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Validation Report

VALIDATION OF THE CDM-PROJECT: Usina Interlagos Cogeneration Project REPORT NO. 600500413

05 May 2011

TÜV SÜD Industrie Service GmbH Carbon Management Service Westendstr. 199 - 80686 Munich – GERMANY



Report No.	Date of first issue	Revision N	No.	Revision Dat	е	Certificate	No.
600500413	15-12-2010	3		05-05-2011		-	
Subject: Validation of the CDM Project ""Usina Interlag		os C	ogeneration P	roject"			
Accredited TÜV SÜD Unit:			ΤÜ	/ SÜD Contra	ct Partne	r:	
TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 80686 Munich Germany		TÜV SÜD Industrie Service GmbH Carbon Management Service Westendstr. 199 80686 Munich Germany					
Project Participant	(s):		Pro	ject Site(s):			
Usina Santa Adelia	n S/A (client)		Usiı	na Interlagos			
Rodovia SP 326 – k	m 332, Fazenda Santa	Adelia,	Roc	lovia SP 310, I	km 643, Z	IP 15370-00	0
Jaboticabal, São Pa	iulo, Brazil		Pereira Barreto, Brazil				
Ecopart Assessori	a em Negocios Empres	sariais	GPS coordinates ¹ : Latitude: -20.529801°				
Rua Padre Joao Ma	noel, 222, São Paulo, B	razil	Longitude: -51.244937°				
Applied Methodolo	ogy / Version: AC	CM0006, ve	rsio	n 10.1	Scope(s	s):	1
					Technic	al Area(s):	1.1
First PDD Version	(GSP):		Fina	al PDD versio	n:		
Date of issuance: 37	1-10-2007		Date of issuance: 05-05-2011				
Version No.: 15	_		Version No.: 21				
Starting Date of Re-	GSP: 06-11-2007 ²						
Estimated Annual	Emission Reduction:		39,399 tCO ₂ e				
Assessment Team	Leader:		Technical Reviewer:				
Konrad Tausche			Thomas Kleiser				
Further Assessment Team Members:		Responsible Certification Body Members:					
Johann Thaler			Tho	mas Kleiser			
Nevena Pingarova							
Trainees:							

¹ Chapter A.4.1.4. of the PDD indicates 8 GPS coordinates, however for simplification here only one pair (indicated as Point 01 in the PDD) of GPS coordinates have been indicated.

² The 1st GSP was started on 06-12-2006.



Summary	of the Validation Opinion:
	The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence for the determination of the project's fulfilment of all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Therefore, TÜV SÜD recommends the project for registration by the CDM Executive Board if the letters of approval of all Parties involved will be available before the expiring date of the applied methodology(ies) or the applied methodology version respectively.
	The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence for the determination of the project's fulfilment of all stated criteria. Therefore, TÜV SÜD will not recommend the project for registration by the CDM Executive Board and will inform the project participants and the CDM Executive Board of this decision.



Abbreviations

ACM	Approved Consolidated Methodology
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
СМ	Combined Margin
СМР	Conference of the Parties serving as the Meeting of the Parties to the Kyoto
	Protocol
CR / CL	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	GreenHouse Gas(es)
GSP	Global Stakeholder Process
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
IRR	Internal Rate of Return
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organisation
OM	Operational Margin
PDD	Project Design Document
PP	Project Participant
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual



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1 INTRODUCTION

1.1 Objective

The objective of the validation process is to provide an independent assessment, by a third party (Designated Operational Entity = DOE), of a proposed project activity. The assessment involves the evaluation of the project basis and design identified in the Project Design Document(PDD) using the defined criteria outlined by the registration under the Clean Development Mechanism (CDM). Validation is part of the CDM project cycle and results in a conclusion by the executing DOE on whether a project activity is valid to be submitted for registration to the CDM Executive Board (CDM-EB). The ultimate decision on the registration of a proposed project activity rests with the CDM-EB and the Parties involved.

The project addressed in this validation report has been submitted under the project title:

"Usina Interlagos Cogeneration Project"

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM project activities, the scope is set by:

- > The Kyoto Protocol, in particular § 12 and modalities and procedures for the CDM
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- ➤ Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 8/CMP.1)
- Decisions and specific guidance outlined by the EB which are published der <u>http://cdm.unfccc.int</u>
- Guidelines for Completing the Project Design Document (CDM-PDD), and the Proposed New Baseline and Monitoring Methodology (CDM-NM)
- > Baselines and monitoring methodologies (including GHG inventories)
- Management systems and auditing methods
- Environmental issues relevant to the sectoral scope applied for
- > Applicable environmental and social impacts, and aspects of CDM project activity
- Sector specific technologies and their applications
- Current technical and operational knowledge of the specific sectoral scope and information on best practice

The validation process is not meant to provide any form of consulting for the project participant (PP). However, stated requests for clarifications, corrective actions, and/or forward actions may provide input for improvement of the project design.

Once TÜV SÜD receives a first PDD version, it is made publicly available on the UNFCCC website and on TÜV SÜD's website, which initiates a 30 day global stakeholder consultation process (GSP) In special circumstances, such as when a project design changes, the GSP may need to be repeated. Information on the PDDs is presented on page 2 of this report.

The purpose of a validation is to demonstrate compliance or non-compliance of the project with all stated and valid CDM requirements. Additionally, the purpose of validation is to enable the registration of CDM projects, which is only a part of the total CDM project cycle.



2 METHODOLOGY

The project assessment is based on the "Clean Development Mechanism Validation and Verification Manual" version 1.2 and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s) and relevant host country experience for evaluating the CDM project activity are appointed. Once the project is made available for the stake-holder consultation process, members of the team carry out the desk review, follow-up actions, resolution of issues identified, and finally the preparation of the validation report. The prepared validation report and other supporting documents then undergo an internal quality control by the CB "climate and energy" before being submitted to the CDM-EB.

In order to ensure transparency, assumptions must be clear and explicitly stated and background material must also be clearly referenced. TÜV SÜD developed a methodology-specific protocol customized for the project. The protocol demonstrates, in a transparent manner, the project criteria (requirements), discussion on each criterion by the assessment team, and the results from validating the identified criteria.

The validation protocol serves the following purposes:

- The organization of details and provision of clarifications on the requirements a CDM project is expected to meet;
- Transparency of the validation process where the validator has to document how a particular requirement has been validated, as well as the results of the validation and any adjustments, if any, made to the project design.

The validation protocol	consists of three ta	ables. The differ	ent columns in these	e tables are described
in the tables below.				

Validation Protocol Table 1: Conformity of Project Activity and PDD					
Checklist Topic / Ques- tion	Reference	Comments	PDD in GSP	Final PDD	
The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then further sub-divided. The lowest level constitutes a checklist question / criterion.	The section gives reference to documents in which the answer to the checklist question or item is found in case the comment refers to documents other than the PDD.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached. In some cases sub- checklists are applied indicating yes/no decisions on the compliance with the stated criterion. Any Request has to be substantiated within this column.	The section is used to present conclusions based on the assessment of the first PDD version. The PDD is either acceptable based on evidence provided <i>⊠</i> or a Corrective Action Request (CAR) is issued due to non-compliance with the checklist question (See below). Clarification Request (CR) is used when the validation team has identified a need for further clarification. Forward Action Request is issued to highlight issues related to project implementation that require review during the first verification.	In this section, conclusions are presented in the same manner based on the assessment of the final PDD version and further documents including assumptions presented in the documentation.	



Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests						
Clarifications and cor- rective action requests	Ref. to table 1	Summary of project owner response	Validation team conclusion			
If the conclusions from table 1 are either a Corrective Action, a Clarification or a Forward Action Request, these should be listed in this section.	Reference to the checklist question number in Table 1 where the issue is explained.	The responses given by the client or other project participants during communication with the validation team should be summarised in this section.	This section should summarise the discussion on and revision to project documentation together with the validation team's responses and final conclusions. The conclusions should be reflected in Table 1, under "Final PDD".			

In case of a denial of the project activity more detailed information on this decision will be presented in Table 3.

Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests				
Clarifications and corrective action requests	ld. of CAR/CR	of	Explanation of the Conclusion for Denial	
If the final conclusions from table 2 results in a denial, the referenced request should be listed in this section.	ldentifier o the Request.	of	This section should present a detailed explanation on why the project is finally considered not to be in compliance with a criterion providing a clear reference to the requirement which is not complied with.	

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

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment, TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "climate and energy".

The composition of an assessment team has to be approved by the Certification Body (CB) to assure that the required skills are covered by the team. The CB TÜV SÜD operates the following qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL);
- ➤ Validator (V);
- Validator Trainee (T);
- Technical Expert (TE).

It is required that the sectoral scope(s) and the technical area(s) linked to the methodology and project have to be covered by the assessment team.



Assessment Team:

Name	Qualification	Coverage of scope	Coverage of technical area	Coverage of financial as- pect	Host coun- try experi- ence
Konrad Tausche	ATL	Ŋ	Ø	N	Ŋ
Johann Thaler	V	-	-	V	Ø
Nevena Pingarova	-	-	-	Ø	-

Technical Reviewer: Thomas Kleiser

2.2 Review of Documents

The first version of the PDD for the Re-GSP was submitted to the DOE in November 2007. The first PDD version submitted by the PP for the Re-GSP and additional background documents related to the project design and baseline have been reviewed to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources has been done as an initial step of the validation process. A complete list of all documents and evidence material reviewed is attached as annex 2 to this report.

2.3 Follow-up Interviews

On 14-12-2006 to 15-12-2006 (after 1st GSP) TÜV SÜD performed interviews, telephone conferences, and physical site inspections with project stakeholders to confirm relevant information, and to resolve issues identified in the first document review. After the 2nd GSP (Re-GSP) more interviews by telephone and Email exchange have been conducted. The table below provides a list of all persons interviewed in this process.

Name	Organisation
Norberto Bellodi	Executivo Director, Usina Interlagos Ltda.
Jose Luis Godoy	Supervisor of Quality control, Usina Interlagos Ltda.
Jose Roberto Braido	Director of supplies, Usina Interlagos Ltda.
Idalina Spina	Coordinator of Quality control and Quality as- surance, Usina Interlagos Ltda.
Plinio Sergio Wolpe	Accounting, Usina Interlagos Ltda.
Jose Braz Ernesto	Electrical Supervisor, Usina Interlagos Ltda.
Carlos Antonio Pita	Supervisor of steam generation, Usina Interla- gos Ltda.
Eduardo Cesar de Lima	Assistant of Quality System, Usina Interlagos Ltda.
Jenny Komatsu	Chemical Engineer, Ecoinvest Carbon Brasil



	Ltda. (today Ecopart Assessoria em Negocios empresariais Ltda.)
Marlo Paulo Mori	Industrial Manager, Usina Interlagos Ltda.
Sergio Lober Fenegalha	Electrical Supervisor, Usina Interlagos Ltda.
Jaime Daniel Valenca	Process Supervisor, Usina Interlagos Ltda.
Ricardo Esparta	Ecopart Assessoria em Negocios empresariais Ltda.
Elias Torres	Usina Itapagipe

2.4 Further cross-check

During the validation process the team has made reference to available information related to similar projects or technologies as the CDM project activity. Project documentation has also been reviewed against the approved methodology applied to confirm the appropriateness of formulae and correctness of calculations.

2.5 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions, clarifications, and any other outstanding issues which need to be clarified for TÜV SÜD's conclusion on the project design. The CARs and CRs raised by TÜV SÜD are resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are documented in more detail in the validation protocol in Annex 1.

The final PDD version submitted in May 2011 serves as the basis for the final assessment presented. Additional changes to the project during the validation process are not considered to be significant with respect to the main CDM objectives. The two CDM main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

2.6 Internal Quality Control

Internal quality control is the final step of the validation process and is conducted by the CB "climate and energy" who checks the final documentation, which includes the validation report and annexes. The completion of the quality control indicates that each report submitted has been approved either by the head of the CB or the deputy after the approval of the Technical Reviewer. In projects where either the Head of the CB or his/her deputy is part of the assessment team, the approval is given by the one not serving on the project team.

After confirmation by the PP, the validation opinion and relevant documents are submitted to the EB through the UNFCCC web-platform.



3 SUMMARY

The assessment work and the main results are described below in accordance with the VVM reporting requirements. The reference documents indicated in this section and annex 1 are stated in annex 2.

3.1 Approval

The project participants are Usina Santa Adelia S/A³ and Ecopart Assessoria em Negocios Empresariais Ltda.⁴, both from Brazil (Host Party). The participation of both project participants was confirmed during the on-site interview. The Host Party Brazil meets the requirements to participate in the CDM.

The final letter of approval for both PPs have not been received yet, but a request for registration will not be submitted as long as the letter of approval for both PPs have not been received according to \S 50 (a) of the VVM.

Before submitting the project for registration, TÜV SÜD will check whether the requirements of the VVM (§§ 45-48) are complied with.

3.2 Participation

See chapter 3.1.

3.3 Project design document

The PDD is compliant with relevant form and guidance as provided by UNFCCC.

The most recent version of the PDD form was used.

TÜV SÜD considers that the guidelines for the completion of the PDD in their most recent version have been followed. Relevant information was provided by the participants in the applicable PDD sections. Completeness was assessed through the protocol included in annex 1 of this report.

3.4 Project description

The following description of the project as per PDD was verified during the on-site audit:

Interlagos Project consists of a new sugar mill which became operational in May 2007. The scenario existing prior to the start of the implementation of the project activity is a site where no power was generated.

The project will be implemented in 2 phases. First phase started in February 2006 with the planting of an 8.2km² area which will be gradually increased each year up to 210km² in 2010. The cogeneration power plant installed capacity in the first phase is 40MW and consists of a 67 bar, type AMD-73-7GI boiler manufactured by CALDEMA, a 16 kgf/cm2, type TME 35000 A turbo-reductor manufactured by TGM and a 40 MW type SPW 1250 generator manufactured by WEG. In 2010 will start the second phase with plantation expansion to reach the goal of 3.6 million tones of sugarcane production and implementation with another 40MW cogeneration power plant consisting of the same equipment as in the 1st phase and described above. The cogeneration project will generate enough electricity not only for powering the sugar mill (thus eliminating the consumption of fossil fuel inten-

³ Usina Interlagos Ltd. was incorporated into Usina Santa Adelia S/A, however continued with its own fiscal number (in Portuguese: CNPJ).

⁴ The legal entity changed during the validation process from Ecoinvest Carbon Brasil Ltda. to Ecopart Assessoria em Negocios Empresariais Ltda.



sive electricity from the grid), but also for delivering surplus electricity to the national grid, thus reducing greenhouse gas emissions.

Besides decreasing GHG emissions, the project contributes to the sustainable development by amongst others income distribution and generation of employment.

The information presented in the PDD on the technical design is consistent with the actual planning and implementation of the project activity as confirmed by:

- The review and cross check of data and information (see annex 2).
- An on-site visit which has been performed. Relevant stakeholder and personnel with knowledge of the project were interviewed.
- Information related to similar projects or technologies which have been used to validate the accuracy and completeness of the project description.

In conclusion, TÜV SÜD confirms that the project description, as included in the PDD, is sufficiently accurate and complete in order to comply with the requirements of the CDM.

3.5 Baseline and monitoring methodology

3.5.1 Applicability of the selected methodology

Compliance with each applicability condition as listed in the chosen baseline and monitoring methodology ACM0006, version 10.1 has been demonstrated.

The assessment was carried out for each applicability criteria and included, among other checks, the compliance check of the local project setting with the applicability conditions in regard to baseline setting and eligible project measures. This assessment also included the review of secondary sources, which further demonstrate that applicability conditions have been complied with.

The methodology specific protocol, included in the annex 1, documents the assessment process. The protocol also includes the steps taken in the assessment process. The results of the compliance check as well as relevant evidence are detailed in annex 1.

TÜV SÜD confirms that the chosen baseline and monitoring methodology is applicable to the project activity.

Emission sources, which are not addressed by the applied methodology, and which are expected to contribute more than 1% of the overall expected average annual emission reductions, have not been identified.

3.5.2 **Project boundary**

The project boundary was assessed considering information gathered from the physical site inspection, interviews, and secondary evidence received on the design of the project.

The spatial extent of the project boundary encompasses the bagasse stocking area within the project site, the means for transportation of biomass from stock to power plant, the bagasse power plant at the project site and all power plants connected physically to the electricity system (Brazilian interconnected grid as a single system) that the CDM project power plant is connected to.

Relevant documentation assessed to confirm the project boundary are listed below:

- Registry about purchase of territory (IRL 6)
- ANEEL authorization for the cogeneration project (IRL 8)



- ANEEL authorization N° 1694, dated 30/05/2007 to start full operation on 31/05/2007 (IRL 51)

Details and/or observations, are listed in annex 1 and annex 2.

Therefore, TÜV SÜD confirms that the identified boundary, the selected sources, and gases as documented in the PDD are justified for the project activity and are fully in line with the requirements set by the applied methodology.

3.5.3 Baseline identification

The proposed project activity is a Greenfield cogeneration project. Prior to the implementation of the project, there have been no existing cogeneration plant at the project site.

The PDD defines the following baseline scenario:

- For power (P4 + P5): The generation of power in the grid and the installation of a new biomass residue fired power plant, fired with the same type and with the same annual amount of biomass residues as the project activity, but with a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant industry sector) than the project plant and therefore with a lower power output than in the project case.
- For heat (H2): The proposed project activity (installation of a cogeneration power plant), fired with the same type of biomass residues but with a different efficiency of heat generation (e.g. an efficiency that is common practice in the relevant industry sector).
- For biomass use (B4): The biomass residues are used for heat and/or electricity generation at the project site.

Hence scenario 4 of the methodology has been correctly identified for the project activity:

"The project activity involves the installation of a new biomass residue fired power and heat plant at a site where no power was generated prior to the implementation of the project activity. In the absence of the project activity, a new biomass residue fired power and heat plant (in the following referred to as *reference plant*) would be installed instead of the project activity at the same site and with the same thermal firing capacity but with a lower efficiency of electricity generation as the project plant (e.g. by using a low-pressure boiler instead of a high-pressure boiler). The same type and quantity of biomass residues as in the project plant would be used in the reference plant. Consequently, the power generated by the project plant would in the absence of the project plant than in the reference plant (b) partly in power plants in the grid. The heat generated by the project plant would in the absence of the project plant."

The information presented in the PDD has been validated by an initial document review of all data. Further confirmation has been made based on the on-site visit and a review of information from similar projects and technologies. The sources referenced in the PDD have been quoted correctly. The information was verified against credible sources, such as the following:

- Sugar mills ranking 2006/2007 compared to 2004/2005 (IRL 70)

- Seabra, J. E. A. (2008) "Technical-economic evaluation of options for whole use of sugar cane biomass in Brazil (IRL 72)

- Performance Report, Sugarcane Technology Center CTC (IRL 73)

- Excel spreadsheet "Reference Plants_Efficiency_2010 01.20", indicating the calculation of electrical efficiencies of plants Itapagipe and Limeira do Oeste (IRL 75)

- STATE GOVERNMENT OF SAO PAULO, Ethanol Summit Report 2009 (IRL 87)



- Grid emission factor data of 2006 available at commencement of validation, published by the Brazilian DNA (IRL 105)

The DOE verified whether the 21 bar boiler is indeed the "reference plant" as indicated in the PDD by the following:

The list of sugar cane mills in Brazil in harvest season 2004/2005 was compared with the one in harvest season 2006/2007. The information is provided by Unica (Sugar Cane Industry Association) (IRL 70). Mills which were present in the 2006/2007 sugar cane production ranking, but not in 2004/2005, were considered new. In the following ANEEL website (IRL 70) was consulted in order to verify which of the new mills are already operating and producing electricity. Four mills were found with high pressure boilers (65 kgf/cm²), and all of them are CDM projects. Only two operating mills were found, which are independent energy producers and not CDM projects. Both of them have low-pressure boilers (21kgf/cm²) and are allowed to export their energy surplus to the grid.

Other submitted and available documentation (IRL 72, 73, 75 and 87) substantiate the fact that a 21 kgf/cm2 (bar) pressure boiler can be considered as the "reference plant".

TÜV SÜD has determined that no reasonable alternative scenario has been excluded.

Based on the validated assumptions used for project activity calculations, TÜV SÜD considers that the identified baseline scenario is reasonable.

Taking the definition of the baseline scenario into account, TÜV SÜD confirms that all relevant CDM requirements, including relevant and/or sectoral policies and circumstances, have been identified correctly in the project PDD.

A verifiable description of the baseline scenario has been included in the PDD.

In regard to item 87 of VVM, TÜV SÜD confirms the following statements:

- 1) All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- 2) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- 3) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence, and can be deemed reasonable;
- 4) Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
- 5) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario, and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

3.5.4 Algorithm and/or formulae used to determine emission reductions

TÜV SÜD has assessed the calculations of project emissions, baseline emissions and emission reductions. Leakage effects have not to be considered for scenario 4 according to the applied methodology as the diversion of biomass residues to the project activity is already considered in the calculation of baseline reductions.

Corresponding calculations were carried out based on calculation spreadsheets (IRL 65,77). The parameters and equations presented in the PDD, as well as other applicable documents, have been compared with the information and requirements presented in the methodology and respective tools like Tool to calculate the emission factor for an electricity system, version 2. An equation comparison



has been made to ensure consistency between all the formulae presented in the calculation files and in the PDD, methodology, and tools.

The assumptions and data used to determine the emission reductions are listed in the PDD and all the sources have been checked.

Based on the information reviewed it is confirmed that the sources used are correctly quoted and interpreted in the PDD.

The values presented in the PDD are considered reasonable based on the documentation and references reviewed and the results of the interviews.

The baseline methodology has been applied correctly according to requirements.

The estimate of the baseline emissions are considered correct as the calculations have been reproduced by the audit team with the attainment of the same results.

Detailed information on the verification of the parameters used in the equations are found in Annex 1. The algorithms for the determination of the baseline and project emissions are discussed in the following sections.

3.5.4.1 Baseline Emissions

As per the methodology, baseline emissions may consist of:

- Baseline emissions from electricity generation (i.e. emission reductions due to displacement of electricity);
- Baseline emissions from heat production (i.e. emission reduction due to displacement of heat);
- Baseline emissions from biomass decay/burning.

The proposed project activity only claims baseline emissions from electricity generation. Baseline emissions from heat production are not considered for conservatism. Emission reductions from heat are not considered because the thermal efficiency of the project plant is higher than the heat efficiency of the reference plant (a plant with a low-pressure boiler of 21 kgf/cm²). According to DEDINI, a Brazilian boiler manufacturer, the efficiency of a low-pressure boiler of 21 kgf/cm² is lower than the one of a high pressure boiler used in the project activity (IRL 43). Hence, for conservativeness reasons, the emission reductions from heat are excluded, i.e., $ER_{thermal,y}=0$ as per page 40 of ACM0006, version 10.1.

Baseline emissions from biomass decay/burning are not included in the baseline scenario (B4).

The calculation of baseline emissions due to displacement of electricity follows the procedures described in the methodology ACM0006, version 10.1 (equation 8), in combination with ACM0002, version 12.1 and version 02 of the "Tool to calculate the emission factor for an electricity system". The net quantity of increased electricity generated as a result of the project activity is calculated by equation (14) of ACM0006, version 10.1.

The net energy efficiency of electricity was calculated from 2 installed new biomass residue fired power plants, in specific Itapagipe plant and Limeira do Oeste plant. These were the only 2 plants identified as independent energy producers, not CDM projects and present in the 2006/2007 sugar cane production ranking, however not in the ranking of 2004/2005 (IRL 70). The (confidential) input data for calculating the energy efficiencies of the 2 plants mentioned above, could be confirmed by telephone interview and Email. The higher calculated efficiency of these 2 plants using 21 kgf/cm2 pressure boilers is 3.06% and was compared with the average electrical efficiency (3.5%) calculated by CTC (largest sugarcane technology centre in Brazil, IRL 41) for average plants built/retrofitted



after 2001. The latter one as higher and conservative value (3.5%) was used in the CER calculation as electrical efficiency for reference plants which is accepted by the validation team.

The grid emission factor was calculated by the Brazilian DNA as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM), following the procedures described in the Tool to calculate the emission factor for an electricity system, version 02. The calculation, available at: http://www.mct.gov.br/index.php/content/view/317397.html#ancora, was using the Dispatch Data Analysis for the Operating Margin. The Build Margin emission factor was determined using the generation-weighted average emission factor of all power units during the most recent year for which power generation data was available. Therefore, emission factor data of 2006, which were available at commencement of validation, were used to calculate the emissions factor. The applied emission factor EF_{CM}=0.2023 tCO2/MWh (EF_{OM}=0.3232, EF_{BM}=0.0814), was accepted just for estimating the expected emission reductions of the project activity during the crediting period. Hence, the emission factor calculation used in this PDD, for estimating purposes only, must be verified and updated accordingly using the most recent data available at the time of the verification process.

3.5.5 Project emissions

As per the applied methodology ACM0006, version 10.1, project emissions may include:

- CO2 emissions from transportation of biomass residues to the project site (PET_y);
- CO2 emissions from on-site consumption of fossil fuels due to the project activity (PEFF_y);
- CO2 emissions from consumption of electricity (PE_{EC,y});
- Where this emission source is included in the project boundary and relevant: CH4 emissions from the combustion of biomass residues (PE_{Biomass,CH4,y});
- Where waste water from the treatment of biomass residues degrades under anaerobic conditions: CH₄ emissions from waste water

There is no transportation of biomass, once bagasse is produced inside project site. Hence, $PET_y = 0$. Also, there is no fossil fuel consumption. All energy necessary on-site is provided by the project activity and no fossil fuel is co-fired (*PEFFy*=0). The decay of biomass is not considered in a conservative way ($PE_{biomass,CH4,y}$) and the emissions from waste water are not considered because the wastewater is not treated under anaerobic conditions ($PE_{ww,CH4,y}$). Moreover, the only wastewater generated in the biomass (sugarcane) process is the vinasse, which would occur also in the base-line scenario without any CDM project.

Finally, during the off season period, the project will consume grid electricity. The off season goes from middle of November to middle of April of the following year, and the energy consumption aims to supply energy for maintenance works. The consumption of electricity during the off season would occur both in the project activity as in the baseline scenario. In this way, no emissions have to be considered. Therefore, the DOE confirms that no project emissions arise due to the proposed project activity others that would have also occurred in the baseline scenario.

3.5.6 Leakage

Not applicable, as there are no leakage emissions. As already mentioned in chapter 3.5.4., leakage effects have not to be considered for scenario 4 according to the applied methodology as the diversion of biomass residues to the project activity is already considered in the calculation of baseline reductions.



3.5.7 Emission Reductions

In summary, the calculation of the baseline emissions, project emissions and the emission reductions, respectively, can be considered correct.

3.6 Additionality

The additionality of the project has been presented in the PDD using version 05.2 of the "Tool for the demonstration and assessment of additionality"⁵.

The approach used in the PDD has been assessed initially through the document review, during which the following documents were reviewed:

- Cash-Flow calculation sheet of the project (IRL 9)
- Plants' information about electricity (generated, sold, purchased, sugar-cane quantities) (IRL 15)
- Board meeting report, dated 29/04/2005 (IRL 54)
- Electricity sales contract between Electra Comercializadora de Energia S.A.and Usina Interlagos Ltda. (IRL 29)
- Contract about financing of the project (IRL 10)

On site, the additionality was discussed principally with Jose Roberto Braido, Norberto Bellodi, Executive Director and Jenny Komatsu.

Further documents have been reviewed on-site (annex 2).

Finally, the data, rationales, assumptions, justifications, and documentation provided have been verified using local knowledge as well as sectoral and financial expertise. This information was also confirmed through the following documentation:

- Evolution of sugar cane quantities (IRL 12)

- Civil Construction work contract between Interlagos and Yoshii Engenharia e Construcao Ltda., dated 22/09/2005 (IRL 52)

- Excel spreadsheet about O&M costs (IRL 56)
- Revised IRR (cash flow) excel spreadsheet (IRL 57)
- Invoice about the purchase of the control panel and supervisory system (IRL 58)
- Invoice about the purchase of the TGM Turbine (IRL 59)
- Invoice about the purchase of CALDEMA boiler (IRL 60)
- Invoice about the purchase of generator 50kVA (40 MW) (IRL 61)
- Electricity sales contract between CEMIG DISTRIBUICAO S.A. and Usina Interlagos Ltda (IRL 66)

Based on the aforementioned approach, TÜV SÜD confirms that the documentation provided is appropriate for this project.

3.6.1 Prior consideration of the clean development mechanism

The starting date of the project activity is determined by the 1st payment for the purchase of the generator. This is the first action which is related with significant financial commitments according to

⁵ The deviation M-DEV0285 (IRL 49) approved by UNFCCC on March 15, 2010 allows the PPs to use the "Tool for the demonstration and assessment of additionality" to assess the additionality of a project activity, under methodology ACM0006.



CDM Glossary of Terms, version 05. In order to corroborate this information, the assessment team has reviewed the following documents:

- Invoice about the purchase of generator 50kVA (40 MW), purchase request 29/08/2005, delivery date until 30/01/2007, 1st significant payment: 30/08/2005 (IRL 61)

- Invoice about the purchase of CALDEMA boiler (AMD-73-7GI, 67.3 kgf/cm2), purchase request 13/09/2005, delivery date until 30/01/2007, 1st significant payment: 10/08/2005 (IRL 60)

- Invoice about the purchase of the TGM Turbine, purchase request 07/11/2005, delivery date until 25/09/2006, N° 000348, 1st significant payment: 25/09/2005 (IRL 59)

- Invoice about the purchase of the control panel and supervisory system, purchase request 29/08/2005, delivery date until 27/11/2005, N° 000195, 1st significant payment: 30/08/2005 (IRL 58)

- Civil Construction work contract between Interlagos and Yoshii Engenharia e Construcao Ltda., dated 22/09/2005 (IRL 52)

- Financial closure with BNDES dated 04/09/2006 (IRL 30)

- Construction permit (Installation licence), dated 20/09/2006 (IRL 19)

Additionally the assessment team verified this information with Jose Roberto Braido, Director of supplies and Plinio Sergio Wolpe, Accounting and Jose Luis Godoy, Supervisor of Quality control.

Even though the 1st payment for the CALDEMA boiler was on 10/08/2005 and thus prior to 30/08/2005, 10/08/2005 is not considered as project's starting date as the payment on this day was just a kind of premium payment prior to signing the contract, thus on this date it was not clear yet whether the project would be really implemented.

The starting date of the project activity is determined to be August 30, 2005, which is before 02 August 2008, as well as prior to the GSP. The PPs presented the following information to the assessment team in order to confirm the prior consideration of CDM:

The Board meeting report dated 29/04/2005 (IRL 54), even though only referring to the first implementation phase (40 MW installed capacity), clearly mentions that the "IRR with help of revenues from the sale of electricity and carbon credits attends the basic requirement for project approval".

The original documents presented have been reviewed and verified based on interviews with Norberto Bellodi, Executive Director. Therefore the document IRL 54 can be considered appropriate to confirm the prior consideration of CDM. Additionally, in order to confirm that the PPs have taken real actions to continue the activity as CDM, the following timeline has been reviewed against the respective documents presented in the table below:

Activity	Date / IRL	Auditor conclusion
Signature of CDM consulting contract between USINA INTERLAGOS (today USINA SANTA ADELIA S/A) and ECOINVEST CARBON ASSESSORIA LTDA (today ECOPART ASSESSORIA EM NEGOCIOS EMPRESARIAIS LTDA.)	07-06-2006 / IRL 55	The consulting contract is signed by both parties and is considered to be authentic.
Validation proposal from TÜV	18-10-2006 / IRL 68	The DOE confirms that propos-



SÜD (Email)		al has been sent on 18-10-2006
Start of the 1 st GSP	06-12-2006 / IRL 2	The 1 st GSP can be cross- checked via UNFCCC website
Start of the 2 nd GSP	06-11-2007 / IRL 38	The 2 nd GSP can be cross- checked via UNFCCC website
Project approval of the Brazilian DNA however with the condi- tion still to update to the most recent available methodology	30/05/2008 / IRL 81	The submitted letter is signed by the DNA, thus credible and authentic.
Submission of Request for Cla- rification (AM_CLA_0120) re- garding the applicability of the "Combined Tool to identify the baseline scenario and demon- strate additionality"	Sent to MethPanel on 28-08- 2008 and response received from MethPanel on 07-11-2008 / IRL 82	The Request for Clarification can be cross-checked via UNFCCC website.
Request for Deviation M- DEV0285 entitled "Deviation request to allow the use of the Tool for the demonstration and assessment of additionality" to assess the additionality of a project activity, under metho- dology ACM0006.	Submitted on 14-01-2010 and accepted by UNFCCC on March 15, 2010 / IRL 49	The Request for Deviation can be cross-checked via UNFCCC website.

This confirms that the project complies with the requirements to demonstrate the prior consideration of the CDM.

3.6.2 Identifications of alternatives

The input of the project are biomass residues and the outputs of the project are electricity and heat generation, however no CERs are claimed for heat generation.

The lists of alternatives for electricity and heat generation as well as the use of biomass residue, which are presented in the PDD respectively, include the project activity undertaken without being registered as CDM project. The rest of the alternatives presented do include all plausible scenarios taking into account the local and sectoral situations for the outputs mentioned. Hence the list of alternatives is considered to be complete.

3.6.3 Investment analysis

The PPs use the investment analysis to demonstrate the additionality. The financial returns of the proposed project are insufficient to justify the investment.

The parameters used in the financial calculations have been validated based on a review of the sources presented in the PDD, inter alia: Board meeting report (IRL 54), CCEE auction prices 2005 (IRL 80), Plants' information about electricity (generated, sold, purchased, sugar-cane quantities) (IRL 15 and 106), Excel spreadsheet about O&M costs (IRL 56), IRR (cash flow) excel spreadsheet (IRL 57).

Additionally, the assessment team cross-checked the input parameters from the above mentioned sources with the evidences provided by the PPs and publicly available information as follows:



Investment cost

The civil construction contract (IRL 52) together with invoices (IRL 58, 59, 60, 61, 107) have been submitted to the validation team. The actual investment cost for the 1st implementation phase is already higher than estimated (R\$ 50.8 million), thus the R\$50.8 million used in the IRR calculation can be considered as conservative. Even though no concrete evidence for the investment cost figure of the 2nd implementation phase could be submitted to the validation team, a detailed civil plant from 2005 (IRL 100) with the first and second phases differentiated, including equipments location and description was sent to the validation team and it can be assumed that investment cost in the 2nd implementation phase is very similar to the 1st implementation phase bearing in mind the very similar structure and equipments to be installed in each of the phases.

Besides, investment cost per kWh of the project activity (R\$ 1,260) has been compared by the validation team with various official sources:

- a) CENBIO (2001) indicates investment costs in the range of R\$ 1,500 to R\$ 2,000 per kW (60 bar and 450°C boiler) (IRL 101)
- b) MME (2003) indicates investment cost of R\$ 1,794 per kW (IRL 32).
- c) Unicamp (2008) indicates investment costs in the range of R\$ 1,850 to R\$ 2,000 per kW (65 bar boilers) (IRL 72).

The investment costs of the only registered project (Santa Terezinha – Tapejara Cogeneration Project (Usina de Açúcar Santa Terezinha Ltda.)) using ACM0006 in Brazil has been checked (available at http://bit.ly/gprtpg) and is around R\$ 3200 per kW.

Therefore, the DOE concludes that the estimated investment cost value of BRL 1260/kW for the project activity is reasonable and conservative.

• Electricity tariff

Auction prices from 2005 for biomass thermoelectric power plants have been analyzed (IRL 80). The DOE came to the conclusion that the weighted average price for electricity dispatched in 2008 is R\$ 111 and for electricity dispatched in 2009 is R\$131 without considering inflation. The average of these 2 values results in R\$121, thus is below the applied tariff in the IRR calculation of R\$125. If considering even the auction prices of Usina Interlagos in specific, the same are indicated with R\$104.96 (for dispatched electricity in 2008) and R\$114.96, thus much lower than the R\$125 applied in the IRR calculation.

Tariff has been cross-checked with a long-term Power Purchase Agreement (PPA) between Interlagos and CEMIG (IRL 66) which results in a tariff of R\$125 per MWh. The tariff is calculated based on the indicated contracted amount of electricity and the annual fixed income from electricity sales for Interlagos. Concluding, the application of a tariff of R\$125 in the IRR calculation is considered to be appropriate and conservative.

O&M cost

A O&M cost calculation spreadsheet (IRL 56) with a detailed listing of all O&M costs have been submitted to the validation team. O&M costs amount to 4.1% of investment costs. This value has been compared with MME (2003, official document of the Brazilian government) (IRL 32) which indicates as O&M costs 3.567% of the investment costs. Unicamp (2008, the PhD thesis by Mr. Seabra) (IRL 72) indicates O&M costs corresponding to 4% of the investment costs. The figure estimated by the PPs is plausible but slightly less conservative than the official government figure available at the time of investment decision (MME, 2003). PPs decided to finally use the



more conservative value (3.567% of investment cost) in the final IRR calculation which is accepted by the validation team.

Electricity generation

Net quantity of electricity generated (electricity exported) is calculated by discounting electricity consumed in the auxiliary system of cogeneration plant from electricity generated. Electricity generated and electricity consumed again are calculated by total sugarcane processed and electricity generated and consumed per ton of sugarcane respectively. The last 2 figures are calculated based on 2008 and 2009 harvest figures. The plausibility of electricity generated and consumed per ton of sugarcane figures (applied in IRR calculation and CER excel calculation spreadsheet) valid and applicable at the time of investment decision has been confirmed by IRL 95 and 96.

An internal document dated 17/05/2005 (IRL 106), i.e. shortly after the investment decision date confirms the figures for sugarcane processed which were assumed in the investment analysis. Besides, the civil plant (2005) together with an excel spreadsheet (IRL 102) calculating the sugarcane consumption via enthalpy of boiler input and output show that 3,600,000 tones is a plausible figure for the sugarcane consumption (this is the consumption assumed in the investment analysis from 2014).

• Benchmark

The proposed project activity applies as benchmark the weighted average cost of capital (WACC) and compares this benchmark with a project IRR. This is in accordance with paragraph 12 of EB51, Annex 58. It can be confirmed by the DOE after thorough examination of the data sources (IRL 71,99,108) that the applied WACC is a suitable benchmark for the project IRR and uses publicly available data for similar projects in Brazil, i.e. is not used as internal benchmark as it is shown in the following:

Debt /Equity ratio - In accordance with the Tool for the demonstration and assessment of additionality, the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. The PPs use a debt/equity ratio of 58 to 42 (rounded values) which is indicated in the worksheet "leverage" of the WACC excel spreadsheet (IRL 71) and sourced from the BNDES 2005 Annual Report (IRL 99) as typical for Biomass projects. The DOE due to its sectoral and local expertise confirms that the applied debt/equity ratio is reasonable.

Cost of debt – The cost of debt has been derived from the TJLP (Long term Interest Rate) 5 years average from April 2000 until March 2005 which results in 10.56 %, BNDES remuneration 2.5 % and Credit Risk Rate 1.5 % which are deemed to be appropriate. Calculated cost of debt amounts to 14.56%, which is lower than SELIC (19.50%) at the time of investment decision (29/04/2005) and is deemed to be appropriate for the project activity.

The income tax component with t - Marginal Tax Rate is considered as 34% and confirmed by IRL 98 and the cost of debt arrived at nominal value of 9.61% and further reduced to a real value of 4.89% which is considered as conservative approach.



Cost of equity – The cost of equity has been determined using the Capital Asset Pricing Model (CAPM). The CAPM approach to risk analysis calculates the risk premium associated with the specific risk involved in the particular project type. The riskiness is calculated by means of the beta and this beta measures the relative riskiness of the proposed project activity. The CAPM assesses risks at a market level and not by looking at an individual's risk preferences. The assumptions used in this model to arrive at the cost of equity have been validated as follows:

Risk free rate – The risk free rate (4.64%) has been taken as the 20-year US Treasury Yield as of March 2005 and further reduced to a real value of 2.24% by considering the US inflation (2.40%) which is considered as conservative approach.

Market risk premium (also called equity risk premium) – The market risk premium is calculated based on S&P500 and 10-year T.Bond Yield considering the period 1928 to 2004. It amounts to 6.53% and is calculated by using the annual returns on investments in stocks (11.805%) minus annual returns on investment in treasury bonds (5.272%), both sourced from A. Damodaran, New York University, <u>http://pages.stern.nyu.edu/~adamodar/</u> reference "Historical data on Stocks, Bonds and Bills - US". This total *Equity Risk Premium* is considered reasonable as it measures the rate of return investors seek to compensate them for investing in higher risk equity based assets rather than risk free securities. This is deemed appropriate and acceptable..

Beta – The re-levered beta of 2.54 has been calculated using an average value of 1.34 (unlevered beta) from average Betas of US companies from the power sector (3 power companies were not considered due to the fact that their market capitalization is significant bigger compared to the other companies) referring to the values provided by Damodaran Online (<u>http://pages.stern.nyu.edu/~adamodar/</u>) reference Index for year 2004. Further for arriving to the re-levered beta an average market debt/equity ratio of 58 to 42 has been used (sourced from the BNDES 2005 Annual Report) as well as 34% income tax (composed of 25% corporate income tax rate and 9% social contribution on net profits). The DOE due to its local and sectoral expertise confirm the applied market debt/equity ratio and tax rate as appropriate and reasonable. The use of beta for US power sector is plausible. Calculation of an average value for beta based on power companies is considered as appropriate and conservative.

Country risk premium – The country risk premium for Brazil is 8.65% and has been referred to the JPMorgan Emerging Markets Bond Index Plus (EMBI+) as a liquid US-dollar emerging markets debt benchmark, which tracks total returns for actively traded external debt instruments in emerging markets. The country risk premium has been checked against 3 websites (IRL 108) and is found to be appropriate and plausible. Furthermore, the validation team made a simulation applying a country risk premium of 6% (indicated in Damodaran, <u>http://pages.stern.nyu.edu/~adamodar/</u>) (see also CR 6), which would result in a Cost of Capital (WACC) of 13.31%. The IRR remains clearly below the benchmark as well in this case and casts no doubts that the project activity remains financially unattractive.

In light of the above, it can be stated that the derived benchmark is suitable for the project type. Therefore TÜV SÜD confirms that the benchmark WACC of 14.44% that has been derived is suitable and conservative.



• Tax Rates / Salvage value rate

Evidences for taxes and depreciation have been submitted to the validation team (IRL 84). Income tax of 25% is applied and a depreciation rate of 5%. A residual value is considered after 20 years.

Interest payable when calculating income tax has been considered as per paragraph 11 of EB51, Annex 58 in the final IRR calculation. The validation team checked the final IRR calculation sheet and confirms that interest is correctly considered when calculating income tax. One single depreciation rate was applied, even though ANEEL supplies different figures for different equipments. However, a depreciation rate of 5% can be considered as reasonable and conservative as according to ANEEL main equipment as boiler has a rate of 5%, generator 3.33%, transformer between 2% and 5%, substation between 2% and 3.6%. Besides, even by changing the depreciation rate from 5% to 10%, the IRR increases "only" to 13.12%, thus remains clearly below the benchmark.

The IRR results in 12.16% and is calculated over 20 years which is in accordance with EB51, Annex 58, paragraph 3.

A sensitivity analysis has been performed in a transparent manner. The submitted excel spreadsheets have the readable formulas and unprotected cells, which allows TÜV SÜD to be able to reproduce the analysis and obtain the same results. Key parameters include total investment, O&M cost, tariff and electricity (power) generation, which have been considered to be sufficient and in accordance with paragraph 17 of EB51, Annex 58. The variation range of -/+ 10% is common practice and also in accordance with the requirement of EB51 Annex 58 paragraph 18. The results of the sensitivity analysis show that even with a 10% variation of the input parameters the benchmark of 14.44% is never reached. The sensitivity analysis was analyzed in detail and the DOE herewith confirm that the underlying assumptions, parameters and chosen values are appropriate and that the calculations have been performed correctly.

Chapter 5 of the PDD further indicates at which increase or decrease in percentage of each main input parameter the IRR crosses the benchmark. The validation team cross-checked the plausibility and appropriateness of the figures of the main input parameters (see pages 20 and 21) and confirms that it is improbable that the IRR crosses the benchmark by increasing tariff or power generation by 15.15%, decreasing investment by 13.2% or decreasing O&M costs by 82.50%.

In conclusion, the financial calculations have been verified and no mistakes have been found. This confirms that the calculations are correct and the proposed project is financially unattractive without CER revenues.

3.6.4 Barrier analysis

Additionality discussion is based on the investment analysis. Institutional barrier mentioned in B.5. is just used to reinforce the conservativeness of the adopted benchmark.



3.6.5 Common practice analysis

The region for the common practice analysis has been defined as Sao Paulo State, where the proposed project is located. The project activity's technology can be found in different country regions, where different situations can appear. The assessment team has reviewed the approach presented in the PDD and can confirm that the relevant parameters as the environmental licensing process (which is State based) (IRL 48) or the determination of taxes for the use of the interconnected distribution and transmission system depending by the state where the power generation project is located (IRL 93) has been taken into account in order to define the region to be used for the common practice. Hence the presented region can be considered appropriate for the common practice analysis.

The assessment team has reviewed official sources such as ANEEL data base (IRL 91) and UNFCCC website. This information confirms that the list of similar projects presented in the PDD is complete. Additionally, the team further verified the information based on interviews.

Sugarcane bagasse fired power plants with electricity export to the grid with 50 MW or more installed capacity (the installed capacity of the proposed project activity is 80 MW) in Sao Paulo State has been considered as similar project activities. From the 22 similar projects identified, 19 are project activities which have been published on the UNFCCC website for GSP as part of the validation process. The remaining 3 projects (Conquista do Pontal, Barra Bioenergia and Cocal II) make part of the federal government PAC program receiving additional financial incentives (IRL 92) and thus cannot be considered to take place in a comparable environment with respect to investment conditions as the proposed project activity.

Therefore, it is confirmed that the proposed CDM activity is not a common practice in the defined region.

3.7 Monitoring plan

The monitoring plan presented in the PDD complies with the requirements of the applicable methodologies. The assessment team has verified all parameters in the monitoring plan against the requirements of the methodology; no relevant deviations have been found.

The procedures have been reviewed by the assessment team through document review and interviews with the relevant personnel. This information, together with a physical inspection, allows the assessment team to confirm that the proposed monitoring plan is feasible, and within the project design. The major parameters to be monitored have been discussed with the PPs. In specific, these parameters include the location of meters, data management, and the quality assurance and quality control procedures to be implemented in the context of the project. The parameters to be monitored are described in the following:

- Quantity of biomass residue type k combusted in the project plant during the year y (BFk,y): The quantity of bagasse is measured continuously by 3 weight scales by conveyor scale of accuracy 1%. Weight scales measure total bagasse generated, bagasse sent to storage and bagasse transported from storage to supply the boiler. Bagasse is adjusted by the moisture content in order to determine the quantity of dry biomass. Measurements are cross-checked with an annual energy balance. The manufacture Toledo performs maintenance and calibration, if necessary, twice a year. Necessity is determined according to the applicable legislation from INMETRO (National Institute of Meterology, Standardization and Industrial Quality).

-Moisture content of the biomass residues:



Samples are collected each 2 hours and analysis is made each 4 hours in a composted sample. Mean value are calculated annually. The moisture content will be monitored for each batch of biomass of homogeneous quality. The instruments utilized have an accuracy of 1% and are tested by CTC (Sugarcane Technology Cente) which is accredited by INMETRO, once a year.

- Net calorific value of biomass residue type *k* (NCV_k):

At least 3 samples will be collected every 6 months. Samples will be sent to CTC and analyzed according to CTC standard (ASME PTC 4). Data will be cross-checked with local statistical values and with measurements from previous years of the crediting period. Consistency of measurements will be checked with default values by the IPCC. Accuracy of the calorimeter is 1%.

- Net quantity of electricity generated in the project plant during year y (EGproject plant,y):

Continuous electronic measurement of the total generated amount and the energy consumed in the auxiliary system of cogeneration plant. Net quantity is calculated subtracting the auxiliary consumption from the total generated. Consistency of net electricity generation will be cross-checked with the quantity of bagasse fired. Electricity meter used by Usina Interlagos will be calibrated every 5 years as per the manufacturer's specifications.

-CO₂ Combined Margin Emission Factor for Grid Electricity during the year y (EF_{grid} (CM)):

The emissions factor is annually updated by the Brazilian DNA using the Dispatch Data Analysis for calculation of the emissions factor. As already mentioned in chapter 3.5.4.1., the emission factor calculation used in this PDD, for estimating purposes only, must be verified and updated accordingly using the most recent data available at the time of the verification process.

3.8 Sustainable development

The project contributes to the sustainable development of the host Party. This was confirmed during the on-site visit.

3.9 Local stakeholder consultation

The relevant local stakeholders have been invited via invitation letters on October 13, 2006. The evidence of these invitations is found in IRL 20. The assessment team has reviewed the documentation in order to validate the inclusion of relevant stakeholders. The team's local expertise confirmed that the communication method used to invite the stakeholders was appropriate. The Brazilian DNA defines that the stakeholder process has to be carried out at least 15 days prior to the start of validation and the minimum of stakeholders who have to be consulted (resolution n° 7, from March 05, 2008, paragraph 1). One comment was received from the NGO FBOMS suggesting the use of Gold Standard or similar tools.

The summary of comments presented in the PDD has been verified with the documentation of the stakeholder consultation and is found to be complete.

Hence, the local stakeholder consultation has been adequately performed according to the CDM requirements.

3.10 Environmental impacts

According to Brazilian regulations, the proposed project activity does not require an EIA, however a Preliminary Environmental Report had to be completed. An EIA has not been required, as the envi-



ronmental impact of the project activity is considered not to be significant. The validation team can confirm the same due to its local and sectoral expertise.

Installation and operational licenses have been submitted to the validation team (IRL 19, 48) which clearly show that the proposed project activity is in compliance with the environmental legislation. In conclusion, the PPs have followed the requirements of the host country with regards to addressing environmental impacts.



4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on the UNFCCC website, and invited comments by affected Parties, stakeholders, and non-governmental organisations during a 30 day period. The following table presents all gathered key information:

website:								
http://cdm.unfccc.int/Projects/Validation/index.html								
Starting date of the global stakeholder consultation process:								
1 st GSP: 06-12-2006								
2 nd GSP: 06-11-2007								
Comment submitted by:	Issues raised:							
None -								
Response by TÜV SÜD:								
-								



5 VALIDATION OPINION

TÜV SÜD has performed a validation of the following proposed CDM project activity:

"Usina Interlagos Cogeneration Project"

Standard auditing techniques have been used for the validation of the project. A methodologyspecific protocol for the project has been prepared to conduct the validation process in a transparent and comprehensive manner.

The review of the project design documentation, subsequent follow-up interviews and further verification of references have provided TÜV SÜD with insufficient evidence to determine the fulfilment of stated criteria in the protocol. In the opinion of TÜV SÜD, the project meets all relevant UNFCCC requirements for the CDM if the underlying assumptions do not change. TÜV SÜD recommends the project for registration by the CDM Executive Board.

An analysis, as provided by the applied methodology, demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are additional to any that would occur in the absence of the project activity. Considering that the project will be implemented as designed, the project is likely to achieve the estimated annual amount of emission reductions of 39,399 tCO₂e and a total estimated of 275,791 tCO₂e as specified within the final PDD version.

The validation has been performed following the requirements of the latest version of the CDM VVM and on the basis of the contractual agreement. The single purpose of this report is its use during the registration process as part of the CDM project cycle.

Munich, 05-05-2011

Munich, 05-05-2011

Rensit

Konrad Tausche Assessment Team Leader

Thomas Kleiser Head of the Certification Body "climate and energy" TÜV SÜD Industrie Service GmbH



Annex 1: Validation Protocol

Project Title:Usina Interlagos Cogeneration ProjectDate of Completion:05/05/2011Number of Pages:139Report N°:600500413



Table 1 Conformity of Project Activity and PDD

	CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD	
A. Gene	A. General description of project activity					
A.1. Ti	tle of the project activity					
A.1.1.	Does the used project title clearly enable to identify the unique CDM activity?	38	Yes. The used project title clearly enables to identify the unique CDM activity.	V	V	
A.1.2.	Are there any indication concerning the revision number and the date of the revision?	38	Yes. Version number (version 15) and the date of the comple- tion (October 31, 2007) of the PDD are given.	V	Ŋ	
A.1.3.	Is this consistent with the time line of the project's history?	38	Yes.	V	V	
A.2. De	escription of the project activity					
A.2.1.	Is the description delivering a transpa- rent overview of the project activities?	1,38	Yes. The description is delivering a transparent overview of the project activities.	Ø	V	
A.2.2.	What proofs are available demonstrating that the project description is in com- pliance with the actual situation or plan- ning?	1,8, 19, 38	 ANEEL Resolution N° 219 from August, 03rd, 2006 explains that Interlagos is authorized to establish and operate a cogeneration sugar-cane plant and is authorized to sell the surplus of electricity to the grid. Installation Licence N° 13001412 issued on September, 20, 2006. Corrective Action Request No.1. According to the PDD (Version 15) Interlagos project is operational since May 2007. This implies that there must be available an operational environmental license. Please submit this operational environmental license in the PDD (in D.1.). 	CAR 1	J	



пероп и	. 000500415				
A.2.3.	Is the information provided by these proofs consistent with the information provided by the PDD?	1,8, 19, 38	Yes. The information provided by these proofs is consistent with the information provided by the PDD.	V	Ø
A.2.4.	Is all information presented consistent with details provided by further chapters of the PDD?	38	Yes. All information presented is consistent with details provided by further chapters of the PDD.	V	V
A.3. Pro	oject participants				
A.3.1.	Is the form required for the indication of project participants correctly applied?	38	Yes.		Ø
A.3.2.	Is the participation of the listed entities or Parties confirmed by each one of them?	1,38	During the on-site visit the validation team has been persuaded that the 2 in the PDD listed entities participate in the project.	V	Ø
A.3.3.	Is all information on participants / Parties provided in consistency with details pro- vided by further chapters of the PDD (in particular annex 1)?	38	Yes. All information on participants is consistent with details provided by further chapters of the PDD.	Ø	Ø
А.4. Те	chnical description of the project acti	ivity			
A.4.1.	Location of the project activity				
A.4.1.1.	Does the information provided on the lo- cation of the project activity allow for a clear identification of the site(s)?	1,11 , 38	The PDD indicates the exact address of the project activity as well as 8 GPS coordinates of the thermoelectric power plant.	Ŋ	Ø
A.4.1.2.	How is it ensured and/or demonstrated, that the project proponents can imple- ment the project at this site (ownership, licenses, contracts etc.)?	1,6, 7	It has been presented the official registries about the ownership of the project site and the social contract of "Usina Interlagos Ltda." showing the foundation of the company to the validation team.	Ø	Ø
A.4.2.	Category(ies) of project activity				
A.4.2.1.	To which category(ies) does the project activity belonging to? Is the category	1,38	The project activity belongs to Sectoral Scope: 1 – Energy in- dustries (renewable - / non-renewable sources).	Ø	Ø



	correctly identified and indicated?		This information is indicated in the PDD.		
A.4.3.	Technology to be employed by the pro	ject ac	tivity		
A.4.3.1.	Does the technical design of the project activity reflect current good practices?	1,38	The technical design of the project activity reflects current good practices.	V	V
A.4.3.2.	Does the description of the technology to be applied provide sufficient and trans- parent input/ information to evaluate its impact on the greenhouse gas balance?	1,38	All necessary information of the technology to be applied is pro- vided to evaluate its impact on the greenhouse gas balance. Technical description of boiler, turbo-reductor and generator is indicated in the PDD.		V
A.4.3.3.	Does the implementation of the project activity require any technology transfer from annex-I-countries to the host coun- try(ies)?	1,38	Practically all equipment is produced in Brazil. Some minor parts (about 3-5 %) like electronical parts and valves are imported; Parts of the substation are 80 % nationally produced, 20 % are imported.		Ø
A.4.3.4.	Is the technology implemented by the project activity environmentally safe?	1,38	The technology implemented by the project activity is environ- mentally safe. The applied technology has been already used in other projects.	Ø	V
A.4.3.5.	Is the information provided in com- pliance with actual situation or planning?	1,4, 36, 38	Corrective Action Request No.2. Chapter A.4.3. mentions an "annual average of 127,000 MWh of power surplus at the end of the first crediting period". This in- formation is not consistent with the information given in the ex- cel-calculation sheet. Please revise and correct.	CAR 2	
A.4.3.6.	Does the project use state of the art technology and / or does the technology result in a significantly better perfor- mance than any commonly used tech- nologies in the host country?	1,38	Cogeneration projects today in operation use the same technol- ogy as the project will use. Hence, it can be said that the project use state of the art technology.		
A.4.3.7.	Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1,38	The project technology is not likely to be substituted by other or more efficient technologies within the project period.	Ø	V
A.4.3.8.	Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the	1,17	Documents have been submitted to the validation team showing that training has been partly realised and/or is envisaged.		



	project period?				
A.4.3.9.	Is information available on the demand and requirements for training and main- tenance?	1,17	Yes. A document has been submitted to the validation team, showing all already realized and still required training and main- tenance efforts.	V	V
A.4.3.10.	Is a schedule available for the imple- mentation of the project and are there any risks for delays?	38	Corrective Action Request No.3. Please provide a Table with the project time schedule in the PDD including the most important implementation steps of the project activity including CDM consideration (if relevant).	CAR 3	
A.4.4.	Estimated amount of emission reduction	ons ove	er the chosen crediting period		
A.4.4.1.	Is the form required for the indication of projected emission reductions correctly applied?	38	The form required for the indication of projected emission reduc- tions is correctly applied.	V	Ø
A.4.4.2.	Are the figures provided consistent with other data presented in the PDD?	4,36	 The figures provided are consistent with other data presented in the PDD, however not consistent with the Excel sheet "CERs 2008 07 01". <u>Corrective Action Request No.4.</u> 1. Please provide consistent ER figures between PDD and Excel sheet. 2. Please take out the emission reductions in 2015, as until April 14th is the off-harvest period, thus no electricity generation. 	CAR 4	
A.4.5.	Public funding of the project activity	4		<u> </u>	
A.4.5.1.	Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project participants?	1,30 ,31	There is no public funding involved in the project. It is not a diversion of ODA. The proposed project activity is mostly financed by credits (90%) and the remaining part is financed by own equity capital.	V	V
A.4.5.2.	Is all information provided consistent with the details given in remaining chap- ters of the PDD (in particular annex 2)?	38	Yes. All information provided is consistent with the details given in remaining chapters of the PDD.	M	Ø



B. Application of a baseline and monitoring methodology							
B.1. Title and reference of the approved baseline and monitoring methodology							
B.1.1.	Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	38- 43	Yes. ACM0006 and the respective tools are inc GSP Repeat PDD. However, see B.1.2.	dicated in the	See CAR 5	V	
B.1.2.	Is the applied version the most recent one and / or is this version still applica- ble?	38- 43	 Corrective Action Request No.5. 1. Please update the version of ACM0006 to v 2. Please update the title of the "Tool to calcusions from electricity consumption". 3. Please update the version of the "Tool for cassessment of additionality" to version 5.2 4. Please update ACM0002 to version 10. 5. Please include the "Tool to calculate the ean electricity system", version 02 in B.1. of the 6. Please add the version 2.2. of the Combined 	ersion 9. Jate project emis- demonstration and emission factor for PDD. d Tool.	CAR 5		
B.2. Ju	stification of the choice of the metho	dology	/ and why it is applicable to the project ac	ctivity			
B.2.1.	Is the applied methodology considered the most appropriate one?	38, 39	Yes. The applied methodology is considered that ate one.	ne most appropri-		V	
B.2.2.	Is the project activity clear according to the PDD?	38, 39	Yes. It is indicated in the PDD that the propose is a green-field project, however see CR 3. Applicability checklist Greenfield project? Power capacity expansion project? Energy efficiency improvement project? Fuel switch project?	ed project activity Yes / No Yes No No No	See CR 3		



•						
B.2.3.	Applicability Criterion 1: No other biomass types than biomass residues are used and these residues are the predominant fuel.	38, 39	Applicability checklistCriterion discussed in the PDD?Compliance provable?Evidences provided?Compliance verified?	Yes / No Yes Yes See CR 3 See CR 3	See CR 3	Ø
B.2.4.	Criterion 2: For projects that use biomass residues from a production process (e.g. produc- tion of sugar or wood panel boards), the implementation of the project shall not result in an increase of the processing capacity of raw input (e.g. sugar, rice, logs, etc.) or in other substantial changes (e.g. product change) in this process	38, 39	Applicability checklist Criterion discussed in the PDD? Compliance provable? Evidences provided? Compliance verified?	Yes / No Yes Yes See CR 3 See CR 3	See CR 3	
B.2.5.	Criterion 3: The biomass residues used by the project facility should not be stored for more than one year;	38, 39	Applicability checklistCriterion discussed in the PDD?Compliance provable?Evidences provided?Compliance verified?	Yes / No Yes Yes See CR 3 See CR 3	See CR 3	
B.2.6.	Criterion 4: No significant energy quantities, <i>except</i> from transportation or mechanical treat- ment of the biomass residues, are re- quired to prepare the biomass residues	38, 39	Applicability checklist Criterion discussed in the PDD? Compliance provable? Evidences provided?	Yes / No Yes Yes See CR	See CR 3	Ø



			- C			
	for fuel combustion		Compliance verified?	3 See CR 3		
B.3. De	escription of the sources and gases in	clude	d in the project boundary			
B.3.1.	Source: Grid electricity generation Gas(es): CO2 Type: Baseline Emissions	38, 39	Boundary checklist Source and gas(es) discussed in the PDD? Inclusion / exclusion justified? Explanation / Justification sufficient? Consistency with monitoring plan?	Yes / No Yes Yes Yes Yes		
B.3.2.	Source: Heat generation Gas(es): CO2 Type: Baseline Emissions	38, 39	Boundary checklist Source and gas(es) discussed in the PDD? Inclusion / exclusion justified? Explanation / Justification sufficient? Consistency with monitoring plan?	Yes / No Yes Yes Yes Yes		
B.3.3.	Source: Uncontrolled burning or decay of surplus biomass residues Gas(es): CH4 Type: Baseline Emissions	38, 39	Boundary checklist Source and gas(es) discussed in the PDD? Inclusion / exclusion justified? Explanation / Justification sufficient? Consistency with monitoring plan?	Yes / No Yes Yes Yes Yes		
B.3.4.	Source: On-site fossil fuel or electricity consump-	38, 39	Boundary checklist	Yes / No	CAR 6	V


	tion Gas(es): CO2		Source and gas(es) discussed in the PDD?	See CAR		
	Type: Project Emissions		Inclusion / exclusion justified?	See CAR		
			Explanation / Justification sufficient?	See CAR		
			Consistency with monitoring plan?	See CAR		
			Corrective Action Request No.6.	U		
			 Please indicate the source exactly as indic dology (including electricity consumption). Please justify why electricity consumption activity is excluded from the project boundary. 	ated in the me	etho- pject	
B35	Source:	38				\checkmark
D.0.0.	Off-site transportation of biomass resi-	30	Boundary checklist	Yes / No		
	dues	00	Source and gas(es) discussed in the PDD?	Yes		1
	Gas(es): CO2		Inclusion / exclusion justified?	Yes		
	Type: Project Emissions		Explanation / Justification sufficient?	Yes		
			Consistency with monitoring plan?	Yes		
B36	Source:	38				V
D.0.0.	Combustion of biomass residues	30	Boundary checklist	Yes / No		
	Gas(es): CH4	55	Source and gas(es) discussed in the PDD?	Yes		
	Type: Project Emissions		Inclusion / exclusion justified?	Yes		
			Explanation / Justification sufficient?	Yes		
			Consistency with monitoring plan?	Yes		
B37	Source:	38			CAR 7	<u> </u>
0.0.7.	Waste water from the treatment of	30	Boundary checklist	Yes / No	•••••	—
	hiomass residues	39	Source and gas(es) discussed in the PDD?	No		
			Inclusion / exclusion justified?	No		



	Gas(es): CH4		Explanation / Justification sufficient?	No			
	Type: Project emissions		Consistency with monitoring plan?	No			
			Corrective Action Request No.7. Please discuss the source "Waste water from	the treatm	ient of		
B.3.8.	Is the spatial extension of project boun- dary clear described?	38, 39	The spatial extension of the project boundary is scribed in the last submitted PDD.	clearly de-	51011.	Ø	V
B.3.9.	Do the spatial and technological bounda- ries as verified on-site comply with the discussion provided by / indication in- cluded to the PDD?	38, 39	Yes. The spatial and technological boundaries site comply with the discussion indicated in the	as verified o PDD.	วท-	Ø	
B.4. De	escription of how the baseline scenari	o is id	entified and description of the identified I	baseline s	cenari	ο	
B.4.1.	Are biomass residues from different sources considered as different types of biomass residues? Are biomass resi- dues with different uses in the absence of the project activity considered as dif- ferent types of biomass residues k.? Does the PDD document for each type of biomass residues which quantities are used in which installations under the project activity and how these types and quantities of biomass residue would be used in the absence of the project activi- ty, preferably using a table?	38, 39	The only biomass residues used in the propose are residues from sugar cane bagasse. No othe dues will be used. In the absence of the propos ity, the same type and quantity of biomass wou ever the biomass power plant in the absence of project activity would have a lower efficiency of eration. Corrective Action Request No.8. Please revise the following phrase in B.2.: "T the project plant is a biomass consisting of gasse." It makes the impression that besides sugar ca types of biomass residues are used.	ed project ac er biomass r ed project a ld be used, f the propos electricity g he primary f sugar can ne bagasse	ctivity resi- activ- how- ed gen- fuel in ne ba- e other	CAR 8	
B.4.2.	Have all technically feasible baseline scenario alternatives to the project activi- ty been identified and discussed by the PDD? Why can this list be considered as being complete?	1,38 , 39	Realistic and credible alternatives should be de Completely discussed and reasoned in PDD? how power would be generated in the ab- sence of the CDM project activity; what would happen to the biomass residues	termined: Yes / N Yes S Yes	10	Ø	V



	1 000000110					
			in th	ne absence of the project activity; and		
			in c	ase of cogeneration projects: how the heat	Yes	
			wou	Ild be generated in the absence of the pro-		
			ject	activity		
			The a	Iternatives mentioned in the PDD comply with t	he explana-	
			tions	given during the on-site audit and reflect the rea	alistic and	
			credit	ble alternatives to the proposed project activity.		
B.4.3.	Is the project activity categorized and is	1,38	-			\checkmark
	that retraceable?	,	⊢or p	ower generation, the realistic and credible altering	natives	
		39	mayı	nciude		
			Cat	ogorios		
				The proposed project estivity not undertaken as	Vac	
			P1	a CDM project activity	Tes	
			P2	The continuation of power generation in an ex-	No	
				isting biomass residue fired power and heat plant		
				at the project site, in the same configuration,		
				without retrofitting and fired with the same type		
				of biomass residues as (co-)fired in the project		
				activity		
			P3	The generation of power in an existing captive	No	
			15	nower and heat plant using only fossil fuels	110	
				po nor and nout plant, abing only loboit facto		
			P4	The generation of power in the grid	Yes	
			P5	The installation of a new biomass residue fired	Yes	
				power and heat plant fired with the same type		
				and with the same annual amount of biomass		
				residues as the project activity, but with a lower		
				efficiency of electricity generation (e.g. an effi-		
				ciency that is common practice in the relevant		
				industry sector) than the project plant and there-		
				fore with a lower power output than in the pro-		



	ject case.		
P6	The installation of a new biomass residue fired power and heat plant that is fired with the same type but with a higher annual amount of biomass residues as the project activity and that has a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the rele- vant industry sector) than the project activity. Therefore, the power output is the same as in the project case.	No	
P7	The retrofitting of an existing biomass residue fired power and heat plant, fired with the same type and with the same annual amount of biomas residues as the project activity, but with a lower efficiency of electricity generation (e.g. an effi- ciency that is common practice in the relevant industry sector) than the project plant and there- fore with a lower power output than in the pro- ject case.	No	
P8	The retrofitting of an existing biomass residue fired power and heat plant that is fired with the same type but with a higher annual amount of biomass residues as the project activity and that has a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant industry sector) than the project activity.	No	



P9	The installation of a new fossil fuel fired captive power and heat plant at the project site.	No
P10	The installation of a new single- (using only biomass residues) or co-fired (using a mix of biomass residues and fossil fuels) cogeneration plant with the same rated power capacity as the project activity power and heat plant, but that is fired with a different type and/or quantity of fu- els (biomass residues and/or fossil fuels). The annual amount of biomass residue used in the baseline scenario is lower than that used in the project activity	No
P11	The generation of power in an existing fossil fuel fired cogeneration plant co-fired with biomass residues, at the project site.	No
For h	heat generation, realistic and credible alternative(e,	s) may in-
Cat	tegories	Yes / No
H1	The proposed project activity not undertaken as a CDM project activity	Yes
H2	The proposed project activity (installation of a power and heat plant) fired with the same type	Yes
	of biomass residues but with a different effi- ciency of heat generation (e.g. an efficiency that	



tor)		
B The generation of heat in an existing captive power and heat plant, using only fossil fuels	No	
The generation of heat in boilers using the same type of biomass residues	Yes	
The continuation of heat generation in an exist- ing biomass residue fired power and heat plants at the project site, in the same configuration, without retrofitting and fired with the same type of biomass residues as in the project activity;, and implementation of the project activity, not undertaken as a CDM project activity, at the end of the lifetime of the existing plant	No	
5 The generation of heat in boilers using fossil fu- els	No	
7 The use of heat from external sources, such as district heat	No	
B Other heat generation technologies (e.g. heat pumps or solar energy)	No	
The installation of a new single- (using only biomass residues) or co-fired (using a mix of biomass residues and fossil fuels) power and heat plant with the same rated power capacity as the project activity power and heat plant, but that is fired with a different type and/or quantity of fuels (biomass residues and/or fossil fuels). The annual amount of biomass residue used in the baseline scenario is lower than that used in the		



	fired cogeneration plant co-fired with biomass residues, at the project site.	
For th ternat	ne use of biomass residues , the realistic and cr tive(s) may include, <i>inter alia</i> : egories	edible al-
B1	The biomass residues are dumped or left to decay under mainly aerobic conditions. This applies, for example, to dumping and decay of biomass resi- dues on fields.	No
B2	The biomass residues are dumped or left to decay under clearly anaerobic conditions. This applies, for example, to deep landfills with more than 5 meters. This does not apply to biomass residues that are stock-piled1 or left to decay on fields.	No
B3	The biomass residues are burnt in an uncontrolled manner without utilizing it for energy purposes.	No
B4	The biomass residues are used for heat and/or electricity generation at the project site	Yes
B5	The biomass residues are used for power genera- tion, including cogeneration, in other existing or new grid-connected power and heat plants.	No
B6	The biomass residues are used for heat generation in other existing or new boilers at other sites3	No
B7	The biomass residues are used for other energy purposes, such as the generation of biofuels	No
B8	The biomass residues are used for non-energy purposes, e.g. as fertilizer or as feedstock in proc- esses (e.g. in the pulp and paper industry)	No



B.4.4.	In cases where realistic and credible al- ternative(s) include the installation of new power and/or heat generation facili- ties at the project site – other than the proposed project activity (so called ref- erence plant): Has been identified the economically most attractive technology and fuel type (same service (i.e. the same power and/or heat quantity), tech- nologically available and in compliance with regulations)? In case where several technologies and/or fuel types are avail- able (which are similarly economically attractive): Is the least carbon intensive fuel type / the most efficienct technology considered?	1,38 , 39	 Corrective Action Request No.9. 1. The efficiency calculation for the reference plant should be updated as the figure is based on 2006 values. 2. It should be clearly demonstrated in the PDD how the average net energy efficiency of power generation in the reference power/cogeneration plant was calculated. 3. Evidence for the efficiency for the reference plant should be submitted to the validation team. 	CAR 9	
B.4.5.	What kind of scenario combination has been applied according to table 2 of me- thodology?	1,38 , 39	The scenario combination 4 has been correctly applied.	Ø	Ø
B.4.6.	Does the PDD explain the specific situa- tion of the project activity and demon- strate that the project activity and the most plausible baseline scenario corres- pond to the "description of the situation" in Table 2 and to the combination of baseline scenarios for power, heat and biomass use?	1,38 , 39	Yes. The PDD explains the specific situation of the project ac- tivity and demonstrates that the project activity and the most plausible baseline scenario corresponds to the description of scenario 4 and to the combination of baseline scenarios P4 and P5 for power, H2 for heat and B4 for biomass. Clarification Request No.1. PPs should clarify whether the efficiency of heat generation in the project plant is really larger than the one from the reference plant. In the opposite case, it would imply that the project im- plementation may involve additional heat generation from other sources or a longer operation of the project plant and may result in an increase in GHG emissions.	CR 1	
B.4.7.	Does the PDD document: for each pow-	1,38	Not applicable, as there was no power and heat plant in opera-	\checkmark	$\mathbf{\nabla}$



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	er and heat plant that was operating at the project site during the most recent three years prior to the start of the project activity: the type and capacity of the power plant, types and quantities of fuels that have been used in the power and heat plant during the most recent three years prior to the start of the project activity and whether the plant continues operation after the start of the project activity?	, 39	tion prior to the proposed project activity.		
B.4.8.	Does the PDD document: for each boiler or other heat generation equipment that was operating at the project site during the most recent three years prior to the starty of the project activity: the type and capacity of the boiler, types and quanti- ties of fuels have been used in the boiler during the most recent threee years prior to the start of the project activity and whether the boiler continues operation after the start of the project activity?	1,38 , 39	Not applicable, as there was no boiler or other heat generation equipment in operation prior to the proposed project activity.	Ø	
B.4.9.	Does the PDD document: for each boiler or power and heat plant installed under the project activity: the type and capacity of boilers and/or power and heat plants and which types and quantities of fuels are planned to be used?	1,38 , 39	 The PDD documents the first configuration (boiler, turboreductor and generator), however not the equipment for the pretended implementation in 2010. <u>Corrective Action Request No.10.</u> 1. Please indicate for 2015 the planned sugar cane bagasse to be used and indicate that exclusively sugar cane bagasse will be used as residue. 2. Please mention the exact type and capacity of boiler and generator which will be implemented in 2010; in the case boiler and generator are the same as for the first configuration, please mention that. 	CAR 10	



B.4.10.	Does the PDD document: for each new boiler or power and heat plant that would be installed in the absence of the project activity: the type and capacity of the new boilers and/or power and heat plants and which types and quantities of fuels would be used?	1,38 , 39	The PDD does not document that kind of information. Corrective Action Request No.11. Please mention the boiler(s), turbo-reductor(s) and getthat would have been installed in the absence of the plants and which types and quantities of fuels would be	enerator(s) project ac- power pe used.	CAR 11	V
B.4.11.	Does chosen scenario meet engineered project activity?	1,38 , 39	Yes. Scenario 4 meets engineered project activity.		N	
B.4.12.	Have applicable regulatory or legal re- quirements been identified?	1,38 , 39	No regulatory or legal requirements except those for or an environmental licence have been identified.	obtaining		Ø
B.4.13.	Does project identify correctly and ex- cludes those options not in line with reg- ulatory or legal requirements?	1,38 , 39	Not applicable. See B.4.12.		Ŋ	Ø
B.4.14.	In case of scenarios 7, 8, 10, 11, 12, 13, 14, 16, 17 and 22 a power plant was already operated at the project site prior to the implementation of the project activity. In case of scenarios 1, 2, 3, 4, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17 and 20 heat may already have been generated at the project site prior to the implementation of the project activity. Hence, the lifetime and age of baseline components need to be considered. I	1,38 , 39	Not applicable, as scenario 4 is applied and heat has generated prior to the implementation of the project a Data Checklist Age of each component mentioned? Expected lifetime of each component mentioned? Does the ending date fall in the scheduled credit- ing period of the project? Evidences clearly referenced? Has this value been verified? Choice of data correctly justified? Measurement method correctly described?	not been ctivity. Yes / No		

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B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):

B.5.1.	If the starting date of the project activity is before the date of validation, is evi- dence available to prove that incentive from the CDM was seriously considered in the decision to proceed with the project activity?	38, 44	 <u>Corrective Action Request No.12.</u> 1. In the case if the starting date of the project activity is before the date of validation: Please provide an evidence for CDM consideration (as well in English language). This evidence should clearly show that CDM was seriously considered in the decision to proceed with the project activity and should be dated before the project's starting date. 2. In the case the starting date of the project activity is before the date of validation (date of publication of the CDM-PDD for GSP), B.5. of the PDD should contain a description of how the benefits of the CDM were seriously considered prior to the project's starting date. 	CAR 12	Ø
B.5.2.	In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately (step 2a)?	30- 33, 35, 38, 44	The project participants apply the additionality tool in the GSP PDD. The validation team refers in its answers in this protocol to the application of the additionality tool, even though it is not sure yet, whether the additionality tool may be applied according to UNFCCC requirements (see B.5.13., open issue). Only after the outcome of a Request for Clarification it may be finally de- cided whether the application of the additionality tool is appro- priate. The project activity applies the benchmark analysis and as benchmark is used WACC. According to the additionality tool, by applying WACC, the "project developers shall demonstrate that this benchmark has been consistently used in the past, i.e. that project activities under similar conditions developed by the same company used the same benchmark".	CAR 13	
			Corrective Action Request No.13. Project participants should submit an evidence to the validation team, that the benchmark WACC has been consistently used in the past, i.e. that project activities under similar conditions de-		



			veloped by the same company used the same benchmark". Otherwise, WACC as benchmark, is not applicable.		
B.5.3.	In case of Option I (simple cost analy- sis): Is it demonstrated that the activity produces no economic benefits other than CDM income?	38, 44	Not applicable.	V	
B.5.4.	In case of Option II (investment compar- ison analysis): Is the most suitable fi- nancial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	38, 44	Not applicable.	Ŋ	Ŋ
B.5.5.	In case of Option III (benchmark analy- sis): Is the most suitable financial indica- tor clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	30- 33, 35, 38, 44	IRR as a suitable financial indicator has been applied. However, see B.5.6.	See CR 2 See CAR 14	Ø
B.5.6.	In case of Option II or Option III: Is the calculation of financial figures for this in- dicator correctly done for all alternatives and the project activity?	30- 33, 35, 38, 44	Clarification Request No.2. Please provide the most recent IRR calculation sheet (2007.05.28) which is mentioned in the PDD to the validation team and that one in English language. The validation team has not the most recent IRR calculation sheet "FCF_Termoeletrica_Interlagos (CER) 2007.05.25.xls") and only in Portuguese language. Final assessment of the IRR calcula- tion sheet may only occur with the most recent version. Corrective Action Request No.14. The IRR should be calculated for the operational lifetime of the	CR 2 CAR 14	
			project activity or at least for 20 years according to the "Guid- ance on the assessment of investment analysis".		
B.5.7.	In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available	30- 33, 35,	 <u>Corrective Action Request No.15.</u> 1. Please include "investment costs" into the sensitivity analysis. 	CAR 15	Ø



	proofs for the utilized data?	38, 44, 46	 The sensitivity analysis should cover at least a range of 10% according to "Guidance on the assessment of investment analysis, EB39". Thus, please revise sensitivity analysis in the PDD. 5% based on Brazilian inflation is not acceptable. The input data (amongst others investment, tariff, O&M costs and expected electricity supply to the grid) have to be transparently illustrated in the PDD and an evidence for each of them has to be submitted to the validation team. , Only like that, it is possible to assess whether the IRR is correctly calculated. 		
B.5.8.	In case of applying step 3 (barrier analy- sis) of the additionality tool: Is a com- plete list of barriers developed that pre- vent the different alternatives to occur?	38, 44	Yes. Investment, institutional and cultural barriers are mentioned in the PDD in a sufficient manner.	Ø	
B.5.9.	In case of applying step 3 (barrier analy- sis): Is transparent and documented evi- dence provided on the existence and significance of these barriers?	38, 44	The PDD mentions anecdotal evidences. As additionality is mainly based on the investment analysis, further evidences are not stringent necessary in the opinion of the validation team.		
B.5.10.	In case of applying step 3 (barrier analy- sis): Is it transparently shown that the execution of at least one of the alterna- tives is not prevented by the identified barriers?	38, 44	Yes. It is transparently shown that the continuation of the status quo is not prevented by the identified barriers.	Ø	
B.5.11.	Have other activities in the host country / region similar to the project activity been identified and are these activities appro- priately analyzed by the PDD (step 4a)?	38, 44	Other similar project activities have been identified in the region, however have not been appropriately analyzed by the PDD. Corrective Action Request No.16. Please provide an analysis of other activities that are operation- al and that are similar to the proposed project activity as accord- ing to the additionality tool, version 5. In the case of similar ac- tivities, it is necessary to demonstrate why the existence of	CAR 16	



B.5.12. If similar activities are occurring: Is it demonstrated that in spite of these simi- larities the project activity would not be implemented without the CDM compo- nent (step 4b)?	38, 44	these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers. Please explain essential distinctions between the proposed project activity and other similar activities. See B.5.11.	See CAR 16	
alternative scenarios to the proposed project activity a	ine sce are avai	able options to project participants).		
 B.5.13. Are the following steps mentioned in the PDD and correctly applied: Step 1: Identification of alternative scenarios Step 2: Barrier anlaysis Step 3: Investment analysis (if applicable) Step 4: Common practice analysis 	38, 40, 44, 45	Open issue ACM0006, version 6 mentions "Project participants shall identify the most plausible baseline scenario and demonstrate additio- nality using the latest approved version of the "Combined tool to identify the baseline scenario and demonstrate additionality". Hence projects using ACM0006 methodology must use this tool. Version 6 of the methodology does not refer to additionality tool at all, it was referred in version 5. Last paragraph on page 1 of the combined tool says that: "How- ever, methodologies using this tool are not applicable to project activities where one or more alternative scenarios to the pro- posed project activity are not available options to the project participants". This would finally mean that methodology ACM0006, version 6 is not applicable to the proposed project activity. It has to be clarified in a Request for Clarification whether the Combined Tool shall be applied for the proposed project activity, even though one alternative (electricity production by other fa- cilities) is not an available option to the project participants and an investment comparison analysis can't be conducted for pow- er or whether the additionality tool may be used as done by the project participants in the GSP PDD.	Open issue	



B.5.14.	Sub-Step 1a): Have all alternative sce- narios that are available to the project participants and that provide outputs or services with comparable quality, prop- erties and application areas as the pro- posed CDM project activitiy been identi- fied and discussed by the PDD? Why can this list be considered as being complete?	38, 40, 44, 45	See B.5.13.	See Open issue	
B.5.15.	Sub-Step 1b): Are the alternatives in compliance with all mandatory applicable legal and regulatory requirements?	38, 40, 44, 45	See B.5.13.	See Open issue	V
B.5.16.	Are those alternative scenarios excluded which are not in compliance with legal and regulatory requirements? If not, it has to be shown that those applicable mandatory legal or regulatory require- ments are systematically not enforced and that non-compliance with those re- quirements is widespread in the country.	38, 40, 44, 45	See B.5.13.	See Open issue	
B.5.17.	Step 2 (Barrier analysis): Is a complete list of barriers developed that prevent the different alternatives to occur?	38, 40, 44, 45	See B.5.13.	See Open issue	Ø
B.5.18.	Barrier analysis: Is transparent and do- cumented evidence provided on the ex- istence and significance of these bar- riers?	38, 40, 44, 45	See B.5.13.	See Open issue	Ø



B.5.19.	Barrier analysis: Are those alternative scenarios eliminated which are prevented by the identified barriers?	38, 40, 44, 45	See B.5.13.	See Open issue	
B.5.20.	Barrier anlysis: Is a list of alternative scenarios to the project activity that are not prevented by any barrier provided?	38, 40, 44, 45	See B.5.13.	See Open issue	V
B.5.21.	Barrier analysis: Is explained how the registration of the project activity will alleviate the barriers that prevent the poposed project activity from occurring in the absence of the CDM? (only applicable in the following cases):	38, 40, 44, 45	See B.5.13	See Open issue	
1. One any t pose regis	alternative scenario is not prevented by parrier, and this alternative is not the pro- d project activity undertaken without being tered as a CDM project activity.				
2. Sever incluc withou ity	al alternative scenarios remain, but do not le the proposed project activity undertaken ut being registered as a CDM project activ-				
B.5.22.	Step 3: Investment analysis (if applica- ble) : Is the most suitable financial indi- cator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	38, 40, 44, 45	See B.5.13.	See Open issue	
B.5.23.	Investment analysis: Is the financial indi- cator calculated for all alternative scena- rios remaining after step 2?	38, 40, 44, 45	See B.5.13.	See Open issue	Ø



B.5.24.	Investement analysis: Is the investment analysis presented in a transparent manner and does the analysis provide all the relevant assumptions?	38, 40, 44, 45	See B.5.13.	See Open issue	Ŋ		
B.5.25.	Investment analysis: Is a clear compari- son of the financial indicator for all alter- native scenarios done and are the alter- native scenarios ranked according to the financial indicator?	38, 40, 44, 45	See B.5.13.	See Open issue	Ø		
B.5.26.	Investment analysis: Is a sensitivity analysis conducted in order to assess whether the conclusion regarding the fi- nancial attractiveness is robust to rea- sonable variations in the critical assump- tions?	38, 40, 44, 45	See B.5.13.	See Open issue	Ø		
B.5.27.	Step 4: Common practice analysis: Have other activities in the host country / re- gion similar to the project activity been identified and are these activities appro- priately analyzed by the PDD?	38, 40, 44, 45	See B.5.13.	See Open issue	Ø		
B.5.28.	Common practice analysis: If similar ac- tivities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be imple- mented without the CDM component	38, 40, 44, 45	See B.5.13.	See Open issue	V		
B.6. Er	B.6. Emissions reductions						
B.6.1.	Explanation of methodological choices	6					
B.6.1.1.	Is it explained how the procedures pro- vided in the methodology are applied by the proposed project activity?	38, 40	Yes. The procedures provided in the methodology are applied by the proposed project activity.		V		



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B.6.1.2.	Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	38, 40	 <u>Corrective Action Request No.17.</u> 1. Equation 2 in B.6.1. is not complete. Please revise. 2. Please justify in B.6.1. why methane emissions from waste water treatment are excluded. 3. Please demonstrate the calculation of the emissions factor by using the "Tool to calculate the emission factor for an electricity system". 	CAR 17	
B.6.1.3.	Which conservativeness factor has been chosen and how is this choice justified	38, 40	Not applicable as methane emissions from combustion of bio- mass residues are not included in the project boundary.		V
B.6.1.4.	Are the formulae required for the deter- mination of project emissions correctly presented, enabling a complete identifi- cation of parameter to be used and / or monitored?	38, 40	See B.6.1.2.		Ø
B.6.1.5.	Are the formulae required for the deter- mination of baseline emissions correctly presented, enabling a complete identifi- cation of parameter to be used and / or monitored?	38, 40	The formulae required for the determination of baseline emis- sions are correctly presented, enabling a complete identification of parameter to be used and / or monitored.		Ø
B.6.1.6.	Are the formulae required for the deter- mination of leakage emissions correctly presented, enabling a complete identifi- cation of parameter to be used and / or monitored?	38, 40	Leakage emissions do not have to be considered according to the methodology for scenario 4.	Ø	
B.6.1.7.	Are the formulae required for the deter- mination of emission reductions correctly presented?	38, 40	Yes. The formula required for the determination of emission re- ductions is correctly presented.	V	V
Tool to	calculate project or leakage CO2 e	missi	ons from fossil fuel combustion		
B.6.1.8.	Is the formula required for the determi- nation of CO2 project emissions from fossil fuel combustion correctly pre- sented, enabling a complete identifica-	41	Not applicable as there is no fossil fuel combustion.	V	V



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	tion of parameter to be used and / or monitored				
B.6.1.9.	Is option A (preferred approach) or op- tion B chosen for the determination of the CO2 emission coefficient COEFi,y and is COEFi,y correctly determined?	41	Not applicable as there is no fossil fuel combustion.	Ŋ	V
Tool to c	calculate baseline, project emissio	ns an	d/or leakage emissions from electricity consumption		
B.6.1.10.	Do there exist project emissions from electricity consumption by the project ac- tivity and if yes is it clear which case (case A, B, C) is applied in the CDM project activity?	43	It is not clear for what purposes electricity is consumed by the project activity. Corrective Action Request No.18. Please indicate the purposes for what electricity is consumed by the project activity.	CAR 18	Ø
B.6.1.11.	Case A: Is the formula required for the determination of CO2 project emissions from consumption of electricity from the grid correctly presented, enabling a complete identification of parameter to be used and / or monitored	43	Yes. The formula required for the determination of CO2 project emissions from consumption of electricity from the grid is cor- rectly presented	R	Ø
B.6.1.12.	Case B: Does the PDD clearly determine which of the four options is chosen?	43	Not applicable.		V
B.6.1.13.	Is the formula required for the determi- nation of CO2 project emissions from electricity consumption from an off-grid captive power plant correctly presented, enabling a complete identification of pa- rameter to be used and / or monitored?	43	Not applicable.	V	
B.6.1.14.	Case C: Does the PDD clearly deter- mine which of the two options is cho- sen?	43	Not applicable.		Ø
B.6.1.15.	Is the formula required for the determi- nation of CO2 project emissions from	43	Not applicable.		Ø



electricity consumption from the grid and (a) captive power plant(s) correctly pre- sented, enabling a complete identifica- tion of parameter to be used and / or monitored?							
Tool to determine methane emissions avoi	ded f	rom dumping waste at a solid waste disposal site					
B.6.1.16. Is the formula required for the determi- nation of baseline emissions of methane from waste that would in the absence of the project activity be disposed at solid waste disposal sites (SWDS) correctly presented, enabling a complete identifi- cation of parameter to be used and / or monitored?	42	Not applicable as methane emissions avoided from dumping are not included in the project boundary.		Ø			
 B.6.1.17. In case of renewal of the crediting period, the following data should be updated according to default values suggested in the most recently published IPCC Guidelines for National Greenhouse Gas Inventories: Oxidation factor (OX) 	42	Not applicable as methane emissions avoided from dumping are not included in the project boundary.		Ŋ			
 Fraction of methane in the SWDS gas (F) 							
 Fraction of degradable organic carbon (DOC) that can decompose (DOCf) 							
Methane correction factor (MCF)							
 Fraction of degradable organic carbon (by weight) in each waste type j (DOCj). 							
 Decay rate for the waste type j (kj). 							
B.6.2. Data and parameters that are available at validation The Emission reduction is estimated by the formula ERy = ERheat, y + ERelectricity, y + BEbiomass,-yPEy – Ly ERy = Emissions reductions of the project activity during the year y (tCO2/yr)							



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	 ERelectricity, y = Emission reductions due to displacement of electricity during the year y (tCO2/yr) ERheat, y = Emission reductions due to displacement of heat during the year y (tCO2/yr) BEbiomass, y = Baseline emissions due to natural decay or burning of anthropogenic sources of biomass residues during the year y (tCO2e/yr) PEy = Project emissions during the year y (tCO2/yr) Ly = Leakage emissions during the year y (tCO2/yr) Depending on the project not all variables are relevant. Only relevant variables shall be considered following. Parameters that are not relevant shall be addressed as not relevant. 							
B.6.2.1.	Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	38, 40	The list of parameters presented in chapter B. to be complete.	6.2. is considered	Ŋ			
B.6.2.2.	Does the quantity of biomass residues refer to the dry weight?	38, 40	Table 5 indicates wet biomass, the parameter dry biomass. Corrective Action Request No.19. Please indicate in Table 5 the humidity factor to mass and indicate the quantities of dry biomas	in B.7.1. indicates to get to dry bio- ss.	CAR 19			
B.6.2.3.	Parameter Title: Global warming potential for CH4 GWP CH4	38, 40	Not applicable as methane emissions from combustion of bio- mass residues are not included in the project boundary.		Ŋ	Ŋ		
			Data ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?	Yes / No				



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B.6.2.4.	Parameter Title: Net quantity of electricity generated dur- ing the three most recent years in the fossil fuel fired captive power plant iden- tified as baseline plant (P3) EG _{CP,historic,3y}	38, 40	Not applicable.Yes / NoData ChecklistYes / NoTitle in line with methodology?Data unit correctly expressed?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?	
B.6.2.5.	Parameter Title: Net quantity of electricity generated dur- ing the most recent three years in all power plants at the project site, generat- ed from firing the same type(s) of bio- mass residues as in the project plant EG _{historic,3y}	38, 40	Not applicable.Data ChecklistYes / NoTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?	Ø
B.6.2.6.	Parameter Title: Quantity of fossil fuel type i combusted during the most recent three years in the captive power plant FF _{CP,historic,3y}	38, 40	Not applicable. Data Checklist Yes / No Title in line with methodology? Data unit correctly expressed? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified?	



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			Measurement method correctly described?		
B.6.2.7.	Parameter Title: Average net efficiency of heat generation in the project plant prior to project implementation $\epsilon_{th_pre \ project}$	38, 40	Not applicable.Data ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriat description of parameter?Source clearly referenced?Correct value provided?Has this val e been verified?Choice of data correctly justified?Measurement method correctly described?	Yes / No	
B.6.2.8.	Parameter Title: Average net efficiency of electricity generation in the project plant prior to project implementation $\epsilon_{el_pre \ project}$	38, 40	Not applicable. Data Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referen ed? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described?	Yes / No	
B.6.2.9.	Parameter Title: Average net efficiency of electricity gen- eration in biomass residue fired power plants in the grid that fire the same type of biomass residues as the project plant. $\epsilon_{el_{grid} plants}$	38, 40	Not applicable.Data ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Sour□e clearly referenced?	Yes / No	V



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		Correct value provided?			
		Has this value been verified?			
		Choice of data correctly justified?			
		Measurement method correctly described?			
B.6.2.10. Parameter Title: Average net energy efficiency of electric- ity or heat generation in the reference plant that would be constructed in the absence of the project activity	38,	Here applicable: Average net energy efficiency tion	of power genera-	See CAR 9	Ø
	40	Data Checklist	Yes / No		
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
ε _{th} reference plant		Source clearly referenced?	Yes		
		Correct value provided?	See		
			B.4.4.		
		Has this value been verified?	Yes		
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	Yes		
		Not appliable			र्ष
B.6.2.11. Parameter title:	38,	Not applicable.	Voc / No	(V)	U I
Average net energy efficiency of electricity	40	Title in line with mothodology?	TES / INU		
or heat generation in the reference power		Data unit correctly expressed?			
plant after the retrofit that would take		Appropriate description of parameter?			
place in the absence of the project activi-		Source clearly referenced?			
ty.		Correct value provided?			
$\epsilon_{el_reference}$ retrofit plant or $\epsilon_{th_reference}$ retrofit plant		Has this value been verified?			
		Choice of data correctly justified?			
		Measurement method correctly described?			
	00	Not applicable		N	
B.0.2.12. Parameter Hitle:	38,	Data Checklist	Yes / No		
Average net eniciency of electricity /	40	Title in line with methodology?	103/110		
near generation in the existing power /					



cogeneration plant(s) fired with the same type of biomass residue at the project siteε el, existing plant / ε _{th_existing plant}		Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?			
B.6.2.13. Parameter Title: Net quantity of heat generated during the most recent three years in all coge- neration plants at the project site, gener- ated from firing the same type(s) of bio- mass residues as in the project plant Q _{historic 3y}	38, 40	Not applicable. Data Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described?	Yes / No		Ø
B.6.2.14. Parameter Title: Net quantity of heat generated during the most recent three years in all boilers at the project site, generated from firing the same type(s) of biomass residues as in the project plant Q _{biomass historic 3y}	38, 40	Not applicable.Data ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?	Yes / No	I	



B.6.2.15. Parameter Title: Quantity of biomass residue type k that has been fired in boilers for heat genera- tion during the most recent three years at the project site BF _{k, Boiler, historic 3y}	38, 40	Not applicable. Data Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described?	Yes / No	
B.6.2.16. Parameter Title: Energy efficiency of the biomass residue fired boiler that would be used in the ab- sence of the project activity ε _{boiler biomass}	38, 40	Not appplicable. Data Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described?	Yes / No	
B.6.2.17. Parameter Title: Quantity of biomass residue type k used as fuel in all installations (power plants, boilers, etc) at the project site during the most recent three years prior to the im- plementation of the project activity BF _{historic, k, 3y}	38, 40	Not applicable.Data ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?	Yes / No	V



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		Measurement method correctly described?	
B.6.2.18. Parameter Title: Moisture content of each biomass resi- due type k or i	38, 40	Not applicable. Data Checklist Yes / No Title in line with methodology? Data unit correctly expressed? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described? Measurement method correctly described?	
B.6.2.19. Parameter Title: Net calorific values of fossil fuel type i NCV _i	38, 40	Not applicable. Data Checklist Yes / No Title in line with methodology? Data unit correctly expressed? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly iustified?	
B.6.2.20. Parameter title: Energy efficiency of the boiler that would be used in the absence of the project ac- tivity to generated heat EBL boiler	38, 40	Measurement method correctly described? Not applicable. Data Checklist Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter?	



B.6.2.21. Parameter title: CO2 emission factor for the fossil fuel type that would in the absence of the project activity be used in the reference plant EF _{CO2,FF,ref}	38, 40 38	Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?Not applicable.Data ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?Not applicable.	Yes / No	
B.6.2.22. Parameter title: CO2 emission factor of the fossil fuel type used for heat generation in the absence of the project activity EF _{CO2,BL,heat}	38, 40	Data Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described?	Yes / No	
B.6.2.23. Parameter title: Quantity of fossil fuel type i combusted in the reference plant during the year y FFref,i,y (applicable to scenario 21)		Not applicableData ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?	Yes / No	



		Measurement method correctly described?			
B.6.2.24. Parameter title:		Not applicable			\checkmark
Quantity of biomass residue type k com-		Data Checklist	Yes / No		
busted in the reference plant during the		Title in line with methodology?			
vear v		Data unit correctly expressed?			
BErofky		Appropriate description of parameter?			
(appliachte te esererie 24)		Source clearly referenced?			
(applicable to scenario 21)		Correct value provided?			
		Has this value been verified?			
		Choice of data correctly justified?			
		Measurement method correctly described?			
B.6.2.25. Parameter title: Methane generation potential of the waste water $B_{o,ww}$	38.	Not applicable.			$\mathbf{\Lambda}$
	40	Data Checklist	Yes / No		
	40	Title in line with methodology?			
		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided?			
		Has this value been verified?			
		Choice of data correctly justified?			
		Measurement method correctly described?			
3.6.2.26. Parameter title:	38	Not applicable.		V	\checkmark
Methane correction factor for the waste	40	Data Checklist	Yes / No		
water	40	Title in line with methodology?			
		Data unit correctly expressed?			
MCF _{ww}		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided?			
		Has this value been verified?			
		Choice of data correctly justified?			
		Measurement method correctly described?			
3.6.2.27. Parameter title:		Not applicable		V	\checkmark
0.2.27. Falameter lille.		Data Checklist	Yes / No		



mum biomass quantities that would be fired in the reference plant to the total energy that would be generated in the reference plant (from fossil fuels and the technically maximum biomass quanti- ties) in year y F _b (applicable to scenario 21)		Title in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?		
B.6.2.28. Parameter title ("Tool to calculate baseline, project and/or leakage emissions from electricity consump- tion"): Rated capacity of power plant i PPi	38, 43	Not applicable. Data Checklist Yes / N Title in line with methodology? Data unit correctly expressed? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described? Measurement method correctly described?	D	
Tool to determine methane emissions avoided	<u>l from</u>	dumping waste at a solid waste disposal site		
B.6.2.29. Parameter Title: φ - Model correction factor to account for model uncertainties	42	Not applicable. Data Checklist Yes / N Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described?	D	Ø
B.6.2.30. Parameter Title: OX - Oxidation factor	42	Not applicable. Data Checklist Yes / N	0	Ø



		Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?		
B.6.2.31. Parameter Title: MCF - Methane correction factor	42	Not applicable. Data Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described?	Yes / No	
B.6.2.32. Parameter Title: DOC _f - Fraction of degradable organic carbon (DOC) that can decompose	42	Not applicable. Data Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described?	Yes / No	
B.6.2.33. Parameter Title: DOCj - Fraction of degradable organic carbon by weight in the waste type j	42	Not applicable. Data Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced?	Yes / No	



		Correct value provided?				
		Choice of data correctly justified?				
		Measurement method correctly described?				
B 6 2 34 Parameter Title	42	Not applicable.	Not applicable.			
ki Doorv rate for the worth type i		Data Checklist	Yes / No			
kj – Decay fale for the waste type j		Title in line with methodology?				
		Data unit correctly expressed?				
		Appropriate description of parameter?				
		Source clearly referenced?				
		Correct value provided?				
		Has this value been verified?				
		Choice of data correctly justified?				
		Measurement method correctly described?				
B.6.2.35. Parameter Title:	42	Not applicable.		$\mathbf{\nabla}$	\checkmark	
E Fraction of methane in the SWDS gas		Data Checklist	Yes / No			
		Title in line with methodology?				
		Data unit correctly expressed?				
		Appropriate description of parameter?				
		Source clearly referenced?				
		Correct value provided?				
		Has this value been verified?				
		Choice of data correctly justified?				
		Measurement method correctly described?				
B.6.3. Ex-ante calculation of emission reduct	ions				1	
B.6.3.1. Is the projection based on the same	38	See B.6.3.2.		See	Ø	
procedures as used for future						
				20		
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	38	The GHG calculations are not documented in a transparent manner in the PDD.	a complete and	20 CAR	\checkmark	
······································		Corrective Action Request No.20		_		
		1. Project participants are requested to ind	clude the GHG	6		



			calculation into the PDD in order to get a complete and transparent idea of GHG calculations. In the case project participants do not want to include GHG calculations into the PDD, it should be referred in B.6.3. of the PDD to an external CER calculation excel sheet and this one should be uploaded for registration together with the PDD.		
			 The most recent version of the CER calculation sheet should be submitted in English language to the validation team. Only with the most updated version of the CER calculation sheet, a final assessment about GHG calcu- lations will be possible. 		
			3. EF data should be updated.		
B.6.3.3.	Is the data provided in this section consistent with data as presented in other chapters of the PDD?	38	Data provided is consistent with data presented in other chap- ters of the PDD, however see B.6.3.2.	See CAR 20	
B.6.3.4.	Are calculation tools used? If so is the data used in the tools consistent with the stated in the PDD?	38	See B.6.1.2.	See CAR 17	V
B.6.4.	Summary of the ex-ante estimation of	emiss	ion reductions		
B.6.4.1.	Will the project result in fewer GHG emissions than the baseline scenario?	38	Yes. The project will result in fewer GHG emissions than the baseline scenario.	Ŋ	Ø
B.6.4.2.	Is the form/table required for the indication of projected emission reductions correctly applied?	38	Yes. The table required for the indication of projected emission reductions is correctly applied.	V	V
B.6.4.3.	Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	1,38	See A.4.3.10.	See CAR 3	
B.6.4.4.	Is the data provided in this section in consistency with data as presented in other chapters of the PDD?	38	See A.4.4.2.	See CAR 4	V



B.7.1.	Data and parameters monitored					
B.7.1.1.	Is the list of parameters presented in chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?	38, 40	The list of parameters presented in chapter E dered to be complete. Corrective Action Request No.21. The parameter BF _{T,k,y} has to be included in B.7	7.1. is not consi- 7.1. of the PDD.	CAR 21	V
B.7.1.2.	Parameter Title: Quantity of biomass residue type k combusted in the project plant during the year y BF _{k,y}	38, 40	Corrective Action Request No.22. Regarding the parameter "Quantity of bioma combusted in the project plant during the ye values have to be revised according to the ne diting period; reference to a standard and acc indicated and QA/QC procedures should ment tity of biomass will be cross-checked with the tricity and purchase receipts (if available) as p	ss residue type k ar y, BFk,y": The w start of the cre- curacy have to be tion that the quan- e quantity of elec- ter the methodolo-	CAR 22	Ø
			Monitoring Checklist	Yes / No		
			Title in line with methodology?	Yes		
			Data unit correctly expressed?	Yes		
			Appropriate description of parameter?	Yes		
			Source clearly referenced?	Yes		
			Correct value provided for estimation?	No		
			Has this value been verified?	Yes		
			Measurement method correctly described?	Yes		
			Correct reference to standards?	No		
			Indication of accuracy provided?	NO		
			QA/QC procedures described?	Yes		
			And procedures appropriate?	INU		
B.7.1.3.	Parameter Title:	38,	See B.7.1.1.		See	
C	antity of biomass residue type k that has	40	Monitoring Checklist	Yes / No	CAR	



b th re B	een transported to the project site during ne year y where k are the types of biomass esidues used in the project plant in year y $F_{T,k,y}$		Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards?	NoNoNoNoNoNoNoNoNo	21	
			QA/QC procedures described?	No		
			QA/QC procedures appropriate?	No		
B.7.1.4	Quantity of biomass residue type k		Not applicable		\checkmark	\checkmark
2	combusted in the fossil fuel plant during		Monitoring Checklist	Yes / No		_
	the year y (tons of dry matter or liter)		Title in line with methodology?			
	BF _{fossil fuel plant,k,y}		Data unit correctly expressed?			
			Appropriate description of parameter?			
			Source clearly referenced?			
			Correct value provided for estimation?			
			Has this value been verified?			
			Measurement method correctly described?			
			Correct reference to standards?			
			Indication of accuracy provided?			
			QA/QC procedures described?			
			QA/QC procedures appropriate?			
B.7.1.5.	Parameter Title:	38,	Corrective Action Request No.23.		CAR	\checkmark
	Moisture content of the biomass	40	Regarding parameter "moisture content of the biomass resi-		23	
	residues		dues": Please indicate a reference to standard	s and the accur	a-	
			cy.			
			Monitoring Checklist	Yes / No		
			I Itie in line with methodology?	Yes		
			Data unit correctly expressed?	res		
			Appropriate description of parameter?	res		
		1	Source clearly relerenced?	res		



B.7.1.6.	Parameter Title: CH4 emission factor for the combustion of biomass residues in the project plant $EF_{CH4,BF}$	38, 40	Correct value provided for estimation?Has this value been verified?Measurement method correctly described?Correct reference to standards?Indication of accuracy provided?QA/QC procedures described?QA/QC procedures appropriate?Not applicable as source excluded from the prMonitoring ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided for estimation?Has this value been verified?Measurement method correctly described?Correct reference to standards?Indication of accuracy provided?QA/QC procedures described?QA/QC procedures appropriate?	Yes Yes No No Yes Yes Oject boundary.	
B.7.1.7.	Parameter Title: Average round trip distance (from and to) between biomass fuel supply sites and the project site AVD _y	38, 40	Not relevant, as no transportation of biomass Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified?	Yes / No	


			Measurement method correctly described?Correct reference to standards?Indication of accuracy provided?QA/QC procedures described?QA/QC procedures appropriate?		
B.7.1.8.	Parameter Title: Number of truck trips for the transportation of biomass. N _y	38, 40	Not relevant, as no transportation of biomass residues.Monitoring ChecklistYes / NoTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided for estimation?Has this value been verified?Measurement method correctly described?Correct reference to standards?Indication of accuracy provided?QA/QC procedures described?QA/QC procedures appropriate?		
B.7.1.9.	Parameter Title: Average truck load of the trucks used for transportation of biomass. TL _y	38, 40	Not relevant, as no transportation of biomass residues.Monitoring ChecklistYes / NoTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided for estimation?Has this value been verified?Measurement method correctly described?Correct reference to standards?Indication of accuracy provided?	Ø	



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		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B.7.1.10. Parameter Title:	38,	Not relevant, as no transportation of biomass r	esidues.	\checkmark	\checkmark
Average CO2 emission factor for the	40	Monitoring Checklist	Yes / No		
trucks during the year y	10	Title in line with methodology?			
EF _{km.CO2.v}		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B.7.1.11. Parameter Title:	38,	Not relevant, as no transportation of biomass r	esidues.		V
	40	Monitoring Checklist	Yes / No		
T OTR,i,y		Title in line with methodology?			
		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		0A/0C procedures described?			
	1				



B 7 1 12 Parameter Title	38	Not applicable, as no fossil fuel consumption.		V	ন
CO2 emission factor for fossil fuel type i	40	Monitoring Checklist	Yes / No		
EF _{CO2 EF i}	40	Title in line with methodology?			
002,11,1		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
P.7.1.12 Decemeter Title:	20	Not applicable, as no fossil fuel consumption			L J
D.7.1.13. Farameter Tille. Ouantity of fossil fuel type i combusted in	30,	Monitoring Checklist	Yes / No		
the project plant during the year y	40	Title in line with methodology?			
FE-minute best in		Data unit correctly expressed?			
 project plant,i,y 		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
		Not applicable, as no fassil fuel consumption			
B.7.1.14. Parameter Title:	38,	not applicable, as no lossil luer consumption.			\checkmark



Quantity of fossil fuel type i combusted at the project site for other purposes that are attributable to the project activity during the year y FF _{project site,i,y} B.7.1.15. Parameter Title:	40	Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate?	Yes / No	
Quantity of fossil fuel type i combusted in the existing fossil fuel based cogenera- tion plant during the year y FF _{fossil fuel plant,i,y}		Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate?		
B.7.1.16. Parameter Title: Quantity of steam diverted from other boilers to the project plant.	38, 40	Not applicable to the project activity. Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced?	Yes / No	Ø



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		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B.7.1.17. Parameter Title:	38,	Not applicable to the project activity.		\checkmark	\checkmark
Average net efficiency of steam generation in the plant(s) from where steam is diverted to the project plant	40	Monitoring Checklist	Yes / No		
	-10	Title in line with methodology?			
		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B.7.1.18. Parameter Title:	38.	Corrective Action Request No.24.		CAR	V
Net quantity of electricity generated in	40	Regarding the parameter "Net quantity of electr	ricity generated in	24	
the project plant during the year y	-0	the project plant during the year y": Please revis	se the values for		
EG _{project plant,y}		estimation of emission reductions.			
		Monitoring Checklist	Yes / No		
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		



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		Source clearly referenced?	Yes		
		Correct value provided for estimation?	No		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
B.7.1.19. Parameter Title:	38,	Not relevant for the project activity.		\checkmark	\checkmark
Net quantity of electricity generated in	40	Monitoring Checklist	Yes / No		
the fossil fuel fired captive power plant	10	Title in line with methodology?			
during the year y		Data unit correctly expressed?			
EG _{CP,y}		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
			,		
B.7.1.20. Parameter Title:		Not applicable		\square	\checkmark
Net quantity of electricity generated in		Monitoring Checklist	Yes / No		
the existing fossil fuel fired cogeneration		Title in line with methodology?			
system during the year y		Data unit correctly expressed?			
System during the year y		Appropriate description of parameter?			
EG _{fossil} fuel plant,y		Source clearly referenced?			
(applicable to scenario 22)		Correct value provided for estimation?			
		Has this value been verified?			



B.7.1.21. Parameter Title: Net quantity of electricity generated in all power plants at the project site, generated from firing the same type(s) of biomass residues as in the project plant, including the new power plant installed as part of the project activity and any previously existing plants, during the year y EG _{total,y}	38, 40	Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate? Not relevant for the project as no other power usite. Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate?	units at the project		
B.7.1.22. Parameter Title: Net quantity of heat generated from firing biomass in the project plant Q _{project plant,y}	38, 40	Not applicable to the project activity. Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described?	Yes / No	Ø	Ø



		QA/QC procedures appropriate?		
B.7.1.23. Parameter Title: Total quantity of heat that is generated in the project plant during the year y Q _{Tot,proj,y} (applicable to Scenario 21)		Not applicable Monitoring Checklist Title in line with methodology? Data unit correctly expressed?	Yes / No	
		Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described?		
B.7.1.24. Parameter Title: Net quantity of heat generated in all cogeneration plants at the project site, generated from firing the same type(s) of biomass residues as in the project plant, including the cogeneration plant installed as part of the project activity and any previously existing plants, during the year y Q _{total,y}	38, 40	QA/QC procedures appropriate? Not applicable to the project activity. Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate?	Yes / No	
B.7.1.25. Parameter Title: Quantity of heat generated in the fossil		Not applicable. Monitoring Checklist	Yes / No	



	fuel cogeneration project plant Q _{fossil fuel plant,y}		Title in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided for estimation?Has this value been verified?Measurement method correctly described?Correct reference to standards?Indication of accuracy provided?QA/QC procedures described?QA/QC procedures appropriate?			
B.7.1.26	Parameter Title: Net calorific value of the fossil fuel type i NCV _i	38, 40	Not applicable to the project activity. Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate?	Yes / No		
B.7.1.27.	Parameter Title: Net calorific value of biomass residue type k NCV _k	38, 40	Corrective Action Request No.25. Regarding the parameter "Net calorific value of type k": Please indicate in measurement meth- determined on the basis of dry biomass; pleas standard and accuracy and mention QA/QC as dology ACM0006 (including measurements fro years).	of biomass residue od, that NCV is e indicate the s per the metho- om previous	CAR 25	Ø



B.7.1.28. Parameter Title: CH4 emission factor for uncontrolled burning of the biomass residue type k during the year y EF _{burning,CH4,ky}	38, 40	Monitoring ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided for estimation?Has this value been verified?Measurement method correctly described?Correct reference to standards?Indication of accuracy provided?QA/QC procedures described?QA/QC procedures appropriate?Not applicable, as no uncontrolled burning of bMonitoring ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided for estimation?Has this value been verified?Measurement method correctly described?Correct value provided for estimation?Has this value been verified?Measurement method correctly described?Correct reference to standards?Indication of accuracy provided?QA/QC procedures described?QA/QC procedures described?QA/QC procedures described?QA/QC procedures described?QA/QC procedures appropriate?	Yes / No Yes Yes Yes Yes No No Yes No	lues.	
B.7.1.29. Parameter Title: Average net energy efficiency of heat generation in the boiler that would generate heat in the absence of the	38, 40	Not applicable to the project activity. Monitoring Checklist Title in line with methodology? Data unit correctly expressed?	Yes / No		V



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project activity		Appropriate description of parameter?	
ε boiler		Source clearly referenced?	
		Correct value provided for estimation?	
		Has this value been verified?	
		Measurement method correctly described?	
		Correct reference to standards?	
		Indication of accuracy provided?	
		QA/QC procedures described?	
		QA/QC procedures appropriate?	
B 7 1 30 Parameter Title	38	Not relevant, as leakage does not have to be considered in sce-	
Demonstration that the biomass residue	40	nario 4.	
type k from a specific source would	40	Monitoring Checklist Yes / No	
continue not to be collected or utilized.		Title in line with methodology?	
e.g. by an assessment whether a market		Data unit correctly expressed?	
has emerged for that type of biomass		Appropriate description of parameter?	
residue (if yes, leakage is assumed not		Source clearly referenced?	
be ruled out) or by showing that it would		Correct value provided for estimation?	
still not be feasible to utilize the biomass		Has this value been verified?	
residues for any purposes.		Measurement method correctly described?	
		Correct reference to standards?	
		Indication of accuracy provided?	
		QA/QC procedures described?	
		QA/QC procedures appropriate?	
B 7 1 31 Parameter Title	38	Not relevant, as leakage does not have to be considered in sce-	N
Quantity of biomass residues of type k	40	nario 4.	
that are utilized (e.g. for energy	40	Monitoring Checklist Yes / No	
generation or as feedstock) in the		Title in line with methodology?	
defined geographical region		Data unit correctly expressed?	
		Appropriate description of parameter?	



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		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
		· · · ·			
B.7.1.32. Parameter Title:	38.	Not relevant, as leakage does not have to be o	considered in sce-	\checkmark	V
Quantity of available biomass residues of type k in the region	40	nario 4.			
		Monitoring Checklist	Yes / No		
		Title in line with methodology?			
		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
		Not relevant, as lookage doos not have to be	onsidered in eas		
B.7.1.33. Parameter Title:	38,	not relevant, as leakage uses not have to be t			
Availability of a surplus of biomass	40				
residue type k (which can not be sold or		Monitoring Checklist	Voc / No		
utilized) at the ultimate supplier to the		Title in line with methodology?	163/110		
project and a representative sample of		Deta unit correctly everyged?			
other suppliers in the defined		Appropriate description of parameter?			
geographical region.		Appropriate description of parameter?			
		Source clearly referenced?			



B.7.1.34. Parameter Title: On-site electricity consumption provided by the grid and/or captive power plant(s) attributable to the project activity during the year y EC _{PJ,y}	38, 40	Correct value provided for estimation?Has this value been verified?Measurement method correctly described?Correct reference to standards?Indication of accuracy provided?QA/QC procedures described?QA/QC procedures appropriate?Monitoring ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided for estimation?Has this value been verified?Measurement method correctly described?Correct reference to standards?Indication of accuracy provided?QA/QC procedures described?QA/QC procedures described?QA/QC procedures described?QA/QC procedures described?QA/QC procedures described?QA/QC procedures described?QA/QC procedures appropriate?	Yes / No Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	
B.7.1.35. Parameter Title: Use the latest approved version of ACM0002 to calculate the grid emission factor. If the power generation capacity of the project plant is less or equal to 15 MW, project participants may use the average CO2 emission factor of the electricity system, as referred to in option (d) in step 1 of the baseline determination in ACM0002.	38, 40, 47	See "Tool to calculate the emissions factor for tem".	an electricity sys-	



	EF _{grid,y}				
B.7.1.36.	Parameter Title: Quantity of biomass residue type k combusted in all power plants at the project site during the year y Source of data: On-site measurements BF _{all plants,k,y}	38, 40	Not applicable as only relevant for scenario 10 Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate?	Yes / No	
B.7.1.37.	Parameter Title: CO2 emission factor of the most carbon intensive fuel used in the country EF _{CO2,LE}	38, 40	Not applicable to the project activity. Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate?	Yes / No	
B.7.1.38.	Parameter Title: CO2 emission factor for the fossil fuel	38, 40	Not applicable to the project activity. Monitoring Checklist	Yes / No	Ø



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used in the captive power plant		Title in line with methodology?			
EF _{CP,CO2}		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B 7 1 39 Parameter Title		Not applicable		V	N
Average pet efficiency of electricity gen-		Monitoring Checklist	Yes / No		
eration in the project plant in year y		Title in line with methodology?			
		Data unit correctly expressed?			
ε el,project plant,y		Appropriate description of parameter?			
(applicable to Scenario 21)		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
Parameters related to the "Tool to calcula	te pro	pject or leakage CO2 emissions from f	ossil fuel o	combustion"	
B 7 1 40 Parameter Title	41	B.7.1.34B.7.1.38. are not applicable as there	is no fossil f	uel 🗹	
Quantity of fuel type i combusted in		combustion due to the project activity.			
process i during the year y		Monitoring Checklist	Yes / No		
		Title in line with methodology?			
FCi,j,y		Data unit correctly expressed?			
		Appropriate description of parameter?			



B.7.1.41. Parameter title: Weighted average mass fraction of car- bon in fuel type i in year y W _{C,I,y}	41	Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate? Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided?	Yes / No		
B.7.1.42. Parameter title: Weighted average density of fuel type i in year y ρ _{i,y}	41	QA/QC procedures appropriate? Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate? Monitoring Checklist	Yes / No		
B.7.1.43. Parameter title:	41		165/110	V	V



Weighted average net calorific value of		Title in line with methodology?			
fuel type i in year y		Data unit correctly expressed?			
NCViv		Appropriate description of parameter?			
140 V 1, y		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B.7.1.44. Parameter title:	41	Monitoring Checklist	Yes / No		V
Weighted average CO2 emission factor of		Title in line with methodology?			
fuel type i in year y $EF_{CO2,i,y}$		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
Parameters related to the "Tool to calcula	te bas	seline, project emissions and/or leaka	ge emissions		
from electricity consumption"			0		
	20	Corrective Action Request No 26		CAR	
B.7.1.45. Parameter title:	38,	Regarding parameter: "Average technical trans	emission and dis-		V
Average technical transmission and distri-	43,	tribution losses in the grid in year y for the volt	ane level at which	20	
bution losses in the grid in year y for the	40	electricity is obtained from the grid at the proje	ct site" [.] The spe-	•	
voltage level at which electricity is ob-		cifications of the parameter have to be updated	d according to the	é	
tained from the grid at the project site		Tool. EB 39.			
TDLy		Monitoring Checklist	Yes / No		
		Title in line with methodology?	See CAR		



			26		
		Data unit correctly expressed?	20		
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		$\Omega A/\Omega C$ procedures described?			
		$\Omega A/\Omega C$ procedures appropriate?			
	40	Not applicable, as there is no captive power pl	ant		
B.7.1.46. Parameter title:	43	Monitoring Checklist	Yes / No	™	IV
Quantity of fossil fuel type i fired in the captive power plant k in year y FC _{k,i,y}		Title in line with methodology?	1037110		
		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B 7 1 47 Parameter title:	13	Not applicable, as there is no captive power pl	ant.		N
D.7.1.47. Farameter title.	43	Monitoring Checklist	Yes / No		
I he total net amount of electricity pro-		Title in line with methodology?			
duced by captive power plant k		Data unit correctly expressed?			
$\mathrm{EG}_{\mathrm{k},\mathrm{y}}$		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			



	r				
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B.7.1.48. Parameter title:	43	Not applicable, as there is no captive power pl	ant.	\checkmark	\checkmark
Net quantity of heat co-generated in cap-		Monitoring Checklist	Yes / No		
tive power plant k in year y (GI)		Title in line with methodology?			
		Data unit correctly expressed?			
$HG_{k,y}$		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B 7 1 49 Parameter title	43	Not applicable.		V	\checkmark
Not calorific value of fuel type i		Monitoring Checklist	Yes / No		
Net calornic value of fuel type i		Title in line with methodology?			
NCV1		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B.7.1.50. Parameter title:	43	Not applicable.		V	\checkmark
		Monitoring Chookligt	Ves / No		_
			103/110		
		Title in line with methodology?	1037110		



•					
		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
Tool to determine methane emissions a	woid	ed from dumping waste at a solid w	asta disna	sal sita	
B.7.1.51. Parameter title:	42	B.7.1.45B.7.1.49. not appliable as methane e	missions avoid	ed 🛛	\checkmark
f - Fraction of methane captured at the		from dumping waste at a solid waste disposal s	site are not in-		
SWDS and flared, combusted or used in another manner		cluded into the project boundary.			
		Monitoring Checklist	Yes / No		
		Title in line with methodology?			
		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B.7.1.52. Parameter title:	42			\checkmark	\checkmark
GWPch4 – Global Warming Potential		Monitoring Checklist	Yes / No		
(GWP) of methane, valid for the relevant		Title in line with methodology?			
commitment period		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			



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		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B 7 1 53 Parameter title:	42		1 1	N	M
	74	Monitoring Checklist	Yes / No		
Wx - I otal amount of organic waste pre-		Title in line with methodology?			
vented from disposal in year x (tons)		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
B 7 1 5/ Parameter title:	12		11		N
Maight fraction of the wests type i in the	72	Monitoring Checklist	Yes / No		
$\rho_{n,j,x}$ –weight fraction of the waste type j in the		Title in line with methodology?			
sample in collected during the year x		Data unit correctly expressed?			
		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided for estimation?			
		Has this value been verified?			
		Measurement method correctly described?			
		Correct reference to standards?			
		Indication of accuracy provided?			
		QA/QC procedures described?			
		QA/QC procedures appropriate?			
P 7 1 55 Doromotor titlo:	40			N	5
D.7.1.35. Parameter lille:	42				I▼ I



z – Numł	per of samples collected during the year x		Monitoring ChecklistYes / NoTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided for estimation?Has this value been verified?Measurement method correctly described?Correct reference to standards?Indication of accuracy provided?QA/QC procedures described?QA/QC procedures appropriate?		
B.7.2.	Description of the monitoring plan				
B.7.2.1.	Is the operational and management structure clearly described and in compliance with the envisoned situation?	1,18 ,38	Corrective Action Request No.27. Please provide information about the operational and management structure, if possible with an organigram.	CAR 27	V
B.7.2.2.	Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	1,18 ,38	Yes. Usina Interlagos is responsible for the project manage- ment, monitoring and reporting as well as for organising and training of the staff in the appropriate monitoring, measurement and reporting techniques.	Ŋ	Ŋ
B.7.2.3.	Does the monitoring plan provide current good monitoring practice?	1,18 ,38	 Corrective Action Request No.28. 1. English should be revised throughout B.7.2. as there are quite few errors related to sentence structure and wording. 2. Please provide a diagram showing the location of the metering equipment. 3. Please make clear from what meter readings are taken for CER calculation. 4. Please indicate standards to which the measurements refer. 5. Please specify in B.7.2. how weighing of amount of biomass works. 	CAR 28	
B.7.2.4.	If applicable: Does annex 4 provide	1,18	Annex 4 provides useful information enabling a better under-	See	\checkmark

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understanding of the envisoned monitoring provisions?However, see B.7.2.1. and B.7.2.3.27 and 28	useful information enabling a better understanding of the envisoned monitoring provisions?	,38	standing of the envisoned monitoring provisions. However, see B.7.2.1. and B.7.2.3.	CAR 27 and 28	
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B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)

B.8.1.	Is there any indication of a date when the baseline was determined?	38	Yes. The baseline was determined on October 30, 2006.		
B.8.2.	Is this consistent with the time line of the PDD history?	38	Yes. It is consistent with the time line of the PDD history.		
B.8.3.	Is the information on the person(s) / enti- ty(ies) responsible for the application of the baseline and monitoring methodolo- gy provided consistent with the actual situation?	38	Yes. Ecoinvest Carbon Brasil Ltda. is responsible for the appli- cation of the baseline and monitoring methodology.		Ŋ
B.8.4.	Is information provided whether this per- son / entity is also considered a project participant?	38	Ecoinvest Carbon Brasil Ltda. is a project participant of the project activity.	Ŋ	V

C. Duration of the project activity / crediting period

C.1. Duration of the project activity

C.1.1.	Are the project's starting date and opera- tional lifetime clearly defined and rea- sonable?	1,16 ,38	 <u>Corrective Action Request No.29.</u> 1. Please revise the project's starting to the date of the purchase agreement (contract) of the main equipment (only in the case that the date of the purchase agreement is prior to 04/09/2006 [date mentioned in the GSP PDD]. 2. Please provide a description in the PDD of how the project starting date has been determined and please submit an evidence for the project's starting date to the validation team. 	CAR 29	Ŋ
			starting date has been determined and please submit an evi- dence for the project's starting date to the validation team.		



C.2. Choice of the crediting period and related information					
C.2.1.	Is the assumed crediting time clearly de- fined and reasonable (renewable credit- ing period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	38	 38 It is defined a renewable crediting period of 7 years. <u>Corrective Action Request No.30.</u> The start of the crediting period has to be revised; the period be- tween the date for submission of registration and the start of the crediting period has to be at least 8 weeks. 		Ŋ
D. Envi	ronmental impacts				
D.1. D	ocumentation on the analysis of the e	nviror	mental impacts, including transboundary impacts		
D.1.1.	Has the analysis of the environmental impacts of the project activity been sufficiently described?	1,38	Yes. The environmental impacts of the project activity are con- sidered not to be significant.	V	V
D.1.2.	Are there any Host Party requirements for an Environmental Impact Assess- ment (EIA), and if yes, has an EIA been approved?	1,38	A Preliminary Environmental Report has been completed. An EIA has not been required, as the environmental impact of the project activity is considered not to be significant.	Ø	Ŋ
D.1.3.	Will the project create any adverse envi- ronmental effects?	1,38	No significant adverse environmental effects are expected.	Ŋ	Q
D.1.4.	Were transboundary environmental im- pacts identified in the analysis?	1,38	There have not been identified transboundary environmental impacts in the analysis.	V	V
D.2. sic pre	If environmental impacts are considere ons and all references to support docume ocedures as required by the host Party	d signi entatio	ificant by the project participants or the host Party, please prov n of an environmental impact assessment undertaken in accord	vide conc dance wit	u- h the
D.2.1.	Have the identified environmental im- pacts been addressed in the project de- sign sufficiently?	1,38	Not applicable, as environmental impacts of the project activity are considered not to be significant.	V	
D.2.2.	Does the project comply with environ-	1,19	The project complies with the environmental legislation in the	See CAR 1	Ø



			-			
	mental legislation in the host country?	,38	host country. However, see A.2.2.			
E. Stakeholders' comments						
E.1. B	rief description how comments by local s	stakeho	olders have been invited and compiled			
E.1.1.	Have relevant stakeholders been con- sulted?	1,20 ,38	Yes. Relevant stakeholders have been consulted. <u>Corrective Action Request No.31.</u> Please provide the exact date in the PDD when letters were sent to the stakeholders and mention the medium used	CAR 31	Ŋ	
E.1.2.	Have appropriate media been used to invite comments by local stakeholders?	1,20 ,38	See E.1.1.	See CAR 31	V	
E.1.3.	If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consulta- tion process been carried out in accor- dance with such regulations/laws?	1,20 ,38	The Brazilian DNA gives guidance how the local stakeholder process has to be conducted. The validation team may confirm that the process has been performed as required.	Ø	V	
E.1.4.	Is the undertaken stakeholder process that was carried out described in a com- plete and transparent manner?	1,20 ,38	Yes. The undertaken stakeholder process is described in a complete and transparent manner	Ø	V	
E.2. S	ummary of the comments received					
E.2.1.	Is a summary of the received stakehold- er comments provided?	1,20 ,38	Yes. There has been one comment received by FBOMS.	Ø	Ø	
E.3. R	E.3. Report on how due account was taken of any comments received					
E.3.1.	Has due account been taken of any stakeholder comments received?	1,20 ,38	Yes. It has been taken account of the comment received.	Ø	Ø	
F. Annexes 1 – 4						



Annex ?	1: Contact Information					
F.1.1.	Is the information provided consistent with the one given under section A.3?	1,38	Yes. All information provided is consistent with the one given under section A.3.	Ø	V	
F.1.2.	Is the information on all private partici- pants and directly involved Parties pre- sented?	1,38	Yes. All information of all private participants and directly in- volved Parties is presented.			
Annex 2	2: Information regarding public funding					
F.1.3.	Is the information provided on the inclu- sion of public funding (if any) in consis- tency with the actual situation presented by the project participants?	1,10 ,38	There is no public funding involved.	Ŋ	M	
F.1.4.	If necessary: Is an affirmation available that any such funding from Annex-I- countries does not result in a diversion of ODA?	1,10 ,30, 31, 38	As no funding is involved, no affirmation is necessary.	Ø	Ŋ	
Annex 3	3: Baseline information					
F.1.5.	If additional background information on baseline data is provided: Is this infor- mation consistent with data presented by other sections of the PDD?	1,38	Yes. Additional background information on baseline data is con- sistent with data presented by other sections of the PDD. However see B.4.4.	See CAR 9	V	
F.1.6.	Is the data provided verifiable? Has suf- ficient evidence been provided to the va- lidation team?	1,38	See B.4.4.	See CAR 9		
F.1.7.	Does the additional information substan- tiate / support statements given in other sections of the PDD?	1,38	Yes. The additional information supports statements given in other sections of the PDD. However see B.4.4.	See CAR 9	Ø	
Annex 4	Annex 4: Monitoring information					



F.1.8.	If additional background information on monitoring is provided: Is this informa- tion consistent with data presented in other sections of the PDD?	1,18 ,38	Yes. The information presented in Annex 4 is consistent with da- ta presented in other sections of the PDD.	V	Ŋ
F.1.9.	Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	1,18 ,38	Yes. Sufficient evidence has been provided to the validation team.	V	Ŋ
F.1.10.	Do the additional information and / or documented procedures substantiate / support statements given in other sec- tions of the PDD?	1,18 ,38	Yes. The additional information supports statements given in other sections of the PDD.	V	Ŋ

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Open issue ACM0006, version 6 mentions "Project participants shall identify the most plausible baseline scenario and demon- strate additionality using the latest approved version of the "Combined tool to identify the baseline scenario and demonstrate additionality". Hence projects using ACM0006 methodol- ogy must use this tool. Version 6 of the methodology does not refer to additionality tool at all, it was referred in version 5. Last paragraph on page 1 of the combined tool says that: "However, methodologies using this tool are not applica- ble to project activities where one or more alternative scenarios to the proposed project activity are not availa- ble options to the project participants". This would finally mean that methodology ACM0006, version 6 is not appli- cable to the proposed project activity. It has to be clarified in a Request for Clarification whether the Combined Tool shall be applied for the proposed project activity, even though one alternative (electricity production by other facilities) is not an available option to the project participants and an investment comparison analysis can't be conducted for power or whether the ad- ditionality tool may be used as done by the project partic- ipants in the GSP PDD.	B.5.13.	 A clarification request was submitted to the Meth Panel (AM_CLA_0120) to address this issue. According to the answer pro- vided by the Methodological Panel, PPs are allowed to proceed with the project us- ing the "Tool for demonstration and as- sessment of additionality" either: Waiting for the new version of ACM0006 that is being revised; or Request a deviation for this specific project and use current version of the methodology. As until the EB51 (November 30 – Decem- ber 04, 2009) there was no revision on ACM0006 regarding this issue, Project Participants submitted a request for devia- tion, allowing the use of the "Tool for dem- onstration and assessment of additionality" and adopted the default baseline for in- cremental electricity as being the grid. PPs are still using the Combined tool to assess the baseline for biomass residues and heat supply. The PDD was revised and the Request for Deviation was attached, to be submitted to the EB by the DOE. 	First answer: A Request for Clarification (AM_CLA_0120) was submitted to the Meth Panel to address the requested issue. The answer given by the Methpanel indicated two options: 1) Waiting for the new version of ACM0006 that is being revised; or 2) Request a deviation for this specific project and use current version of the methodology. As until EB51 no revision of ACM0006 has been done regarding this aspect, a Request for Deviation from the methodology has been submitted to the EB by the DOE.

Table 2 Resolution of Corrective Action and Clarification Requests

(continuation) <u>Open issue</u>		Second answer: Request for deviation M- DEV0285 (Deviation request to allow the use of the "Tool for the demonstration and assessment of additionality" to assess the additionality of a project activity, under me- thodology ACM0006) was submitted by the DOE on 14 January 2007. On 15 March 2010 the PPs received a communication from the DOE confirming that the request has been accepted.	Second answer: The DOE received on March 15, 2010 a communication from UNFCCC that the devia- tion M-DEV0285 entitled "Deviation request to allow the use of the Tool for the demon- stration and assessment of additionality" to assess the additionality of a project activity, under methodology ACM0006 has been ac- cepted. Thus, the approach used by the PPs to use the Tool for the demonstration and as- sessment of additionality to assess the addi- tionality and the Combined Tool to assess the baseline for biomass residues and heat supply is accepted. Open issue was closed. ☑
Corrective Action Request No.1. According to the PDD (Version 15) Interlagos project is operational since May 2007. This implies that there must be available an operational environmental license. Please submit this operational environmental license to the vali- dation team and mention N° and issuance date of this li- cense in the PDD (in D.1.).	A.2.2.	The PDD was updated regarding the in- formation of the environmental permit. Temporary operating license was issued on 20 April 2007 and a new one on 06 May 2008. Please refer to the seventeenth ver- sion of the PDD, section D.1. Copy of the licenses were sent to DOE.	First answer: The environmental operational licenses have been submitted to the validation team (IRL 48). Information in the PDD (D.1.) has been updated. However, it has to be clarified why there is communicated in the license an "ex- pansion from 15 MW to 40 MW" once Interla- gos is a greenfield project and the PDD in- forms in A.4.3. the configuration of 1 boiler, 1 generator (50 MVA) and 1 turbo reductor (40 MW) from the beginning of the project . It should be informed in the PDD and clarified to the validation team why the licenses indi- cate "expansion from 15 MW to 40 MW".

(continuation) Corrective Action Request No.1.	Second answer: 15 MW was the installed	Second answer:
	power in the initial planning of the plant. Af-	The explanation in D 1 of the PDD
	terwards, this was changed to 40 MW. No	"On 20 April 2007 a temporary Operating Li-
	15 MW plant was constructed. Explanation	cense pr 13000307 for Alcohol production
	was included in section D.1.	and 15MW energy production (which was the
		initial planning) and Operating License nr
		13000308 for the sugar production and
		40MW of energy production (which is the
		project's installed power) were issued for
		180 days operation On 06 May 2008 new
		Operating License – $nr_13001541$ for the al-
		cohol production and 15MW (which was the
		initial planning) power plant and Operating
		License nr 13001542 for power plant to
		40MW (which is the project's installed pow-
		er), were issued valid until 06/05/2010."
		is not logical and not possible to validate due
		to the following reasons:
		1) The licenses N° 13000307 and N°
		13001541 do not indicate nothing
		about the 15 MW (initial planning) as
		indicated in D.1. of the PDD;
		2) It is not plausible that the license
		about 15 MW would be issued on the
		same day as the license indicating
		40 MW (installed capacity of the 1 st
		phase), but should have been issued
		before;
		3) The PDD D.1. indicates 40 MW as
		the project's installed power, howev-
		er it is the installed power of the 1 st
		phase).
		The operating license(s) of 15 MW (issued
		prior to the issuance of the license indicating
		the expansion from 15 MW to 40 MW) should
		be submitted to the validation team. Besides,
		the text in D.1. of the PDD should be cor-
		rected as a result of the comments made
		above.

(continuation) Corrective Action Request No.1.	Third answer:	Third answer:
	 The explanation may be complex, but is correct and described the logic of the local environme tal agency. Additional clarification to the raised points follows: Detailed project description is not part of the licenses but of documents submitted requesting the license. The document, named "Memorial de Descrição do Empreendimento" (MCE, project description memorial) was submitted at the provisory and installation phases of the license request. In the case of the present project at tivity, the Installation License (13001173, dated 13/07/2005) process includes the MCE. Excerpt of the document (with turbir capacity of 15 MW) is submitted to the DOE. Please note that the licenses are related to the whole operation of the sugarcane mill (sugar&alcool production, power production. One of the supplied licenses (LO 13000307) is related to the original Interla gos Project, which included a 15 MW pow plant. The other license from 15 to 40 MW For that reason the licenses not only can bissued on the same day, but because they are related, they have to be issued on the same day (as the re-issuance of the operation licenses LO 13001541 and LO 13001542. The PDD was revised (see version 19) to include the information above. 	t 1) The operational licenses N° 13000307 and N° 13001541 refers to the installation license (13001173, dated 13/07/2005) which again in the attached MCE (see answer given by the PPs) refer to the turbine capacity of 15 MW (IRL 89). Explanation in the PDD has been revised. 2) Clarification has been provided by the PPs and is accepted. 3) Wording in D.1. of the PDD has been revised and is accepted now. CAR was closed. ☑ 6 7 7 7 7 7 7 7 7 7 7 7 7 7

Corrective Action Request No.2. Chapter A.4.3. mentions an "annual average of 127,000 MWh of power surplus at the end of the first crediting pe- riod". This information is not consistent with the informa- tion given in the excel-calculation sheet. Please revise and correct.	A.4.3.5.	The information was amended in the seventeenth version of the PDD. Second answer: Information regarding "power surplus" has been taken out from A.4.3 because this value may vary yearly due to climate and crop conditions. The power surplus in 2016 is predicted to be 219,452 MWh. This value was included in section A.4.3. Third answer: The PDD's value was revised in accordance with the CER excel calculation (219,567 MWh).	First answer: It is not clear to the validation team what in- formation has been amended in A.4.3. of the PDD as it seems that the whole information regarding "power surplus" has been taken out from A.4.3 PPs are requested to clarify. Second answer: Clarification has been provided by the PPs, however the power surplus indicated A.4.3. of the PDD (219,452 MWh) is not consistent with the figure provided in the CER excel cal- culation file (219,567 MWh). Consistent fig- ures should be provided. Third answer: PDD value in A.4.3. was corrected to 219,567 MWh and is now consistent with the CER excel calculation file. CAR was closed. ☑
Corrective Action Request No.3. Please provide a Table with the project time schedule in the PDD including the most important implementation steps of the project activity including CDM consideration (if relevant).	A.4.3.10	The time schedule of the project activity was included in section B.5. of the PDD. Second answer: Information related to project implementa- tion was supplied in section B.5 of the pre- vious PDD version (start of onsite con- struction, supplied evidence was the con- struction license - operation start, supplied evidence was the ANEEL authorizations). Nevertheless, additional information re- lated to civil construction is included in the revised PDD and digital copy of the con- tract supplied as evidence.	First answer: CDM related actions are mentioned in B.5. of the PDD now, however actions related to project implementation are still mainly miss- ing (amongst others start of ground prepara- tion works, start of civil construction, start of operation).

(continuation) Corrective Action Request No.3.		Second answer: Actions related to project implementation (like issuance of civil construction working con- tract, ANEEL authorization for testing and ANEEL authorization for full operation etc.) are mentioned now. Respective evidences have been provided to the validation team. CAR was closed.
Corrective Action Request No.4. A.4.4. 1. Please provide consistent ER figures between PDD and Excel sheet. A.4.4. 2. Please take out the emission reductions in 2015, as until April 14 th is the off-harvest period, thus no electricity generation. A.4.4.	 1. The PDD and the ER calculation spreadsheet were revised. 2. The last year of the crediting period, 2017, until April 14th, will be maintained in spite of the estimated zero emissions re- ductions, as this is the expected crediting period of 7 years, starting on April 15, 2010. Note that crediting period (esti- mated) was revised from 2008-2015, to 2010-2017. 	First answer: 1. Total estimated CERs and average be- tween CER calculation spreadsheet and PDD (A.4.4. and B.6.4.) are not consistent. PPs are requested to correct. 2. Emission reduction tables of the PDD as well in the excel file have to be revised, as start of the crediting period has to be revised.
(continuation) Corrective Action Request No.4.	 Second answer: 1. sections A.4.4 and B.6.4 were corrected according to the CER calculation spreadsheet. 2. start of the crediting period was revised to 01/03/2011. Third answer: 1. The emission reduction values from 2014 to 2016 were revised in accordance with the CER calculation spreadsheet. 2. All referred sections at the PDD were revised accordingly to the CER calculation spreadsheet 	Second answer: 1. Emission reduction values from 2014 to 2016 (in A.4.4.) are not consistent between PDD and CER calculation spreadsheet. 2. Even though chapter C indicates a starting date of the crediting period of 01/03/2011, emission reduction tables in A.4.4. and B.6.4. as well as Tables in B.6.3. assume a start of the crediting period of 01/10/2010. Consistent information should be provided. Third answer: Emission reduction tables have been revised and start of the crediting period has been changed to 01/10/2011. Consistency is now given between PDD and CER calculation spreadsheet. CAR was closed. ☑

 Corrective Action Request No.5. 1. Please update the version of ACM0006 to version 9. 2. Please update the title of the "Tool to calculate project emissions from electricity consumption". 3. Please update the version of the "Tool for demonstration and assessment of additionality" to version 5.2 4. Please update ACM0002 to version 10. 5. Please include the "Tool to calculate the emission factor for an electricity system", version 02 in B.1. of the PDD. 6. Please add the version 2.2. of the Combined Tool. 	1.2.	 The version of ACM0006 was updated to version 09. The name of the tool was updated in the seventeenth version of the PDD and later on taken out from the PDD. The version of the additionality tool was updated to version 5.2. The version of ACM0002 was updated to version 10. The "Tool to calculate the emission fac- tor for an electricity system" was included. Version 2.2. of the Combined Tool was added. 	 First answer: Ok "Tool to calculate baseline, project and/or leakage emissions from electrici- ty consumption" was taken out from the PDD as no electricity consumption is expected from the project activity. This is accepted by the validation team. O.k. O.k. Version of the "Tool to calculate the emission factor for an electricity sys- tem" should be added. O.k.
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(continuation) Corrective Action Request No.5.	Second answer:	Second answer:
	Version of the "Tool to calculate the emis-	Version 2 of the "Tool to calculate the emis-
	sion factor for an electricity system" was	sion factor for an electricity system" has been
	added to the PDD.	added in the revised PDD.
	Third answer:	At the end of the validation process, version
	The relevant changes related to the methodol-	09 of ACM0006 was not applicable anymore,
	ogy's version were updated, please refer to the	however PPs did not update to version 10 of
		ACM0006 in the PDD. All relevant changes
	Fourth answer:	nave still to be done related to the version
	The version of the methodology was updated	updale. Third answer:
	in the most recent version of the PDD.	Methodology version was undeted to version
	It is not clear for the PPs which relevant	10 however is not in line with EB55 (to which
	changes in the methodology version 10.1 the	the PDD as well refers) which approved ver-
	derstanding the only missing information is the	sion 10.1. Please correct.
	lack of P10 scenario consideration in the pre-	Besides, relevant changes in the methodolo-
	vious version of the PDD. P10 scenario is in-	gy version were not considered in the PDD,
	cluded in the most recent version of the PDD.	e.g. in chapter B.4.
		Fourth answer:
	- Methodology version corrected from "10" to	-B.4. and B.7.2. still states version 10 instead
	"10.1" in sections B.4 and B.7.2.	of version 10.1 of ACM0006. Please correct.
	- PDD was revised to take into account version	-Relevant changes in the methodology ver-
	10 editorial changes, mainly related to scena-	sion were not fully considered in the PDD yet
	rios description and, version 10.1 change re-	(e.g. in B.4. of the PDD or B.7.1. moisture
	lated to the monitored parameter "moisture	content parameter). Please see attached
	content of the biomass residues.	version 10 and version 10.1 with the changes
		Fifth answer
		$-B_1$ and B_7_2 refer now to version 10.1 of
		ACM0006
		-Relevant changes in the methodology ver-
		sion are fully considered now.
		The final PDD refers to ACM0006, version
		10.1 and ACM0002, version 12.1.
		CAR was closed. ⊠

 Corrective Action Request No.6. 1. Please indicate the source exactly as indicated in the methodology (including electricity consumption). 2. Please justify why electricity consumption due to the project activity is excluded from the project boundary. 	B.3.4.	 Table of section B.3. of the PDD was amended. Electricity consumption due to the project activity is excluded because captive renewable power generation technologies are installed to provide electricity in the project activity and in the baseline scena- rio. In this way, the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" does not ap- ply (according to page 2 of the tool). Hence, EC PJ,y (Project energy consump- tion) and TDLy (transmission loss) are zero 	 The source has been revised as requested. CO2 emissions from electricity consumption and fossil fuel consumption have been excluded from the project boundary, as there is neither electricity consumption nor fossil fuel consumption due to the project activity. CAR was closed. ☑
Corrective Action Request No.7. Please discuss the source "Waste water from the treat- ment of biomass residues" in the PDD and justify its inlu- sion/exclusion.	B.3.7.	The exclusion of all gases of the men- tioned source is justified/explained in the last column of the table of section B.3. In addition it was included a comment on why this source is not considered in section B.6.1 as follows: <i>emissions from waste wa-</i> <i>ter are not considered because the bio-</i> <i>mass residues (bagasse) are not treated</i> <i>under anaerobic conditions.</i>	The requested source ""Waste water from the treatment of biomass residues" has been included in the Table of B.3. of the PDD. As biomass residues (bagasse) are not treated under anaerobic conditions, potential CH ₄ emissions are correctly excluded from the project boundary.
Corrective Action Request No.8. Please revise the following phrase in B.2.: "The primary fuel in the project plant is a biomass consisting of sugar cane bagasse." makes the impression that besides sugar cane bagasse other types of biomass residues are used.	B.4.1.	Bagasse is the only fuel utilized in the project activity. The mentioned sentence was revised. Please refer to the seven- teenth version of the PDD.	Requested correction has been provided in the final PDD. CAR was closed. ☑
 Corrective Action Request No.9. 1. The efficiency calculation for the reference plant should be updated as the figure is based on 2006 values. 2. It should be clearly demonstrated in the PDD how the average net energy efficiency of power generation in the reference power/cogeneration plant was calculated. 3. Evidence for the efficiency for the reference plant should be submitted to the validation team. 	B.4.4.	1. See section B.6.3 of the PDD 2. See section B.6.3 of the PDD 3. Evidence is sent to DOE together with the new version of PDD. The reference plants mentioned in section B.6.3 are Itapagipe and Limeira do Oeste (see annexed file "Reference Plants_Efficiency_2009.12.03")	The efficiency calculation for the reference plant was updated, the PDD explains now how the energy efficiency of power genera- tion in the reference plant is calculated, how- ever consider the following: -The information in Portuguese language in B.6.3. of the PDD should be translated into English as the EB only accepts English lan- guage. -The calculation which results in an electrical efficiency of 2.0% should be included in an excel file including all data sources. -The bagasse quantity in % of sugarcane production is not consistent between PDD (26%) and excel file "Reference Plants_Efficiency" (25%). Please be consis- tent. -The relevant pages of the reference "Tech- nical-economic evaluation of options for whole use of sugar cane biomass in Brazil" should be submitted to the validation team. -Why sugar mills from harvest season 2008/2009 are not considered in the analysis. -The relevant information from ANEEL indi- cated on page 40 of the PDD should be submitted to the validation team. The web- link does not provide any information.
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(continuation) Corrective Action Request No.9.	 -The evidence for the parameters used for the electrical efficiency calculation of the 2 plants indicated in the excel file "Reference Plants Efficiency" should be submitted to the validation team. This includes installed capacity, energy generation, bagasse NCV, sugarcane production. The NCV bagasse (2.0 MWh/ton) applied in this excel file is not consistent with the one in the PDD (8.2 MJ/kg or 2.28 MWh/ton). Update of version of methodology: -The PDD should clarify how it is ensured that the selected technology represents at least the common practice for new biomass residue fired power plants in the respective industry sector in the country or region, excluding CDM registered projects? The "Ethanol Summit 2009" source indicates after the year 1998 out of 167 plants, 20 with 42 bar and 37 with 60 bar boilers compared to only one 60 bar boiler in all years before. This shows a strong increase in high pressure boilers after 1998, thus it is not clear whether 21 bar boilers are really common practice of new biomass residue fired power are really common practice of new biomass residue fired power are really common practice of new biomass residue fired power are really common practice of new biomass residue fired power are really common practice of new biomass residue fired power are really common practice of new biomass residue fired power are really common practice of new biomass residue fired power plants. PPs are requested fired power plants. PPs are req
	due fired power plants. PPs are requested to demonstrate that (considering the presented fig- ures) the 21 bar boiler can be used for a reference plant. Respective evidences should be submitted.

(continuation) Corrective Action Request No.9.	Second a	answe	er:			Second answer:
(continuation) Corrective Action Request No.9.	Second a - The call efficiency excel file Plant". -The valu sugarcant tion in ord sake of c used. Ba "Reference now cons MJ/kg or efficiency - The cor evaluation cane bior at <u>http://li</u> <u>00044619</u> - Since Ir ary/2007, which stat analysis. clude new analysis. clude new analysis. - For mills sugar can 2004/200 mills 200 Data for t producers	answe culatio / of 2.0 "Seab ie of 2.0 "Seab ie of 2.0 onsist gasse ce Pla sistent 2.28 M / is 3.0 nplete n of op mass i bdigi.0 90. nterlag , PPs (arted ir Hence wer pla s which ne pro 5, see 6 2007 the ne as s (PIE	er: on whi 0% wa ora_Ei 5% foc ductio be mo ence, NCV nts_E with text of of and os state consid n 200 e, the ants of h wer ductio y ants of h wer ductio os state consid n 200 e, the ants of h wer ductio y ants of h wer ductio h wer h wer h wer h wer h wer h wer h wer h wer h wer	ich results in an as included in the fficiency of Referency or bagasse quar n was used in the ore conservative the value of 26 applied in the se fficiency_2010. the one in the P ton). The new var of "Technical-eet a for whole use of a respective for whole use of a respective for a popportant of a re appropriation of a re appropriation of a reappropriation of a reappropriation of a present in the on ranking, but re exect spreadsheet on ranking, but re and spreadsheet on the present of 2000 nts which are no dy operating as it e obtained from	electrical he annexed erence htity in % of he calcula- e. For the % will be spreadsheet 01.20" is 'DD (8.2 alue for the conomic of sugar vailable <u>t/?code=vtls</u> in Janu- ce plants te for the tion to in- 9 in the 2006/2007 hot in et "Sugar 4 2005". ot CDM pro- independent the ANEEL	Second answer: -Information in Portuguese language has been taken out from PDD (B.6.3.). -the calculation of electrical efficiency is indicated in a separately submitted excel file "Sea- bra_Efficiency of Reference Plant" and respective evidences for the used data sources have been submitted, however *bagasse NCV should be corrected to 8.2MJ/kg instead of 8.2 MJ/t in the excel file *the exact IPCC data source (including volume, chapter etc) should be clarified and why IPCC da- ta from 1996 instead of 2006 are taken. *the worksheet with the calculation should be added to the CER calculation file which will be submitted to UNFCCC or it should be assured that the excel file will be finally submitted to UNFCCC. -26% is finally consistently used for bagasse quantity in % of sugarcane production in PDD and excel sheet "Seabra_Efficiency of Reference Plant". -The reference "Technical-economic evaluation of options for whole use of sugar cane biomass in Brazil" has been submitted as requested. -Explanation given by PPs is accepted why not to consider plants of 2008 and 2009 in the analysis. The spreadsheet "Sugar mills 2006 2007_comparison to 2004 2005" has been submit- ted to the validation team, however it is not suffi- cient in the opinion of the DOE just to consider those new plants which were identified in the 2006/2007 ranking but not in the 2004/2005 rank-
	producers list.	were a s (PIE) were	e obtained from	the ANEEL	those new plants which were identified in the 2006/2007 ranking but not in the 2004/2005 rank- ing. Investment decision date was on 29/04/2005
	ltapagip e	6.00 0	PIE	100% para Usina Itapa- gipe Açúcar e Álcool Ltda.	Itapagipe - MG	(Board Meeting Report), thus at least new plants from harvest season 2002/2003 to 2004/2005 should be still identified and considered in the de- termination of "reference plants" and calculation of
	Limeira do Oeste	5.00 0	PIE	100% para S/A Usina Coruripe A- çúcar e Álcool	Limeira do Oeste - MG	CAR regarding "Ethanol Summit 2009" explained below).

(continuation) <u>Corrective Action Request No.9.</u>	 Information on reference plants was obtained via phone calls to the plants. It was not possible to obtain written data, because the mills consider it strategic information. Besides, project participants have no commercial or any other kind of relationship with those mills. Another DOE, in the validation process of CDM project Santa Cruz S.A Açúcar e Álcool, has contacted those same plants and confirmed the values used. See copy of document at page 48 of http://cdm.unfccc.int/UserManagement/FileStorage/6FPBY3GAV2XR4J8CZ9QL0ETNKUI7HM In the PDD of Interlagos, only the values of plants B and C are being used, since it was found out that plant A was also a CDM project (http://cdm.unfccc.int/Projects/Validation/DB/7O DI4KS2FJYR8TU2G6YZGT8EB34TB6/view.ht ml). This does not affect the results obtained, since plant A has the lowest electrical efficiency of the three plants. Regarding NCV values used, see CAR 9 above (value of 2.28 is now being used) Spreadsheet "Sugar mills 2006 2007_comparison to 2004 2005" shows that all new plants, which are not CDM projects, have an installed capacity below 12 MW and have all low-pressure boilers. The most recent (June/2009) publicly available information shows that, after 1998, 62.8% of the boilers installed are with 21 bar. Additionally, it must be considered that the reference plant is a plant aimed to produce sugar and ethanol, and power for internal consumption. Besides, it must be taken into account that most of the new projects with high-pressure boilers are CDM projects and, therefore, must be excluded from the analysis. 	-Confidentially submitted data for the calculation of electrical efficiency for Itapagipe plant could be confirmed by telephone interview, however not for Limeira do Oeste. No response could be obtained neither by telephone nor by Email. -A revised weblink of ANEEL was provided and is possible to open now. -PPs argue that "it must be taken into account that most of the new projects with high-pressure boil- ers are CDM projects and, therefore, must be ex- cluded from the analysis". The same should be il- lustrated by providing a list of the 167 plants in- stalled/retrofitted/modified after 1998 mentioned in the "Ethanol Summit 2009" source. It should be fi- nally clear which of the 42 bar and 60 bar boilers are CDM projects which are not CDM projects should be clarified/evidenced why they cannot be considered as "reference plants" With the available information and submitted doc- ument(s), it is not possible for the DOE to validate whether 21 bar boiler can be really considered as reference plant.
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(continuation) Corrective Action Request No.9.	 Third answer The bagasse NCV was corrected to 8.2MJ/kg in the spreadsheet. The NCV value applied can be found at section 1.4.3 of the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual. The 1996 report was chosen over the 2006 because it has the specific value for Bagasse NCV (not included or revised in 2006 version of the document). The calculation of electrical efficiency is already available in the PDD. Nevertheless by request of the DOE it is also included in the CER calculation spreadsheet. Note that the referenced calculation is not ultimately used in the final calculation as it is not the most conservative value (the CTC report figure is more conservative and used in the submitted CER calculation). Please note that the information provided being from the seasons 2004-2005 to 2006-2007, includes the changes in the 3 previous seasons (2004-2005, 2005-2006 and 2006-2007), does not intend to be exhaustive and it is not the decisive information to define the reference plant. Taking into account that various other publicly available references (see Sawaya, CTC and Seabra, fully in accordance with VVM v.1.2 para 84) confirm the 2002-2003 to 2004-2005 should identified". Additionally it has to be taken into account the widely known complete change in the power generation regulatory environment carried out in 2003 and 2004 (see http://bit.ly/g6zW4W), making comparisons to plants that started operation in the period 	Third answer: -bagasse NCV has been corrected to 8.2MJ/kg as requested; -Explanation is accepted why 1996 IPCC value has been taken. However, PPs are requested to indicate the section of 1996 IPCC guidelines in the PDD and correct the value to 16.2 GJ/ton (instead of 16,200 GJ/ton). -Electrical efficiency calculation has been added as worksheet into the CER excel calculation sheet. Plant specific data (Plant A and Plant B) are not mentioned because confidential, but have been finally confirmed in the case of Itapagipe plant via telephone call with the plant responsible and should be still confirmed in the case of Usina Coruripe-Limeira do Oeste. The most conservative value (taken from CTC) has been finally used for the calculations. - Bearing in mind that during the years 2003 and 2004, the Federal Government set the bases for a new model for the Brazilian Electric Sector, sup- ported by Laws N° 10.847 and 10.848, dated of March 15, 2004 and by Decree N° 5.163, dated of July 30, 2004 (as informed in http://bit.ly/g6zW4W), the validation team as- sessed the decision taken by the PPs to consider new plants (information provided from UNICA) from the seasons 2004-2005 to 2006-2007 (which includes changes in 3 seasons: 2004-2005, 2005- 2006 and 2006-2007) as appropriate and the vali- dation team confirms it as correct approach. -Still await for Usina Coruripe-Limeira do Oeste answer
	(see <u>http://bit.ly/g6zVV4VV</u>), making comparisons to plants that started operation in the period even less appropriate.	

(continuation) Corrective Action Request No.9.	Usina Coruripe-Limeira do Oeste was contacted by phone and by e-mail. The contact person (Mr. Cosme Jr.) confirmed availability under the already supplied contact details. Nevertheless, because the contact person supplies services also to other units of the group in different cities, additional telephone numbers were supplied to facilitate the contact. Furthermore it is important to notice that the information is supplied to con- firm the appropriateness of the electrical effi- ciency used. But at the end of the day, the elec- trical efficiency used is not derived from less conservative real cases (Itapegipe and Coru- ripe-Limeira do Oeste), but the more conserva- tive figure from the CTC study	The last open item of CAR 9 from the previous round has not been answered by the PPs which is the following: "PPs argue that "it must be taken into account that most of the new projects with high-pressure boil- ers are CDM projects and, therefore, must be ex- cluded from the analysis". The same should be il- lustrated by providing a list of the 167 plants in- stalled/retrofitted/modified after 1998 mentioned in the "Ethanol Summit 2009" source. It should be fi- nally clear which of the 42 bar and 60 bar boilers are CDM projects and for those of the 42 and 60 bar boiler projects which are not CDM projects should be clarified/evidenced why they cannot be considered as "reference plants".
		Fourth answer: -Value has been corrected however vol- ume/section of IPCC guidelines (as requested in previous round) has not been indicated yet. -Answer (to the Email sent by TÜV SÜD) from Usina Coruripe-Limeira do Oeste has not been re- ceived yet. DOE would like to receive an answer in order to be able to validate the submitted infor- mation in the excel file "Reference Plants_Efficiency_2010 01.20".

(continuation) Corrective Action Request No.9.	urth answer: The typo in section B.7.1 was corrected (16.2 GJ/ton instead of 16,200 GJ/ton). e PPs would like to call the attention to the that the information provided by Usina bruripe is ancillary and indicative but not criti- to the process and, as indicated in the pre- bus answers, was already validated in another object. Nevertheless the responsible at the re- red sugar-mill (Mr. Cosme Jr.) was contacted 23 February 2011 (by phone and e-mail) and mmitted to answer the answer from the DOE. necessary the PPs offer to set a conference and the parties to confirm the supplied ormation. e information provided by the State of Sao ulo Energy Secretariat is provided in consoli- ted form only and clearly demonstrated that a reference scenario is a plant operating with bar (63% of the installed/retroffited/modified ants after 1998). The clarification about which the similar plants installed/retroffited/modified ants after analysis all 22 similar projects ve boilers with operating pressure of 42 bar higher (the information, with references, is ded in the most recent version of the PDD), t cannot be compared to the project activity her because it was published on the UFCCC website for GSP as part of the valida- n process or was developed under a different vironment with respect to investment, con- ning that no similar project with boiler operat- to at 42 bar pressure or higher can be consid- ed as "reference plant".	The DOE assessed the answer given by the PPs regarding reference plants and confirms that the information given by the State of Sao Paulo Energy Secretariat is indeed given only in consolidated form thus it cannot be concluded to what kind/type of projects (regarding similarity to the project activity or not, region, CDM or not CDM, other incentives etc.) the 37% with high pressure boiler (42 bar, 60 bar, more than 60 bar) belong to. The common practice analysis shows with appropriate and reliable data sources that the proposed project activity is not a common practice (for further details see CAR 16). It has been transparently demonstrated and shown by evidences IRL 70, 72, 73, 75 and 87 that the reference plant is of 21 bar and the most conservative calculated electrical efficiency (3.5%) of all data sources is used for further calculation purposes. The DOE verified calculations and literature values and can confirm that the electrical efficiency is conservatively applied. However, -please correct the value of electrical efficiency in B.6.2. which is indicated as 0.0363 (3.63%) and thus not consistent with the 3.5% stated in B.6.3the weblink in footnote 24 does not work (open) yet;
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(continuation) Corrective Action Request No.9.	 Fifth answer: Exact section of the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories" included in the PDD (in sections B.6.3 and B.7.1). Plant specific data (Plant A and Plant B) are not mentioned because confidential, responsible at Usina Coruripe-Limeira do Oeste replied e-mail from the validation team on 14 April 2011 confirming validity of supplied information. Value of electrical efficiency in B.6.2 revised to 0.035 (3.5%). Link on footnote 25 (former 24) revised to the new location of the Ethanol Summit 2009 archives. In addition to that, reference is made to the fact that the document was submitted to the DOE. 	Fifth answer: -1996 IPCC section is indicated now. -Answer (Email) from Usina Coruripe-Limeira do Oeste has been received (IRL 97) confirming the validity of the plant specific data which was com- municated previously by the project consultant. -Value of electrical efficiency has been revised to 0.035 (3.5%) in B.6.2. -Document of footnote 25 (former footnote 24) has been submitted to the validation team previously (IRL 87). CAR was closed. ☑
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Corrective Action Request No.10. 1. Please indicate for 2015 the planned sugar cane ba- gasse to be used and indicate that exclusively sugar cane bagasse will be used as residue. 2. Please mention the exact type and capacity of boile and generator which will be implemented in 2010; in the case boiler and generator are the same as for the firs configuration, please mention that.	B.4.9.	 The estimates of production of sugar cane and bagasse are presented in table 5 and B.6.3. of the PDD. Project participants consider that it is already indicated that on- ly sugar cane bagasse will be used. Please refer to CAR 8. The equipments that will be installed in the second phase of the project activity are estimated to be of the same characteristics as the ones installed in the first phase. This information was included in section A.4.3. Second answer: Sugarcane production for 2017 is already indicated in Table 5: 3,600,000 t. Humid bagasse production is indicated in the CERs calculation spreadsheet: 896,616 t Third answer: The crediting period was updated at the PDD and CERs spreadsheet. 	 It has been indicated in the PDD (B.2.) that sugar cane bagasse is the only fuel used. Production of sugar cane and bagasse con- sumption are indicated in Table 5 and B.6.3. of the PDD respectively until 2016. As the start of the crediting period has to be changed, production and consumption fig- ures of sugar cane and bagasse respectively should be also indicated for 2017. It is mentioned now in A.4.3. that the equipment which will be installed in the second phase of the project will have the same characteristics (same configuration) than the one in the first stage which are de- scribed in Table 2 of the PDD. Second answer: As start of the crediting period (01/10/2010) is not possible anymore and the same has to be modified, all related tables with informa- tion about production of sugar cane and ba- gasse consumption in PDD and CER excel spreadsheet should be updated. Third answer: All related tables with information about pro- duction of sugar cane and bagasse con- sumption have been updated both in PDD and CER excel spreadsheet. CAR was closed. ☑
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Corrective Action Request No.11. Please mention the boiler(s), turbo-reductor(s) and gene- rator(s) that would have been installed in the absence of the project activity: the type and capacity of the new boi- lers and/or power plants and which types and quantities of fuels would be used.	B.4.10.	Information included in section B.4. of new PDD version 17.	 B.4. of the PDD informs now that in the absence of the project activity (reference plant) a low-pressure boiler (instead of a high pressure boiler) would be used. The efficiency for power generation would be less in the reference plant than in the project plant and thus electricity generation. The same quantity and type of biomass would be used in the reference plant as in the project plant. Regarding heat generation: A more credible evidence (than just an Email) should be provided to the validation team confirming that high efficiency boiler are by 25% more expensive than lower efficiency boiler having the same steam production capacity.
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(continuation) Corrective Action Request No.11	Second answer:	Second answer:
	 According to VVM, local experts can be the source of information and evidence. Dedini is one of the major boiler producers in Brazi. Please contact Dedini expert, Flavio Maltempi Ferreira, directly, mentioning the e-mail exchange with Ecopart (telephone number: +55 (19) 3403-5468) Third answer: Information was requested by the DOE on 10-December-2010.Dedini was contact by phone on 12-Dec-2010, and the responsible (Mr. Ricardo Buso, manager of the boiler business unit) asked for a formal request by mail explaining the situation. The mail was sent to Mr. Buso on 14-Dec-2010. Mr. Buso answered the message confirming the capacity of Mr. Maltempi as an expert in the field and also informing that he is not an employee of Dedini anymore. Additionaly supplied another contact (Mr. Joao Acenso) for further inquiries. The full e-mail exchange was supplied to the DOE on the same day (17-Dec-2010). Fourth answer: Dedini answered TÜV-SÜD e-mail message on 03.Feb.2011. 	The DOE tried to talk to Flavio Maltempi Fer- reira, however the DOE was informed that the person is not working with DEDINI any- more. No other contact details have been provided to the DOE until the end of the vali- dation process to be able to clarify this issue. Third answer: Still waiting for answer of DEDINI Forth answer: It has been explained in an Email from 03/02/2011 by the sales manager of the company DEDINI that high efficiency boiler (65kgf/cm2) are by 25% more expensive than lower efficiency boiler (21kgf/cm2). CAR was closed. ☑

(continuation) Corrective Action Request No.12		Second answer: - the PPs confirm that USI refers to the project activity and that board meeting do not take place at regular intervals but only when needed. The PPs calls the attention to the fact that the submitted board meet- ing report as an official internal reliable document with fiduciary duties is and is ful- ly in compliance with VVM 1.2, para 102. - the submitted signed CDM consultancy contract with Ecoinvest Carbon Brasil was signed by Interlagos (new copy submitted). In the copy presented before, the signature was difficult to be seen. - ANEEL authorizations are publicly avail- able documents. Electronic copies sent.	 Second answer: 1a) USI is the abbreviation for Usina Interlagos and could be cross checked with the Sales contract with CEMIG (IRL 66). Thus, it is clear that the Board meeting report refers to Interlagos project. 1b) Even though no further Board meeting reports have been submitted to the validation team as meetings do not take place at regular intervals, the Board meeting report dated 29/04/2005 is accepted as authentic and credible document with 7 people signing the same (amongst others directors) and a clear reference number (98_ATA_05_04_29_R00). 2) The signed CDM consultancy contract and ANEEL authorizations N° 1112 and 1694 have been submitted to the validation team as requested. CAR was closed. ☑
Corrective Action Request No.13. Project participants should submit an evidence to the va- lidation team, that the benchmark WACC has been con- sistently used in the past, i.e. that project activities under similar conditions developed by the same company used the same benchmark". Otherwise, WACC as bench- mark, is not applicable.	B.5.2.	The other CDM project owned by Santa Adélia which was developed in 2003, used Selic, the Brazilian Prime Rate, as the benchmark. During first validation process, Selic was not accepted as a benchmark by the DOE, and the WACC was the required benchmark. In the second validation process, PP will use again the Selic as the benchmark, as required by the DOE. maintaining also the WACC of the sugar sector in Brazil as a reference. Please refer to the revised PDD version 17.	First answer: WACC is not used as benchmark anymore and instead SELIC rate (Brazilian Prime Rate) is applied as benchmark. This is ac- cepted by the validation team, however, it is not clear why the SELIC rate at the time of project's starting date has been used and not the one at the time of investment decision, once the latter one is as well more conserva- tive. Besides, it should be clearly explained in the PDD why PPs regard SELIC as an ap- propriate benchmark. Furthermore, WACC related information should be taken out from the PDD as it has no more relevance.

(continuation) <u>Corrective Action Request No.13</u>	Second answer:
(continuation) <u>Corrective Action Request No.13</u>	Selic rate has been revised to 18.74% and
"Guidance on the	can be considered as conservative choice by
ment Analysis" (the PPs as the SELIC rate at the time of in-
company benchr	vestment decision (29/04/2005) was 19.50%.
plied in cases wf	However, it was not explained in the PDD ye
possible project of	why PPs regard SELIC as an appropriate
demonstrated to	benchmark (please refer to the 1 st DOE an-
lar projects with a	swer).
the same compa	According to the answer given by the PPs
an internal comp	and as per B.5. of the PDD it is not clear
required that it b	whether finally SELIC or WACC will be ap-
project develope	plied as benchmark. PPs are requested to
consider that the	choose and mention only ONE single
more appropriate	benchmark.
SELIC, which is	As PP correctly stated in their answer, inter-
revised the value	nal company benchmarks should only be ap-
according to the	plied in cases where there is only one possi-
ment decision, b	ble project developer, which is however not
mation of the WA	the case for the proposed project activity, as
the PDD. WACC	any other company could implement such a
the conditions of	"greenfield" project as Interlagos. Thus, it is
(6) of the Step 2	not clear to the DOE why PPs consider
onstration and act	WACC as a more appropriate benchmark
ty".	than SELIC.

(continuation) <u>Corrective Action Request No.13</u> (18.7 invese expe Accc men ragra proa appr com cost benc The the v (vers scrip are ysis of de base finar nanc such Plea is us the c benc in th The EB's WAC the r To tt mati PDD PDD tion.	ELIC rate at the time of investment decision 8.74%) is supplied to give an indication of the vestment environment and general investment pectation in the Country. cording the the "Guidelines on the Assess- ent of Investment Analysis" (Version 03.1) pa- graph 12: "In cases where a benchmark ap- poach is used the applied benchmark shall be propriate to the type of IRR calculated. Local mmercial lending rates or weighted average ests of capital (WACC) are appropriate enchmarks for a project IRR." e methodological tool "Draft tool to determine e weighted average cost of capital (WACC)" ersion 01) paragraph at its applicability de- ription states: "The WACC or its components e required in an investment comparison anal- is or a benchmark analysis for the purposes determining additionality or selecting the seline scenario. The WACC can be used as ancial benchmark and be compared with fi- incial parameters of an investment alternative, ich as the internal rate of return (IRR)" ease note that no project specific information used in the WACC calculation and, therefore, e derived WACC (14.11%) is NOT an internal nchmark but applicable to power generation the sugarcane sector. erefore, considering the Meth Panel and 8's guidance, the PPs understand that the ACC is the most appropriate and, incidentally, e most conservative benchmark. The best of the PPs understanding the infor- ation is clear in the previous version of the DD. Nevertheless most recent version of the DD was revised to reflect the above clarifica- n.	Third answer: PPs clarified in their answer that weighted average cost of capital (WACC) is applied as main benchmark (and not SELIC), PPs fur- ther stated that WACC is not an internal benchmark. This has been checked by the assessment team and it can be confirmed by the DOE after thorough examination that the WACC applied is a suitable benchmark for the project IRR and uses publicly available data for similar projects in Brazil, i.e. is not used as internal benchmark. However the following items have to be clari- fied/corrected: -According to information given by the PDD and assessed by the DOE, investment deci- sion date is April 2005. However, in WACC Excel sheet PP use as reference date July 2005. The data should be applicable and valid as of April 2005 (investment decision date). -Regarding Risk free rate – The risk free rate has been taken as the 20-year US Treasury (Yield as of July 2005) which should be cor- rected as it is not consistent with the decision date in the PDD (as already mentioned above). -Worksheet "Beta 2005" refers to 2005 and 2004 data. This should be corrected. Further PPs should clarify how the presented data for 2004 and 2005 can be found with the indi- cated page <u>http://pages.stern.nyu.edu/~adamodar/</u>
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(continuation) <u>Corrective Action Request No.13</u>	 Fourth Answer: The spreadsheet was revised to be applicable for April 2005. Risk free rate was revised to be applicable for April 2005. Worksheet Beta 2005 refers was revised to include only 2004 data (the information available at project starting date). Explanation on how to retrieve the data from the website is already included on the worksheet. Wording was revised to avoid the impression that the SELIC rate is the main benchmark. Revised versions of the PDD and WACC spreadsheet were submitted to the DOE. Fifth answer Dates in line 4 of the worksheet "T.Notes" were revised to exactly match the considered period, i.e, from 30.03.2004 to 31.03.2005. There was indeed a few inconsistencies in the beta calculation worksheet. Three revisions were performed in the spreadsheet. First, the project activity investment is for power generation, therefore data of the power industry shall be used (not sugar). Second, as the US data is used to calculate the cost of equity and then the Brazilian risk premium is added, beta values of US companies were used to avoid double counting of emerging markets risks/volatility. Finally, only data from 2004 (data retrieved from the worksheet US 2004-(January 2005), available in the mentioned website), is now used in the calculation. The revised WACC increased slightly to 14.44%, confirming the previous conclusions. 	-B.5. page 25 mentions that "Interlagos' cash flow for 20 yearsshows that the IRR of the project, 11.3%, is lower than the benchmarck Selic 18.74%. Besides, the WACC of sugar sector in Brazil is 14.11%." This makes still the impression as if SELIC is the main benchmark and not WACC. Please correct wording. Fourth answer: -The reference data in the WACC benchmark calculation has been revised and only data until the investment decision date (April 29, 2005) are considered now in the WACC cal- culation. Thus, the WACC increased slightly to 14.28%. However, in worksheet "T.Notes", the dates in line 4 should be corrected as July 2005 is after the investment decision date.
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(continuation) Corrective Action Request No.13		 It is clear now how to retrieve the data in worksheet beta 2005 from the site http://pages.stern.nyu.edu/~adamodar/ however it is not clear why certain sugar companies (like e.g. Guangxi Guitang and others) mentioned on the website are not mentioned in the excel file and why certain companies (like Balrampur Chini) are mentioned twice in the excel file however only once at the website. Besides, figures of beta, market capitalization and others are not consistent between website and excel file. PPs are requested to clarify. Wording has been revised and it is clear now according to the text in the PDD that the chosen benchmark is WACC and not SELIC. Fifth answer: In worksheet "T.Notes", the dates in line 4 have been corrected. The BETA calculation worksheet has been revised in the following way: 1) The project activity investment is for power generation, therefore data of the power industry have been used and not of sugar industry. This is plausible and accepted by the validation team. 2) The US data is used to calculate the cost of equity and then the Brazilian risk premium is added. Beta values of US companies were used to avoid double counting of emerging markets risks/volatility. The same is plausible and accepted by the validation team. 3) Only data from 2004 (data retrieved from the worksheet US 2004 (January 2005), available at http://pages.stern.nyu.edu/~adamodar/ is used in the calculation which is accepted bearing in mind that the investment decision is on 29/04/2005.
		at <u>http://pages.stern.nyu.edu/~adamodar/</u> is used in the calculation which is accepted bear- ing in mind that the investment decision is on 29/04/2005. Revised BETA and WACC calculation has been checked by the validation team and are found to be correct. The WACC increased slightly com- pared to the last loop to 14.44%. CAR was closed. ☑

Corrective Action Request No.15. B.5.6. Cash Flow was revised to 20 years. New Cash Flow was revised to 20 years. New Cash Flow spreadsheet is send to DOE together with new PDD version 17. R calculation is done for 20 years now as requested by the DOE. Sis". Corrective Action Request No.15. 1. Please include "investment costs" into the sensitivity analysis should cover at least a range of 10% according to "Guidance on the assessment of investment costs". Thus, please revise sensitivity analysis. B.5.7. 1. "investment costs" were reduced also in the sensitivity analysis was revised utilizing of 10% waranges the sensitivity analysis. First answer: 1. The sensitivity analysis was also applied for investment costs. On the contray. IRR In reince				
 Corrective Action Request No.15. 1. Please include "investment costs" into the sensitivity analysis. 2. The sensitivity analysis should cover at least a range of 10% where performing Cost Reduction sensitivity analysis should cover at least a range of 10% according to "Guidance on the assessment of investment analysis, EB39". Thus, please revise sensitivity analysis in the PDD. 5% based on Brazilian inflation is not acceptable. 3. The input data (amongst others investment, tariff, O&M costs and expected electricity supply to the grid) have to be transparently illustrated in the PDD and an evidence for each of them has to be submitted to the validation team., Only like that, it is possible to assess whether the IRR is correctly calculated. B. S. 7. B. 5. 7. I. ""investment costs" were reduced also in 10% wariance. Sensitivity Analysis was revised utilizing 10% wariance. S. Evidences are delivered to DOE togeth of them has to be submitted to the validation team., Only like that, it is possible to assess whether the IRR is correctly calculated. B. S. 7. B. 5. 7. I. "investment costs" were reduced also in 10% wariance. S. Widences are delivered to DOE togeth of them has to be submitted to the validation team, now-ever the to a low electrical efficiency plant. S. A 10% Correctly calculated. B. S. 7. B. S. 7. I. "investment costs" were reduced also in 10% wariance. S. Widences are delivered to a low electrical efficiency plant. S. A 10% Correctly calculation. Evidence for turbine, control panel, boiler and generator) have been submitted to the validation team, how-ever the total value of the purchase orders is just above 30% of the investment costs considering on the additional cost. S. All Some evidences for the input parameter of the investment costs considering on the addition in team. 	Corrective Action Request No.14. The IRR should be calculated for the operational lifetime of the project activity or at least for 20 years according to the "Guidance on the assessment of investment analysis".	B.5.6.	Cash Flow was revised to 20 years. New Cash Flow spreadsheet is send to DOE together with new PDD version 17.	IRR calculation is done for 20 years now as requested by the DOE. CAR was closed. ☑
	 Corrective Action Request No.15. 1. Please include "investment costs" into the sensitivity analysis. 2. The sensitivity analysis should cover at least a range of 10% according to "Guidance on the assessment of investment analysis, EB39". Thus, please revise sensitivity analysis in the PDD. 5 % based on Brazilian inflation is not acceptable. 3. The input data (amongst others investment, tariff, O&M costs and expected electricity supply to the grid) have to be transparently illustrated in the PDD and an evidence for each of them has to be submitted to the validation team. , Only like that, it is possible to assess whether the IRR is correctly calculated. 	B.5.7.	 "investment costs" were reduced also in 10% when performing Cost Reduction Sensitivity Analysis. Sensitivity Analysis was revised utilizing 10% variance. Evidences are delivered to DOE togeth- er with this Protocol answer, as below: Investment evidences: purchase order of the main equipments. Electricity sale: contracts signed in 2006 and 2007. M: data were based on the costs of another bagasse plant owned by the same project owner: Santa Adélia, Jaboticabal plant, considering only the additional cost compared to a low electrical efficiency plant. 	 First answer: 1. The sensitivity analysis was also applied for investment costs. Investment costs were reduced by 10%, however the IRR remains below the benchmark. 2. A 10% range in the sensitivity analysis was used as requested, however a) sensitivity analysis should be performed for both tariff and electricity generation separately in order to see how variations of each of the input parameters are sensitive to the IRR. b) It is not possible that IRR decreases by reducing 0&M costs. On the contrary, IRR has to increase. PPs are requested to revise. 3. a1) Some evidences for the input parameter investment (purchase orders for turbine, control panel, boiler and generator) have been submitted to the validation team, however the total value of the purchase orders is just above 30% of the investment costs considered in the IRR calculation. Evidence for the investment value applied in the IRR calculation as well as cross-check evidence about the remaining (main) investment costs should be provided to the validation team.

(continuation)	Corrective	Action	Request	<u>No.15</u>	Second answer: 2.a) Cash flow spreadsheet was revised and submitted to the validation team; 2.b) Cash flow spreadsheet was revised and submitted to the validation team; 3.a1) As explained in the PDD (see section A.2) the project activity implementation will be carried out in two phases, the first one with 40 MW in- stalled capacity, already implemented, and an expansion of additional 40 MW in the second phase, not implemented yet. The planned in- vestments for the power plant in the first phase sums up to around R\$ 50.8 million (see FCF spreadsheet). The implementation of the second phase, although still planned, is suspended due to financial resources limitation. Regarding the input parameter investment, with the addition of civil works costs (copy of contract submitted to the validation team), a total of R\$ 42.4 million, 83% of the forecasted expenses in the first phase, is already demonstrated. 3.a2) As explained in the PDD (see section D.1), the project was initially planned with 15 MW in- stalled capacity and BRL 22.81 million invest- ment. Later the project was redesigned with two 40 MW phases and BRL 50 million invest- ment later the project was redesigned with two 40 MW phases and BRL 50 million invest- ment later the project was redesigned with two 40 MW phases and BRL 50 million invest- ment later the project was redesigned with two 40 MW phases and BRL 50 million invest- ment later the ligures used in the IRR calculation.	 a2) PPs should clarify why the investment cost in the IRR calculation from the Board Meeting (22,81 million R\$) is much less, namely about 22% of the investment cost considered in the final IRR calculation and the investment cost mentioned in the Board meeting report (51,45 million R\$) almost 50% lower than the ones considered in the final IRR calculation. b) Regarding tariff, the most PPAs submitted to the validation team refer to Santa Adelia plant (amongst others COOMEX, CEBRACE) and not to Interlagos plant. One PPA referring to Interlagos (CEMIG) does not mention the price per MWh. PPs are requested to submit the evidence for the tariff used in the IRR calculation (125 R\$/MWh) as well as cross-checking evidences like PPAs which clearly refer to Interlagos plant and indicate the tariff which will be remunerated per MWh. c) The origin of electricity generation figures used in the IRR calculation is not clear. Links are missing in the excel file. PPs should clarify, provide respective information In PDD and excel file and submit respective evidence(s) and cross-check evidences for the figures used in the IRR calculation is not clear to the reader how the increase in electricity generation in the second phase of the project activity is considered. d) The origin of O&M costs in the IRR calculation is not clear to the reader; no links have been provided. A respective worksheet should be included in the IRR calculation foem costs. Respective evidence(s) and cross-check evidence should be submitted to the validation team. e) The main input parameters (like investment costs, tariff, electricity generation, O&M costs) as well as other input parameters like tax, depreciation have to be included into the PDD and excel file including data sources. f) Evidences for taxes, depreciation should be submitted to the validation team.
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 (continuation) <u>Contrective Action (requires) (vo. 10)</u> (contract. <	broject activity was demonstrated through the bar- ier analysis". This is not traceable to the valida- ion team, once an investment analysis is con- ducted and barriers as described are not credible. See also CAR 33. Second answer: a) sensitivity analysis has been performed for both ariff and electricity generation separately. By va- ying each of the 2 parameters 10%, the IRR re- nains below the SELIC rate, however see other open CARs related to the main input parameters. b) Cash flow spreadsheet has been revised. 8 a1) The civil construction contract has been submitted to the validation team, thus in total R\$42.2 million of investment costs could be evi- denced by purchase orders and invoices. However, as the 1 st phase is fully implemented investment costs in the cash flow calculation sheet of this 1 st phase are considered with R\$ 50.8 million), it should be possible to evidence the emaining investment cost with purchase or- ders/invoices etc. Respective evidences should be submitted. Besides, the PDD states that the 2 nd mplementation phase will be implemented in 2010. As the end of the validation process was in December 2010, it should be possible to evidence at least some of the investment costs of the 2 nd mplementation phase. Furthermore it could not be clarified why the 2 nd implementation phase should have the same investment costs as the 1 st phase, as certain costs (like civil construction) might be ess in the 2 nd phase. No justification/evidence has been provided so far.
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(continuation) <u>Corrective Action Request No.15</u> a) See di b) To the jective of check the services a ed), enab project cc sion. Fror demonstr viously no decision) values is penses, v demostr already 8 ing the pr was post started ye the secor approxim cause fro smaller cc oduring the ample, th renting wi	wer: arifications below. best of the PPs understanding the ob- he correction request was to cross- magnitude of the main equipments & xpenses (over 80% was demonstrat- ing the validation of the estimated att the time of the investment deci- the renewed request is clear that the ation of the carried out expenses (ob- t available at the time of investment as close as possible to the estimated desired. For that reason additional ex- ith evidences, are supplied already ating around BRL 55 million expenses, 6 over the estimated figures. Regard- oject second phase, its implementation oned and by December 2010 has not t. The estimated investment figure for d phase of the project activity is indeed attely the same as in the first phase be- n one side there might be slightly usts in a few works (for example, civil on), from the other side there will be attel to the power expansion). and price and with 2 v plie side gos R\$ ⁵ R\$ ⁵	a2) PPs explanation explains the situation rearding the initial planning to implement a project 15 MW installed capacity and that the figures in e IRR calculation from the Board Meeting (22,81 illion R\$) refers to this scenario. The same is aceable to the validation team. It was further exained that the Board meeting report refers to the ⁴ implementation phase of 40 MW, thus investent cost indicated in the Board Meeting Report e about 50% of investment cost finally applied in e IRR calculation for the 2 phase implementation in a B.S. of the DD mentions further CDM related actions after e Board meeting on 29/04/2005 and respective bournents have been submitted to the validation am and the project activity clearly consists of a 2 hase implementation, the DOE accepts the board Meeting Report as evidence for CDM conderation. The PPA (IRL 66) signed between Interlagos and CEMIG mentions the contracted amount of ectricity and the annual fixed income from eleccity sales for Interlagos. Calculating the tariff per Wh results in R\$ 125, what is applied in the IRR alculation. The same is accepted by the validation team as cross-check evidence. Auction prices board conclusion that the weighted average ice for electricity dispatched in 2009 is R\$131 ithout considering inflation. The average of these values results in R\$121, thus is below the applied in the IRR calculation of R\$125. If condering even the auction prices of Usina Interlaps in specific, the same are indicated with \$104.96 (for dispatched electricity in 2008) and \$114.96, thus much lower than the R\$125 applied in the IRR calculation. Concluding, the applied in the IRR calculation. The application of a tariff of R\$125 deems to be appropriate and conservative.
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timate and, in accordance with VVM-1.2, para 111 c, publicly available third party evidences, including a governmental estimation applicable to biomass residues power generation, available at the time of the investment decision, were sup- plied to the DOE. If the consolidated estimated O&M cost figure is reasonable and can be vali- dated according the VVM, the request to trans- late and validate every single entry in the de- tailed internal spreadsheet is not reasonable. If the DOE prefers the less conservative value suggested by the Brazilian Mines and Energy Ministry may be used instead.
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(continuation) Corrective Action Request No.15	e) CERs, IRR and WACC calculation spread- sheets are part of the PDD. Key assumptions are fully referenced in the PDD and its annexes (either to third part publicly available references or estimation by the PPs). Estimated values by the PPs were validated by the DOE in the valida- tion process. f) EB58, para 11 has been followed. The guid- ance refers to IRR but also to the applied benchmark (WACC in the case of the project ac- tivity). The summary of supplied clarification fol- lows: the project uses IRR to demonstrate addi- tionality, pre-tax benchmark (WACC) is applied and, therefore, the procedure is in accordance with EB58, para 11. With respect to applying a single depreciation rate, in spite of ANEEL sup- plying different figures for different equipments, the most conservative value was used to simplify the calculation.	 e) The main input parameters (like investment costs, tariff, electricity generation, O&M costs) as well as other input parameters like tax, depreciation and its data sources have not been included yet into the PDD (chapter B.5) and excel file as it was requested by the DOE in the previous answer. It is not sufficient just to copy/paste the eexcerpt of the IRR calculation spreadsheet into B.5. of the PDD. The most recent PDD guidelines (version 7) mention in section B.5. to "explain and justify key assumptions and rationales. Provide relevant documentation or references. Illustrate in a transparent manner all data used to assess the additionality of the project activity (variables, parameters, data sources etc)". f) Evidences for taxes and depreciation have been submitted to the validation team (IRL 84). Income tax of 25% is applied and a depreciation rate of 5%. A residual value is considered after 20 years. However, it is not clear why paragraph 11 of EB51, Annex 58 has not been followed when calculating income tax within the IRR calculation (even after additional Email contact with Ricardo Esparta, this could not be sufficiently clarified in the Email sent on 15/12/2010 as the Email refers to the WACC calculation instead of IRR calculation). why a unique depreciation rate has been applied once ANEEL resolution N°044 defines different depreciation rates for different equipments (like boilers, generator etc.) 4) Clarification has been provided. It was referred to the registered CDM project activity 0200 when it was mentioned that "additionalitywas demonstrated through the barrier analysis" and not to the
		was mentioned that "additionalitywas demon- strated through the barrier analysis" and not to the given project activity.

(continuation) Corrective Action Request No.15	Fourth answer:	Third answer:
(continuation) <u>Corrective Action Request No.15</u>	 Fourth answer: 3a1) As explained before the second implementation phase is postponed and has not started yet. Therefore there are no proposals/agreement available for cross-check. Nevertheless taking into account that the second implementation phase is identical to the first one (including new boiler, mills, civil work, etc.), the PPs consider reasonable to assume similar costs, already demonstrated to be conservative, when compared do the first phase. 3c) The information from line 10 was already available in the supplied documents (CER calculation spreadsheet). A note is included in the IRR calculation spreadsheet indicating the source to the reader. Estimated values very similar to the ones estimated for the project activity at the time of investment decision can be confirmed from literature data. For example, total generation of 87 kWh/tonne of sugarcane (FIESP, 2001, see "situação 5"), export capacity of 61 kWh/tone of sugarcane (Leme, 2005; see boiler operating at 480 °C) and, therefore, internal consumption of around 26 kWh/ tone of sugarcane. Copies of the documents were submitted to the DOE. 	 a) See other open CARs related to the main input parameters 3a1) More invoices for water treatment, substation, automation and others have been submitted to the DOE. The actual investment cost for the 1st implementation phase is already higher than estimated (R\$ 50.8 million), thus the R\$50.8 million used in the IRR calculation can be considered as conservative. Regarding the investment cost of the 2nd implementation phase: Are there no proposals/agreements etc. (of the main costs involved) available in order to be able to cross check the investment cost of the 2nd implementation phase? 3c) PPs mention in their answer that for the figures in line 10 of the IRR calculation spreadsheet. This is however not the case and it is not clear yet for the reader from where the figures in line 10 of the IRR calculation spreadsheet come from. -An appropriate and reliable data source should be provided to the DOE proving that 2008 and 2009 harvest figures of electricity generated and consumed per ton of sugarcane figures (as well as total sugarcane processed) are similar to estimated values at the time of investment decision. It has been clarified that the electricity generation of the 2 implementation phases is reflected in the available total sugarcane processed and bagasse available.

can be and, as in the case of the project activity, was estimated. Nevertheless, typically the finan- cial analysis is made using an standard parame- ter (as in almost all registered CDM projects in power generation). Nevertheless, the O&M cost, depreciation) neither in PDD nor IRR calculation sheet. As already mentioned before "the most recent PDD guidelines (version 7) mention in section B.5. to "explain and justify key assumptions and rationales. Provide relevant changed to reflect literature values (including one governmental figure) available at the project start date time. However the PPs believe that their estimation, confirmed to be reasonable by publicly available information and , being more conservative, is a more appropriate figure. Please indicate if the less conservative govern- mental standard figure for O&M should be used

(continuation) Corrective Action Request No.15	3e) To the best of the PPs understanding the requested information being available on the PDD annexes should be enough. Additionally, relevant documents and references were supplied to the DOE during the validation. Nevertheless the PDD was revised to include information about investment, O&M cost and depreciation and relevant official publicly available literature used as evidence. -The already submitted post-tax WACC calculation is fully in agreement with paragraph 11 of EB58 states, because "in cases where a post-tax benchmark is applied the DOE shall ensure that actual interest payable is taken into account in the calculation of income tax. In such situations interest should be calculated according to the prevailing commercial interest rates in the region [cells C4 to C8], preferably by assessing the cost of other debt recently acquired by the project developer and by applying a debt-equity ratio used by the project developer for investments taken in the previous three years [cells C22 and 23]."	PPs argue that WACC is a pre-tax benchmark, however cell C9 in WACC excel spreadsheet (worksheet "WACC") includes income tax compo- nent, using After-tax Cost of Debt. Thus, it should be clarified why paragraph 11 of EB51, Annex 58 has not been applied. One single depreciation rate was applied, even though ANEEL supplies different figures for differ- ent equipments. However, a depreciation rate of 5% can be considered as reasonable and con- servative as according to ANEEL main equipment as boiler has a rate of 5%, generator 3.33%, trans- former between 2% and 5%, substation between 2% and 3.6%. Besides, even by changing the de- preciation rate from 5% to 10%, the IRR increases "only" to 13.12%, thus remains clearly below the benchmark. Fourth answer: 3a1) The statement given by the PPs that "taking into account that the second implementation phase is identical to the first one (including new boiler, mills, civil work, etc.), the PPs consider reasonable to assume similar costs" is not possi- ble to be validated with the presented information so far. The Board meeting report refers to about 50% of the total investment cost considering not yet the final capacity of the project, thus neither a primary data source nor a second (cross-check) evidence could be presented to the validation
		reasonable to assume similar costs" is not possible to be validated with the presented information so far. The Board meeting report refers to about 50% of the total investment cost considering not yet the final capacity of the project, thus neither a primary data source nor a second (cross-check) evidence could be presented to the validation team which substantiates the other 50% of the assumed investment cost in the financial analysis. If there are no proposals/agreements for the 2 nd implementation phase available yet, then at least a comparison of investment costs with other similar project activities in Brazil should be done which confirms that the investment cost are plausible and conservative. Besides, it should be evidenced and explained in a more transparent and detailed way why investment cost of the 2 nd implementation phase can be assumed to be about the same as in the 1 st phase.

1.1 Fifth answer 1.2 - 3a1) Three supplied official docu- tents indicate additional investment costs for roject aiming to generate electricity to be dis- atched into the grid in the sugar&alcohol in- ustry in Brazil: CENBIO (2001) indicates in- estment costs in the range of BRL 1500 to RL 2000 per kW (60 bar boiler, option 3, page 3, and, option 4, page 25), available at the me of investment decision. MME (2003) indi- ates investment cost of BRL 1794.3 per kW page 7). Unicamp (2008) indicates investment osts in the range of BRL 1850 to 2000 per kW 55 bar boilers, see figure 3.8, page 65). The nly registered project using ACM0006 in Bra- I (Santa Terezinha) has a total investment of RL 162 million (cells B26+C26+D26 in the ash-flow available at <u>http://bit.ly/gprtpg</u>) and 0.5. MW, leading to BRL 3218 per kW. There- tre, the estimated value of BRL 1260/kW for the project activity is clearly plausible and con- ervative. the investment cost in the second phase can basonably be assumed to be about the same is the compared to the literature low invest- tent in the first phase due to the fact that it will emand exactly the same structure and quipments investment as in the first phase. etailed civil plant from 2005 with the first and econd phases differentiated, including equip- tents location and description, is supplied to the validation team as evidence.	3c) The reference to the CER excel calculation spreadsheet is given now. The plausibility of electricity generated and con- sumed per ton of sugarcane figures (applied in IRR calculation and CER excel calculation spreadsheet) valid and applicable at the time of investment decision has been confirmed by IRL 95 and 96. However, a reliable data source that total sugar- cane processed figures were applicable at invest- ment decision has not been provided so far (as it was requested in the CAR). 3d) The DOE does not agree with the PPs state- ment that other projects do not break down O&M costs. According to the validation team 's experi- ence projects do such a breakdown in order to fol- low PDD guidelines (version 07) which state in B.5. "Illustrate in a transparent manner all data used to assess the additionality of the project ac- tivity (variables, parameters, data sources etc)." Finally the values and data sources valid and ap- plicable at the time of investment decision for the main items of O&M costs should be clear. If litera- ture values were used as primary data source at time of investment decision, then the same should be explained in a transparent way, otherwise lite- rature values can be used as cross-check evi- dence to substantiate the primary data source. One part of the CAR (from the previous round) has not been answered yet: "Even though the O&M costs seems to be reason- able compared to 2 provided literature values, the source for the applied figures (126,000 and 1,500,000) for the calculation of Inputs/Materials ("Insumos") (for the year 2010) is not clear: clarifi- cation should be provided. Besides, some clarify- ing explanation/justification for the choice of value for the other input parameters (maintenance, ONS, ANEEL fee, [TUSD Contract] etc) for the cal- culation of O&M costs should be given."
.1. Herotal user R 3 matabase Sin II R as 0. Interest the second	.1 Fifth answer .2 - 3a1) Three supplied official docu- ants indicate additional investment costs for bject aiming to generate electricity to be dis- tiched into the grid in the sugar&alcohol in- stry in Brazil: CENBIO (2001) indicates in- stment costs in the range of BRL 1500 to CL 2000 per kW (60 bar boiler, option 3, page and, option 4, page 25), available at the e of investment decision. MME (2003) indi- tes investment cost of BRL 1794.3 per kW age 7). Unicamp (2008) indicates investment at the range of BRL 1850 to 2000 per kW b bar boilers, see figure 3.8, page 65). The ty registered project using ACM0006 in Bra- (Santa Terezinha) has a total investment of CL 162 million (cells B26+C26+D26 in the sh-flow available at http://bit.ly/gprtpg) and 5. MW, leading to BRL 3218 per kW. There- e, the estimated value of BRL 1260/kW for e project activity is clearly plausible and con- vative. e investment cost in the second phase can asonably be assumed to be about the same the compared to the literature low invest- ent in the first phase due to the fact that it will mand exactly the same structure and uipments investment as in the first phase. tailed civil plant from 2005 with the first and cond phases differentiated, including equip- ents location and description, is supplied to availdation team as evidence.

(continuation) Corrective Action Request No.15	Fifth answer: - 3c) Detailed civil plant from 2005 with the first and second phases differentiated, including equipments location and description, is sup- plied to the validation team as evidence. In it one can see the planned additional equip- ments, including two 67 bar-220 tonnes- stem/hour boilers. In order to operate such boi- lers a minimum amount around 3,600,000 tonnes has to be processed, demonstrating that the total sugarcane processed figures at investment decision is applicable. Spreadsheet with the example calculation for one boiler (ba- gasse consumption equivalent to at least 1,766,000 sugarcane tonnes per year) is sup- plied to the validation team. Additionally, a later document required by the local environmental agency from 2008 prepared for the expansion, indicating a milling capacity of up to 4,000,000 tonnes per year (Arcadis, 2008; page 9) and confirming applicability of the previous figures. Figures used in the investment analysis are es- timates of sugarcane available to be milled in the project activity from an internal document, submitted to the DOE. - 3d) MME (2003, official document of the Bra- zilian government) indicates investment cost of BRL 1794.3 per kW (page 7) and O&M costs of BRL 64 per kW, i.e., 3.567% of the investment costs. Unicamp (2008, the PhD thesis by Mr. Seabra) also indicates O&M costs calculation spreadsheet resubmitted to the DOE with the average calculation included, see cell B7). Therefore the figure estimated by the PPs is clearly plausible but slightly less conservative than the official government figure available at the time of investment decision (MME, 2003). For the reason the more conservative value (3.567% of the investment) is used in the re- vised IRR calculation submitted to the DOE.	 3e) Some more information about depreciation, investment and O&M costs has been provided in B.5. of the PDD, however -the data source of MME (2003) indicated in footnote 9 has not been submitted to the validation team; -it should be clarified which relevant information the data source CENBIO (2001) (as well indicated under footnote 9) provides about investment and O&M costs; Besides, see open items 3a1) and 3d) of this same CAR. PPs confirmed now that WACC is calculated as a post-tax benchmark and refer to the benchmark calculation. However, interest payable when calculating income tax in the IRR calculation has not been considered yet as per paragraph 11 of EB51, Annex 58. PPs should consider the interest payable when calculation. Fifth answer: 3a1) Even though no concrete evidence for the investment cost figure of the 2nd implementation phase could be submitted to the validation team, a detailed civil plant from 2005 (IRL 100) with the first and second phases differentiated, including equipments location and description was sent to the validation team and it can be assumed that investment cost in the 2nd implementation phase is very similar to the 1st implementation phase bearing in mind the very similar structure and equipments to be installed in each of the phases. Besides, investment cost per kWh of the project activity (R\$ 1,260) has been compared by the validation team with various official sources: a) CENBIO (2001) indicates investment costs in the range of R\$ 1500 to R\$ 2000 per kW (60 bar and 450°C boiler) (IRL 101) b) MME (2003) indicates investment costs in the range of R\$ 1850 to R\$ 2000 per kW (65 bar boilers) (IRL 72).
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(continuation) <u>Corrective Action Request No.15</u>	Fifth answer: - 3e) Data source MME (2003) indicated in footnote 9 was submitted to the validation team. The document, prepared by the Brazilian government, indicates investment cost of BRL 1794.3 per kW (page 7) and O&M costs of BRL 64 per kW, i.e., 4% of the investment costs (for projects in Sao Paulo). In CENBIO (2001) in- vestment costs in the range of BRL 1500 to BRL 2000 per kW are estimated for project ac- tivities aiming to generate additional electricity to be dispatched into the grid in the sugarcane sector with similar configuration (60 bar and 450°C boiler, options 3 and 4 in the reference). Both figures demonstrate that the estimated value of BRL 1260/kW for the project activity is clearly plausible and conservative. - The IRR calculation was revised to include in- terest payable when calculating income tax (line 22 and 28 of the IRR calculation spread- sheet, FCF worksheet). An additional spread- sheet is supplied with the calculation of the in- terest payable, adopting the same premises of the IRR and WACC calculation (references in- cluded in the spreadsheet).	The investment costs of the only registered project (Santa Terezinha) using ACM0006 in Brazil has been checked and is around R\$ 3200 per kW. Therefore, the DOE concludes that the estimated value of BRL 1260/kW for the project activity is reasonable and conservative. 3c) An internal document dated 17/05/2005 (IRL 106), i.e. shortly after the investment decision date confirms the figures for sugarcane consumption which were assumed in the investment analysis. Besides, the civil plant (2005) together with an ex- cel spreadsheet (IRL 102) calculating the sugar- cane consumption via enthalpy of boiler input and output show that 3,600,000 tones is a plausible figure for the sugarcane consumption (this is the consumption assumed in the investment analysis from 2014). 3d) A O&M cost calculation spreadsheet (IRL 56) with a detailed listing of all O&M costs have been submitted to the validation team. O&M costs amount to 4.1% of investment costs. This value has been compared with MME (2003, official doc- ument of the Brazilian government) (IRL 32) which indicates as O&M costs 3.567% of the investment costs. Unicamp (2008, the PhD thesis by Mr. Sea- bra) (IRL 72) indicates O&M costs corresponding to 4% of the investment costs. The figure esti- mated by the PPs is plausible but slightly less conservative than the official government figure available at the time of investment cost) in the final IRR calculation which is accepted by the vali- dation team.
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Corrective Action Request No.16. Please provide an analysis of other activities that are op- erational and that are similar to the proposed project ac- tivity as according to the additionality tool, version 5.2. In the case of similar activities, it is necessary to demon- strate why the existence of these activities does not con- tradict the claim that the proposed project activity is fi- nancially/economically unattractive or subject to barriers. Please explain essential distinctions between the pro- posed project activity and other similar activities.	B.5.11.	Sub-step 4 "Common practice analyses" was fully revised. Please refer to PDD new version 17.	First answer: 1. Information about mills with electricity export in the State of Sao Paulo is dated from the "Anuario 2002/2003". A more updated data source should be used and the same submitted to the validation team. 2. The data source "Brazilian Electricity Regulatory Agency" does not indicate the type of fuel of each power plant, thus it is not possible for the validation team to validate the source used in the Common Practice Analysis. A transparent evidence should be submitted to the validation team enabling the team a verification of the statement that all sugar mills with similar scale to the one of Interlagos project are CDM projects. 3. It is finally not clearly mentioned in the PDD (B.5.) which region is selected for the common practice analysis and why the same can be considered as appropriate. PPs are
			PDD (B.5.) which region is selected for the common practice analysis and why the same can be considered as appropriate. PPs are requested to provide additional information in the PDD.

 An article by Marcos Sawaya Jank, president The reference "Anuario 2002/2003" should be of Unica (Sugarcane Industry Association), public Brazilian sugar mills export lectricity to the grid resource: http://www.unica.com.br/opinia/showa sp?mmsrCode=%72520B82C11-036E-40B3- B856-D24C50442EF1%7D). This information was included in page 28 of the PD0. The type of fuel is informed in the second col umn, from the right to the left, of the spreadsheat ebra Sil/OperacaoGeracaoTipo.asp?tipo=55ger=Comb bustivel8princjaal=Biomassa Bid fuel provide Sugar mills are OXM projects in different phases can be found through and being sile http://dmw.unicac.in/, which are now indi- cated in the PDD (page 28). Project Equipart) The region selected for the common practice analysis is the state of Sao Paulo, where thefting go plant is located, and where most of the mills which inally./icom. where it theri- go plant is located in São Paulo (source: http://www.copersucar.com.br/opinia/showa Additionaly, 61% of the mills which export to grid are located in São Paulo (source: http://www.copersucar.com.br/opinia/showa Additionaly, 61% of the mills which export to grid are located in São Paulo (source: http://www.copersucar.com.br/opinia/showa Additionaly, 61% of the mills which export to grid are located in São Paulo (source: http://www.copersucar.com.br/opinia/showa Additionaly, 61% of the mills which export to grid are located in São Paulo (source: http://www.copersucar.com.br/opinia/showa Additionaly, 61% of the mills which export to grid are located in São Paulo (source: http://www.copersucar.com.br/opinia/showa Sommscode=%72820B82C1106E-105E-105E3 	(continuation) Corrective Action Request No.16	Second answer:	Second answer:
of Unica (Sugarcane Industry Association), pub- lished on 17/11/2009, states that only 20% taken out from the PDD as the data source is not up-to-date anymore. The article by Marcos Sa- Brazilian sugar mills export electricity to the grid (source: http://www.uncica.com.br/ogina/show.as porting electricity in the State of Sao Paulo, whe- sormsgCode=%/T28DB2C11:036E-4DB3 B256-D24C50442EET1%7D). This information was included in page 28 of the PDD. 2. The submitted 2. The type of fuel is informed in the second col- umn, from the right to the left, of the spreadouted whose link is http://www.aneel.gov.br/aplicacces/capacidad bishtg://www.aneel.gov.br/aplicacces/capacidad bishtg://www.aneel.gov.br/aplicacces/cap		1. An article by Marcos Sawaya Jank, president	1. The reference "Anuario 2002/2003" should be
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Cluded in section B.5. quested in the PDD.		cluded in section B.5.	auested in the PDD.

(continuation) Corrective Action Request No.16	Third answer:	Third answer:
	1. Reference to "Anuario 2002/2003" and re- lated information were removed	1. Reference "Anuario 2002/2003"has been taken out as requested
	 lated information were removed. 2. The list of sugarcane bassee-fired plants with higher than 50MW in the state of Sao Paulo was updated with the most recent available official information (gathered from ANEEL's site on 15 January 2011) demonstrating that the project cannot be considered common practice. 3. Because the environmental licensing is state based (see licenses submitted to the DOE, issued for the project activity by the State of Sao Paulo Environmental Agency) and even interconnect grid operation federal regulation has significant differences (for example, in taxes like TUSD, evidence submitted to the DOE) and fees, only projects in the same state can be considered similar. The PDD was revised to include the information above. Fourth answer: 2. Both website references in footnote 15 opened when accessed on 03.Feb.2011. The un-shortened links are repeated below: http://www.adur-rj.org.br/4poli/documentos/dieese_nota_tec_pac.pdf 	out as requested. 2. List of sugarcane bagasse fired power plants with electricity export to the grid with 50 MW or more installed capacity in Sao Paulo state has been updated with information given by ANEEL (IRL 91). From the 22 similar projects identified, 19 are project activities which have been pub- lished on the UNFCCC website for GSP as part of the validation process. The same could be checked at UNFCCC website. The remaining 3 projects (Conquista do Pontal, Barra Bioenergia and Cocal II) make part of the federal government PAC program receiving additional financial incen- tives (IRL 92) and thus cannot be considered to take place in a comparable environment with re- spect to investment conditions as the proposed project activity. However, Website in footnote 15 (regarding PAC program) does not open. 3. It has been clarified in the PDD why Sao Paulo State is an appropriate region for the common practice analysis. The environmental licensing process is state based what can be confirmed by the local and sectoral expertise of the assessment team. Another reason is that even where federal regulation has to be followed, for example, the federal tax for the use of the interconnected distri- bution and transmission system, its value is ulti- mately determined by the state where the power generation project is located (IRL 93). Fourth answer: The indicated web links can be oppend new.
		CAR was closed. ☑

Corrective Action Request No.17. 1. Equation 2 in B.6.1. is not complete. Please revise. 2. Please justify in B.6.1. why methane emissions from waste water treatment are excluded. 3. Please demonstrate the calculation of the emission factor by using the "Tool to calculate the emission factor for an electricity system".	B.6.1.2.	 The equation was amended. Justification included in the section B.6.1, in new PDD version 17. The only wastewater gen- erated in the biomass process is the vinasse, which is used as fertilizer not under anaerobic conditions. Therefore, methane emissions from wastewater treatment are excluded from the emissions of project. The generation of the wastewater from sugar- cane would occur also in the baseline scenario, as it has no relationship with the cogeneration. Formulas applied were included in the new PDD version 17 and spreadsheet calculation is delivered to DOE together with this answer. 	 Equation 2 in B.6.1. has been revised as requested. Justification has been included in B.6.1. why methane emissions from waste water treatment are excluded. a) The version of the "Tool to calculate the emission factor for an electricity system" should be updated to version 02. b) The emissions factor for estimation purposes should be based on 2006 data (the ones which were available at commencement of validation (2nd GSP 06/11/2007) and results in an EF_{CM}=0.2023 tCO2/MWh (EF_{OM}=0.3232, EF_{BM}=0.0814) as per http://www.mct.gov.br/index.php/content/view/303072.html The emissions factor parameters (EF_{CM}, EF_{OM} and EF_{BM}) should be mentioned in B.7.1. instead of B.6.2. as the same are monitored parameters (annual monitoring). d) Regarding the OM factor the DOE would like to clarify that the hourly emissions factor is determined as per equation 11 of the Tool to calculate the emission factor for an electricity system, version 2 and option (a) 10% for the determination of the units in the top x% of total electricity dispatched in the hour h is chosen. Regarding the BM factor the DOE would like to clarify that it was determined using the generation-weighted average emission factor (tCO₂/MWh) of all power units <i>m</i> during the most recent year <i>y</i> for which power generation data is available.
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(continuation) Corrective Action Request No.17	 Second answer: 3.a - version of the "Tool to calculate the emission factor for an electricity system" was updated; 3.b - The CER calculation spreadsheet at PPD were revised using the emission faccalculated with 2006 data vintage. The revised documents were submitted to the DOE. 3.c - emissions factor parameters (EF_{CM}, EF_O and EF_{BM}) are now mentioned in section B.7. 3.d & 3.e - information regarding OM and BM factors was included in the PDD, in the moniting plan (section B.7.1) 	 e) In the monitoring plan the following information should be added: The grid emission factor was calculated by the Brazilian DNA (available at: http://www.mct.gov.br/index.php/content/view/3 07492.html), using the Dispatch Data Analysis for the Operating Margin. The Build Margin emission factor was determined using the generation-weighted average emission factor of all power units during the most recent year for which power generation data was available. Therefore, the emission factor of 0.2023 tCO2e/MWh was accepted just for estimating the expected emission reductions of the project activity during the crediting period. Hence, the emission factor calculation used in this PDD, for estimating purposes only, must be verified and updated accordantly using the most recent data available at the time of the verification process. Second answer: 3a) Version of the "Tool to calculate the emission factor for an electricity system" was updated to version 02. 3b) Data vintage, available at commencement of validation (2nd GSP uploading of PDD 06/11/2007), was used for the calculation of the emissions factor, and figures have been updated in the PDD to the following: EF_{CM}=0.023 tCO2/MWh (EF_{OM}=0.3232, EF_{FM}=0.0814) as per http://www.mct.gov.br/index.php/content/view/303072.html. 3c) Emissions factor parameters are now mentioned in B.7.1. of the PDD (as monitored parameters) as requested. 3d) Requested information has been provided. CAR was closed. ☑
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Corrective Action Request No.18. Please indicate the purposes for what electricity is con- sumed by the project activity.	B.6.1.10.	Electricity from the grid is consumed only during off-harvest season for office energy, maintenance procedures, and other minor consumptions. Since this electricity con- sumption occurs both in the baseline scena- rio as well as in the project activity (the project is active only during harvest), no emissions due to electricity consumption are to be considered. PDD version 17 was revised accordingly.	Explanation is accepted by the validation team. No project emissions from electricity consumption due to the project activity occur. CAR was closed. ☑
Corrective Action Request No.19. Please indicate in Table 5 the humidity factor to get to dry	B.6.2.2.	Data included in the PDD version 17. Second answer:	First answer: A moisture content of 50% has been as-
biomass and indicate the quantities of dry biomass.		 Sugarcane moisture of 50% is a widely applied literature value (see, for example, FIESP/CIESP Ampliação da Oferta de Energia Através da Biomassa - submitted to the DOE). Nevertheless, as regular analysis and measurements of the main characteristics of the plant operation are carried out, the average values from the 2008 and 2009 seasons, 47.8% fiber and 52.2% moisture, will be used (spreasheet with average values "memorial de calculo.xls" supplied to the DOE). Justification included in item B.7.1, project parameters. The table with quantities of dry bio-mass was revised, for years 2010 and 2017, in the CERs calculation spreadsheet. Third answer: The table with quantities of dry biomass was revised considering the new start of the crediting period. 	sumed however a justification for this value has not been included in the PDD so far. PPs are requested to do so. The table with quantities of dry biomass has to be revised, as the start of the crediting pe- riod has to be revised. Second answer: -the excel spreadsheet "memorial de calculo" mentions fiber values, and the difference to 100 is considered as moisture content (52.2%). Thus, the value applied in the PDD and CER calculation tool could be confirmed. -As start of the crediting period has to be re- vised, table with quantities of dry biomass has to be revised as well. Third answer: Table with quantities of dry biomass has been revised as requested considering the modified start of the crediting period. CAR was closed. ☑
Corrective Action Request No.20. 1. Project participants are requested to include the GHG calculation into the PDD in order to get a complete and transparent idea of GHG calculations. In the case project participants do not want to include GHG calculations into the PDD, it should be referred in B.6.3. of the PDD to an external CER calculation excel sheet and this one should be uploaded for registration together with the PDD. 2. The most recent version of the CER calculation sheet should be submitted in English language to the validation team. Only with the most updated version of the CER calculation sheet, a final assessment about GHG calcula- tions will be possible. 3. EF data should be updated.	B.6.3.2.	1. CER calculation excel sheet is attached to the PDD, and referred to in section B.6.3. 2. New version of CER calculation sheet is delivered in English version. 3.EF was updated to 2008 <i>ex-ante</i> vintage calculation. As is possible to observe in the last Letter from DNA: Oficio Nr MDL 349/2008/CIMGC dated 30 May 2008, Interlagos project is approved with corrections, where the correction is: present new PDD and Validation Report updating the version of the applied methodology ACM0006.	First answer: 1. A reference to the CER excel calculation sheet has been included in B.6.3. of the PDD, however -production of sugarcane estimates (total sugar- cane processed) should be submitted to the vali- dation team, as the team received the figures only until 2013. -regarding worksheet "Energy calculation": a) the data sources for the ratios ba- gasse/sugarcane and steam/bagasse, efficiency (mechanical energy to electrical energy transfor- mation), energy consumed have to be included in- to PDD and/or CER excel calculation file; the re- spective evidences have to be submitted to the validation team. The importance of consumed and exported energy for the CER calculation has to be explained. b) there are some Portuguese expressions in the CER excel calculation file. PPs are requested to translate into English, as EB only accepts English in the relevant documents. c) the period between 23/04/2008 to 12/11/2008 contains 204 days and not 203 days as indicated in the excel file. -in worksheet "CERs": auxiliary system consump- tion is based on what? PDD and or CER calcula- tion tool should inform and respective evidence has to be submitted to the validation team. 2. An updated CER calculation sheet has been submitted to the validation team, however the whole CER calculation sheet has to be revised once again due to open CARs. 3. The emissions factor has to be applied ex-post as it is annually updated by the Brazilian DNA. See CAR 17.
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(continuation) Corrective Action Request No.20	Second answer:	Second answer:
(continuation) <u>Corrective Action Request No.20</u>	 1- sugarcane production until 2017 is informed in the worksheet "Energy Calculation" in the CERs calculation spreadsheet. a- Regular analysis and measurements of the main characteristics of the plant operation are carried out, the average values from the 2008 and 2009 seasons will be used (spreasheet with average values "memorial de calculo.xls" submitted to the validation team). Consumed energy is relevant due to the fact that the CER calculation is made using the net energy generated (total minus onsite consumption). Exported energy monitoring is not required in the methodology and is not relevant to the calculation, therefore, is deleted from the PDD. b- Portuguese expressions were translated. c- OK, numbers of harvest days was corrected Onsite consumption is based on the monitored average in 2008 and 2009 seasons (spread sheet submitted to the validation team). 2- OK, see spreadsheet "Interlagos CERs_2010.02.23". 3- See CAR 17. Third answer: 2. The figures were updated throughout the PDD and its annexes. 3. Annex 4 was revised to reflect the use of expost data vintage. 	 -Total estimated sugarcane processed has been indicated until 2017 now in the worksheet "Energy Calculation" in the CERs calculation spreadsheet. a) The Excel file "memorial de calculo" (IRL 77) containing internal data from Interlagos (seasons 2008 and 2009) has been submitted to the validation team and confirms the figures indicated in the CER calculation spreadsheet, worksheet "Energy calculation". It was explained that consumed electricity is relevant for the calculation of net electricity generated. The parameter "exported electricity" has been taken out from the PDD which is in line with the methodology. b) Portuguese expressions have been taken out; all the worksheets in the CER excel spreadsheet are in English now. c) excel file still mentions 203 harvest days, but as the difference is only 1 day, the same is not considered significant and 203 harvest days are accepted by the validation team. Internal electricity consumption data was confirmed by the excel spreadsheet "memorial de calculo" containing 2008 and 2009 seasons data. 2. Another update is necessary due to other open CARs. 3. Emissions factor parameters are mentioned in B.7.1. now to be applied ex-post, however the 2nd sentence ("The electricity baseline emission factor is determined ex-ante and will only be updated at renewal of the crediting period") in Annex 4 has still to be corrected as the same is not consistent. Third answer: 2. O.k. 3. Sentence in Annex 4 has been corrected to "The electricity baseline emission factor is determined using ex-post vintage date calculated and supplied by the DOE. CAR was closed Fi

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Corrective Action Request No.22. Regarding the parameter "Quantity of biomass residue type k combusted in the project plant during the year y, BFk,y": The values have to be revised according to the new start of the crediting period; reference to a standard and accuracy have to be indicated and QA/QC proce- dures should mention that the quantity of biomass will be cross-checked with the quantity of electricity and pur- chase receipts (if available) as per the methodology.	B.7.1.2.	Values were revised, accuracy of the meter included and QA/QC was also revised ac- cording to the CAR. Please refer to revised PDD version 17. Second answer: a) Values were revised, for years 2010 and 2017, in spreadsheet "Interlagos CERs_2010.02.23" and later version "Inter- lagos CERs_2010.11.03". b) Correspondence from the manufacturer (Toledo) is submitted. As explained in the PDD, the manufacturer carries out preven- tive maintenance and, if necessary, a cali- bration is carried out. Necessity is deter- mined according to the applicable legisla- tion from INMETRO (ordinances 236/94 and 261/02, see <u>http://bit.ly/cP3sWv</u> , site accessed on 27.Aug.2010). The information is included in the newer version of the PDD. Third answer: a) The values were revised considering the new start of the crediting period. b) The weigh scales operation is maintained twice a year. With "maintained" it is meant "has the accuracy checked according to the INME- TRO ordinances." If any deviation is found, i.e., if necessary, than a "calibration", meaning ad- justing the equipment to its normal operation, is performed. If no deviation is found, the equip- ment is considered appropriate and no adjust- ment is necessary.	 a) Values have to be revised according to the necessary new start of the crediting period. b) The PDD informs that the manufacturer only performs calibration if necessary. How is the necessity of calibration identified? PDD should inform. According to which standard maintenance and calibration is performed. PPs are requested to clarify in the PDD. Second answer: a) Values have to be revised again, once start of the crediting period has to modified again. b) The 2 mentioned ordinances INMETRO 236/94 and 261/02 do not mention anything about calibration. It should be finally clear according to the information given in the PDD how often the weight scales will be calibrated. The PDD informs now that "The manufacture Toledo performs maintenance and calibration, if necessary, twice a year". It is not clear whether "twice a year" refers also to calibration and what does "if necessary" mean. Third answer: a) Revision has been done as requested. b) Clarification has been provided by the PPs. Weigh scales are maintained twice a year, i.e. accuracy is checked according to INMETRO ordinances. In case a deviation is found, calibration is performed. Explanation is accepted by the DOE.
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Corrective Action Request No.23. Regarding parameter "moisture content of the biomass residues": Please indicate a reference to standards and the accuracy.	B.7.1.4.	Analysis standard reference and accuracy of the method were included in the PDD. Please refer to revised PDD version 17. Evidence of the standards were delivered to the DOE together with this Protocol answer. Second answer: a) Throughout the VVM is indicated that an acceptable mean of validation is to use in- formation "verifiable and credible sources, such as local expert opinion, if available"(for example, VVM, v.1.2, paragraph 84). CTC (Sugarcane Technology Center, see <u>http://www.ctcanavieira.com.br</u>) started operation in 1969 and is worldwide recog- nized as an excellence research center for the sector (Performance Report 2005-2010 submitted to the validation team). It also produces standards and performs analysis for the sugarcane processing industry. The submitted standard is, therefore, a local sectoral standard prepared by a recognized expert center. The internal procedure is the CTC standard. Additional information is in- cluded in the revised PDD. b) Certified means that the accuracy of the equipments was checked by CTC. Addi- tional information is included in the revised PDD. Third answer: a) The procedure name is included in the PDD (and copy submitted to the DOE). The minor in- consistency in the figures (clearly a typo) is cor- rected and the information regarding ex-ante calculation for validation estimation purposes is included in ne newest PDD version.	First answer: a) It should be indicated which national or in- ternational standard the methodology of CTC follows and a reference to the internal proce- dure is recommended. b) It should be specified/clarified what "certi- fied by CTC" means. Is here meant calibra- tion or verification or something else? Second answer: a) CTC standard might be accepted by the DOE however the standard is not mentioned yet in the PDD. PPs are requested to indicate the name of the standard and provide the da- ta source. It should be finally possible for the DOE to check the procedures of the stan- dard. Furthermore, it is not clear what is meant with "the average values from the 2008 and 2009 seasons, 47.8% fiber and 52.3% [not consistent with the value of 52.2% applied in the CER calculation] will be used". PPs refer here to ex-ante calculation (?) as moisture content of the biomass residues is a moni- tored value. b) It is indicated now that "Equipments uti- lized in Interlagos laboratory are tested for accuracy by CTC once a year. CTC is ac- credited by INMETRO, the (Brazilian Institute of Metrology, Normalisation and Industrial Quality". The same is accepted by the DOE. Third answer: The procedure (Spencer Electric Oven Me- thod) is now mentioned in the PDD and was also submitted to the DOE (IRL 90). Besides, the requested sentence was revised and is clear and consistent with the CER calculation
		rected and the information regarding ex-ante calculation for validation estimation purposes is included in ne newest PDD version.	thod) is now mentioned in the PDD and was also submitted to the DOE (IRL 90). Besides, the requested sentence was revised and is clear and consistent with the CER calculation tool now. CAR was closed.

Corrective Action Request No.24. Regarding the parameter "Net quantity of electricity gen- erated in the project plant during the year y": Please re- vise the values for estimation of emission reductions.	B.7.1.16.	Values revised in new PDD version 17. Second answer: - Values were revised, for years 2010 and 2017, in spreadsheet "Interlagos CERs_2010.02.23". - Annex 4 was revised, including the follow- ing text: "The net energy generated in the project activity (EGproject plant,y) will be the total energy generated by the plant (ex- ported electricity plus the energy consumed internally by the mill) subtracted by the con- sumption of the auxiliary systems of the electrical plant. Consistency of metered ex- ported electricity, which is part of the net electricity generation calculation, will be cross-checked with receipts from electricity sales. Consistency of net electricity gen- eration (EGproject plant,y) will be cross- checked with the quantity of bagasse fired".	First answer: -Values have to be revised according to the necessary new start of the crediting period. -Annex 4 contains some contradictory infor- mation regarding EG _{project plant,y} . Once it is mentioned that "data will be cross-checked with energy sale receipt added by internal consumption monitored" and in another place that "EGproject plant,y will be the total energy generated measured internally by Interlagos staff, subtracting the consumption in the aux- iliary system". PPs are requested to provide consistent information. Second answer: - Values have to be revised again, once start of the crediting period has to modified again. -There seems to be an inconsistency be- tween the answer given by the PPs in the protocol "The net energy generated in the project activity (EGproject plant,y) will be the total energy generated by the plant (exported electricity plus the energy consumed inter- nally by the mill) subtracted by the consump- tion of the auxiliary systems of the electrical plant" and the information given in the PDD, Annex 4 "The net energy generated in the project activity (EGproject plant,y) will be the total energy generated by the plant (total electricity minus the energy consumed inter- nally by the mill) subtracted by the consump- tion of the auxiliary systems of the electrical plant." PPs are requested to resolve/explain this inconsistency.
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Continuation Corrective Action Request No.24	B.7.1.16.	Third answer:	Third answer:
		The start of the crediting period was revised accordingly. Annex 4 was corrected. Note that the me- thodology demands separate variables for internal consumption by the auxiliary sys- tems of the electrical plant and other inter- nal consumption.	 Revision has been done as requested. Correction has been done in Annex 4 as requested above. CAR was closed. ☑

Corrective Action Request No.25. Regarding the parameter "Net calorific value of biomass residue type k": Please indicate in measurement method, that NCV is determined on the basis of dry biomass; please indicate the standard and accuracy and mention QA/QC as per the methodology ACM0006 (including measurements from previous years).	в.7.1.22.	 Information required were included in the new PDD version 17. However, there is no previous measurement, as this is a new plant. IPCC default value was used for estimation purposes. Second answer: The reference to old and new equipments is removed from the PDD and the accuracy is conservatively set to 1% for all equipments. It was added that measurement results will be compared with measurement results will be compared with measurements from previous years (of the crediting period). ACM0006, version 9, asks to conduct measurements or use reliable national data. Since measurements will be used, there is no need to compare values with national data. Consistency of measurements will be used, there is no need to compare values with national data. Consistency of measurements will be checked with default values indicated by the IPCC. This was revised in the PDD. Third answer As the same issue is raised in CAR9's, the answer is repeated. The NCV value applied can be found at section 1.4.3 of the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual. The 1996 report was chosen over the 2006 because it has the specific value for Bagasse NCV (not included or revised in 2006 version of the document). Fourth answer: The NCV value in section B.7.1 was corrected from 16,200 to 16.2 GJ/ton Fifth answer Exact section of the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories" included in the PDD (in sections B.6.3 and B.7.1). 	A reference to standard has been indicated (ASME PTC 4). The accuracy of calorimeter is defined to be 1% in old equipment and 0.4% for new equipment. But PPs should clarify, how "old" and "new equipment" is defined. Regarding QA/QC procedures: It should be added that measurement results will be compared with measurements from previous years (previous years means here during the crediting period) and default values by IPCC (as per ACM0006, version 9). Is there no cross-check with values in the lite- rature or the national GHG inventory? The applied value is based on IPCC. Please indi- cate volume, chapter, Table. Second answer: Information regarding accuracy of the calorimeter has been revised; it is indicated now an accuracy of 1%. It is indicated now that data will be cross- checked with measurements from previous years of the crediting period. Besides, it is mentioned that "consistency of measurements will be checked with default values by IPCC". However Volume, Chapter and Table of IPCC da- ta source have not been indicated yet as re- quested in the previous DOE answer. Besides, it is not clear why PPs refer to 1996 IPCC guidelines. Third answer: It is clear now why PPs refer to 1996 IPCC guidelines. Third answer: Value has been corrected however vo- lume/chapter/section of the IPCC guidelines is not indicated yet in the PDD. Besides the value has to be corrected to 16.2 GJ/ton instead of 16,200 GJ/ton (as indicated in the PDD). Fourth answer: Value has been corrected however vo- lume/chapter/section of the IPCC guidelines is not indicated yet as requested in the previous round. Fifth answer: Section of 1996 IPCC guidelines has been indi- cated. CAR was closed. ⊠
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Corrective Action Request No.26. Regarding paramter: "Average technical transmission and distribution losses in the grid in year y for the voltage level at which electricity is obtained from the grid at the project site": The specifications of the parameter have to be updated according to the Tool, EB 39.	B.7.1.39.	Captive renewable power generation tech- nologies are installed to provide electricity both in the project activity and in the base- line scenario. In this way, the "Tool to cal- culate baseline, project and/or leakage emissions from electricity consumption" does not apply. Hence, EC PJ,y (Project energy consumption) and TDLy (transmis- sion loss) are zero	Answer given by the PPs is traceable and thus accepted by the validation team. No project emissions from electricity or fossil fuel consumption due to the project activity occur. CAR was closed. ☑
Corrective Action Request No.27. Please provide information about the operational and management structure, if possible with an organigram.	B.7.2.1.	Information included in section B.7.2, in the revised PDD ver17. Second answer: Organigram is revised and additional infor- mation is included in the revised PDD.	An organigram of the operational and man- agement structure has been included in B.7.2., but is without any comments. Some explanations should be provided to the oper- ational and management structure. Second answer: Organigram has been revised and a short explanation has been provided. The same is accepted by the DOE. CAR was closed.

 Corrective Action Request No.28. 1. English should be revised throughout B.7.2. as there are quite few errors related to sentence structure and wording. 2. Please provide a diagram showing the location of the metering equipment. 3. Please make clear from what meter readings are taken for CER calculation. 4. Please indicate standards to which the measurements refer. 5. Please specify in B.7.2. how weighing of amount of biomass works. 	B.7.2.3.	 Text revised. There are several energy metering equipments. 1 relay at the cogeneration plant, to meter the total energy; 2+2 electricity meter in the substation, to meter the exported energy, and 1 relay in each subsystem of the cogeneration plant where energy is consumed before delivering to the sugar & alcohol plant as well as to the grid. Diagram is included in the Annex 4 – Monitoring Information. This information and other details about the monitoring plan is described in Annex 4. Standard and other details are described in Annex 4. Bagasse is weighted on conveyor scales, electronically, as is described in Annex 4. 	 The sentence "the emissions reduction is reached by applying an emissions factor through the electricity dispatched to the grid that is verified and monitored by a two party verification" is not logical yet. Please revise. Auxiliary energy consumption meters are not indicated in the diagram in Annex 4. PPs are re- quested to include. Besides, it should be clarified why there are four meters for exported electricity. Information is not provided yet what meter read- ings will be finally taken for CER calculation. PPs are requested to add. Electricity meters should take measurements as per national or international standards, however such a standard is not indicated yet. PPs are re- quested to inform in the PDD. It has been specified in B.7.2. that bagasse is weighted on the scales at the belt-conveyors that transport the bagasse. There are 3 points of mea- surement: total bagasse generated and sent to boiler, amount of excess bagasse sent to storage and amount of bagasse transported from storage to the boiler. The total bagasse consumed will be calculated as: total bagasse minus storage ba- gasse plus storage to boiler bagasse.
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(continuation) Corrective Action Request No.28	Second answer:	Second answer:
(continuation) <u>Corrective Action Request No.28</u>	Second answer: 1 - Sentence was changed to: The emissions reduction is calculated by applying an emissions factor through the net quantity of increased electricity generation (EGy), which is calculated according to formula 16 in page 36 of ACM0006, version 9, which requires metering of exported energy, inter- nally consumed energy, consumption of auxiliary systems, bagasse consumption and bagasse NCV. The electricity dis- patched to the grid is verified and monitored by a two party verification: by the power plant that sells the electricity and by the utility company that buys the electricity. 2 – Auxiliary energy consumption meters are indicate in the diagram. There four me- ters because there are two transmission circuits in the plant (two transmission lines in parallel), each with two meters, one main meter and one backup meter. Additional in- formation is included in the revised PDD. 3 - See number 1 above. 4 - Measurements will be done according to the regulations of ANEEL, <i>Procedimentos</i> <i>de Distribuição de Energia Elétrica no Sis- tema Elétrico Nacional – PRODIST – Módu-</i> <i>lo 5 – Sistemas de Medição</i> , document PND1A-DE8-0550, of October 20, 2005 (http://www.aneel.gov.br/arquivos/PDF/Mod ulo5 29082006 SRD.pdf). This was in- cluded in Annex 4	 Second answer: 1. The wording of the sentence in B.7.2. "the emissions reduction is calculated by applying an emissions factor through the net quantity of increased electricity generation (EGy), bagasse consumption and bagasse NCV" makes no sense once emission reductions are calculated by multiplying the emissions factor with the net quantity of increased electricity generation. The latter one again is calculated by subtracting the product of average net energy efficiency of electricity generation in other power plants that would use the biomass residues fired in the project plant in the absence of the project activity and quantity of biomass residue combusted and net calorific value of biomass residues from the net quantity of electricity generated in the project plant. 2. It was clarified in Annex 4 that four meters are used because there are two transmission circuits in the plant (two transmission lines in parallel), each with two meters, one main meter and one backup meter. Besides, information about auxiliary energy consumption meters has been provided in the diagram of Annex 4. 3. It has not been clarified yet whether the meter readings from "total generated energy" meters or from the "exported&imported energy" meters or from the "exported&imported energy" meters at the substation will be used for CER calculation.
		will be done according to the regulations of ANEEL (Procedimentos de Distribuicao de Energia Eletrica no Sistema Eletrico Nacion- al, Modulo 5, Sistemas de Medicao).

Third answer:	Third answer:
 The wording of the sentence in B.7.2 was revised. Closed. The emissions reduction is calculated by multiplying the emissions factor with the net quantity of increased electricity generation (EGy), which is based on the plant's ba- gasse consumption and bagasse NCV. Energy generation metering/monitoring (to- tal, auxiliary, internal, exported and im- ported) will be used to cross-check the re- 	1. Wording has been partly revised, however it should be still made clear that net quantity of in- creased electricity generation is calculated by sub- tracting the product of average net energy effi- ciency of electricity generation in other power plants that would use the biomass residues fired in the project plant in the absence of the project ac- tivity and quantity of biomass residue combusted and net calorific value of biomass residues from the net quantity of electricity generated in the project plant.
 ported) will be used to cross-check the results. 4. Closed. The PDD was revised to contain the above clarifications; please refer to the latest version of the document. Fourth answer: Section B.7.1 was revised to unequivocally reflect the methodology guidance. The most recent version of the PDD was submitted to the DOE. 	 project plant. 3. It is not clear when the PPs mention in their answer that "emission reduction is calculatedwith the net quantity of increased electricity generation (EGy), which is based on the plant's bagasse consumption and bagasse NCV and energy generation metering/monitoring (total, auxiliary, internal, exported and imported) will be used to cross-check the results." According to methodology ACM0006, version 10.1, the parameter EGproject plant, y (as part of formula 14 of the methodology) is continuously measured and the consistency of metered net electricity generation should be cross-checked with receipt from electricity sales (if available) and the quantity of fuels fired. This is substantiated by the PDD (chapter B.7.1. parameter EGproject plant, y) which states that "continuously electronic measurement of the total generated amount and the energy consumed in the auxiliary system of cogeneration plant. Net
	 quantity is calculated subtracting the auxiliary consumption from the total generated." Information has to be revised in B.7.2. and it has to be clearly indicated which meters' measurement results are finally used for the ER calculation. Fourth answer: 1. and 3. The wording has been revised in B.7.2. however it is not clearly indicated yet (as requested before) which meter's measurement results are finally used for the ER calculation.
	 Third answer: The wording of the sentence in B.7.2 was revised. Closed. The emissions reduction is calculated by multiplying the emissions factor with the net quantity of increased electricity generation (EGy), which is based on the plant's bagasse consumption and bagasse NCV. Energy generation metering/monitoring (total, auxiliary, internal, exported and imported) will be used to cross-check the results. Closed. The PDD was revised to contain the above clarifications; please refer to the latest version of the document. Fourth answer: Section B.7.1 was revised to unequivocally reflect the methodology guidance. The most recent version of the PDD was submitted to the DOE.

(continuation) Corrective Action Request No.28	Fifth answer:	Fifth answer:
	The section already includes an explicit refer- ence to ACM0006, v.10.1, equation 14 and its 4 parameters, used to calculate the net quantity of increased electricity generation, which is the va- riable ultimately used for the ER calculation. Taking into account that input data for equation 14 the following 4 parameters: $EG_{project \ plant,y}$, a monitored parameter defined in section B.7.1; $\varepsilon_{el, other \ plant(s)}$, a parameter available at validation defined in section B.6.2; $BF_{k,y}$, a monitored pa- rameter defined in section B.7.1 and, NCV_{k} , a monitored parameter defined in section B.7.1. Therefore, to the best of the PPs understanding the information in the PDD already includes all information requested in the approved metho- dology about the measurement methods (mass, calorific value and electricity) results finally used for the ER calculation. Nevertheless, the relevant monitored variables description in section B.7.1 is referred in section B.7.2.It shall be noted that ER calculation is based on the net electricity gen- eration increase, i.e., the net electricity gen- eration in the project activity scenario (total elec- tricity generation minus auxiliary system con- sumption, both internally metered variables) mi- nus the generation in the baseline scenario. Therefore the electricity meter's measurement of the total generation and auxiliary consumption are the ones used for the ER calculation.	It has been clarified by the PPs in B.7.2. that emissions reduction calculation is based on the net electricity generation increase, i.e., the net electricity generation in the project ac- tivity scenario (total electricity generation mi- nus auxiliary system consumption) minus the generation in the baseline scenario. Electricity meter's measurement of the total generation and auxiliary consumption are the ones used for the ER calculation. CAR was closed. ☑

 Corrective Action Request No.29. 1. Please revise the project's starting to the date of the purchase agreement (contract) of the main equipment (only in the case that the date of the purchase agreement is prior to 04/09/2006 [date mentioned in the GSP PDD]. 2. Please provide a description in the PDD of how the project starting date has been determined and please submit an evidence for the project's starting date to the validation team. 	C.1.1.	 Project start date is revised to the generator purchase order on 30 August 2005. Explanation was included in the PDD, section C.1.1 and the purchase orders were delivered to DOE. Details are described in Section B.5. Second answer: Copy of civil construction contract, signed on 22.Sep.2005, is submitted to the validation team. it was added in section C.1.1 that the start date is "the date on which project participants have committed to expenditures related to the implementation or related to the construction of the project activity". 	1. Project's starting date has been revised to 30/08/2005 (purchase order for generator, IRL 61) which is the first real action with significant financial commitments. Other actions have been validated (like 1 st payments for turbine, boiler and control panel) as well as financial closure with BNDES dated 04/09/2006 (IRL 30) and issuance of construction permit, dated 20/09/2006, (IRL 19). Even though the 1 st payment for the CALDEMA boiler was on 10/08/2005 and thus prior to 30/08/2005, 10/08/2005 is not considered as project's starting date as the payment on this day was just a kind of premium payment prior to signing the contract, thus on this date it was not clear yet whether the project would be really implemented. Therefore, the purchase order for generator, dated 30/08/2005 can be considered as the first real action with significant financial commitments. However, the evidence for start of civil construction should be still submitted to the validation team.
			 A description how the project's starting date was determined has been included in the PDD, however it should be added that the start date is "the date on which project participants have committed to expenditures related to the implementation or related to the construction of the project activity". The respective evidence for the project's starting date was submitted to the validation team (IRL 61). Second answer: The civil construction work contract has been submitted to the validation team as requested (IRL 52) It is mentioned now in section C.1.1. that "the project starting date is the earliest between the construction, implementation or real action in favour of the project activity, i.e., the date on which project participants have committed to expenditures related to the implementation or related to the construction of the project activity". The same is accepted by the validation team.

Corrective Action Request No.30. The start of the crediting period has to be revised; the pe- riod between the date for submission of registration and the start of the crediting period has to be at least 8 weeks.	C.2.1.	Start of crediting period was revised to "15 April 2010 or the registration date, whichev- er is later". Please refer to PDD ver.17. Second answer: - Start of the crediting period was changed to 01/03/2011. Third answer: Start of the crediting period was revised; please refer to the most recent version of the PDD.	First answer: Start of the crediting period (15/04/2010) is not realistic. The length of the remaining vali- dation process, DNA approval process and UNFCCC requirement that the period be- tween submission for registration and start of the crediting period has to be at least 8 weeks have to be considered in the choice of the start of the crediting period. Second answer: Start of the crediting period (01/03/2011) should be revised once again, as March 01, 2011 is impossibly to comply with bearing in mind that the project needs to go through an internal DOE review, LoA process and be submitted 8 weeks prior to the start of the crediting period. Third answer: Start of the crediting period has been revised as requested. CAR was closed. ☑
Corrective Action Request No.31. Please provide the exact date in the PDD when letters were sent to the stakeholders and mention the medium used.	E.1.1.	The PDD was amended. Please refer to the seventeenth version of the document.	Date (13/10/2006) and the medium used for the stakeholder invitations have been in- cluded in the PDD. The stakeholder letters and confirmation of receipts have been sub- mitted to the validation team (IRL 20). CAR was closed. ☑

Corrective Action Request No.32. The whole PDD has to be updated as according to the revised guidelines for completing the project design doc- ument (CDM-PDD), EB41, Annex12.	 PDD was revised according to the guide-lines. Second answer: Sections A.2 and A.4.3 were revised to include the required change. According to the VVM, version 1.2, par-graph 78, "The PDD shall correctly describe the project boundary, including the physical delineation of the proposed CDM project activity included within the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity." To the best of our understanding figure 4 complies with the requirement and is similar to various recently registered Project Activities. Additionally the PPs would like to call the attention of the validation team to the following: 1 - the project boundary includes the whole Brazilian Interconnected Grid, 2 – section B.3 describes the sources and gases included in the project boundary, and, finally, 3 – Monitored variables and metering equipments are thoroughly described in section B.7 and annex 4. Nevertheless, gases were included and the monitoring variables are inserted in figure 4 (project boundary) of the revised PDD. The revised PPD was submitted to the DOE. Files with technical specification of the generator at different loads submitted. 	First answer: Some parts of the PDD have been updated as per the latest PDD guidelines however it should be still mentioned in A.2. and A.4.3. "the scenario existing prior to the start of the implementation of the project activity", "the baseline scenario as identified in section B.4.". Besides, it should be made reference in A.2. to the scenarios, emission sources and gases described in A.4.3. and B.3. The flow diagram of the project boundary should still add gases included (related to the project site and interconnected grid) and the monitoring variables related to the project site (please refer to PDD guidelines, version 07). Regarding A.4.3., Table 2: Evidences of the following information should be provided to the validation team: Efficiencies of generator at different loads, and specifications of turbo- reductor mentioned in the Table. Second answer: A.2. and A.4.3. inform now that "the scenario existing prior to the start of the implementa- tion of the project activity is a site where no power was generated". Specifications of the efficiencies generator at different loads (IRL 63) and turbo-reductor have been submitted to the validation team, however capacity, efficiencies and tempera- ture of the turbo-reductor could not be vali- dated yet. Relevant gas (CO2) has been added in Fig- ure 4 as well as monitored variables. Howev- er, one variable to be monitored "Moisture content of the biomase residues " is missing
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(continuation) Corrective Action Request No. 32	 Third answer: It is not clear to the PPs why the information could not be validated yet. Complete specifica tion of the turbo-reductor was supplied to the DOE and the equipment was available for assessment during the site visit. The PPs are at any time available to explain the supplied diagrams but call the attention that the operation of the plant and variables required by the approximethodology will be monitored enabling the retime calculation of the power production efficie cy. For that reason the PPs request clarificatio regarding the relevant demand and information need to resume the validation of the equipment Moisture content of biomass is added as moni tored variable in figure 4. Fourth answer: Capacities of the set turbine-generator can be derived beginning with the TGM graphic "condições de operação" or simply in the table "1.2 condições de operação da turbine." With the b ler at normal operation - 220 tonnes of steam phour, 480 °C - the relevant entries are 5, 6, 7 and 8 (see "potência nos bornes do gerador", ranging from 34.07 to 38.78 MW). Then, depending on the load (x-axis) and power factor (curves PF = 0.8 or 1.0) in the generator - see WEG graphic - the efficiency is straightforward determined in the y-axis (typically around 98% Steam temperature is also directly obtained in table 1.2. The PPs remain available and can a so submit contacts at the equipments provider 	Third answer: -PPs are kindly requested to explain how ca- pacity, efficiencies and temperature of the turbo-reductor can be confirmed with the submitted specifications. -Moisture content of the biomass residues f has been added. Fourth answer: It has been explained how temperature and capacity of the turbo-reductor can be deter- mined with the submitted specifications (IRL 74), however it is not clear how the efficiency mentioned in the PDD (76% to 86% depend- ing on the steam flow) has been determined. PPs explain in their answer the efficiency de- termination of the generator, however not of the turbine-reductor.
	Steam temperature is also directly obtained in table 1.2. The PPs remain available and can a so submit contacts at the equipments provider for further clarifications.	•

		Fifth answer:	Fifth answer:
		 From the equipment tables supplied to the validation team, one reads: For the turbine operation ("TGM Turbinas," table "1.2 – condições de operação da turbine") under steam flow 220 t/h (cases 5, 6, 7, and 8), that the power delivered to the generator ("potência nos bornes do gerador") ranges from 34.07 MW (34.07/40 = 85.18% efficiency) to 38.78 (38.78/40 = 96.95% efficiency) For the generator operation ("WEG máquinas Sícronas," efficiency (rendimento) ranges from 95.67% (lowest value) to 98.68% (highest value). Therefore, the efficiency of the set turbogenerator can be determined under the forecasted steam flow (220t/h) ranging from 81.48% (85.18% x 95.67%) to 95.67% (96.95% x 98.68%). The information in the PDD was revised to match the above mentioned figures. 	The efficiency both for turbines and generator are explained in a traceable and reasonable way now and the indicated figures in the PDD are consistent with the references IRL 63 and 74. CAR was closed. ☑
Clarification Request No.1 PPs should clarify whether the efficiency of heat genera- tion in the project plant is really larger than the one from the reference plant. In the opposite case, it would imply that the project implementation may involve additional heat generation from other sources or a longer operation of the project plant and may result in an increase in GHG emissions.	B.4.6.	In fact, the project plant heat generation ef- ficiency is higher or the same compared to the reference plant. This information is re- vised in the PDD ver 17. On February 8 th , 2008 EB clarified that the project may have a higher efficiency for heat generation in the project plant. Please refer to clarification request AM_CLA_0065. Although the clarification request refers to scenario 18, the EB response also applies to scenario 4, considered in the project ac- tivity. Second answer: find annexed file "Dedi- ni_information on boiler efficiencies"	First answer: If the heat generation efficiency in the project plant is larger or similar compared with the heat generation efficiency of the plant consi- dered in the baseline scenario and thus ER- heat,y considered as 0, then according to page 43 of ACM0006, version 09, the same should be demonstrated (evidenced). Even though the PDD refers to DEDINI, a Brazilian boiler manufacturer, so far no evidence has been submitted to the validation team. PPs are re- quested to do so. Second answer: DEDINI, an important Brazilian boiler manu- facturer confirmed in an Email (IRL 43) that the thermal efficiency of low pressure boilers is lower or the same as in high pressure boi- lers (project plant). CR was closed. ☑

Additional CARs and CRs due to new Guidelines/Procedures and VVM			
Clarification Request No.3 According to the VVM, paragraph 75 "For each applicability condition listed in the approved methodology selected, the DOE shall clearly describe in the validation report the steps taken to assess the relevant information contained in the PDD against these criteria." Therefore, the compliance of each of the appli- cability criteria should be supported by at least one evidence. The respective evidences should be submitted to the validation team for: 1) The installation of a new biomass residue fired power plant at a site where currently no power generation occurs (Greenfield power project); 2) No other biomass types than biomass resi- dues are used in the project plant and these biomass resi- dues are used in the project plant and these biomass resi- dues from a production process (e.g. production of sugar or wood panel boards), the implementation of the project shall not result in an increase of the processing capacity of raw input (e.g. sugar, rice, logs, etc.) or in other substantial changes (e.g. product change) in this process; 4) The biomass residues used by the project facility should not be stored for more than one year; 5) No significant energy quantities, <i>except from transpor- tation or mechanical treatment of the biomass residues</i> , are re- quired to prepare the biomass residues for fuel combustion;	 1) During the site visit, on 14 and 15/12/2006, it was verified that the power plant was constructed at a site where no power generation occurred. 2) Fossil fuels are not used by sugar mills in Brazil neither for power nor for heat generation. This can be checked at the site of Unica (<i>União da Indústria de Cana-de-Açúcar</i> – Sugar Cane Industry Association). This is cited at (http://www.unica.com.br/content/show.asp?cntCode=(0C8534A8-74A7-4952-8280-CSFGB927687: "Auto-suficiéncia Energética: toda energia utilizada no processo industrial da produção de etanol e açúcar no processo industrial da produção de etanol e açúcar no Brasil é gerad dentro das próprias usinas a partir da guera do bagaço da cana?. (Energy self-sufficiency: all the energy used in the industrial process of ethanol and sugar production in Brazil is generade inside the mills, through the burning of sugarcane bagasse). 3) This is a new plant, so that there can be no increase in the processing capacity of raw input. 4) The project participants are not aware of a single sugarcane processing plant in Brazil storing biomass residue sate not tar one year. At the project site on the statu in the next season, but never for a period longer than six months. The PPs supplied to the validation team a declaration confirming that no biomass residue is stored for more than one year at the project site. 5) The project participants are not aware of a single sugarcane processing plant in Brazil requiring significant energy quantities to prepare the biomass residues are not stored for more than one year at the project site. 5) The project participants are not aware of a single sugarcane processing plant in the next season, but never for a period longer than six months. The PPs supplied to the validation team a declaration confirming that no biomass residue is stored for more than one year at the project site. 6) The project participants are not aware of a single sugarcane brocessing plant in Brazil r	nitted DOE power as- sct. ndus- ne duc- erated med as tion in rease o the n in- it is a n nus as indus- vali- ore t from of the are on; E as	

Clarification Request No.4 The commissioning report or any other evidence confirm- ing the project boundary should be submitted to the vali- dation team.	During the validation site visit, on 14 and 15/12/2006, project boundary could be verified and confirmed.	Even though the commissioning report has not been submitted to the validation team, the ANEEL authorization N° 1112 to start testing operations and ANEEL authorization N° 1694 to start full operation as well as the grid delineation for the calculation of the emissions factor (single interconnected sys- tem comprehending the five geographical re- gions of the country) (http://www.mct.gov.br/index.php/content/vie w/72764.html) confirm the project boundary as indicated in the PDD. CR was closed. ☑
Corrective Action Request No.33. According to the information provided in B.5. of the PDD, the DOE can't conclude that the presented barriers are real as per paragraph 115 of the VVM. If the PPs want to maintain the barriers, then a project specific barrier discussion should be provided including credible and adequate evidences. The "Guidelines for objective demonstration and assessment of barriers", version 01 (EB50, Annex 13) should be considered in the barrier discussion.	As stated in the PDD, the barriers mentioned serve to reinforce the conservativeness of the adopted benchmark, which should be higher to reflect these difficulties. The institutional barrier mentioned in the presents as evidence a study of local experts, which is one of the possible sources cited in the VVM. Core business barrier was removed.	Core business barrier has been removed. In- stitutional barrier is just used to reinforce the conservativeness of the adopted benchmark, however additionality discussion is based on the investment analysis. CAR was closed. ☑
Clarification Request No.5 Please submit ANEEL decree 219 (dated 03/08/2006) and ANEEL Resolution N° 1119 (dated 27/11/2007) to the validation team.	ANEEL degree N° 219 and authorization N° 1119 have been submitted	Both ANEEL decree 219 and ANEEL resolu- tion N° 1119 haven been submitted to the DOE. CR was closed.

Additional CARs and CRs due to Technical Rev	view
Clarification Request No.6 Country risk premium" of 8.65 % applied in the WACC analysis (following the data sources http://www.cbonds.info/all/eng/ind ex/index_detail/group_id/1/ and www.ipeadata.gov.br) seems to be very high if doing the cross-check with DAMODARAN's site http://pages.stern.nyu.edu/~adamodar []. According to DAMODARAN's data pub- lished in January 2005 (this data was available at time of investment decision in April 2005), the country risk premium amounts to 6%, thus is considerably lower than the applied 8.65%. PPs should dem- onstrate/justify why a country risk premium of 8.65% is appropriate for the project ac- tivity and why not the lower (more con- servative) value of DAMODARAN is used in the WACC analysis.	There are different approaches to calculate a County Risk Premium. The differences between DAMODARAN EMBI have been explained by the PPs a could be assessed by the validation team the indicated web-links. Thus, the DOE fi that the approach to use EMBI as the inc or denominated bond issued by a country (such as the Brazilian dollar denominated C-Bond) and com- paring the interest rate on this bond to the interest rate on a riskless bond in the same currency (such as the U.S. treasury bond). The resulting difference is called a country bond default spread and is add- ed on to the mature market risk premium (from the United States). The second is to take the premium that you charge in the U.S. equity market and scale it by the relative volatility of the emerging market (volatility of the emerging market / volatility of the US market). Thus, if the Brazilian market is twice as volatile as the US market, you would double the risk premium used in the US. The third is a approach, where you multiply the country bond default spread by the relative volatility of the equity market in that country to the country bond (volatility of the equity market/ volatility of the country bond (volatility of the equity market/ volatility of the country bond (volatility of the equity market/ volatility of the country bond (volatility of the equity market/ volatility of the country bond (volatility of the equity market/ volatility of the country bond)." (Damodaran, available http://pages.stern.nyu.edu/~adamodar/New_Home_ Page/valquestions/a19.htm). The differences between DAMODARAN EMBI have been explained by the PPs a could be assessed by the validation team counts below the benchmark as well in this case casts no doubts that the project activity market is financially unattractive. CR was closed.

Continuation Clarification Beguast No.6	Emerging Markets Bond Index – EMBL (previously ex-	
Continuation Clarification Request No.0	plaiped) is the most liquid emerging market henchmark	
	and the most popular index	
	(http://www.investopedia.com/terms/o/omerging.markets	
	(<u>Intp.//www.investopeula.com/terms/e/emerging-markets-</u>	
	bolid-ilidex.asp	
	and <u>nttp://www.jpmorgan.com/pages/jpmorgan/investok/s</u>	
	olutions/research/EMBI). This indicator has been used in	
	finance markets for more than one decade and is world	
	widely accepted. Institutions such as the Inter-American	
	Development Bank IDB uses the benchmark (please	
	see http://www.iadb.org/research/latinmacrowatch/Countr	
	yTable.cfm?country=Brazil). This factor accounts for the	
	country or sovereign risk embedded in the debt of a coun-	
	try. The EMBI (Emerging Markets Bond Index) is a	
	benchmark that measures the total return performance of	
	international government bonds issued by emerging mar-	
	ket countries. It effectively accounts for the difference be-	
	tween sovereignty bonds of emerging countries and de-	
	veloped countries and is PP's esteemed method for iden-	
	tifying country risk. Using a few month average of the	
	rates from the EMBI+Brazil index, PPs can assess a	
	premium which calculates the idiosyncratic risk of sover-	
	eign debt and which we can add to the US risk-free rate	
	to have a fairer estimation of opportunity cost as it relates	
	to projects in the sector. Therefore, the 2.65% country risk	
	premium difference comes from the comparison of two	
	different methodologies (the EMBI and another one calcu-	
	lated by Damodaran). If a cross-check of different sources	
	is carried out by using the same methodology	
	(e.g. http://www.cbonds.info/all/eng/index/index detail/gro	
	up id/1/ and http://www.latin-	
	focus.com/latinfocus/countries/brazil/braembisprd.htm	
	one will conclude that the final benchmark is valid.	
	Hanna DDa baliava that EMDI and the 0.050/ accurtury risk	
	Hence, PPs believe that EMBI and the 8.65% country risk	
	premium is the most appropriate index and value to be	
	used since it is the common practice, well utilized and	
	snare a good reputation world-wide. Please see more de-	
	tails of Eivibi and a methodological description of the in-	
	dex at "introducing the J.P. Morgan EmergingMarkets	
	Bond Index Global (EMBI Global)" article in the enclosed	
	file.	

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Clarification Request No.7 Regarding the second answer in CAR 2 given by the PPs it is not really clear what has been done – on the one side it is said that the power surplus cannot really be predicted and varies significantly from year to year (so it would not make sense to use a fixed value) - on the other side a con- crete value for 2016 is given (how can this be estimated then). Even though the con- clusion deems to be traceable, the expla- nation should at least be made more logi- cal and understandable.	The electricity surplus to be exported to the grid by the project in the future was estimated based on the plant sugar cane processing capacity. By 2016, the plant is forecasted to process 3,600,000 tonnes of sugarcane. Electricity exportation calculated using this figure as a basis, represents the maximum electricity generation potential of the plant.	Explanation given by the PPs is now logical and understandable. CR was closed. ⊠
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Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

Clarifications and / or corrective action requests by validation team	ld. of CAR/CR	Explanation of Conclusion for Denial



Annex 2: Information Reference List

Final Report N° 600500413	05-05-2011	Validation of the "Usina Interlagos Cogeneration Project" Information Reference List	Page 1 of 9	SUD
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Referen	Document or Type of Information					
се						
No.						
1	On-site interview at "Usina Interlagos Cogeneration Project" by auditing team of TÜV SÜD					
	Validation team on-site:					
	Johann Thaler TÜV Industrie Service GmbH TÜV SÜD Group					
	Interviewed persons:					
	Date: 14.12.2006: Headquarters at Usina Santa Adelia					
	Norberto Bellodi, Executive Director, Usina Interlagos Ltda.					
	Jose Luis Godoy, Supervisor of Quality control, Usina Interlagos Ltda.					
	Jose Roberto Braido, Director of supplies, Usina Interlagos Ltda.					
	Idalina Spina, Coordinator of Quality control and Quality assurance, Usina Interlagos Ltda.					
	Plinio Sergio Wolpe, Accounting, Usina Interlagos Ltda.					
	Jose Braz Ernesto, Electrical Supervisor, Usina Interlagos Ltda.					
	Carlos Antonio Pita, Supervisor of steam generation, Usina Interlagos Ltda. Eduardo Cesar de Lima, Assistant of Quality System, Usina Interlagos Ltda.					
	Jenny Komatsu, Chemical Engineer, Ecoinvest Carbon Brasil Ltda.					
	Johann Thaler, Auditor, TÜV-Südbrazil					
	Date: 15.12.2006: Usina Interlagos					
	Marlo Paulo Mori, Industrial Manager, Usina Interlagos Ltda.					
	Sergio Lober Fenegalha, Electrical Supervisor, Usina Interlagos Ltda.					
	Jaime Daniel Valenca, Process Supervisor, Usina Interlagos Ltda.					
	Jenny Komatsu, Chemical Engineer, Ecoinvest Carbon Brasil Ltda.					
	Johann Thaler, Auditor, TÜV-Südbrazil					
	After 2 nd GSP:					
	Ricardo Esparta, Ecopart Assessoria em Negocios empresariais Ltda.					
	Elias Torres, Usina Itapagipe, telephone interview on 14/12/2010					
2	Project Design Document "Usina Interlagos Cogeneration Project, version 1", Ecoinvest Carbon Brasil Ltda., December, 2006.					

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Referen ce	Document or Type of Information
NO.	http://cdm.unfccc.int/Projects//alidation/DB/69//NGECGBSKW/WT3YCHE6.IOWEKP7BDK/view.html
3	Calculation of emissions grid factor. Excel-file, submitted on December 22, 2006
3	Calculations of generated electricity. Excel file, submitted on December 22, 2006.
4	Calculations of generated electricity, Excernie, submitted on December 22, 2000.
5	l echnical description of the project equipment, paper copy, submitted on December 14, 2006.
6	Registry about purchase of territory, paper copy, submitted on December 14, 2006.
7	Social contract of "Usina Interlagos Ltda.", paper copy, submitted on December 14, 2006.
8	ANEEL authorization for the cogeneration project Usina Interlagos, PDF-File, submitted on December 08, 2006.
9	Cash-Flow calculation sheet of the project (with and without CDM-credits), paper copy, submitted on December 14, 2006.
10	Contract about financing of the project, paper copy, submitted on December 14, 2006.
11	Map (including GPS dates) and address showing the location of the project site, paper copy, submitted on December 14, 2006.
12	Evolution of sugar cane quantities, paper copy, submitted on December 14, 2006.
13	Documents for determination of the quantity of generated electricity in total (subdivided in sold electricity and self-consumption), paper copy, submitted on December 14, 2006.
14	List of buyers of electricity produced at Interlagos Ltda., paper copy, submitted on December 14, 2006.
15	Plants' information about electricity (generated, sold, purchased, sugar-cane quantities)
16	Time schedule about the different steps of the project, paper copy, submitted on December 14, 2006.
17	Training documents (Information about realized and envisaged training and List of participants), paper copy, submitted on December 14, 2006.
18	Monitoring information (flow-charts about flow-meters and measurement procedures), paper copy, submitted on December 14, 2006.
19	Construction permit (Installation licence), dated 20/09/2006, JPEG-file, submitted on December 08, 2006
20	Invitations to stakeholders, pdf-files, submitted on December 04, 2006.
21	ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 6, May 19 th ,

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Referen ce No.	Document or Type of Information
	2006
22	ACM0002 "Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources" (Version 6, May 19 th , 2006).
23	ACM0006 "Consolidated baseline methodology for grid-connected electricity generation from biomass residues", version 4.
24	ACM0006 "Consolidated monitoring methodology for grid-connected electricity generation from biomass residues", version 4.
25	IPCC: Revised Guidelines (2006) for National Greenhouse Gas Inventories
26	IPCC: 2000, Good Practice Guidance
27	UNFCCC, CDM: Tool for the demonstration and assessment of additionality. UNFCCC, November 2005.
28	Validation and Verification Manual, IETA/World Bank (PCF), http://www.vvmanual.info
29	Electricity sales contract between Electra Comercializadora de Energia S.A.and Usina Interlagos Ltda., pdf-file, submitted on April 27, 2007.
30	BNDES contract "Operação Indireta – Consórcio Itaú", 04.09.2006, pdf-file submitted on May 07, 2007.
31	BNDES direct financing draft contract, pdf-file, submitted on May 17, 2007.
32	PROINFA, Economic Values (MME-Consulta publica Proinfa-valores economicos), pdf-file, informing amongst others about O&M costs, R\$ 64/MW (without considering inflation), investment costs of R\$ 1,794 per kW.
33	IETA, Greenhouse gas market 2006, from November 2006, pdf-file, submitted on May 22, 2007.
34	Project Design Document "Usina Interlagos Cogeneration Project, version 14, August 24, 2007", Ecoinvest Carbon Brasil Ltda., word-file, submitted on May 26, 2007.
35	Cash-flow (IRR) calculation, FCF_Termoeletrica_Interlagos(CER) 2007.05.28, excel-file, sbumitted on May 28, 2007
36	CERs excel-sheet – CERs 2007 05 28, submitted on May 28, 2007.
37	Assembly Act (Ata da assembleia geral extraordinaria realizada em 06 de Janeiro de 2007) from January 05, 2007, pdf-file, submitted on August 24, 2007.

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Referen ce No.	Document or Type of Information
38	Project Design Document (REPEAT) "Usina Interlagos Cogeneration Project, version 15", Ecoinvest Carbon Brasil Ltda., dated 31/10/2007, submitted in November 2007.
	nttp://com.unfccc.int/Projects/validation/DB/QJD41B9VON0L0FZP7JLL1SZVVXXZ1P6/view.ntml
39	Approved consolidated baseline and monitoring methodology ACM0006, "Consolidated methodology electricity generation from biomass residues", version 10.1.
40	ACM0002 – "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 12.1.
41	CTC (Centro de Tecnologia Canavieira, "sugarcane technology centre"), Report about analysis of electrical efficiency of co-generation plants in Brazil, dated 12/03/2010.
42	Declaration USINA SANTA ADELIA S/A, confirming that -biomass residues are not stored for more than 12 months, -no significant energy quantity is utilized for the preparation of bagasse, dated 14/10/2010
43	Email from boiler manufacturer DEDINI stating that low pressure boilers (21 kgf/cm ²) have usually lower thermal efficiency that high pressure boilers, dated 20/08/2008.
44	Tool for demonstration and assessment of additionality, version 05.2
45	Combined Tool to identify the baseline scenario and demonstrate additionality, version 02.2.
46	Guidance on the assessment of investment analysis, version 03.1., EB51, Annex 58
47	Tool to calculate the emissions factor for an electricity system, version 02
48	 -Environmental licenses: 1) Temporary operational licenses, N° 13000307, dated 20/04/2007 for the production of alcohol and N° 13000308, dated 20/04/2007 for the expansion of electricity generation from 15 MW to 40 MW; 2) Operational licenses, N° 13001541, dated 06/05/2008, valid until 06/05/2010 for the production of alcohol and N° 13001542, dated 06/05/2008, valid until 06/05/2010 for the production of alcohol and N° 13001542, dated 06/05/2008, valid until 06/05/2010 for the expansion of electricity generation from 15 MW to 40 MW. -Solicitation for renewal of environmental operational license, process N° 13/00041/10, CETESB, dated February 2010.
49	Request for Deviation M-DEV0285 entitled "Deviation request to allow the use of the Tool for the demonstration and assessment of additionality" to assess the additionality of a project activity, under methodology ACM0006, accepted by UNFCCC on March 15, 2010. http://cdm.unfccc.int/Projects/deviations/39184

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Referen ce No.	Document or Type of Information
50	ANEEL authorization N° 1112, dated 12/04/2007 to start testing operations on 13/04/2007
51	ANEEL authorization N° 1694, dated 30/05/2007 to start full operation on 31/05/2007
52	Civil Construction work contract between Interlagos and Yoshii Engenharia e Construcao Ltda., dated 22/09/2005.
53	CDM consultancy contract between Usina Interlagos LTDA and ECOINVEST Carbon Assessoria Ltda.
54	Evidence for CDM consideration: Board meeting report ("Ata da reuniao do conselho de administracao"), dated 29/04/2005.
55	CDM consulting contract between USINA INTERLAGOS (today USINA SANTA ADELIA S/A) and ECOINVEST CARBON ASSESSORIA LTDA (today ECOPART ASSESSORIA EM NEGOCIOS EMPRESARIAIS LTDA.), dated 07/06/2006.
56	Excel spreadsheet about O&M costs
57	Revised (final) IRR (cash flow) excel spreadsheet including sensitivity analysis, submitted in May 2011 and
	IRR excel spreadsheet showing the variation in % of each main input parameter at which IRR crosses the benchmark, submitted in May 2011.
58	Invoice about the purchase of the control panel and supervisory system, purchase request 29/08/2005, delivery date until 27/11/2005, N° 000195, 1 st significant payment: 30/08/2005.
59	Invoice about the purchase of the TGM Turbine, purchase request 07/11/2005, delivery date until 25/09/2006, N° 000348, 1 st significant payment: 25/09/2005.
60	Invoice about the purchase of CALDEMA boiler (AMD-73-7GI, 67.3 kgf/cm2), purchase request 13/09/2005, delivery date until 30/01/2007, 1 st significant payment: 10/08/2005.
61	Evidence for project's starting date: Invoice about the purchase of generator 50kVA (40 MW), purchase request 29/08/2005, delivery date until 30/01/2007, 1 st significant payment: 30/08/2005.
62	PIN issuance from Ecoinvest, which was the company that at that time was working with another CDM project developed by Santa Adélia (Registration Ref. Number 0200), prepared a Project Idea Note of Interlagos' Project, dated September 2005.
63	Technical specifications generator (including efficiency), WEG, dated 08/12/2006.
64	FIESP/CIESP study (Ampliacao da oferta de energia atraves da biomassa) stating amongst others the bagasse content of sugar cane,

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Referen ce No.	Document or Type of Information				
	dated September 2001.				
65	CER calculation spreadsheet "Interlagos CERS 2010.12.15".				
66	Electricity sales contract between CEMIG DISTRIBUICAO S.A. and Usina Interlagos Ltda., dated 28-08-2006.informing amongst others about a tariff of R\$ 125.				
67	IPCC 1996 guidelines, chapter 1.4.3., Table 1-13, informing about bagasse NCV (wet): 8.2 MJ/kg and (air-dry): 16.2 MJ/kg and moisture content (wet): 50% and (air-dry): 13%.				
68	Validation proposal from TÜV SÜD, Email dated 18/10/2006.				
69	Excel spreadsheet "Seabra_Efficiency of Reference Plant", calculating electrical efficiency of 2.02%.				
70	Sugar mills ranking 2006/2007 compared to 2004/2005, excel spreadsheet, based on the following links: http://www.aneel.gov.br/aplicacoes/capacidadebrasil/CombustivelListaUsinas.asp?classe=Biomassa&combustivel=13&fase=3				
	http://www.unica.com.br/dadosCotacao/estatistica/				
	consulted in December 2010.				
71	WACC sugar mills (excel spreadsheet), version 01 and final WACC spreadsheet "WACC 2005 BR power-2011.04.19".				
72	Seabra, J. E. A. (2008) "Technical-economic evaluation of options for whole use of sugar cane biomass in Brazil," UNICAMP, Brazil (available at http://libdigi.unicamp.br/document/?code=vtls000446190 , accessed in December 2010), calculating electrical efficiency of reference plants.				
73	Performance Report, Sugarcane Technology Center CTC, see http://www.ctcanavieira.com.br, accessed in December 2010.				
74	Technical specifications, TGM turbine, 2005.				
75	Excel spreadsheet "Reference Plants_Efficiency_2010 01.20", indicating the calculation of electrical efficiencies of plants Itapagipe and Limeira do Oeste (confidential)				
76	Registered CDM project CDM 2211, http://cdm.unfccc.int/UserManagement/FileStorage/6FPBY3GAV2XR4J8CZ9QL0ETNKUI7HM				
77	Excel spreadsheet "Memorial de cálculos-2010.10.28", containing data of harvest seasons 2008 and 2009 and confirming figures indicated				

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се					
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	in the CER calculation spreadsheet, worksheet "Energy calculation".				
78	ANEEL degree 219, dated 03/08/2006, authorizing Usina Interlagos Ltda. Independent electricity producer.				
79	ANEEL resolution, N° 1.119, dated 27/11/2007, transfer the right from degree 219 from Usina Interlagos Ltda. to Usina Santa Adelia S.A.				
80	CCEE auction prices 2005, www.ccee.org.br, accessed in November 2010.				
81	Project approval of the Brazilian DNA however with the condition still to update to the most recent available methodology, dated letter 30/05/2008.				
82	Submission of Request for Clarification (AM_CLA_0120) regarding the applicability of the "Combined Tool to identify the baseline scenario and demonstrate additionality". Sent to MethPanel on 28-08-2008 and response received from MethPanel on 07-11-2008				
	http://cdm.unfccc.int/methodologies/PAmethodologies/clarifications/99143				
83	Central Bank of Brazil (http://www.bcb.gov.br): Historical SELIC rate, available at:				
	http://www.bcb.gov.br/?COPOMJUROS				
84	Data sources for applied taxes and depreciation:				
	Cofins - Law 10.833 <u>http://www.receita.fazenda.gov.br/PessoaJuridica/PisPasepCofins/RegIncidencia.htm</u>				
	PIS - Law 10.637 <u>http://www.receita.fazenda.gov.br/PessoaJuridica/PisPasepCofins/RegIncidencia.htm</u>				
	CSLL - Law 7.689 <u>http://www.receita.fazenda.gov.br/Aliquotas/ContribCsll/Aliquotas.htm</u>				
	Income Tax - Law 9.430 <u>http://www.receita.fazenda.gov.br/Aliquotas/ContribPj.htm</u>				
	Secretariat of the Federal Revenue				
	regulation 162/1998 (Depreciation) <u>http://www.receita.fazenda.gov.br/legislacao/ins/ant2001/1998/in16298.htm</u>				
85	ANEEL resolution N°044/99 defining depreciation rates for different equipments.				
86	Brazilian DNA Resolution N° 7, dated 05/03/2008.				
87	STATE GOVERNMENT OF SAO PAULO, Ethanol Summit Report 2009, dated 03/06/2009,				
	http://www.ethanolsummit.com.br/upload/palestrante/2009061505303664028410781.pdf				
88	National registry of legal entity "Usina Interlagos Limitada", inscription N° 06.226.127/0001-00, Ministry of Finance.				

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89	Installation License (13001173, dated 13/07/2005) including project description memorial (from the Portuguese: "Memorial de Descrição do Empreendimento, MCE"
90	Spencer Electric Oven Method for determining the humidity content of sugarcane bagasse, dated 14/04/2010, revision 04.
91	ANEEL, Data base about generation, <u>http://www.aneel.gov.br/aplicacoes/capacidadebrasil/OperacaoGeracaoTipo.asp?tipo=5&ger=Combustivel&principal=Biomassa</u> , access on 25/01/2011.
92	Growth Acceleration Program (from the Portuguese: <i>Programa de Aceleraçao do Crescimento</i>), see <u>http://www.brasil.gov.br/pac</u> and a list of power plants included in the program in the report available at <u>http://www.brasil.gov.br/pac/pac-2/pac-2-relatorio-5</u>
93	ANEEL, Resolution 445, dated 03/04/2007.
94	Email from sales manager (DEDINI), dated 03/02/2011 stating that high efficiency boiler (65kgf/cm2) are by 25% more expensive than lower efficiency boiler (21kgf/cm2).
95	Master thesis in planning of energy systems: Estimation of atmospheric emissions and water use in the production of electricity with sugar cane biomass ("Estimativa das emissoes de poluentes atmosfericos e uso de agua na producao de eletricidade com biomassa de cana- de-acucar"), Rodrigo Marcelo Leme, dated 25/02/2005.
96	FIESP/CIESP, Expansion of energy supply with biomass ("Ampliacao da oferta de energia atraves da biomassa"), dated September 2001.
97	Email from Usina Coruripe-Limeira do Oeste confirming the plant configuration as communicated earlier by the Project consultant, dated 14/04/2011.
98	KPMG's Corporate and Indirect Tax Rate Survey, 2010 (including historical tax rate values)
99	BNDES Annual Report 2005. Main approved operations - electricity generation (from the Portuguese: Principais operações aprovadas - segmento de geração).
100	Civil plant differentiating the implementation phases, dated 18/05/2005, Design N° 04.20.PRJ.001 18.DES.00.00.270
101	Centro Nacional de Referência em Biomassa (2001) – CENBIO, Real potential of cogeneration in the sugar cane sector, "Levantamento do Potencial Real de Cogeração de Excedentes no Setor Sucroalcooleiro", dated September 2001.
102	Excel spreadsheet "Boiler sugarcane consumption calculation".
103	Excel spreadsheet "Interest payable-2011.04.05".

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Referen	Document or Type of Information
ce No.	
104	Final Project Design Document, dated 05-05-2011, version 21.
105	Grid emission factor data of 2006, published by the Brazilian DNA, http://www.mct.gov.br/index.php/content/view/317397.html#ancora
106	Internal document mentioning the estimated sugarcane consumption from 2007 to 2017, dated 17/05/2005, N° 04_20_PRJ001, 99_ATA_05_05_16
107	Different invoices for water treatment, substation, automation and others. different dates.
108	Web-pages used for benchmark assessment:
	TJLP (Long term Interest Rate):
	http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Apoio_Financeiro/Custos_Financeiros/Taxa_de_Juros_de_Longo_Praz
	o_TJLP/index.html
	BNDES remuneration and Credit Risk Rate:
	http://inter.bndes.gov.br/english/finem.asp
	Brazilian inflation targeting:
	http://www.bcb.gov.br/pec/metas/InflationTargetingTable.pdf
	Risk free rate, equity risk premium, Beta of power sector companies from USA:
	http://pages.stern.nyu.edu/~adamodar/
	US expected inflation:
	http://www.federalreserve.gov/econresdata/researchdata.htm
	Country Risk Premium:
	http://www.cbonds.info/all/eng/index/index_detail/group_id/1/
	www.ipeadata.gov.br
	http://www.latin-focus.com/latinfocus/countries/brazil/braembisprd.htm
109	Introducing the J.P. Morgan Emerging Markets Bond Index Global (EMBI Global), dated August 1999.



Annex 3: Appointment Certificates



CERTIFICATE OF APPOINTMENT

<u>Mr Tausche, Konrad</u>, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to						
Standard	CDM	JI	GS	VCS	VER	Other
Date	30.03.11					

Qualification as								
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert		
Date		30.03.11	30.03.11	30.03.11	30.03.11			

	(Other quali	ification		
		Country Ex	kpertise		
Region	1	2	3	4	5
Date	30.03.11				
	F	inancial E	xpertise		
Date	30.03.11				

Qualification in technical ar	eas
Technical Area	Date
1 1 4 10 Thermal energy generation	30.03.11
5 1 4 9 11 1 12 1 Chemical process industries	30.03.11
13.1 Waste handling and disposal	30.03.11

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

In case of loss of validity of this certificate as per result of an assessment according internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference No. CMS-Z-0035/00.

Date	Signature
30.03.11	Vitcody
CERTIFICATE OF APPOINTMENT



<u>Mr Thaler, Johann</u>, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to								
Standard	CDM	JI	GS	VCS	VER	Other		
Date	30.03.11							

Qualification as									
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert			
Date		30.03.11	30.03.11						

Other qualification Country Expertise								
Date	30.03.11	30.03.11						
		Financial Exp	oertise					
Date	30.03.11							

Qualification in technical areas						
Technical Area Date						
15.1_Agriculture	30.03.11					

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

In case of loss of validity of this certificate as per result of an assessment according internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference No. CMS-Z-0032/00.

Date	Signature
30.03.11	Thank Reive

CERTIFICATE OF APPOINTMENT



<u>Ms Pingarova, Nevena</u>, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to							
Standard	CDM	JI	GS	VCS	VER	Other	
Date	27.04.11						

Qualification as									
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert			
Date									

		Other qual	ification		
		Country E	xpertise		
Region	1	2	3	4	5
Date					
		Financial E	xpertise		
Date	27.04.11				

Qualification in technical areas					
Technical Area	Date				

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

In case of loss of validity of this certificate as per result of an assessment according internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference No. CMS-Z-0047/00.

Date	Signature
27.04.11	Thanas Klerica



CERTIFICATE OF APPOINTMENT

<u>Mr Kleiser, Thomas</u>, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to							
Standard	CDM	JI	GS	VCS	VER	Other	
Date	25.03.11						

Qualification as									
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert			
Date		25.03.11	25.03.11	25.03.11	25.03.11				

Other qualification Country Expertise						
Date	25.03.11					
	F	inancial E	xpertise			
Date	25.03.11					

Qualification in technical areas			
Date			
25.03.11			
25.03.11			
25.03.11			

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

In case of loss of validity of this certificate as per result of an assessment according internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference No. CMS-Z-0027/00.

Date	Signature
25.03.11	Cin Bhy