Brazil (host party): Central Elétrica Anhanguera S.A.

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 three types:

- Electric energy generated with renewable resources contributing with emissions reduction to meet growing demand;
- Generation of employment during the construction phase (around 1,500) and operational phase (20);
- Reduction of pollutants and particles resulted from the electric energy generation with fossil fuels.

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 run-of-river power plant with 22.5 MW of installed capacity with an expected annual output of 105,032 MWh/year.

The project activity consists of three turbo-generators with Kaplan turbines horizontal axis, average flow rate of 83.5m³/s and reservoir area of 2.05km².

The employed technology is environmentally safe and sound and state of the art and is well known in Brazil.

The generators will be imported from the United States of America and other equipments are manufactured in Brazil

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 project or leakage CO2 emissions from fossil fuel combustion"; "Tool to calculate the emission factor for an electricity system" – version 02; "Tool for demonstration and assessment of additionality" – version 05.2 and "Combined tool to identify the baseline scenario and demonstrate additionality" – version 02.2. They are all approved and valid and derive from the UNFCCC CDM website.

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



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No significant emissions are expected from 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 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 not any other sources which are impacted by the project which are not addressed by the applied methodology.

5.2.3 Baseline Identification

The description of baseline identification in the PDD is transparent and verifiable. According to ACM0002, the baseline scenario for the implementation of a new gridconnected renewable power plant/unit (in this case hydraulic power plant) 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 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)

There are evidences that carbon credits have been considered since 2007, when the project owner sold two other power plants with a clause that the carbon credits of them would remain in its ownership and would be used with the carbon credits of Anhanguera to make it feasible.

The management decision was evidenced by a meeting minute of Seband directors board (2007-12-15) when with the confirmation of the emission of the installation License for the project activity and for SHPP Palmeiras and Retiro (the power plants that have been sold) and the consequent payment of the new owner of the plants to Seband and that the values above summed to the estimated values of carbon credits



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of SHPP Anhanguera and SHPPs Retiro and Palmeiras are enough to guarantee the requisites of the BNDES for SHPP Anhanguera.

The starting date reported in section C.1.1 is February 10th, 2010 which is the date when the project owner signed the contract to start the constructions of the power plant. The decision is serious and was made by authorized personnel.

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 "Tool for the demonstration and assessment of additionality – version 05.2", following its steps.

Alternatives

The two only considered alternatives are the continuity of the current situation and the implementation of the project activity without the CDM benefits.

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 Guidance on the Assessment of Investment Analysis (EB51 Annex 58) 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.

In addition, the sensitivity analysis with a variation from -20% to +20% performed with the items: total investment, price of electricity (PPA) and generated energy was done and continues to give a lower IRR than the benchmark rate. O&M costs were not analyzed because their impact is too small in the project IRR.

The chosen benchmark (weighted average costs of capita - WACC) was considered 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.



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Common practice analysis

The geographical region that was considered for the analysis is the Brazilian scenario, then going to the Paraná River basin scenario, which is reasonable.

From 442 SHPP operating or in construction in Brazil, there are 180 with installed capacity between 8 – 30 MW. From those, 33 are in the Paraná River Basin, from which 8 have been operating since before 2002 (when the legislation was changed). With this situation, from the remaining 25 SHPP: 07 have PROINFA benefits, 01 has PROINFA + CDM benefits, 15 have CDM benefits and 02 have no benefits (as they have different operation conditions and are considered special).

These facts clearly demonstrate that small hydropower plants are not the common or prevailing practice and are usually not economically attractive.

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 (WACC).

In addition, the project activity is not the 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 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 fixed ten years crediting period was unambiguously given in section C.2.2 of the PDD and corresponding calculation spreadsheet.

The crediting period starting date is 2012-01-01, but not before project registration which is deemed appropriate.

5.2.10 Environmental Impacts

An initial Environmental Impact Assessment (EIA) and later Simplified Environmental Impact Assessment Report (RAP) were 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 in line with host country DNA rules.

Two comments have been received during the validation stage from:

- a) State Agency for Water Resources: the PP sent an invitation addressed to the Chamber of Technical Planning of the State Agency for Water Resources asking for its comments;
- b) State Attorney for Public Interest (State of São Paulo): no further actions have been asked.

TÜV NORD CERT GmbH JI/CDM Certification Program



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6 VALIDATION OPINION

Central Elétrica Anhanguera S. A. has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "Anhanguera Hydro Power Project" 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 05 Corrective Action Request (CAR) and 18 Clarification Requests (CLs) were raised and successfully closed.

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 162,848 tCO_2e are most likely to be achieved within the 10 years fixed 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. The request for registration will only be issued after the LoA from host country DNA is obtained.

Essen, 2011-03-16

Ruardo Riber Lope

Ricardo Lopes TÜV NORD JI/CDM CP Validation Team Leader Essen, 2011-03-16

Rainer Winter TÜV NORD JI/CDM CP Final Approval





7 **REFERENCES**

Table 7-1: Documents provided by the project participant

Reference	Document
/CON/	Proposal for carrying out the validation CDM Project "Anhanguera Hydro Power Project" – # 10CDMBR100403–TÜV NORD CERT GmbH – 2010-10- 05
/CRONO/	Timeline of implementation of the SHPP Anhanguera
/ EIA /	 <u>Environment Impact Assessment</u>: Environmental Impact Study of the Hydroelectric Resources – Palmeiras, Retiro and Anhanguera at the Sapucaí River Bacia – issued by Bauart Engenharia – 1989 Simplified Environmental Impact Assessment – General Coordinator: José Geraldo L. Agapito – 2001-10-26
/FD/	 <u>Financial Data</u>: Directives for Studies and Projects of Small Hydropower Plants – Eletrobrás – 2000; National Institute of Energetic Efficiency – Public Audience MME about PROINFRA – Ministry of Mines and Energy – July 203; Loan Contract # 09.2.0214.1 – BNDES – 2009-06-09; Contract of Purchase and Sale of Electricity between CELAN and Volkswagen Brasil for 15 years – 2008-07-01 Contract of Building the Power Substation and Transmission Line between CELAN and CPFL Brasil – 2008-10-29
/IRR/	IRR calculation sheet
/LAND/	Contracts of Purchase of Land
/LOA/	Letter of Approval will be issued
/MOC/	Modalities of Communication
/OL/	Operation Licenses:



Reference	Document
	 Renewal of Previous License #0007 – Process SMA #13.766/01; 13.767/01; 13.774/01 – Secretary of the Environment of the State of São Paulo – 2003-11-21
	 Installation License #00511 – Process SMA #13.766/2001 – issued by Secretary of the Environment of the State of São Paulo – 2007-10-31
	 Operational License #106150 – CETESB – 2010-11-26 – valid for two years.
/OSV/	On site visit
	 Basic Project – Hydroelectric Use of the Sapucaí River – elaborated by Latina Projetos Civis e Associados S/C Ltda., Estra Engenharia S/C Ltda., Copem Engenharia Ltda. and Pleuston Serviços S/C Ltda., coordinated by SEBAND – 2001-10-29
/PBC/	- Normative Resolution #65 – ANEEL – Power load factor of SHPP Anhanguera – 2004-05-25
	 Resolution #541 – ANEEL – approval of SEBAND as independent producer of electric energy – 2002-10-03
	 Authorization Resolution #957 – ANEEL – transfer of the rights of Resolution #541 from SEBAND to CELAN – 2007-06-12
	Draft Project Design Document named "Anhanguera Hydro Power Project" – version 01.3, hosted from 2010-11-12 to 2010-12-11
/FDD/	Project Design Document named "Anhanguera Hydro Power Project" – version 01.5 – 2011-03-15
	Evidences of early consideration and project starting date:
	- Constitution of Central Elétrica Anhanguera Ltda. – JUCESP Protocol 915105/03-2–2003-12-22
	 Contract of Cession of SHPP Palmeiras and SHPP Retiro between SEBAND and Duke Energy International – 2007-02-22
/PSD/	- Small Hydropower Station Clean Energy – Executive Summary – Autovisão Brasil – 2007-07-18
	- Contract of Carbon Project Development and Financing between SEBAND and EcoAdvance – 2007-10-16
	- Minute of Board of Director Meeting – 2007-12-15
	- Contract of Construction of the SHPP between CELAN and Leão Engenharia – 2008-02-10
	- Daily Log book – Leão Engenharia – beginning of the construction of the



Reference	Document	
	power house – 2008-09-30	
	 Minute of General Assembly – JUCESP Protocol – changing the social composition of CELAN – 2008-12-31 	
	 Daily log book – CPFL – beginning of the substation and transmission lines – 2009-02-20 	
	 Invoice of purchase of the 3 generators – Hyundai Ideal Electric – 2009- 06-20 	
	 Daily log book – CPFL – delivery of the substation and transmission lines – 2010-02-21 	
	 Letter request of SEBAND to Orbeo to ask TÜV SÜD to withdraw the first PDD from UNFCCC –2010-03-22 	
	 Email from CELAN to Voith Siemens receiving the turbines and generators – 2010-03-30 	
	 Contract of Services to Develop Carbon Credits between CELAN and Plant – 2010-10-01 	
	 Email from CELAN to Rodhia and Orbeo reporting the conference call on 2010-07-30 when Orbeo communicated that would not proceed with the project – 2010-11-05 	
	Stakeholder consultation process evidences:	
	- Invitation letters 06/2008 sent on 2008-06-17	
	- Confirmations of Receipt – 2008-06-19 and 20	
/SHCP/	- Invitation letters 12/2010 sent on 2008-12-17	
	- Confirmations of Receipt – 2010-12-22, 23, 27 and 2011-01-10 and 17	
	 Letter confirming that the invitation letter has been received - State Attorney for Public Interest (State of São Paulo) – 2011-01-10 	
	- Comment letter – State Agency for Water Resources – 2011-01-11	
	Technical Data:	
/ TD /	 Manual Voith Siemens – Hydro Power Generator – PCH Anhanguera – Rev. 02-07-2009 	
	 Manual O&M: SAMB-H-100 – Horizontal (M-Type) Synchronous Brushless Generator – Hyundai Ideal Electric Company – June/1999 	
	Training:	
/TRAIN/	 Presence list: Internal training of use of EPI (Individual Protection Equipment) – NR-6 – 2010-03-04; 	

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	- Presence list: Internal training of 5S Program – 2010-07-26;
	 Presence list: Internal training of use of EPI (Individual Protection Equipment) – NR-6 – 2010-05-07;
	 Presence list: Internal training of use of EPI (Individual Protection Equipment) – NR-6 – 2010-07-20;
	 Presence list: Internal training of use of EPI (Individual Protection Equipment) – NR-6 – 2010-09-01;
	 Presence list: Internal training of Speed Velocity Regulator - VOITH – 2010-08-30 and 31;
	- Presence list: Internal training of Exciting System - VOITH – 2010-08-31;
	 Presence list: Internal training of use of EPI (Individual Protection Equipment) – NR-6 – 2010-11-10.
/XLS/	Emission 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)
/GCP/	UNFCCC: Guidelines for completing CDM-PDD and CDM-NM
/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)

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Reference	Document
/ MT /	 Methodological Tools: Tool to calculate the emission factor for an electricity system – version 02 Tool for demonstration and assessment of additionality – version 05.2
/ VVM /	Validation and Verification Manual (Version 1.1, Annex 3; EB 51)

Table 7-3: Websites used

Reference	Link	Organization
/aneel/	http://www.aneel.gov.br/	National Electric Energy Agency
/bovespa/	http://www.bmfbovespa.com. br/home.aspx?idioma=pt-br http://www.bmfbovespa.com. br/pt-br/a- bmfbovespa/download/iee.pd f	BM&F-BOVESPA
/bndes/	http://www.bndes.gov.br/Site BNDES/bndes/bndes_pt	National Bank for Social Economic Development
/ccee/	http://www.ccee.org.br/cceein terdsm/v/index.jsp?vgnextoid =2e09a5c1de88a010VgnVC M100000aa01a8c0RCRD	Chamber of Commerce of Electric Energy
/celan/	http://www.celan.com.br	Central Elétrica Anhanguera S.A.
/conama/	http://www.mma.gov.br/port/c onama/	National Environmental Council
/dna/	http://www.mct.gov.br	DNA of Brazil

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Reference	Link	Organization		
	http://www.mct.gov.br/index.p hp/content/view/303076.html #ancora			
/eletrobras/	http://www.eletrobras.com/elb /main.asp	National Electric Utility Company (State Owned)		
/guid/	http://www.mct.gov.br/upd_bl ob/0205/205897.pdf	UNFCCC Guidance		
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications		
/ngo/	http://www.fboms.org.br	Brazilian NGOs and Social Demonstration Forum for Environment and Development		
/ons/	http://www.ons.org.br/home/	National Operator of the Electric System		
/pne2030/	http://www.mme.gov.br/mme/ menu/todas_publicacoes.html	Brazilian National Energy Plan 2030		
/ fazenda /	http://www.receita.fazenda.gov.b r	Ministry of Economy of Brazil		
/shppⅇ/	http://www.aneel.gov.br/aplic acoes/ResumoEstadual/Resu moEstadual.asp http://www.aneel.gov.br/aplic acoes/capacidadebrasil/Oper acaoCapacidadeBrasil.asp http://www.aneel.gov.br/aplic acoes/capacidadebrasil/capa cidadebrasil.asp <u>http://www.aneel.gov.br/aplic acoes/ResumoEstadual/Resu</u> <u>moEstadual.asp</u>	Official sources of general information about SHPP and Electric Energy Sector		

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Reference	Link	Organization
	http://www.aneel.gov.br/area. cfm?idArea=15	
/suppl/	http://www.saopaulo.voith.co m/v_saopaulo_n.htm http://www.hyundaiideal.com/ products/generators.php http://www.hyundaiideal.com/ products/pdf/hydroelectric_ge nerators.pdf	 Voith Brasil Hyundai Ideal Electric Co.
/unep/	http://cdmpipeline.org/	UNEP Riso Centre – CDM Pipeline
/unfccc/	http://cdm.unfccc.int	UNFCCC

 Table 7-4:
 List of interviewed persons

Reference	Mol ¹		Name	Organization / Function
/ IM01 /	V	⊠ Mr. □ Ms.	Nelson Elias	CELAN (SEBAND) / Manager
/ IM01 /	V	⊠ Mr. □ Ms.	Minoru Horiuchi	CELAN (Volkswagen) / Manager
/ IM01 /	V	⊠ Mr. □ Ms.	Luis Antonio Campos Ribeiro	CELAN / Operations Manager
/ IM01 /	V	⊠ Mr. □ Ms.	Paulo Henrique da Silva Ferreira	CELAN / Operator
/ IM01 /	V	☐ Mr. ⊠ Ms.	Fabianne F. De Oliveira	CELAN / Lawyer
/ IM02 /	V	⊠ Mr. □ Ms.	Shigueo Watanabe Júnior	Plant / Consultant
/IM02/	V	☐ Mr.	Janaina C. F. Dallan	Plant / Consultant

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Reference	Mol ¹		Name	Organization / Function
		🖾 Ms.		

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)

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ANNEX

A1:	Validation	Protocol
	vandation	1 1010001

- A2: Assessment of Baseline Identification
- A3: Assessment of Financial Parameters
- **A4:** Assessment of Barrier analysis
- **A5:** Outcome of the GSCP
- A6: Appointment certificates of the team members

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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: The only party involved in the project activity is Brazil (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	/dna/	ОК	ОК



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	positive opinion.			
A.1.2. Are the approvals issued from orgainsations listed as DNAs on the UNFCCC CDM website?		/dna/	OK	ОК
(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.	See comments at A.1.1 above.			
A.1.3. Do the written approvals confirm that the corresponding party is a Party to the Kyoto Protocol?	<i>Description:</i> Brazil, the host country, has ratified the Kyoto Protocol on 23 rd August 2002. The Brazilian DNA assigned for CDM is the "Interministerial Commission on Global Climate Change".	/unfccc/	ОК	ОК
	Justification of evidences: Evidenced at UNFCCC website.			
A.1.4. Do the written approvals confim that the participation is voluntary? (EB 55 Annex 1, § 45(b))	See comments at A.1.1 above.	/dna/	ОК	ОК
A.1.5. Does the written approval from the host country confim that the project contributes to the sustainable development in the country?	See comments at A.1.1 above.	/dna/	ОК	ОК



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, § 45(c))				
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 project activity, e.g. PDD version number?	See comments at A.1.1 above.	/dna/	ОК	ОК
(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?	See comments at A.1.1 above.	/dna/	OK	OK
(EB 55 Annex 1, § 46)				
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?	<i>Description:</i> As stated at Section A.3 and in Annex 1, the only project participant is Central Elétrica Anhanguera S. A., but CAR A1 was raised.	/PDD/	CAR A1	ОК
(EB 55 Annex 1, § 51)	Justification of evidences: CAR A1 was raised.			
	Conclusion:			
	(CAR A1) Please, revise the following sections:			
	 Section A.3: indicate (host) for the host country as required by the guidelines for completing PDD; 			
	 b. Section B.6.1: the formula Baseline Emissions is not displayed correctly: BE_y = EG_{PJ,y} * EF_{grid,CM<y< sub="">;</y<>} 			



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. All sections: yearly emission reductions shall be rounded down to 16,284 tCO ₂ ;			
	d. Annex 1: the name of the PP in the table must be exactly the same as in section A.3.			
A.1.9. Are all project participants listed in the PDD approved at least by one Party involved?		/dna/	ОК	ОК
(EB 55 Annex 1, § 51) Indicate whether the participation of the project participant(s) has been approved by a Party to the Kyoto Protocol.	See comments at A.1.1 above.			
Describe the means of validation employed to draw this conclusion.				
A.1.10. Are any other project participants approved but not listed in the PDD?	See comments at A.1.1 above.	/dna/	ОК	ОК
(EB 55 Annex 1, § 52)				
 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 	<i>Description:</i> There is a signed proposal for carrying out the validation CDM Project "Anhanguera Hydro Power Project" – # 10CDMBR100403 – between TÜV NORD CERT GmbH and Central Elétrica Anhanguera S. A. dated on 2010-10-05.	/CON/	ОК	ОК
registration.	<i>Justification of evidences:</i> It is a valid contract between the DOE and PP.			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<i>Conclusion:</i> There is a contract between the DOE and the project participant.			
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/	ОК	ОК
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. 	<i>Description:</i> 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 also helps reducing the use of fossil fuel for power generation and reducing pollution caused by it. Moreover, It increases job opportunities to local people.	/PDD/ /IM01/ /IM02/	ОК	ОК
	the sites where the SHPP is located were inspected and			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	operational and managerial staff was interviewed.			
	<i>Conclusion:</i> The project creates other social-environmental benefits than GHG emission reductions.			
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?	<i>Description:</i> Yes, it has been used the version 3 of CDM-PDD. No deviations thereof have been observed.	/unfccc/ /GCP/	OK	ОК
(EB 55 Annex 1, § 55)	Justification of evidences: The website if the UNFCCC was checked.			
	Conclusion: The latest PDD template has been used.			
A.3.2. Has the PDD been duly filled in accordance with the latest guidance(s)?	<i>Description:</i> The PDD has in general been filled in accordance with the PDD guidelines, but CL A1 and CL B1 were raised.	/PDD/	CL A1	OK
		/unfccc/	CL B1	
(EB 55 Annex 1, §§ 56–57)	Justification of evidences: CL A1 and CL B1 were raised.	/GCP/		
	Conclusion:			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	 (CL A1) In Section A.4.3 according to the Guidelines for Completing the PDD, please include "a description of how environmentally safe and sound technology, and know-how to be used, is transferred to the Host Party." (CL B1) In Section B.2, please list each applicability condition 			
	and describe why the project activity complies with it.			
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?	<i>Description:</i> 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 as described in item A.4.3 of the PDD.	/PDD/ /IM01/ /IM02/	CL A2	ОК
(EB 55 Annex 1, §§ 58–59) 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.			01/10	
	Nevertheless, CL A2 and CL A3 were raised.			
<i>Pl. consider esp.</i> chapters <i>A.2, A.4.2 and A.4.3 (in case of LSC PDD) for assessment.</i>	<i>Justification of evidences:</i> For the assessment the validation team has: a) reviewed the PDD in detail; b) carried out a site visit; c) carried out interviews with technical and operational personnel of CELAN and the project consultants.			
Describe the process undertaken to validate the accuracy and completeness of the project description.				
Contain the DOE's opinion on the accuracy and	CL A2 and CL A3 were raised.			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
completeness of the project description.				
	Conclusion:			
	(CL A2) The value for plant load factor given in Section A.4.3 is not in line with the Basic Project ^{/PBC/} . Therefore, in line with EB48 Annex 11, please revise the plant load factor according to the Basic Project (53.3%) in relevant Sections of PDD and corresponding calculations.			
	(CL A3) In Annex 5: for transparency, please clarify in this section why the values of single parameters differ from the actual values of installed equipment (e.g. unit nominal capacity, Power factor, Plant capacity, Indirect jobs).			
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, the PDD is in accordance with the real	/PDD/	OK	ОК
	situation.	/IM01/		
	<i>Justification of evidences:</i> This could be verified during site visit as described in question A.4.1 above.	/IM02/		
	<i>Conclusion:</i> The project description is in accordance with the real situation.			
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?	Not applicable, since the project does not involve alteration of the existing installation or process.		NA	NA


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, §§ 63–64) 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. 	<i>Description:</i> Yes, the project is a new small run-of-river type power plant which generates energy as the river flows, with 22.5 MW installed capacity consisting of 3 generators with Kaplan horizontal axis turbines.	/PDD/ /IM01/ /IM02/		ОК
	In PDD, Section A.4.3, the description of the technology is provided.			
	Nevertheless, CL A1 was raised.			
	<i>Justification of evidences:</i> The validation team could verify the information above, but CL A1 was raised.			
	<i>Conclusion:</i> The project design reflects current good practices but CL A1 was raised.			
	(CL A1) In Section A.4.3 according to the Guidelines for Completing the PDD, please include "a description of how environmentally safe and sound technology, and know-how to be used, is transferred to the Host Party."			



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.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: Small hydro power is a technology to generate GHG emission free electricity. The components utilized are new and use state of the art technology. All components are of Brazilian origin, from well known suppliers, thus a technology transfer does not happen. Justification of evidences: The PDD states the technology and main equipment at Section A.4.3. Conclusion: The project design uses state of the art 	/PDD/	ОК	ОК
	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 information is not clear so CL B9 was raised. Justification of evidences: See CL B9 below. Conclusion: (CL B9) In Section B.7.2, please include a simplified wiring diagram indicating the delivery point, exact location of the meters and tension transformation. In addition, it was evidenced in site visit that there is no energy meter at the entrance of the substation, so revision is necessary to describe the precise situation, i.e. only 2 meters measuring net energy in high tension at the output of the substation. 	/PDD/		ОК
	Please include more detailed information about organization			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	structure and responsibilities and also training and maintenance measures that will be in place.			
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 / CMP.1 annex II? (EB 55 Annex 1, §§ 135–136 (a)) 	The project does not qualify as small-scale CDM project activity.	/PDD/ /ACM002/	NA	NA
 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 methodologies², 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/ /ACM002/	NA	NA
A.5.3. Is the small scale project activity not a debundled component of a larger project activity?	The project does not qualify as small-scale CDM project activity.	/PDD/ /ACM002/	NA	NA

² 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.
(EB 55 Annex 1, § 136 (c)) Describe the steps taken to validate this issue. PI refer to the Compendium of guidance on debundling (EB 36, Annex 27 54, Annex 13).				
A.5.4. Is an assessment of the environmental impacts of the proposed SSC CDM project activity required by the host Party?	The project does not qualify as small-scale CDM project activity.	/PDD/ /ACM002/	NA	NA
(EB 55 Annex 1, § 136 (d))				
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. 	<i>Description:</i> Yes, the project activity applies the approved methodology ACM0002. At the time of pre-validation, version 12 of the applied methodology was valid and applicable. <i>Justification of evidences:</i> 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.	/PDD/ /ACM002/ /unfccc/	ОК	ОК



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<i>Conclusion:</i> The project applies an approved and applicable version of a CDM methodology			
B.1.2. Is the applied CDM methodology identical with the version available on the UNFCCC website?	<i>Description:</i> The methodology applied by the PPs follows stipulations of the version available on UNFCCC website.	/ PDD/ /ACM002/	ОК	ОК
(EB 55 Annex 1, §§ 65, 70) Describe the steps taken to validate this issue.	<i>Justification of evidences:</i> The PDD was reviewed against the stipulations of the methodology.	/unicce/		
	<i>Conclusion:</i> The stipulations of the published version were followed.			
 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 each applicability criterion listed in the selected 	<i>Description:</i> In order to assess the applicability of the project, the PDD was reviewed and the applicability determination of the PDD was counterchecked against the criteria given in the applicability Section of the methodology. The information in the PDD was checked during on-site visit to prove that such information is valid and reflects the reality of the project.	/PDD/ /ACM002/		ОК
approved methodology the steps taken to assess the information contained in the PDD.	Nevertheless, CL B1 was raised.			
	Justification of evidences: The methodology is applicable under the following conditions:			
	For grid-connected renewable power generation project			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	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 small 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 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 small 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 <i>EGPJ</i> , <i>y</i>): 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			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	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 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 			
	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/m ² ; or			
	 The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m². 			
	The project activity results in new reservoir and the power density is greater than 4 W/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			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	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;			
	Condition not applicable to the project activity.			
	 Biomass fired power plants; 			
	Condition not applicable to the project activity.			
	• Hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m ² .			
	The project activity results in new reservoir and the power density is above 4 W/m^2 , as described in the calculations in section B.6			
	<i>Conclusion:</i> 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, please list each applicability condition and describe why the project activity complies with it.			



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	<i>Description:</i> Not applicable as project meets all applicability conditions of ACM0002.	/PDD/ /ACM002/	ОК	ОК
(EB 55 Annex 1, §§ 72–75)	Justification of evidences: See comment just above.			
	Conclusion: Not applicable.			
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?	<i>Description:</i> In general, the project is in accordance with ACM0002. However, all findings raised must be closed to form an opinion	/PDD/ /ACM002/	Not yet OK	ОК
(EB 55 Annex 1, § 69, 71)	Justification of evidences: See findings of this report			
Describe the steps taken to check whether the proposed project activity meets <u>all the other possible stipulations and</u> <u>/or limitations</u> mentioned in all sections of the approved methodology selected.	Conclusion: Please refer to CLs.			
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?	<i>Description:</i> It is defined in section B.3 of the PDD that the project boundary encompasses the physical-geographical area of the renewable energy generation source, and the	/PDD/ /ACM002/	ОК	ОК



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.	spatial extension of the project boundary comprises the project area as well as all power plants physically connected to the electric system to which the CDM plant is connected.			
	<i>Justification of evidences:</i> Definition in section B.3 of PDD is in line with the ACM0002.			
	<i>Conclusion:</i> The project's spatial boundaries of the project are clearly defined at the PDD.			
B.2.2. Are all sources and GHGs included in the project boundary as required in the applied methodology?	<i>Description:</i> 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.	/PDD/ /ACM002/	ОК	ОК
(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.	<i>Justification of evidences:</i> The PDD was revised against sources and gases defined in ACM0002.			
	<i>Conclusion:</i> The sources are in compliance with the applied methodology as well as with the real situation, as the power density of the project is greater than 10 W/m^2			
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?	Not applicable, since the methodology does not allow such choices.	/PDD/ /ACM002/	NA	NA



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)				
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.				
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. 	<i>Description:</i> 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.	/PDD/ /ACM002/	ОК	ОК
	<i>Justification of evidences:</i> ACM0002 provides a definition of the baseline for the installation of a new grid-connected renewable power plant/unit.			
	<i>Conclusion:</i> See definition of baseline in B.3.3 below.			
B.3.2. Is the list of alternatives complete? (EB 55 Annex 1, §§ 67(b), 83)	All plausible alternative scenarios listed in the approved methodology have been considered. In the course of document review and site visit, it has been validated that	/ACM002/	NA	NA



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 how it was validated that all alternatives are plausible and no plausible alternative is excluded from the consideration	 no other alternatives which supply comparable outputs and / or services are to be taken into consideration. Thus no plausible scenario has been omitted. The following alternative scenarios/options have been omitted. Corresponding CAR(s)/CL(s) has /have been issued Not applicable, as the baseline is given by the methodology 			
 B.3.3. What has been identified as the baseline scenario? (EB 55 Annex 1, §§ 81–82, 86) 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. 	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 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".' <i>Justification of evidences:</i> The definition of ACM0002 was applied.	/PDD/ /ACM002/	ОК	ОК
 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. Not applicable, as the baseline is given by the methodology. 	/PDD/ /ACM002/	NA	NA



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.3.5. Has any plausible alternative scenario been excluded? (EB 55 Annex 1, § 83) Describe how it is validated that no plausible alternative scenario has been excluded. 	 For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2. No plausible baseline scenario has been excluded. The following plausible baseline scenarios have been excluded though no adequate justification has been provided for elimination. The following CARs / CLs have been issued: 	/PDD/ /ACM002/	NA	NA
 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. 	 The baseline scenario is reasonable and has been determined using conservative assumptions where possible. Please refer to comments in table A-2 and sections B.3.2 to B.3.5 above. The following CARs / CLs have been issued because assumptions used in the baseline determination have been assessed to be not conservative Not applicable, as the baseline is given by the methodology 	/PDD/ /ACM002/	NA	NA
 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	Not applicable, as the baseline is given by the methodology	/PDD/ /ACM002/	NA	NA



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
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).				
 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/	NA	NA
 B.3.9. Does the PDD contain a <i>verifiable</i> 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/	NA	NA



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. 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? (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. 	Description: Yes, the sequence utilized by the PP 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 calculating Project IRR and comparing it against the weighted average cost of capital (WACC). <i>Justification of evidences:</i> The PDD was reviewed in detail and supporting evidences cross-checked. However, several CLs indicated below in this section have to be closed out to allow a final and conclusive assessment by the Validation Team. <i>Conclusion:</i> Refer to findings raised below in this section.	/PDD/ /ACM002/ /MT/		OK
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?	Description: No, hence CL C1 was raised.	/PDD/ /PSD/		ОК



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, § 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 activity. 	<i>Justification of evidences:</i> See CL C1 below. <i>Conclusion:</i> (CL C1) In Section C.1.1, the starting date is neither in line with the information in Section B.5 nor with the definition of the CDM Glossary of Terms. Please revise.			
 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 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. 	Not applicable as the project starting date is before 2nd August 2008.	/PDD/	NA	NA
 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) 	<i>Description:</i> The project starting date is before August 2 nd 2008. So, CAR B1, CL B2 and CL B3 were raised. <i>Justification of evidences:</i> During the site visit it was evidenced that the project starting date is before August 2 nd 2008, but	/PDD/ /PSD/ /OSV/	CAR B1	ОК



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 whether the evidence to support such consideration is adequately and transparently described in the PDD	CAR B1, CL B2 and CL B3 were raised.			
	Conclusion:			
	(CAR B1) In section B.5, please:			
	a. the timeline on early consideration at the end of section B.5 shall be transferred to the beginning of the section B.5. Having two sections with timelines (beginning and end of B.5) is confusing;			
	 b. in addition, at the early consideration timeline, include the following events: purchase of land and purchase of main equipment (turbine, generators); 			
	c. clarify if the event "18/07/2008: Pro-forma invoice of generators" is the purchase date or the delivery date or any other what kind of event?			
	(CL B2) At Section B.5, Early Consideration:			
	 It is necessary to indicate/include in the PDD the date and event that marks the investment decision (management decision) and submit the corresponding evidence to the validation team; 			
	2. Further, according to the VVM, paragraph 100 (a) "evidence must indicate CDM awareness and that the benefits of CDM were a <u>decisive</u> factor in the decision to proceed with the project. Evidences to			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	support this would include, inter alia, minutes and/or notes". Please provide evidences supporting the claim that CDM benefits were a decisive factor for the implementation of the project activity demonstrating that CDM was decisive for the investment decision.			
	(CL B3) At Section B.5:			
	 Please, revise the date of the constitution of Central Elétrica Anhanguera as at sub step 2b it is stated that it exists since 2007 which is not consistent with Table 4 where it is said that the project owner was established as Central Elétrica Anhanguera Ltda. on 2003-12-22 and also that the name changed to Central Elétrica Anhanguera S. A. on 2008-10-01; 			
	 Please, revise Table 13, including other relevant milestones of project implementation; 			
	 Please, revise Table 8 and all the sources and references of the parameters; 			
	 At Sub-step 2c, please include the information about the calculation and comparison of financial indicators (such information is also given in other parts of the Section B.5); 			
	 Please, clearly document in the PDD the type of IRR (project) chosen as financial indicator; 			



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 addition, please clearly document the outcome of each step.			
B.4.2.4. How and when was taken the decision to proceed with the project? Describe the steps taken to validate the starting date.	Description: The decision to proceed with the project is not clearly detailed at the PDD, so CL B2 was raised. Justification of evidences: See CL B2 above.	/PDD/ /PSD/ /OSV/		ОК
 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. 	 <i>Description:</i> The project starting date is 2008-02-10 which is the date of the contract for the starting of the construction. Nevertheless, CL C1 was raised. <i>Justification of evidences:</i> This date was evidence during the site visit by the first contract between the project owner and the company that performed the SHPP construction. See CL C1 below. <i>Conclusion:</i> (CL C1) In Section C.1.1, the starting date is neither in line with the information in Section B.5 nor with the definition of the CDM Glossary of Terms. Please revise. 	/PDD/ /PSD/ /OSV/		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.4.2.6. Was the decision to proceed with the	Description: The decision to proceed with the project is not	/PDD/		ОК
project taken by a person which has the	clearly detailed at the PDD, so CL B2 was raised.	/PSD/		
(EB 55 Annex 1, § 102(a)	Letter the the second	/OSV/		
Describe the steps taken to validate this issue.	Justification of evidences: See CL B2 above at B.4.2.3.			
	Conclusion: See CL B2 above at B.4.2.3.			
 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: The decision to proceed with the project is not	/PDD/		ОК
	clearly detailed at the PDD. There are evidences of CDM influence, but they have to be identified to the specific date.	/PSD/		
	so CL B2 was raised.	/OSV/		
making process.				
	Justification of evidences: See CL B2 above at B.4.2.3.			
	Conclusion: See CL B2 above at B.4.2.3.			
B.4.2.8. Do the evidences provided doubtlessly	Description: Indeed. The starting date of the project activity is	/PDD/	ОК	ОК
prove that continuous and real actions were taken in order to secure the CDM	status, e.g. 2007-10-16 – CDM development contract signed	/PSD/		
status?	with consultant; 2008-12-01 – first DOE contracted; 2010-10-	/OSV/		
(EB 55 Annex 1, § 102; EB 49 Annex 22 § 7)	validation contract with TUV Nord.			
	<i>Justification of evidences:</i> The gaps between project starting date and important CDM milestones are due to the first PDD			



	Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
		withdrawn because of internal problems of the first CDM consultant. The project owner continued with the implementation and contacts to effectively register the project activity. These evidences were provided to the validation team during the site visit.			
		<i>Conclusion</i> : Evidences provided doubtless prove the continuous and real actions to secure CDM status <u>after</u> the starting date.			
B.4.2.9.	Is the gap of documented evidences to	Description: Yes, see comment just above.	/PDD/	OK	OK
	secure the CDM status less than 3 years		/PSD/		
	substantiating the action taken, credible, reliable and complete?	<i>Justification of evidences:</i> See comment above. All evidences are credible.	/OSV/		
(EB 49 Ar	nex 22 § 8)				
		<i>Conclusion:</i> The gaps between project starting date and important CDM milestones are not long.			
B.4.2.10.	Did implementation of the project ceased		/PDD/	NA	NA
	after its commencement and did		/PSD/		
	consideration of the CDM?	Not applicable for the project activity			
(EB 51 An	nex 58, § 7)				
Describe #	a reasons for ceasing the project and evoluin				
why the inc	entive from CDM was necessary to recommence				



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 implementation.				
 B.4.2.11. Can the CDM involvement in the decision assessed as serious? Describe whether or not the project would have been undertaken without the incentive of the CDM. (EB 55 Annex 1, § 104(b)–(c)) 	 Description: CL B2 was raised and has to be closed before this conclusion. Justification of evidences: See CL B2. Conclusion: (CL B2) At Section B.5, Early Consideration: It is necessary to indicate/include in the PDD the date and event that marks the investment decision (management decision) and submit the corresponding evidence to the validation team; Further, according to the VVM, paragraph 100 (a) "evidence must indicate CDM awareness and that the benefits of CDM were a decisive factor in the decision to proceed with the project. Evidences to support this would include, inter alia, minutes and/or notes". Please provide evidences supporting the claim that CDM benefits were a decisive factor for the implementation of the project activity demonstrating that CDM was decisive for the investment decision. 	/PDD/ /PSD/ /OSV/		OK
B.4.3. Identification of alternatives Step 1 (in case of SSC projects pl. skip steps 1 and 2 if appropriate)				



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.4.3.1. 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 by the proposed CDM project activity?	<i>Description:</i> Yes, the list of alternatives contains the status- quo and the project activity not undertaken as a CDM project. <i>Justification of evidences:</i> The list of alternatives is stated at the PDD.	/PDD/ /ACM002/	ОК	ОК
(EB 55 Annex 1, §§ 105–107) Describe the steps taken to validate this issue on the basis of your local and sectoral knowledge.	<i>Conclusion:</i> The list of alternatives contains the status-quo and the project activity not undertaken as a CDM project.			
 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. 	<i>Description:</i> 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. <i>Justification of evidences:</i> The realistic alternatives have been identified.	/PDD/ /ACM002/	ОК	ОК
	<i>Conclusion:</i> The realistic alternatives have been identified and analyzed.			
B.4.3.3. Do all identified alternatives comply with enforced legislations?	<i>Description:</i> Yes, all alternatives described in the PDD are in agreement with mandatory laws and regulations.	/PDD/ /aneel/	ОК	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, §§ 106(c)) Describe the steps taken to validate this issue. Refer to the legislations.	Justification of evidences: There is no legislation in Brazil preventing any of the identified alternatives.	/conama/		
	mandatory laws and regulations.			
B.4.4. Investment analysis Step 2 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) 	<i>Description:</i> In the PDD a benchmark analysis is the basis of additionality determination and Project IRR is the financial indicator chosen and WACC the chosen benchmark. According to Draft PDD the IRR is below the benchmark, and hence not financially attractive. However, several findings have been raised and need to be closed before a conclusion is taken. <i>Justification of evidences:</i> CL A2, CL B4, CL B5 and CL B6 were raised.	/PDD/ /IRR/ /MT/		ОК
	Conclusion: See CL A2, CL B4, CL B5 and CL B6 below.			



(incl. (Checklist Item guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
		a.			
B.4.4.2. Is a for t inve ben	an appropriate analysis method chosen the project (simple cost analysis, estment comparison analysis or nchmark analysis)?	<i>Description:</i> The chosen approach for demonstrating the additionality of the project is the Benchmark Analysis (Option III).	/PDD/ /MT/	ОК	ОК
(EB 55 Annex Describe why th under considera potential projec benchmark value	1, § 108; EB 39 Annex 10) the selected analysis method is appropriate ration of potential revenues and costs, ct alternatives and potential available es.	<i>Justification of evidences:</i> The project activity generates economic benefits with the sale of energy, therefore the simple cost analysis (Option I) cannot be used. According to PP perspective, there were no other realistic alternatives for energy generation, so Option II is not appropriate. The 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 commercialization.			
B.4.4.3. Is a spre calc	a clear, viewable and unprotected Excel eadsheet available for the investment culation?	<i>Description:</i> A viewable and unprotected excel spreadsheet document was made available to validation team and was reviewed about clarity and access of calculation and data.	/IRR/		ОК
(EB 55 Annex Describe the step	1, § 110; EB 51, Annex 58, §8) ps taken to validate this issue.	However, CL B4 was raised.			
		Justification of evidences: See CL B4 above at B.4.4.1.			



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: See CL B4 above at B.4.4.1.			
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?	<i>Description:</i> The period of investment analysis considered was 35 years and no fair value was accounted. During the site visit, it was not clear the appropriateness of the choice of such a period.	/PDD/ /IRR/ /OSV/		ОК
	So, CL B4 was raised to revise the 'investment horizon' and the use of fair value.			
(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	Justification of evidences: See CL B4.			
furthermore the approach used to check the inclusion of a	Conclusion:			
potential fair value.	(CL B4) In the Excel spreadsheet calculations:			
	1. For the input data, please:			
	 All input data shall be valid and applicable at the time of investment decision. Please, clearly indicate such date in Section B.5 (possibly in Table 13); 			
	b. Revise the depreciation criterion;			
	c. Revise the insurance value;			
	 Revise the total investment of SHPP and evidence the items with supplier's proposals and contracts; 			
	 e. Use the fair value in the analysis, according to the Guidelines on the Assessment of Investment Analysis; 			
	f. Revise the investment horizon assumption;			



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	g. Revise the plant load factor according to the Guidelines for the Reporting and Validation of the Plant Load Factor (EB 48, Annex 11) as the value is not consistent with the one presented at the Basic Project or justify why the values do not match;			
	 Revise the assured power generated value to make it consistent with the used plant load factor or justify the choice; 			
	 i. Consider the use of the modality of tax call "Presumed (vain) tax profit" as Brazilian tributes are charged over the company's presumed profit (companies with gross revenue below R\$ 48 million). Therefore, if used, please make the consequent changes resulted from this modality; 			
	 Revise the price of energy as it was evidenced during the site visit that a contract for energy sale was being negotiated during the period with a price of R\$ 140.00; 			
	 Revise the application or not of specific energy taxes (e.g. TUSD); 			
	 Revise the assumption that only 70% of the equipment is subject to financing, as it was evidenced during the site visit that the construction was also included in the loan request; 			
	m. Clarify the assumption of the debt and equity ratio as 51/49.			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	2. In addition, in all tabs please:			
	a. Delete all unused data;			
	 c. Please, reference transparently and precisely the sources for all input data used in the Financial Analysis in the financial spreadsheet and/or PDD. 			
B.4.4.5. Is the (remaining) technical lifetime of existing or project equipment defined in accordance with the guidance of the <i>Tool to determine the remaining lifetime of equipment</i> ?	Not applicable to the project activity.		NA	NA
(EB 50 Annex 15)				
B.4.4.6. Is the fair value calculated in accordance		/PDD/		ОК
with local accounting regulations (where available) or international best practice?	Description: See comment in B.4.4.4 above.	/IRR/		
(EB 55 Annex 1, § 109; EB 51 Annex 58, § 4) State the accounting regulations applied for calculating the fair value and describe why these are applicable under the	Justification of evidences: See CL B4 above at B.4.4.4.	/OSV/		
project specific circumstances. Describe potential mismatches between regulations and the approach applied for calculating the fair value.	Conclusion: See CL B4 above at B.4.4.4.			
B.4.4.7. Is the book value as well as the	Description: See comment in B.4.4.4 above.	/PDD/		OK
expectation of the potential profit or loss		/IRR/		
	Justification of evidences: See CL B4 above at B.4.4.4.	/OSV/		



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, § 109; EB 51 Annex 58, § 4)	Conclusion: See CL B4 above at B.4.4.4.			
 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) 	<i>Description:</i> Yes, depreciation has been added back to net profits, but CL B4 was raised, as the appropriate tax regime for this project context is "assumed profit" and thus income tax is calculated based on a profit assumed as a percentage of sales revenues, and hence depreciation has no effect in the tax calculation. <i>Justification of evidences:</i> See CL B4 above at B.4.4.4.	/PDD/ /IRR/		ОК
 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) 	Conclusion: See CL B4 above at B.4.4.4.Description: The benchmark is intended for post-tax comparison.Justification of evidences: For details about the benchmark, see assessment in Table A-3, Annex 3.Conclusion: Taxation is included and benchmark is appropriate for post-tax analysis.	/PDD/ /IRR/	ОК	ОК
B.4.4.10. Were the input values used in the investment analysis valid and applicable at	Description: CL B4 was raised.	/PDD/ /IRR/		ОК



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 time of the investment decision?	Justification of evidences: See CL B4 below at B.4.4.11.			
(EB 55 Annex 1, § 109,112; EB 51 Annex 58, § 6) In case the basis for input values is a Feasibility Study Report (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.	<i>Conclusion:</i> See CL B4 below at B.4.4.11.			
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?	<i>Description:</i> No, the value for assured energy given by ANEEL has been use for the purpose of financial analysis.	/PDD/ /IRR/		ОК
	Justification of evidences: CL A2 and CL B4 were raised.	/PBC/		
	Conclusion:			
	(CL A2) The value for plant load factor given in Section A.4.3 is not in line with the Basic Project ^{/PBC/} . Therefore, in line with EB48 Annex 11, please revise the plant load factor according to the Basic Project (53.3%) in relevant Sections of PDD and corresponding calculations.			
	(CL B4) In the Excel spreadsheet calculations:			
	1. For the input data, please:			
	a. All input data shall be valid and applicable at the time of investment decision. Please, clearly indicate such date in Section B.5 (possibly in Table 13);			



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. Revise the depreciation criterion; c. Revise the insurance value; 			
	 Revise the total investment of SHPP and evidence the items with supplier's proposals and contracts; 			
	e. Use the fair value in the analysis, according to the Guidelines on the Assessment of Investment Analysis;			
	f. Revise the investment horizon assumption;			
	g. Revise the plant load factor according to the Guidelines for the Reporting and Validation of the Plant Load Factor (EB 48, Annex 11) as the value is not consistent with the one presented at the Basic Project or justify why the values do not match;			
	 Revise the assured power generated value to make it consistent with the used plant load factor or justify the choice; 			
	 Consider the use of the modality of tax call "Presumed (vain) tax profit" as Brazilian tributes are charged over the company's presumed profit (companies with gross revenue below R\$ 48 million). Therefore, if used, please make the consequent changes resulted from this modality; 			
	 Revise the price of energy as it was evidenced during the site visit that a contract for energy sale was being negotiated during the period with a price of R\$ 140.00; 			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	 k. Revise the application or not of specific energy taxes (e.g. TUSD); I. Revise the assumption that only 70% of the equipment is subject to financing, as it was evidenced during the site visit that the construction was also included in the loan request; m. Clarify the assumption of the debt and equity ratio as 51/49. 2. In addition, in all tabs please: a. Delete all unused data; b. Translate all sections to English; c. Please, reference transparently and precisely the sources for all input data used in the Financial Analysis in the financial spreadsheet and/or PDD. 			
 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) 	<i>Description:</i> The costs of financing expenditures were considered in the calculations. However, as the appropriate tax regime for the project is "assumed profit", loan repayments and interests have no impact in the income tax calculation and shall be removed from cash flow. <i>Justification of evidences:</i> CL B4 was raised. <i>Conclusion:</i> See CL B4 above at B.4.4.11.	/PDD/ /IRR/		ОК
B.4.4.13. In cases where a post-tax benchmark is	Description: The applied benchmark is post-tax and considers	/PDD/	NA	NA



	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 51 Ar As per the gu benchm this requ	applied please ensure that actual interest payable is taken into account in the calculation of income tax. nnex 58, § 11) uidance it is recommended to select a pre tax ark in order to Describe the steps taken in assessing uirment.	 34% of interest. <i>Justification of evidences:</i> 34% is a regular income tax paid in Brazil. <i>Conclusion:</i> The actual interest payable is taken into account in the calculation of income tax 	/IRR/		
B.4.4.14. (EB 55 An	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? nex 1, § 109; EB 51 Annex 58, § 10)	Not applicable as Project IRR was chosen by project participant as financial indicator.	/PDD/ /FD/ /IRR/	ОК	ОК
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)?	<i>Description:</i> WACC is the chosen benchmark. Nevertheless, CL B5 was raised. <i>Justification of evidences:</i> As project IRR is chosen, the WACC is an appropriate chosen benchmark as per the tool.	/PDD/ /MT/ /bovespa/		ОК
(EB 55 Ar In case risk to reflect the the project ty	nnex 1, § 111; EB 51 Annex 58, §§12 – 15) premiums are applied precisely describe its suitability e risks associated with the project activity, considering ope and market situation.	<i>Conclusion:</i> Type of benchmark deemed appropriate for type of IRR, nevertheless CL B5 was raised (CL B5) Please, explain and justify the appropriateness of the use of the lbovespa (Brazilian stocks market) indexes in			



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 WACC calculation, considering the risk profile of the project.			
	In addition, explain why the choice of 3 years is a conservative and appropriate time period for comparison.			
B.4.4.16. Is the benchmark value suitable for the	Description: CL B5 was raised.	/PDD/		OK
assume that no investment would be made at a rate of a lower return than the benchmark?	Justification of evidences: CL B5 was raised	/MT/		
(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.	Conclusion: See CL B5 above.			
B.4.4.17. Is it ensured that the project cannot be	<i>Description:</i> The beta of the proposed WACC is calculated by the ratio of IEE and Ibovespa. IEE is a sector index created	/PDD/		OK
PP?	by BM&F-BOVESPA (the most important Brazilian institution	/OSV/		
(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.	to intermediate equity market transactions and the only securities, commodities and futures exchange in Brazil) and Ibovespa is the main indicator of the Brazilian stock market performance. So, the benchmark does not include the subjective profitability expectations or risk profile of the project developer.	/bovespa/		
	<i>Justification of evidences:</i> The used indexes are public available and regulated by BM&F-BOVESPA.			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<i>Conclusion:</i> The benchmark does not include the subjective profitability expectations or risk profile of the project developer. Nevertheless, CL B5 was raised.			
 B.4.4.18. Was the benchmark consistently used in the past for similar projects with similar risks? (EB 55 Annex 1, § 112(c)) 	<i>Description:</i> IEE comprises 17 of the most important companies of the electric energy sector in Brazil including state owned companies, local branches of global companies and fully national ones.	/PDD/ /bovespa/		ОК
	Nevertheless, CL B5 was raised			
	Justification of evidences: See CL B5 above at B.4.4.15.			
	Conclusion: See CL B5 above at B.4.4.15.			
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,	<i>Description:</i> Yes, a sensitivity analysis is included in the PDD and financial spreadsheet. Key parameters which may vary throughout the project lifetime were included: <u>Investment</u> <u>Cost</u> , <u>Price of Electricity (PPA)</u> , <u>O&M Costs</u> , and <u>Energy</u> <u>Generation</u> .	/PDD/ /IRR/		ОК
(EB 55 Annex 1, §§ 109–110(e); EB 51 Annex 58, §				
1/-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.	<i>Justification of evidences:</i> PDD and spreadsheet were reviewed in detail. For more details of assessment of each financial parameter, please refer to Table A-3 Annex 3.			
may not be subject to variation and not adequate.	Nevertheless, CL B6 was raised.			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<i>Conclusion:</i> (CL B6) Please, at Section B.5, sub-step 2.d.2, revise and clarify the sensitivity analysis as the information is not clear and Table 9 presents +/_ percentage together.			
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?	<i>Description:</i> Yes, see comment above. All parameters above the 20% threshold were included and subject to a variation (up to 20%).	/PDD/ /IRR/	ОК	ОК
(EB 55 Annex 1, § 109; EB 51 Annex 58, § 17)	<i>Justification of evidences:</i> PDD and spreadsheet were reviewed in detail. Although the parameters may vary during the project's lifetime, a +-20% variation is deemed appropriate.			
	<i>Conclusion:</i> The parameters included and the variation applied are deemed appropriate and in line with EB 51 Annex 58 §17. 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	<i>Description:</i> No parameters constituting less than 20% of total project costs or revenues have been identified with potential material impact on the financial parameter.	/PDD/ /IRR/	ОК	ОК
(EB 55 Annex 1, § 109; EB 51 Annex 58, § 17) Describe whether those parameters are considered in the	<i>Justification of evidences:</i> No parameters constituting less than 20% of total project costs or revenues have been considered.			


Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
sensitivity analysis?	<i>Conclusion:</i> For more details of assessment of each financial parameter, please refer to Table A-3 Annex 3.			
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?	<i>Description:</i> Yes, the range of variation applied was + 20% to -20% and it is deemed appropriate by the validation team.	/PDD/ /IRR/ /unfccc/	ОК	ОК
(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.	<i>Justification of evidences:</i> PDD and spreadsheet were reviewed in detail. The variation is in line with latest EB guidance.			
	<i>Conclusion:</i> The variation applied is considered appropriate in the context of the project activity, taking in consideration historic trends in the business sector.			
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?			NA	NA
(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 the PPs.			
B.4.5.2. Are the barriers described risk related (e.g	Not chosen by the PPs.		NA	NA



	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 failure, other performance related risks)?				
(EB 55 A Are there of existent white	nnex 1, §§ 116, 134, 137) other barriers or barriers due to prevailing practice ch would have led to higher emissions?				
B.4.5.3.	Has the unavailability 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?	Not chosen by the PPs.		NA	NA
(EB 55 A	nnex 1, §§ 116, 137, EB 50 Annex 13, § 9)				
B.4.5.4.	How is it justified and evidenced that the barriers given in the PDD are real?	Not chosen by the PPs.		NA	NA
(EB 55 A	nnex 1, § 116(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?	Not chosen by the PPs.		NA	NA
(EB 55 A	nnex 1, § 116(b))				
B.4.5.6.	Does the review of relevant background information on the nature of the company(ies) and entitiy(ies) involved in	Not chosen by the PPs.		NA	NA



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 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)				
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?	Not chosen by the PPs.		NA	NA
(EB 50 Annex 13, § 5)				
B.4.5.8. Would provision of additional financial means lead to the mitigation of the barrier(s) demonstrated?			NA	NA
(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 the PPs.			
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?	<i>Description:</i> The defined region is the state of São Paulo. Brazil is a continent wide country and the size of this state alone compares to some of the largest countries in Europe.	/PDD/ /aneel/	OK	ОК



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, § 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.	Justification of evidences: In such a large country as Brazil, with hundreds of different power plants implemented and extremely diverse social, economic and industrial development levels in different states across the country, the validation team believes it would not be appropriate to define a larger region or the entire country for the common practice analysis in the energy generation industry as other states can have a complete different energy panorama.			
B.4.6.2. To what extent similar projects have been undertaken in the relevant region? (EB 55 Annex 1, § 120(b))	<i>Description:</i> As described in section B.5, step 4, there are 39 SHP plants operating where the project activity is located, 8 under construction (including the project activity) and 9 with a license to operate but have not started to be constructed yet.	/PDD/ /aneel/		ОК
	Nevertheless, CL B7 was raised. Justification of evidences: CL B7 was raised.			



	Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
		 <i>Conclusion:</i> (CL B7) In Section B.5, Common Practice Analysis, please: justify why the São Paulo, and not the host country, is chosen for the common practice analysis; include into the assessment first all small hydropower plants <u>operating</u> (not under construction only) in São Paulo and then provide a detailed assessment for projects with a similar scale (<i>a range of at least +/-50% of the project scale should be considered</i>), explaining key differences between proposed project and existing or ongoing projects and what kind of differences can be observed; In addition, please rephrase the 1st paragraph of Sub-step 4b and check its consistency with tables 10 and 11. 			
B.4.6.3. (EB 55 Ai	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? nnex 1, § 120(c))	 <i>Description:</i> A comparison with other projects was performed, but CL B7 was raised to clarify the differences between the project activity and other projects. <i>Justification of evidences:</i> See CL B7 above. <i>Conclusion:</i> See CL B7 above. 	/PDD/ /aneel/ /shppⅇ/		ОК



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.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 and parameter values provided in the PDD. 	 The equations applied for calculation are correctly applied according to the approved methodology. The following mistakes have been identified in this context: Description: The equations were correctly applied and are replicable in the PDD and corresponding spreadsheet provided. Justification of evidences: The PDD and spreadsheet were reviewed against the equations given in ACM0002. Conclusion: The equations applied for calculation are correctly applied according to the approved methodology. 	/PDD/ /ACM002/ /XLS/	OK	ОК
B.5.2. In case the methodology allows for different methodological choices, are the equations applied properly justified and have they been	Not applicable as the methodology does not allow such choices.		NA	NA



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
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.				
 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. Project emissions are assumed to be zero as the power density is above 10 W/m². Justification of evidences: The used assumptions are in accordance with the tool. Conclusion: The assumptions used for calculating the project emissions are in accordance with the tool. 	/PDD/ /ACM002/ /XLS/ /PBC/ /MT/ /aneel/ /dna/	OK	ОК
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	No such sources have been identified.	/PDD/ /ACM002/	ОК	ОК



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
annual emission reductions, which are not addressed by the methodology?				
(EB 55 Annex 1, § 77)				
B.5.4.1. Has a plant load factor (PLF) been defined ex-ante and considered for determination of baseline emissions?	<i>Description:</i> The ex-ante value for PLF is calculated using the estimation of assured energy. However, CL A2 and CL B4 were raised.	/PDD/ /ACM002/ /aneel/		ОК
(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.	Justification of evidences: CL A2 and CL B4 were raised.	/PBC/		
	(CL A2) The value for plant load factor given in Section A.4.3 is not in line with the Basic Project ^{/PBC/} . Therefore, in line with EB48 Annex 11, please revise the plant load factor according to the Basic Project (53.3%) in relevant Sections of PDD and corresponding calculations.			
	(CL B4) In the Excel spreadsheet calculations:			
	1. For the input data, please:			
	a. All input data shall be valid and applicable at the time of investment decision. Please, clearly indicate such date in Section B.5 (possibly in Table 13);			
	b. Revise the depreciation criterion;			
	c. Revise the insurance value;			
	d. Revise the total investment of SHPP and			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences	Ref.	Draft Concl.	Final Concl.
	evidence the items with supplier's proposals and contracts;	1		
	 Use the fair value in the analysis, according to the Guidelines on the Assessment of Investmer Analysis; 	e t		
	f. Revise the investment horizon assumption;			
	g. Revise the plant load factor according to the Guidelines for the Reporting and Validation of the Plant Load Factor (EB 48, Annex 11) as the value is not consistent with the one presented at the Basic Project or justify why the values do no match;	e e e t		
	 Revise the assured power generated value to make it consistent with the used plant load factor or justify the choice; 			
	 Consider the use of the modality of tax ca "Presumed (vain) tax profit" as Brazilian tribute are charged over the company's presumed prof (companies with gross revenue below R\$ 4 million). Therefore, if used, please make the consequent changes resulted from this modality; 	 		
	 Revise the price of energy as it was evidenced during the site visit that a contract for energy sale was being negotiated during the period with price of R\$ 140.00; 			
	 Revise the application or not of specific energ taxes (e.g. TUSD); 	'		



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	I. Revise the assumption that only 70% of the equipment is subject to financing, as it was evidenced during the site visit that the construction was also included in the loan request;			
	 Clarify the assumption of the debt and equity ratio as 51/49. 			
	2. In addition, in all tabs please:			
	a. Delete all unused data;			
	b. Translate all sections to English;			
	 Please, reference transparently and precisely the sources for all input data used in the Financial Analysis in the financial spreadsheet and/or PDD. 			
B.5.5. Are all data sources and assumptions appropriate and parameters which remain fixed throughout the crediting period correct,	<i>Description:</i> The fixed parameters are correctly described at Section B.6.2 of the PDD.	/PDD/ /ACM002/	OK	OK
conservative estimation of emission reductions?	Justification of evidences: The parameters EF_{Res} , Cap_{BL} and A_{BL} are appropriate and will lead to a conservative estimation of			
(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.	emission reductions. <i>Conclusion:</i> The fixed parameters are appropriate.			
B.5.6. Are all ex-ante calculation values for	All "Values of data to be applied for the purpose of calculating expected emissions reductions" are	/PDD/	CAR	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.
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	 considered to be reasonable, applicable and conservative. ☑ The following mistakes have been identified in this context: (CAR B2) In section B.7.1, please: a. in line with the guidance for completing the PDD, the tables shall contain for each parameter the section "Value of data applied for ex-ante estimation". Where applicable, the respective value shall be given (i.e. <i>EF_{OM}</i>, <i>EF_{BM}</i>, <i>EF_{CM}</i>, <i>CAP_{PJ}</i>, <i>A_{PJ}</i>); b. parameters <i>EG_{tacility}</i> and <i>TEG_y</i>: as required by the ACM0002, the monitoring frequency must be continuously not hourly. (CL B8) In Section B.6.1 please remove the ex-ante estimation of emission factor, leaving just brief description about the methodological choices used by the Brazilian DNA. As this will be monitored ex-post, the actual values shall be placed in Section B.6.3. 	/XLS/ /dna/	B2 CL-B8	
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.	<i>Description:</i> Several CARs and CLs have been raised and have to be closed out before a conclusion. <i>Justification of evidences:</i> See comments above in this section.	/PDD/ /XLS/	Not yet OK	ОК



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: Please refer to the CARs and CLs raised above.			
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		/PDD/	OK	OK
applied methodology contained in the monitoring plan?	<i>Description:</i> Yes, all monitoring parameters required by the applied methodology for the project activity (hydro power	/ACM002/		
(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.	plant) are contained in the monitoring plan.			
<i>Pl.</i> check further whether the selection of parameters not to be monitored (section B.6.2) is appropriate and in line with the applied methodology.	constrained in the monitoring plan.			
In case of different approaches can be chosen acc. to the methodology assess whether the selection of parameters is justified and correct.	<i>Conclusion:</i> The monitoring plan contains all parameters the methodology requires to be monitored for this type of activity.			
B.6.2. Are the means of monitoring of all parameters	Description: CL B9 and CL B10 were raised.	/PDD/	CL B9	OK
contained in the monitoring plan feasible and in accordance with the requirements of the applied methodology?	Justification of evidences: CL B9 and CL B10 were raised.	/ACM002/	CL B10	
(EB 55 Annex 1, § 123(a)–(b), 124)				



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
Assess whether the provided information for all parameters w.r.t. 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.	 <i>Conclusion:</i> (CL B9) In Section B.7.1, for all parameters include a clear monitoring frequency. (CL B10) In Section B.7.1, for parameter EG_{facility.y}, please indicate: a. How many meters; b. Function (main, back-up); c. Type (uni-bidirectional); d. Accuracy class or max error range of meters; e. Calibration frequency (at least every 2 years according to ONS regulations); f. Indicate that it is the same as EG_{PJ,y}. 			
 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 	<i>Description:</i> Yes, all equations necessary for the calculation of ERs have been clearly described in the PDD and in line with the methodology. <i>Justification of evidences:</i> All applicable equations of ACM0002 are provided in the PDD.	/PDD/ /ACM002/	OK	ОК



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
calculations might be different. Please consider that additional equations might be necessary to calculate auxiliary parameters.	<i>Conclusion:</i> The means of implementing the monitoring plan are clear and accurate			
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?	<i>Description:</i> The monitoring arrangements described in the PDD can be properly implemented, but CL B11 was raised for further clarifications.	/PDD/	CL B11	ОК
(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.	 Justification of evidences: Please refer to CL B11 below. Conclusion: (CL B11) In Section B.7.2, please include a simplified wiring diagram indicating the delivery point, exact location of the meters and tension transformation. In addition, it was evidenced in site visit that there is no energy meter at the entrance of the substation, so revision is necessary to describe the precise situation, i.e. only 2 meters measuring net energy in high tension at the output of the substation. Please include more detailed information about organization structure and responsibilities and also training and maintenance measures that will be in place. 			
B.6.5. Are the QA/QC procedures appropriate sufficient to ensure the emission reductions	Description: The QA/QC procedures are appropriate and sufficient to ensure the emission reductions achieved from	/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.
achieved from the project activity can be reported ex-post and verified?	the project activity. They 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	<i>Justification of evidences:</i> The QA/QC procedures are appropriate and sufficient.			
procedures.	<i>Conclusion:</i> The QA/QC procedures are described at Section B.7.2 of the PDD.			
B.6.6. Are procedures identified for data management?	<i>Description:</i> Responsibilities and structure have to be better described so CL B11 was raised	/PDD/	CL B11	OK
(EB 55 Annex 1, § 124(b)) Check whether appropriate provisions are considered for data management including responsibilities, what records to keep, storage area of records and how to process performance documentation	Justification of evidences: See CL B11 above at B.6.4.			
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.	<i>Conclusion:</i> See CL B11 above at B.6.4.			
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)	<i>Description:</i> The first major financial commitment made was the signature of the contract for start of the construction of the SHPP on 2008-02-10, so CL C1 was raised.	/PDD/ /PSD/ /GT/	CL C1	ОК
Check whether the starting date is correct. Apply the definition of the project starting date as per the "Glossary of CDM terms".	<i>Justification of evidences:</i> During the site visit it was revealed that the chosen starting date was not the first major financial commitment, so CL C1 was raised.			
	Conclusion:			
	(CL C1) In Section C.1.1, the starting date is neither in line with the information in Section B.5 nor with the definition of the CDM Glossary of Terms. Please revise.			
C.2. Is the project's operational lifetime clearly	<i>Description:</i> The operational lifetime is clearly defined as 35 years in section C.1.2. But as this period was not clearly	/PDD/	CL B 4	OK
Check whether the project lifetime is correctly defined	justified during the site visit, CL B4 was raised.	/aneel/		
Consider the guidance on the assessment of investment analysis (annex to the additionality tool). Check in case of phased implementation this has been	Justification of evidences: CL B4 was raised.			
assessment, if applicable.	Conclusion:			
	(CL B4) In the Excel spreadsheet calculations:			
	1. For the input data, please:			
	a. All input data shall be valid and applicable at the time of investment decision. Please, clearly			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments Re (justification and substantiation of information, data and evidences) Re	Draft Concl.	Final Concl.
	indicate such date in Section B.5 (possibly in Table 13);		
	b. Revise the depreciation criterion;		
	c. Revise the insurance value;		
	 Revise the total investment of SHPP and evidence the items with supplier's proposals and contracts; 		
	 Use the fair value in the analysis, according to the Guidelines on the Assessment of Investment Analysis; 		
	f. Revise the investment horizon assumption;		
	g. Revise the plant load factor according to the Guidelines for the Reporting and Validation of the Plant Load Factor (EB 48, Annex 11) as the value is not consistent with the one presented at the Basic Project or justify why the values do not match;		
	 Revise the assured power generated value to make it consistent with the used plant load factor or justify the choice; 		
	 i. Consider the use of the modality of tax call "Presumed (vain) tax profit" as Brazilian tributes are charged over the company's presumed profit (companies with gross revenue below R\$ 48 million). Therefore, if used, please make the consequent changes resulted from this modality; i. Bevise the price of energy as it was evidenced 		



Checklist Item (incl. guidance for the validation team)	(justificatio	Validation Team Comments on and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
		during the site visit that a contract for energy sale was being negotiated during the period with a price of R\$ 140.00;			
	k.	Revise the application or not of specific energy taxes (e.g. TUSD);			
	I.	Revise the assumption that only 70% of the equipment is subject to financing, as it was evidenced during the site visit that the construction was also included in the loan request;			
	m.	Clarify the assumption of the debt and equity ratio as 51/49.			
	2. In ac	ddition, in all tabs please:			
	a.	Delete all unused data;			
	b.	Translate all sections to English;			
	C.	Please, reference transparently and precisely the sources for all input data used in the Financial Analysis in the financial spreadsheet and/or PDD.			



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.3. Is the st <i>ar</i> t of the crediting period clearly defined and reasonable?	<i>Description:</i> The start of the crediting period is clearly defined at section C.2.2.1.	/PDD/ /CRONO/	ОК	OK
Check whether the envisaged starting date of the crediting period is realistic, taking into consideration the times needed for validation and registration.	<i>Justification of evidences:</i> The start of the crediting period is clearly defined and reasonable.			
	<i>Conclusion:</i> The start of the crediting period is clearly defined and reasonable.			
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	<i>Description:</i> When the project was first planned, the EIA was required and was developed on 1989. Later on, the	/PDD/	CL D1	OK
(EB 55 Annex 1, §§ 131–133) <i>Check the host party regulations, regarding EIA.</i>	legislation was changed and the EIA was no more a requisite, but a simplified documentation (RAP) ^{/EIA/} which was presented, that assess the environment impacts of the project.	/EIA/	CAR D1	
	Nevertheless, CL D1 and CAR D1 were raised.			
	<i>Justification of evidences:</i> The EIA was presented but the legislation requires now just a RAS (Simplified Environmental Impact Assessment), which was also presented, in order to			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	request the previous license and to request the installation license. Both documents were reviewed by the validation team, as well as the previous and installation licenses issued by the environmental authority. Nevertheless, CL D1 and CAR D1 were raised.			
	Conclusion:			
	(CL D1) In Section D.1, please clarify/rephrase first paragraph as it is not clear why an EIA ^{/EIA/} was carried out in 1989 and a RAP ^{/EIA/} (in theory simpler than an EIA) was carried out later because the EIA was not required any more for the project activity.			
	(CAR D1) At pre-validation stage, the Operation License (environmental license) was not available and shall be verified later or during the first verification.			
D.1.2. In case an Environmental Impact Assessment		/PDD/	ОК	ОК
(EIA) is requested by the host party, has it been carried out and if applcable duly approved?	See comments above at D.1.1.	/EIA/		
(EB 55 Annex 1, §§ 131–133) Check the EIA and its approval, if applicable.				
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?	<i>Description:</i> The required documentation has been presented and is in line with the host party environmental legislation, but it has to be better detailed at section D.2, so CL D2 was raised.	/PDD/ /EIA/	CL D2	ОК
(EB 55 Annex 1, §§ 130–132)				



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
Check the PDD (section D). Check whether the project will create any adverse environmental effects. Check the relevant national environmental legislation.	<i>Justification of evidences:</i> A RAS and a RDPA have been presented and the necessary licenses obtained. However, the main impacts identified and corresponding mitigation actions have to be better detailed at the PDD, so CL D2 was raised. <i>Conclusion:</i> (CL D2) In Section D.2, please briefly describe the main impacts identified in the EIA ^{/EIA/} and RAP ^{/EIA/} and the corresponding mitigation actions reflected in the respective environmental programs approved by Secretary of the Emvironment of the State of São Paulo			
 D.1.4. Are transboundary environmental impacts considered in the analysis? (EB 55 Annex 1, §§ 131–133) Check the documents and local official sources / expertise regarding transboundary environmental impacts. 	Not applicable, since no transboundary environmental impacts are envisaged for such type of project.	/PDD/	NA	NA
<i>E. Stakeholder Comments</i> The DOE should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.				



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.1. Have relevant local stakeholders been invited to consultation prior to the publication of the PDD?	<i>Description:</i> When the first PDD was presented, as described in section E.1, several relevant stakeholders have been invited for the consultation prior to the publication of the	/PDD/ /SHCP/	CAR E1	OK
(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.	 PDD: a) Mayor of Guará; b) President of Guará Town Council; c) Mayor of São Joaquim da Barra; d) President of São Joaquim da Barra Town Council; e) Environmental Municipal Secretary of Guará; f) Environmental State Secretary of São Paulo; g) Brazilian Institute of the Environment and Natural Renewable Resources; h) Brazilian Corporation for Agricultural Research; i) National Water Agency; j) State Agency for Water Resources; k) Basin Consortium of the Sapucaí Mirim and Grande Rivers; l) Brazilian Forum of NGOs and Social Movements for the Environment and the Development; m) WWF Brazil: 			
	 n) Federal Attorney for Public Interest; o) State Attorney for Public Interest (State of São Paulo); p) State Attorney for Public Interest (City of Guará); q) State Attorney for Public Interest (City of São Joaquim 			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	da Barra). Nevertheless, as the first PDD was withdrawn and a second one was presented, even with no relevant changes, CAR E1 was raised.			
	<i>Justification of evidences:</i> Invitations and confirmations of receipt for the first consultation have been presented to the validation team.			
	As no significant changes have been made to the PDD, CAR E1 was raised to assure that the relevant stakeholders receive the information that the process for project registration will be continued.			
	<i>Conclusion:</i> Relevant stakeholders have been invited to consultation prior to the publication of PDD for GSC and now will receive the information about the continuation of the process.			
	(CAR E1) Please, it is necessary to send again invitation letters to all local stakeholders (designated by the Brazilian Interministerial Commission on Climate Change) informing that a new version of the PDD has been published, giving the website information and asking for their comments.			
	In addition, please evidence these invitations with the new letter, confirmations of receipt and website, including all information at Section E of the PDD.			



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 	Description:All relevant stakeholders have been invited to consultation following host country DNA rules (Resolution 1 and 7) prior to the publication of the first PDD for GSC and there were no negative comments received./FMoreover, it has been observed during the site visit that the construction of the SHPP does not cause any significant adverse environmental impact and it is located in a sparsely populated rural area. No community is directly affected by the reservoir or construction works.	/PDD/ /SHCP/	CAR E1	ОК
 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. 	In addition, the validation team performed a comparison analysis of the two PDDs to verify that no relevant changes have been performed. So, CAR E1 was raised just to assure that the relevant stakeholders receive the information that the process for project registration will be continued. <i>Justification of evidences:</i> See comments and CAR E1 above at E.1. <i>Conclusion:</i> See CAR E1 above at E.1.			

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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

					DOE Assessment		
Baseline Alternatives identified	In line with the Method ology?	Elimi nated	Reasons for elimination / non- elimination from list of alternatives	Evi- dence used	Appro- priaten ess of eliminat ion	Assessment of validation team (results and means of assessment)	

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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 finan	No financial parameters are used for additionality justification								
	Assessn	nent of a	all financial parameter	s see belov	W					
	Value		Source of Information		DOE ASSESSMENT					
Parameter	applied	Unit	(please indicate document and page)	Reference	Correctness of value applied	Appropriateness of information source	Comment			
Total Investment	87,187,4 54	R\$	Basic Project – Hydroelectric Use of the Sapucaí River Loan Contract – BNDES	/PBC/ /FD/			<i>Description:</i> the investment is given by the project owner's estimative of total costs of the project, engineering, construction, equipment, land etc. <i>Justification of Evidences:</i> a conservative assumption was made about the investment of the SHPP (values from Dec/2007 – management decision), as the value used for the calculations is R\$ 78,000,000, and the bases are R\$ 92,000,000 (as per the Basic Project of 2001) and R\$ 99,000,000 (as per the request for loan of the BNDES). <i>Conclusion:</i> the total investment has been			
							properly evidenced and this has been considered reasonable and consistent by the validation team.			



		2 MWh/y	Basic Project				<i>Description:</i> total energy that will be generated by the plant based on the plant load factor of 53.3% given by the Basic Project.
Annual Energy Generation	105,032			/PBC/			<i>Justification of Evidences:</i> this value comes from the "Basic Project – Hydroelectric Use of the Sapucaí River – elaborated by Latina Projetos Civis e Associados S/C Ltda., Estra Engenharia S/C Ltda., Copem Engenharia Ltda. and Pleuston Serviços S/C Ltda., coordinated by SEBAND.
							<i>Conclusion:</i> the value comes from a third party study that elaborated the main study for the technical planning of the SHPP.
Assured Energy (used	99,601	,601 MWh/y	Normative Resolution #65 – ANEEL – Annex I	/PBC/			<i>Description:</i> assured energy that will be generated by the plant based on the plant load factor of 50.5% given by ANEEL's Normative Resolution. This value is taken only for the ER calculation, not for the IRR analysis.
to estimate CER volume)							<i>Justification of Evidences:</i> this value comes from the Normative Resolution #65 – ANEEL, which is official Agency of Electric Energy.
							<i>Conclusion:</i> the value comes from ANEEL which is an official source.
Price of Energy	140	40 R\$/MW h	Contract of Purchase and Sale of Electricity	/FD/			<i>Description:</i> it is the price in R\$ of 1 MWh commercialized.
						\boxtimes	<i>Justification of Evidences:</i> the price is an estimation of the sale price of the energy of the PPA negotiation in December 2007, which was confirmed by the Contract of Purchase and Sale of Electricity between CELAN and Volkswagen Brasil for 15 years (July 2008).



							<i>Conclusion:</i> an expected price confirmed by contract and it is in the market value.
			Project owner's estimative				<i>Description:</i> the O&M and administration costs are the estimated costs for the operation of the power plant. For the financial analysis purpose, the Administration Costs have been included in this item.
O&M costs (Administration Costs included)	14,00	R\$/MW h	. CDM ref. 2500; . CDM ref. 2793; . CDM ref. 1999; . two other projects in CDM validation.	/unfccc/			<i>Justification of Evidences:</i> this estimative was based in other SHPP costs, which are from R\$ 2.84/MWh to R\$ 39.05/MWh. From the five projects that have been studied to get this estimative, 3 are registered CDM projects and 2 are in validation process.
							<i>Conclusion:</i> the value of R\$ 14,00/MWh applied is reasonable as compared with similar power plants, especially because the administration costs were included in the same item.
			National Institute of				<i>Description:</i> insurance value is an estimative of a percentage by the total investment.
Insurance	0.30	% of investm ent	Public Audience MME about PROINFRA – page 14	/FD/		\boxtimes	<i>Justification of Evidences:</i> this estimative was based in an official study developed by the Ministry of Mines and Energy of Brazil.
			http://www.inee.org.br/do wn_loads/forum/Parecer% 20INEE%20Proinfra.pdf				<i>Conclusion:</i> the value of 0.3% over the total investment comes from an official source Ministry of Mines and Energy of Brazil.
Benchmark	15.7	%	 http://www.bndes.gov .br/SiteBNDES/bnde s/bndes_pt http://www.receita.faz 	/FD/ /bndes/ /fazenda/			<i>Description:</i> the chosen benchmark was the calculation of weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR.
			enda.gov.br	/bovespa/			Justification of Evidences: the input data used



http://www.portalbraa	for the calculation are:
il.net/indices_cdi.htm	a. Weight of Equity in capex (Equity/Debt 72%
pa.com.br/indices/Re sumoEvolucaoDiaria. aspx?Indice=Ibovesp	 Explanation: as the BNDES loan cover 80% of the investment, excluding the land;
aaluloma=pt-bt)	b. Taxes: 34 %
pa.com.br/indices/Re sumoEvolucaoDiaria.	 Explanation: 25% of Income tax + 9% of CSLL;
aspx?Indice=IEE&idi oma=pt-br)	c. Cost of debt (Interest rate charged b lenders – R _d): 9.25%
	 Explanation: 6.25% of long term interest rate (TJLP) + 3% of spread (BNDE proposal);
	 d. Risk free rate (the theoretical rate or return attributed to an investment free or risk – R_f): 14.2%
	 Explanation: CDI (bank deposing certicate) from 2002-12-16 to 2007-12 15;
	e. Market rate of return (reflects the effect of macroeconomic factors that affect a companies on its turn, usually measure by a portfolio of stocks or a stoc exchange index): 14.12%
	 Explanation: Ibovespa (the maindicator of the Brazilian stock marked performance) from 2002-12-16 to 2007 12-15;
	f. Beta (IEE - Electric Power Index



							lbovespa (the main indicator of the Brazilian stock market performance): 92.9%
							• Explanation: covariance between the asset return and the market return divided by the market variance; IEE from 2002-12-16 to 2007-12-15.
							<i>Conclusion:</i> the chosen benchmark is adequate and properly calculated.
PIS	0.65	%	http://www.receita.faze nda.gov.br/PessoaJurid ica/DIPJ/2005/PergRes p2005/pr808a860.htm	/fazenda/		\boxtimes	<i>Description:</i> Brazilian tributes are 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
COFINS	3.0	%	http://www.receita.faze nda.gov.br/PessoaJurid ica/DIPJ/2005/PergRes p2005/pr808a860.htm	/fazenda/	\boxtimes	\boxtimes	profit"). <i>Justification of Evidences:</i> the presumed profit and the taxes are calculated as follows:
CSSL	9.0	%	http://www.receita.faze nda.gov.br/Aliquotas/C	/fazenda/	\boxtimes	\boxtimes	 PIS / PASEP (Social Integration Program): 0.65% over the gross profit;
			ontribesii/Aiiquotas.ntm				 COFINS (Contribution for Financing Social Security): 3% over the gross profit;
							 CSSL (Social Contribution): 9% over 12% (presumed profit) over the gross profit;
Income Tax and	25.0	%	http://www.receita.faze nda.gov.br/Aliguotas/C	/fazenda/	\boxtimes	\boxtimes	 Income tax: 15% over 8% (presumed profit) over the gross profit;
Additional Income Tax			ontribPj.htm	,14201144/			 Additional Income tax: 10% over the presumed profit (8%) which exceeds R\$ 240 thousand/year.
							<i>Conclusion:</i> government tributes established by law over company's profit.



Period of Assessment	30	years	Directives for Studies and Projects of Small Hydropower Plants – Eletrobrás – 2000 – chapter 9, page 9-4 Resolution #541 – ANEEL	/FD/ /PBC/		Description: operational lifetime of the SHPP. Justification of Evidences: the concession time granted by ANEEL and the Eletrobrás' directive were considered for the decision. Conclusion: time period assessed for the investment analysis which is more than the required by the Guidelines on the Assessment of Investment Analysis (EB 51, Annex 58)
Fair value	0	R\$	Resolution #541 – ANEEL Decree 2003 – 1996- 09-10	/PBC/ /aneel/		<i>Description:</i> remaining equipment value remaining after the analyzed period. <i>Justification of Evidences:</i> ANEEL's granted authorization expires after 30 years. All assets and rights are transferred automatically to the federal government, as said in ANEEL Resolution 541 and Decree 2003. <i>Conclusion:</i> as after the expiration of the authorization the assets and rights are transferred to the federal government, there is no financial value for the project owner.

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ANNEX 4: ASSESSMENT OF BARRIER ANALYSIS

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

\square		No barrier parameters a	parrier parameters are used for additionality justification						
Assessment of barriers se			see below						
Kind of				Assessment of validation team					
Barrier (invest, tech, other)	D	escription of Barrier	Evidence used	Appropriat eness of information source	Explanation of final result				

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ANNEX 5: OUTCOME OF THE GSCP

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

(§§ 40-42, VVM Version 1.2)

\square	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	Action taken by the validation team to take due account on the comment ^{*)}	Conclusion (incl. CARs CLs or FARs)					

¹ In case clarifications have been requested by the validation team corresponding rows shall be added

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ANNEX 6: STATEMENTS OF COMPETENCE OF TEAM MEMBERS



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CERTIFICATE OF APPOINTMENT

Mr. Dipl-Ing. Rainer Winter

born on 1963-02-21

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby re-appointed as

TÜV NORD JI/CDM Senior Assessor

The present appointment will terminate on 2013-07-03 Certification registration No. 04 02 154-03 Initial appointment Assessor: 2004-03-01 Senior Assessor: 2007-07-07

Essen, 2010-07-04

Deputy of TÜV NORD JI/CDM Certification Program of TÜV NORD CERT GmbH

CERTIFICATE OF APPOINTMENT

TIV NO

Mr. Emilio Martin

born on 1978-10-24

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Lead Assessor

The present appointment will terminate on 2013-11-30 Certification registration No. 10 12 01 – 157 rev1

Essen, 2010-12-01

Head of TÜV NORD JI/CDM Certification Program of TÜV NORD CERT GmbH

hest

CERTIFICATE OF APPOINTMENT

Ms. Alexandra Nebel

born on 1980-07-25

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Lead Assessor

The present appointment will terminate on 2012-11-19 Certification registration No. 09 11 08 – 95 rev1

Essen, 2009-11-20

Head of TÜV NORD JI/CDM Certification Program of TÜV NORD CERT GmbH