



# VALIDATION REPORT

REGARDING NOTIFICATION OF CHANGES FROM  
THE PROJECT ACTIVITY AS DESCRIBED IN THE  
REGISTERED PDD

CERPA – CENTRAL ENERGÉTICA DO RIO  
PARDO LTDA.

CENTRAL ENERGÉTICA DO RIO PARDO  
COGENERATION PROJECT (CERPA)

**Report No: 6314 – 09/133**

**Date: 2011-08-19**

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<b>Validation Report</b> on requested changes	<b>Report No.</b> 6314– 09/133	<b>Rev. No.</b> 0	<b>Date of 1<sup>st</sup> issue:</b> 2011-08-19	<b>Date of this rev.</b> -
<b>Project:</b>	<b>Title:</b> Central Energética do Rio Pardo Cogeneration Project (CERPA)		<b>Registration date:</b> 2006-03-09	<b>UNFCCC-No.:</b> <a href="#">0209</a>
<b>Project Participant(s):</b>	<b>Host party:</b> Brazil		<b>Other involved parties:</b> United Kingdom and Netherlands	
<b>Applied methodology/ies:</b>	<b>Title:</b> Bagasse-based cogeneration connected to an electricity grid		<b>No.:</b> AM0015 v.01	<b>Scope:</b> 1.1
<b>Requested Changes:</b>	<b>Kind of requested changes</b> <input type="checkbox"/> From the start <input checked="" type="checkbox"/> After implementation		<b>Effective as of:</b> 2008-01-01	<b>Last issuance:</b> 2008-06-02
<b>Revised PDD:</b>	<b>Title:</b> Central Energética do Rio Pardo Cogeneration Project (CERPA)		<b>Draft version:</b> 2011-04-25	<b>Final version:</b> 2011-08-18
<b>Validation team / Technical Review and Final Approval</b>	<b>Validation Team:</b> Ricardo Lopes Sergio Cruz Gilberto Andrade		<b>Technical review:</b> Alexandra Nebel Eric Krupp	<b>Final approval:</b> Eric Krupp
<b>Validation Opinion:</b>	<p>The changes do not raise concerns with respect to aspects outlined in paragraph 10(c) of EB 48, Annex 66, i.e.:</p> <ul style="list-style-type: none"> <li>a.    additionality of the project;</li> <li>b.    scale of the CDM project activity; and</li> <li>c.    applicability and application of the approved baseline methodology under which the project activity has been registered.</li> </ul> <p>Thus, a notification of changes from the project activity as described in the registered PDD to the UNFCCC is deemed appropriate and in line with the requirements outlined in EB 48, Annex 66.</p>			
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## Abbreviations

<b>CA</b>	Corrective Action / Clarification Action
<b>CAR</b>	Corrective Action Request
<b>CCEE</b>	Chamber of Commerce of Electric Energy
<b>CDM</b>	Clean Development Mechanism
<b>CER</b>	Certified Emission Reduction
<b>CETESB</b>	Environmental Agency of the State of São Paulo
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>CO<sub>2</sub>e</b>	Carbon dioxide equivalent
<b>CL</b>	Clarification Request
<b>DAEE</b>	Department of Water and Electric Energy of the State of São Paulo
<b>ER</b>	Emission Reduction
<b>FAR</b>	Forward Action Request
<b>GHG</b>	Greenhouse gas(es)
<b>MP</b>	Monitoring Plan
<b>MR</b>	Monitoring Report
<b>ONS</b>	Brazilian National Operator of the Electric System
<b>PDD</b>	Project Design Document
<b>PP</b>	Project Participant
<b>QA/QC</b>	Quality Assurance / Quality Control
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>XLS</b>	Calculation Spread Sheet

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## 1 OBJECTIVE / SCOPE

CERPA - Central Energética do Rio Pardo Ltda. has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the verification of monitoring period # 4 of the project

“Central Energética do Rio Pardo Cogeneration Project (CERPA)”

In this context of this verification the need was identified to carry out a *notification and validation regarding changes from the project activity as described in the registered PDD*.

This specific report covers the validation regarding changes from the project activity as described in the registered PDD with regard to the relevant requirements for CDM project activities (esp. EB 48, Annexes 66 / 67). The purpose of a validation regarding changes is to have an independent third party assess whether the project is still in compliance with the

- approved CDM Methodology under which it was registered; esp. w.r.t. the applicability criteria,
- category of the CDM project activity,
- CDM additionality requirements.

The validation scope is given as a thorough independent and objective assessment to ensure that the CDM project activity still meets all relevant and applicable CDM criteria after the implementation of changes of the project design, as described in the registered PDD.

## 2 DESCRIPTION OF THE PROJECT AND REQUESTED CHANGES

### 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	Central Energética do Rio Pardo Cogeneration Project (CERPA)
Project size	<input checked="" type="checkbox"/> Large Scale <input type="checkbox"/> Small Scale
Project Scope (according to UNFCCC sectoral scope numbers for CDM)	<input checked="" type="checkbox"/> 1 Energy Industries (renewable- /non-renewable sources)
	<input type="checkbox"/> 2 Energy distribution
	<input type="checkbox"/> 3 Energy demand
	<input type="checkbox"/> 4 Manufacturing industries
	<input type="checkbox"/> 5 Chemical industry
	<input type="checkbox"/> 6 Construction
	<input type="checkbox"/> 7 Transport
	<input type="checkbox"/> 8 Mining/Mineral production
	<input type="checkbox"/> 9 Metal production
	<input type="checkbox"/> 10 Fugitive emissions from fuels (solid, oil and gas)
	<input type="checkbox"/> 11 Fugitive emissions from production and consumption of halocarbons and hexafluoride
	<input type="checkbox"/> 12 Solvents use
	<input type="checkbox"/> 13 Waste handling and disposal
	<input type="checkbox"/> 14 Afforestation and Reforestation
	<input type="checkbox"/> 15 Agriculture
Applied Methodology	AM0015 – Bagasse-based cogeneration connected to an electricity grid – version1
Technical Area(s)	1.1: Thermal energy generation
CDM registration No.	0209
Crediting period	<input checked="" type="checkbox"/> Renewable Crediting Period (7 y) <input type="checkbox"/> Fixed Crediting Period (10 y)

### 2.2 Project Verification History

According to the registered PDD, the project activity involves the use of sugarcane bagasse to cogenerate electricity at CERPA which is the thermoelectric plant of Usina da Pedra, a sugarcane mill located in Serrana, state of São Paulo, Brazil. The upgrade of the equipment to use the bagasse has occurred in 2003.

At time of the 4<sup>th</sup> issuance request, one point was indicated by CDM Executive Board during the request for review as necessary to be better addressed:

- the amount of the electricity exported to the grid.

Essential events since the registration of the project are presented in the following Table 2-2.

**Table 2-2: Project verification history**

#	Item	Time	Status
1	Date of registration	2006-03-09	-
2	Start of crediting period	2003-05-01	-
3	1 <sup>st</sup> Monitoring period	2003-05-01 to 2006-05-31	Issued
4	2 <sup>nd</sup> Monitoring period	2006-06-01 to 2006-12-31	Issued
5	3 <sup>rd</sup> Monitoring period	2007-01-01 to 2007-12-31	Issued
6	Request for revision of / deviation from the monitoring plan	2010-08-23	Approved
7	4 <sup>th</sup> Monitoring period	2008-01-01 to 2008-12-31	Withdrawn
8	5 <sup>th</sup> Monitoring period	2009-01-01 to 2010-04-30	Awaiting issuance request

## 2.3 Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-3).

**Table 2-3: Project Parties and project participants**

Characteristic	Party	Project Participant
Host party	Brazil	CERPA – Central Energética do Rio Pardo Ltda.
Other involved parties	Netherlands	BHP Billiton Marketing AG
	United Kingdom	Ecopart Assessoria em Negócios Empresariais Ltda.

## 2.4 Project Location

The details of the project location are given in table 2-4:

**Table 2-4: Project Location**

No.	Project Location
Host Country	Brazil
Region:	Southeast Region / State of São Paulo
Project location address:	Fazenda da Pedra s/n° - Cx. Postal 02 – Serrana – São Paulo – ZIP 14150-000
Latitude:	21°10'32" S
Longitude:	47°37'43" W

## 2.5 Technical Project Description

The technical project description is exactly the same of the registered PDD.

The technical key data are provided in table 2-5 below:

**Table 2-5:** Technical data of the project activity

Parameter	Unit	Value
Boiler		
- quantity(1)	kgf/cm <sup>2</sup>	65
- operation pressure		
- tons of steam per hour capacity		150
Turbo-generators		Each
- quantity	MW	2
- power capacity		15
- operation pressure		65

## 2.6 Requested changes

### 2.6.1 Type of Changes

The “*Procedure for notifying and requesting approval of changes from the project activity as described in the registered PDD*” distinguishes 2 situations as per table 2-6:

**Table 2-6:** Type of changes – implementation stage

Category	Implementation stage
a	Changes occur from the start of the project activity, i.e. the project has never been implemented in accordance with the description in the registered PDD
b	Permanent changes occur after the project activity has been implemented in accordance with the description in the PDD and issuance of CERs has taken place.

The changes within this project activity fall under category ‘b’.

### 2.6.2 Description of requested changes

The validation addresses the following changes from the registered PDD:

- the estimate to export 81,648 MWh per year with 90% of capacity factor, instead of the prediction of the PDD which was from 45,000 to 60,000 MWh. It is

necessary to emphasize that the electricity delivered to the grid depends on the sugarcane bagasse availability, which consequently depends on crops and climate factors.

The changes described in detail in the revised PDD and the supporting documents.

The key parameters for the requested changes are given in table 2-7:

**Table 2-7:** Technical data of the project activity as in the PDD

Parameter	Unit	Value
Power surplus	MW	18
Capacity factor	%	90
Number of hours at full operation		5,040
Estimate of exported energy	MWh	81,648

### 2.6.3 Reasons for requested changes

The changes from the previous project design have been carried out because the estimate of the total amount of energy that may be delivered to the grid was changed as compared with the registered PDD.

The estimates of the PDD were calculated based on the signed PPA that existed by the time of the management decision, but the figures for calculating the new estimate were already defined at Section A.4.3 of the registered PDD, but not calculated.

Since 2005, the export of electricity is higher than the one estimated in the registered PDD due to the increase in electricity demand and good sugarcane seasons. The issuances were granted for the emissions reductions of 2005, 2006 and 2007.

By the time of the 4<sup>th</sup> Verification, a Request for Review was issued (2011-03-23) as the electricity delivered to the grid achieved 105,324.64 MWh. An explanation was provided by the DOE and not accepted. So, a Notification of Change was requested.

The electricity delivered to the grid is being estimated in 81,648 MWh (210 days at full operation), but if the season of sugarcane is extended for 2 more months, a higher amount of bagasse can be made available. This has happened in the case of the 4<sup>th</sup> Verification.

### 2.6.4 Occurrence of changes

Actually, there is no change to the registered PDD as the figures were already presented by the time of the registration of the project activity. The only difference is the used estimate of the electricity delivered to the grid.

Due to fact that there was only one PPA signed by the time of the management decision and there was no possibility to assess how the sugarcane seasons would be and how the electric market would behave, the occurrence of changes has not been known to the project participants prior to the registration of the project.

It is important to note that there was no increase in processing capacity and in bagasse production due to the CDM project activity.

#### **2.6.5 Impact of changes on the ability to deliver emission reductions**

The changes have the potential to affect the ability of the project to generate emission reductions as follows:

With the new value for the electricity delivered to the grid, the estimate of total emission reductions to be realized is 146,504 tCO<sub>2</sub>e over the first crediting period (from 2003-05-01 to 2010-04-30 – both days included) instead of the 114,031 tCO<sub>2</sub>e predicted in the registered PDD.

### 3 METHODOLOGY AND VALIDATION SEQUENCE

#### 3.1 Validation Steps

The *validation of requested changes from the project from the Project Activity as described in the Registered PDD* consisted of the following steps:

- Appointment of team members and technical reviewers
- A desk review of the original and revised PDD<sup>/PDD/</sup> submitted by the client and additional supporting documents
- On-Site assessment (if required)
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft validation reporting – in case of CARs or CLs
- Resolution of corrective actions (if any)
- Final validation reporting
- Technical review
- Final approval of the validation,

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

**Table 3.1:** Validation sequence

Topic	Date
On-site visit	2009-12-05
Draft reporting finalized	-
Final reporting finalized	2011-07-13
Technical review on final reporting finalized	2011-08-19

#### 3.2 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 2 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.

**Table 3-2: Involved Personnel**

	Name	Company	Function <sup>1)</sup>	Qualification Status <sup>2)</sup>	Scheme competence	Technical competence <sup>4)</sup>	Verification competence	Host country Competence	Team Leading competence
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Ricardo Lopes	TÜV NORD Brazil	TL	LA	X	-	<input type="checkbox"/>	-	X
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Gilberto Andrade	TÜV NORD Brazil	TM	A	X	1.1	<input checked="" type="checkbox"/>	X	-
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Sergio Cruz	TÜV NORD Brazil	TM	A	X	-	<input type="checkbox"/>	X	-
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Alexandra Nebel	TÜV NORD, Germany	TR	LA	X	-	<input checked="" type="checkbox"/>	-	X
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Eric Krupp	TÜV NORD, Germany	TR, FA	SA	X	1.1	<input checked="" type="checkbox"/>	-	X

<sup>1)</sup> TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval

<sup>2)</sup> GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert

<sup>3)</sup> GHG auditor status (at least Assessor)

<sup>4)</sup> As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, ...)

A) Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE

B) No team member

### 3.3 Review of Documents

The registered as well as the revised PDD and supporting background documents related to the project design and the requested changes 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.

### 3.4 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	<ul style="list-style-type: none"><li>- Details of the project validation and earlier verifications</li><li>- Project history</li><li>- Technical details of plant</li><li>- Intended / implemented changes from the previous project design</li><li>- Impact of changes on the additionality justification</li><li>- Impact on the monitoring of the project</li><li>- Editorial issues of the revised PDD</li></ul>

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

## 3.5 Resolution of Clarification and Corrective Action Requests

### 3.5.1 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 intended / implemented changes,
- there is a risk that the changes cannot be approved by the UNFCCC or that emission reductions would not be able to be verified and certified after the implementation of the changes.

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 subsequent verification(s).

### 3.5.2 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.

### **3.5.3 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 next 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.

## **3.6 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 verification team and thus not involved in the decision making process up to the technical review.

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

## **3.7 Final approval**

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

Only after this step the notification or the request for approval of the changes on the project activity can be forwarded to the UNFCCC (in case of a positive validation opinion).

## 4 VALIDATION FINDINGS

No findings (CARs, CLs and FARs) were raised during the validation process.

Nevertheless the PP changed some formal issues between version 4B and version 4C, which have been accepted by the DOE.

## 5 VALIDATION ASSESSMENT SUMMARY

### 5.1 General

CERPA - Central Energética do Rio Pardo Ltda. has commissioned the TÜV NORD JI/CDM Certification Program (CP) to conduct a *validation regarding changes from the*

*Project Activity as Described in the Registered PDD* of the project:

“Central Energética do Rio Pardo Cogeneration Project (CERPA)”

with regard to the relevant requirements of the UNFCCC esp. the *Procedure for notifying and requesting approval of changes from the project activity as described in the registered project design document (EB 48, Annex 66)<sup>/PNRAC/</sup>* and the *Guidelines on assessment of different types of changes from the project activity as described in the registered PDD<sup>/GADTC/</sup>*.

In the course of the validation no findings were raised.

The review of the revised project design documentation and additional documents related to changes to the project design and monitoring plan; the subsequent background investigation and follow-up interviews have provided TÜV NORD JI/CDM CP with sufficient evidences for assessment.

### 5.2 Additionality

#### 5.2.1 Methodology

In the original project documentation the additionality was justified in line with the requirements of AM0015 ver. 1 applying the additionality tool.

#### 5.2.2 Decisive Route of Additionality Justification

During the original validation of the project the additionality was justified on the basis of a barrier analysis. A corresponding Excel file was presented and attached to the validation report.

The identified barriers that could prevent the implementation of the project were (and continue being):

- a. Investment: by the time of the management decision, there was no possibility to assess how the sugarcane seasons would be and how the electric market would behave. So following the requested conservative approach used during the validation, only the guaranteed energy purchased (by the only PPA that existed at the time) was considered for the calculations. In addition, even with the increase of the energy delivered, the project IRR is 16.62%, still below the benchmark rate used at the validation of the project (18%) and below the

average SELIC rate from 1996 and 2004 (22.36%). The explanation for this slight higher return is the same as given during the validation of the project activity that this can compensate the additional risk that the investor takes with this project.

- b. Institutional: as per the registered PDD;
- c. Cultural: as per the registered PDD.

Further details about the barriers are given in Annex 2 of this report.

### **5.2.3 Re-Assessment of Additionality**

During this validation regarding changes, a revised version of the original validated Excel spreadsheet was considered which was provided by the PPs. The modifications mainly reflect the new estimate done.

The additionality justification is based on 3 different barriers that were considered during the project validation.

The estimate of electricity delivered to the grid could not be predicted as reliable by the time of the management decision. It affects the ex-ante estimation of emission reductions.

### **5.2.4 Result of Additionality Re-Assessment**

The revised Excel sheet shows that the IRR is not significantly influenced by the new estimate to the project design. In the most optimistic delivery scenario, the project IRR is 16.62%, still below the benchmark rate used at the validation of the project (18%) , and again, this could not be predicted during the validation process.

In addition, the oscillation of SELIC rate (chosen benchmark) for the chosen period of comparison, the high interest rates for local currency financing, the lack of incentives for sugar mills to invest in the own plant and the difficulty to obtain long-term financing from a bank because of the lack of adequate commercial agreements from the energy buyers and as consequence of the long inflation period which culminated with the currency devaluation continue being barriers for the project activity faced by the PP.

The regulation instability (institutional barrier) as several laws and regulations were created to try to regulate the electric sector in Brazil in this period and the difficulty of the sugar industry to accept the instability of the energy market (cultural barrier) are the same as per the registered PDD.

Thus, the validation team has arrived at the conclusion that the additionality of the project is not affected by the changes carried out as a deviation from the project design originally validated and registered.

### **5.3 Scale of the Project activity**

This is a large scale project activity; therefore this criterion is not applicable in this case.

### **5.4 Applicability and application of the Approved Baseline Methodology**

As the change only refers to the estimate of the electricity delivered to the grid, it does not affect the applicability and the application of the approved baseline methodology.

### **5.5 Other issues**

Along with this validation regarding changes the PP has taken the initiative to correct inconsistencies in the registered PDD which are not related to the technical changes done. The validation team confirms that the changes are:

- (i) only of editorial nature and not related to the technical changes in question, and
- (ii) the editorial changes are justified and correct.

In detail:

- it is mentioned the recalculation of the build margin emission factor with the plant efficiencies recommended by the CDM Executive Board at its 22<sup>nd</sup> meeting approved and registered (2005-12-21);
- it is mentioned the approved revision of the Monitoring Plan (2010-08-23);
- the inclusion of PPs, BHP Billiton Marketing AG and Ecopart Assessoria em Negócios Empresariais Ltda., authorized on 2006-12-18 and 2010-09-21 respectively.

## 6 VALIDATION OPINION

The changes do not raise concerns with respect to aspects outlined in paragraph 10c) of EB 48, Annex 66, i.e.:

- a. additionality of the project;
- b. scale of the CDM project activity; and
- c. applicability and application of the approved baseline methodology under which the project activity has been registered.

Thus, a notification of changes from the project activity as described in the registered PDD to the UNFCCC is deemed appropriate and in line with the requirements outlined in EB 48, Annex 66.

Essen, 2011-08-19

A handwritten signature in blue ink, appearing to read "Ricardo Lopes".

Ricardo Lopes  
TÜV NORD JI/CDM CP  
Validation Team Leader

Essen, 2011-08-19

A handwritten signature in blue ink, appearing to be a stylized "E" or "K".

Eric Krupp  
TÜV NORD JI/CDM CP  
Final Approval

## 7 REFERENCES

**Table 7-1:** Documents provided by the project participant

Reference	Document
/IRR/	IRR calculation sheet
/PDD1/	Registered Project Design Document version 4B – registered on 2006-03-09
/PDD2/	Revised PDD reflecting the intended / implemented changes version 4C – 2011-08-18
/XLS/	Emission reduction calculation spreadsheet

**Table 7-2:** Background investigation and assessment documents

Reference	Document
/AM /	AM0015, version 1: “Bagasse-based cogeneration connected to an electricity grid”
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/IPPC/	<ul style="list-style-type: none"> <li>- 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book</li> <li>- 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book</li> </ul>
/KP/	Kyoto Protocol (1997)
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)
/VAL/	Validation Report – “Central Energética do Rio Pardo Cogeneration Project (CERPA) in Brazil” - ver.02 – issued by DNV Det Norske Veritas – 2005-12-23
/VER/	Verification Report “Central Energética do Rio Pardo Cogeneration Project” – issued by TÜV NORD – 2008-04-28,
/VVM/	UNFCCC Validation and Verification Manual (Version 1.2, Annex 1; EB 55)

**Table 7-3:** Websites used

Reference	Link	Organization
/ccee/	<a href="http://www.ccee.org.br/cceein terdsm/v/index.jsp?vgnextoid=ca4da5c1de88a010VgnVCM100000aa01a8c0RCRD">http://www.ccee.org.br/cceein terdsm/v/index.jsp?vgnextoid=ca4da5c1de88a010VgnVCM100000aa01a8c0RCRD</a>	Board of Electricity Sale
/ipcc/	<a href="http://www.ipcc-nggip.iges.or.jp">www.ipcc-nggip.iges.or.jp</a>	IPCC publications
/unfccc/	<a href="http://cdm.unfccc.int">http://cdm.unfccc.int</a>	UNFCCC

**Table 7-4:** List of interviewed persons

Reference	Mol <sup>1</sup>		Name	Organization / Function
/IM01/	T / E	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Karen M. Nagai	EQAO

<sup>1)</sup> Means of Interview: (Telephone, **E**-Mail, **V**isit)

# ANNEX

**A1:** Assessment of Financial  
Parameters

**A2:** Assessment of Barrier analysis

## ANNEX 1: ASSESSMENT OF FINANCIAL PARAMETERS

**Table A-1:** Assessment of Financial Parameters

<input checked="" type="checkbox"/>	No financial parameters are used for additionality justification						
<input type="checkbox"/>	Assessment of all financial parameters see below						
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT		
					Correctness of value applied	Appropriateness of information source	Comment
					<input type="checkbox"/>	<input type="checkbox"/>	

## ANNEX 2: ASSESSMENT OF BARRIER ANALYSIS

**Table A-2:** Assessment of Barrier Analysis

<input type="checkbox"/>		No barrier parameters are used for additionality justification		
<input checked="" type="checkbox"/>		Assessment of barriers see below		
Kind of Barrier (invest, tech, other)	Description of Barrier	Evidence used	Assessment of validation team	
			Appropriateness of information source	Explanation of final result
Investment	Huge oscillation of SELIC rate (chosen benchmark) for the chosen period of comparison	As per the registered PDD	<input checked="" type="checkbox"/>	<p>The barriers are the same as presented at the registered PDD.</p> <p>The only change is the variation of project IRR when considering the new estimate of energy delivered to the grid, but by the time of the management decision, there was no possibility to assess how the sugarcane seasons would be and how the electric market would behave. So following the requested conservative approach used during the validation, only the guaranteed energy purchased (by the only PPA that existed at the time) was considered for the calculations.</p> <p>At the time of the management decision, the PP did not have expectations of long-term financing as consequence of the long inflation period which culminated with the currency devaluation in Brazil, especially for an activity that was not the core business of the sugar mill, as the revenues of electricity generation represents around 5% of the total revenues of mills and it did not present adequate commercial agreements.</p> <p>In addition, even with the increase of the energy delivered, the project IRR is 16.62%, still below the benchmark rate used at the validation of the project (18%) and below the average SELIC rate from 1996 and 2004 (22.36%), even with higher electricity production. The explanation for this slight higher return is the same as given during the validation of the project activity that this can compensate the additional risk that the investor takes with this project.</p>
	High interest rates for local currency financing			
	Lack of incentives for sugar mills to invest in the own plant			
	Difficulty to obtain long-term financing from a bank because of the lack of adequate commercial agreements from the energy buyers and as consequence of the long inflation period which culminated with the currency devaluation			

Institutional	Regulation instability	As per the registered PDD	<input checked="" type="checkbox"/>	The barrier is the same as presented at the registered PDD. In the period, several laws and regulations were created to try to regulate the electric sector in Brazil which gave a great instability to the market, and consequently, to the prices.
Cultural	The sugarcane industry is a traditional stable business with fixed prices and subsidies	As per the registered PDD	<input checked="" type="checkbox"/>	The barrier is the same as presented at the registered PDD. The sugarcane industry enjoys of government support and it is not used to market oscillations which characterize the electric market.
	It is a sector specialized in commodity transactions and not in generation of electricity to sell to the grid and electricity negotiation in the market			