Validation Report

Bioenergia Cogeradora S.A

Validation of the Project Bioenergia Cogeradora

Report No. 609937, Revision 0

2005, October 31

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

Report No.	Date of first issue	Revision No.	Date of this revision	Certificate No.
609937	2005, October 31	0	2005, October 31	-

Subject:	Validation of a CDM Project
Executing Operational Unit:	TÜV Industrie Service GmbH TÜV SÜD Group Carbon Management Service Westendstr. 199 - 80686 Munich Federal Republic of Germany
Client:	Bioenergia Cogeradora S.A Fazenda Santo Antonio, s/n, 536 Sertãozinho 14.174-000, São Paulo Brazil
Contract approved by:	Werner Betzenbichler
Report Title:	Validation of the Project Bioenergia Cogeradora
Number of pages	19 (excluding cover page and annexes)

Summary:

The Certification Body ”Climate and Energy” has been ordered by Bioenergia Cogeradora S.A to validate the above mentioned project.

The validation of this project has been performed by document reviews, interviews by e-mail and on-site inspection, audits at the locations of the projects and interviews at the involved ministry. The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM.

Hence, we will request the registration of Bioenergia Cogeradora Project, Brazil as CDM project activity. Prior to the submission of this validation report to the CDM Executive Board, TÜV SÜD will have to receive the written approval of the DNA of Brazil, including confirmation that the project assists in achieving sustainable development.

The need for corrective action request (CAR) and clarification requests (CR) is described in the report and in the attached validation protocol.

Additionally the assessment team reviewed the estimation of the projected emission reductions, which amount up to 151,655 CO_{2e} over a crediting period of seven years, resulting in a calculated annual average of 21,655 tonnes CO_{2e} that represents a reasonable estimation using the assumptions given by the project documents.

Work carried out by:	Markus Knödlseder (Project manager, GHG auditor) Wilson Tomao (GHG auditor)	Internal Quality Control by: Michael Rumberg

Abbreviations

AE	Applicant Operational Entity
Bioenergia S.A.	Bioenergia Cogeradora S.A
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CR	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organisation
PDD	Project Design Document
TÜV SÜD	TÜV Industrie Service GmbH TÜV SÜD Group
UNFCCC	United Nations Framework Convention on Climate Change
USA	UTE Usina Santo Antonio
USFR	UTE Usina São Francisco
VVM	Validation and Verification Manual

Table of Contents Page

1 INTRODUCTION

1.1 Objective

Bioenergia Cogeradora S.A has commissioned TÜV Industrie Service GmbH TÜV SÜD Group (TÜV SÜD) to validate the Bioenergia Cogeradora project. The validation serves as design verification and is a requirement of all CDM projects. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities as agreed in the Bonn Agreement and the Marrakech Accords.

1.2 Scope

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

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

The audit team has been provided with a draft PDD in April 2005. Based on this documentation a document review and a fact finding mission in form of an on-site audit has taken place. That version was published in the global stakeholder process. After on-site validation and due to availability of more current data for grid calculations, the project developer submitted a final PDD version at the end of October 2005. That final version serves as a basis for the conclusive assessment being documented in this report. The changes after the global stakeholder process are not considered to be significant with respect to the qualification of the project as a CDM project based on the one main objectives of the CDM to achieve a reduction of anthropogenic GHG emissions by sources. Hence no repetition of the public stakeholder process has taken place.

Studying the existing documentation belonging to this project, it was obvious that the competence and capability of the validation team has to cover at least the following aspects:

- Knowledge of Kyoto Protocol and the Marrakech Accords
- Environmental and Social Impact Assessment
- Skills in environmental auditing (ISO 14000, EMAS)
- Quality assurance
- Technical aspects of cogeneration and grid operation
- Monitoring concepts

- Political, economical and technical random conditions in host country

According to these requirements TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV certification body “climate and energy”:

Markus Knödlseder: After his professional training as chemical assistance Mr. Knödlseder studied environmental engineer at the University of Applied Science in Bingen, Germany. Beside his main focus in studies of environmental technologies, he dealt with environmental management and environmental controlling issues. He has been a staff at the department “Carbon Management Service” located in the head office of TÜV Industrie Service GmbH, TÜV SÜD Group in Munich since Oct. 2001. He has been involved in the topic of environmental auditing, baselining, monitoring and verification due to the requirements of the Kyoto Protocol with special focus on renewable energies. Mr. Knödlseder is also an auditor for environmental management systems (ISO 14.000).
He interviewed the national Brazilian dispatcher Operacão Nacioanl do Sistema (ONS) about

Mr. Wilson Tomao is lead auditor and former manager of TÜV Bayern Brazil. He is familiar with local laws and regulations and the assessment of technical installations. He assisted Mr. Betzenbichler during the on-site inspections and by evaluating documents submitting in Portuguese language. Meanwhile he can refer to the participation in the validation process of more than 15 CDM-projects in Brazil.

The audit team covers the above mentioned requirements as follows:

- Knowledge of Kyoto Protocol and the Marrakech Accords (Knödlseder)
- Environmental and Social Impact Assessment (Knödlseder/Tomao)
- Skills in environmental auditing (Knödlseder/Tomao)
- Quality assurance (Knödlseder/Tomao)
- Technical aspects of cogeneration and grid operation (Knödlseder/Tomao)
- Monitoring concepts (Knödlseder/Tomao)
- Political, economical and technical random conditions in host country (Tomao)

In order to have an internal quality control of the project, a team of the following persons has been composed by the certification body “climate and energy”:

- Michael Rumberg (deputy of certification body “climate and energy”)

1.3 GHG Project Description

"Bioenergia Cogeradora S.A" is a special purpose company set up to use residues from sugarcane milling in the city of Sertãozinho to generate electricity in a power plant using a high pressure boiler (63 bar) coupled with a new 24 MW generator. For the expected electric energy output (around 78,000 from 2002 on, assuming 90% capacity factor) there is a Power Purchase Agreement signed with the local power utility (CPFL, Companhia Paulista de Força e Luz).

A more efficient cogeneration of this renewable fuel allows Bioenergia to sell a surplus of electricity to the grid and creates a competitive advantage. The electricity sold to the grid diversifies income to the mill and it helps meet Brazil's rising demand for energy due to economic growth and to improve the supply of electricity, while contributing to the environmental, social and economic sustainability by increasing renewable energy's share of the total Brazilian (and the Latin America and the Caribbean region's) electricity consumption.

São Francisco Mill operates with a configuration using two high-pressure boilers and a multiple stage backpressure turbine coupled with two 6MW generators. Santo Antônio Mill operates with a configuration using 3 high-pressure boilers and a multiple stage backpressure turbine coupled with a new 24MW generator. The two mills produce together a 19.3MW power surplus, operating at full capacity during the season (May to November). The local power utility (CPFL, "Companhia Paulista de Força e Luz") has signed a Power Purchase Agreement (valid until 2013) with Bioenergia Cogeradora.

The Bioenergia Project (Figure 5) uses the following equipments in each mill:

- UTE Usina Santo Antonio (USA): 3 high-pressure boilers (254 tonnes of steam per hour capacity) coupled with a 24 MW turbo-generator.
- UTE Usina São Francisco (USFR): 2 high-pressure boilers (154 tonnes of steam per hour capacity) coupled with two 6MW turbo-generators.
- Sub-station: 13.8 – 138kV
- Transmission Line: 138kV
- Chiller: 300 m³/h

The project started at:

- UTE Usina Santo Antonio in 21/06/2002
- UTE Usina São Francisco in 18/08/2002

The 7 year possibly renewable crediting period starts 21/06/2002.

Project participant is Bioenergia Cogeradora S.A, Brazil.

2 METHODOLOGY

The project assessment aims at being a risk based approach and is based on the methodology developed in the Validation and Verification Manual (for further information see www.vvmanual.info), an initiative of all Applicant Entities, which aims to harmonize the approach and quality of all such assessments.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

The validation protocol consists of three tables. The different columns in these tables are described in Figure 1.

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

Validation Protocol Table 1: Mandatory Requirements			
Requirement	Reference	Conclusion	Cross reference
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Validation report.	Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.

Validation Protocol Table 2: Requirement checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in seven different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	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.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification is used when the validation team has identified a need for further clarification.

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Draft report clarifications and corrective action requests	Ref. to checklist question in table 2	Summary of project owner response	Validation conclusion
If the conclusions from the draft Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Table 2 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the validation team should be summarised in this section.	This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".

Figure 1 Validation Protocol Tables

2.1 Review of Documents

The project design document submitted by the Client and additional background documents related to the project design and baseline were reviewed. A complete list of all documents reviewed is attached as annex 2 to this report.

2.2 Follow-up Interviews

On May 23, 2005, TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the first document review. Representatives of Bioenergie Cogeradora S.A. in respective Usina Santo Antonio and UTE Usina São Francisco as well as representatives of the project developer Ecoinvest were interviewed.

In order to understand the Brazilian grid better representatives of the national dispatcher (Operacão Nacional do Sistema) were interviewed, too.

Table 1 Interview topics

Interviewed organisation	**Interview topics**
Bioenergia S.A:	▪ Project design ▪ Technical equipment ▪ Sustainable development issues ▪ Additionality ▪ Crediting period ▪ Monitoring plan ▪ Management system ▪ Environmental impacts ▪ Stakeholder process ▪ Approval by the host country
Ecoinvest	▪ Project design ▪ Technical equipment

	▪ Sustainable development issues ▪ Baseline determination ▪ Additionality ▪ Crediting period ▪ Monitoring plan ▪ Environmental impacts ▪ Stakeholder process
Operacão Nacional do Sistema (ONS)	▪ Operation of Brazilian grid ▪ Objectives and responsibility of ONS ▪ Availability of data and their reliability

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which needed to be clarified for TÜV SÜD`s positive conclusion on the project design. The Corrective Action Requests and Clarification Requests raised by TÜV SÜD were 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 summarised in chapter 3 below and documented in more detail in the validation protocol in annex 1.

3 VALIDATION FINDINGS

In the following sections the findings of the validation are stated. The validation findings for each validation subject are presented as follows:

1) The findings from the desk review of the final project design document and the findings from interviews during the follow up visit are summarised. A more detailed record of these findings can be found in the Validation Protocol in annex 1.
2) Where TÜV SÜD had identified issues that needed clarification or that represented a risk to the fulfilment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in annex 1. The validation of the project resulted in 7 Corrective Action Request and 12 Clarification Requests.
3) Where Clarification or Corrective Action Requests have been issued, the exchanges between the Client and TÜV SÜD to resolve these Clarification or Corrective Action Requests are summarised.
4) The final conclusions for validation subject are presented.

The validation findings relate to the project design as documented and described in the final project design documentation.

3.1 Project Design

3.1.1 Discussion

As mentioned above the purpose of the project is to avoid CO_2 emissions from fossil power plants by increasing the efficiency of the existing renewable energy generation. The surplus of electricity being generated by an installed CHP plant is fed into the grid. The whole energy generation is based on renewable biomass, here bagasse from the sugar cane process. Hence, the project contributes to the sustainable development in Brazil, reducing GHG emissions, substituting electricity generated by grid plants through electricity generated from biomass (renewable energy). The project also contributes to the sustainable development by generating new jobs.

The design engineering does reflect current good practices. The design has been professionally developed. Subsequently the project got approval by the relevant authorities. The project itself does apply state of the art equipment. Regarding the employed technology, there is no requirement to change the existing technology as a result of running out of life-time of the existing technical equipment. There are no significant indications that the technology used to implement the project could be substituted during the envisaged operational lifetime of the project activity and in particular in the first crediting period. The first crediting period is 21/06/2002 – 20/06/2009, with the intention for renewal.

The project is in line with relevant legislation of the Brazil. According to the publicly available document renewable energy projects belong to the favoured options under the CDM. Hence, the project can currently be seen as being in line with the host country specific requirements for CDM.

The funding for the project does not lead to a diversion of official development assistance as according to the information obtained by the audit team ODA does not contribute to the financing of the project.

The starting date as well as the operational lifetime are clearly defined and also handled in a reasonable manner. The first crediting period is with 7 years clearly defined.

Moreover its is assured that as the start of the crediting period is before the registration of the project that the project activities starting date falls in the period between 1 January 2000 and the registration of the first clean development mechanism project.

3.1.2 Findings

Outstanding issue:

The project has not obtained a Letter of Approval/ Letter of Authorization from the Brazilian government so far. No documentation has been submitted to the validation team. The issuance of these documents will also demonstrate whether the project is in line with sustainable development policies of the host country

Response:

The response will be given by the issuance of the Letter of Approval. This has not happened so far as the approval of the project depends on the review of the validation report which has to be submitted in advance.

Clarification Request No. 1:

The concrete address of both involved sugar mills and of the power plant of Bioenergia Cogeradora S.A. shall be stated to the validation team.

Response:

There are two sugar mills and two power plants. Usina Santo Antonio (USA) sugar mill and power plant are located at Fazenda Santo Antônio s/nº, CEP 14177-970, Sertãozinho, SP and Usina São Francisco (UFRA) sugar mill and power plant are located at Fazenda São Francisco s/nº, CEP 14174-000, mail box 537, Sertãozinho, SP.

Clarification Request No. 2:

According to submitted PDD Bioenergia Cogeradora S.A. and CPFL signed a PPA which is valid until 31/12/2005. How is it guaranteed that envisaged emission reductions can be generated as stated in the PDD until the end of the first crediting period?

Response:

The current PPA is valid until 31/Dec./2012 since the local power utility (CPFL, "*Companhia Paulista de Força e Luz*") has signed a 10 year Power Purchase Agreement (PPA) with Bioenergia Cogeradora S.A. in 2002. Nevertheless Bioenergia Cogeradora S.A. has the objective to sign another PPA with CPFL post 2012. Bioenergia Cogeradora fosters electricity sale to the grid and reduces GHG emission since the project activity was developed with an expected operational lifetime of 20 years. The main project's objectives are to generate electricity from renewable sources and to reduce GHGs emissions. If the project activity does not generate renewable electricity it will be verified during the monitoring and verification and no emission reductions will be certified, not to mention that the project will result economically unfeasible.

Clarification Request No. 3:

The Balbo Group expanded its production of sugar cane, in order to produce more sugar and alcohol in 2001/2002. The project participants shall clearify if ther was an additional expansion since the project has been implemented.

If yes, reliable evidences shall be submitted to the validation team that such an increase of acreage of sugarcane, sugarcane production and bagasse production respectively was not done due to the projects implementation.

Response:

There have not been any expansions in production capacity since the project has been implemented. The fluctuation of the amount of sugarcane produced and, consequently the bagasse is due to climate, crop and market conditions that could vary from year to year.

Clarification Request No. 4:

Information regarding old energy systems of each sugar mill is necessary. Additional information about the change shall be submitted to the validation team.
That information shall content old boilers and turbines and their capacity and efficiency, efficiency and age of new components energy process schematic from each sugar mill, what old components are reconstructed, out of work or still in operation.

The PDD describes the old technical situation not sufficiently. According to the PDD it is unclear, if the all old boilers a/o turbines were able to run further. The PDD does not mention if the sugarcane mills had purchased electricity in the past before project started.

Response:

In 2002, USA bought a 62 kgf/cm^2 new boiler, and kept two and shut down one 21 kgf/cm^2 boilers. UFRA kept its two 21 kg/cm^2 boilers. In 2002, USA bought a new turbo generator, transferred one to UFRA and shut down one. UFRA kept its one and started using the one transferred from USA. In revised PDD information about previous and current USA situation and previous and current UFRA situation is stated. Old components were shut down however they can still work. They were left to work as back ups.

Corrective Action Request No. 5:

ONS (Operacão Nacional do Sistema) has demonstated that the chosen grid is not fully under the controlled by ONS. This fact needs to be reflected in the PDD.

Response:

The revised PDD reflects the special frame conditions.

3.1.3 Conclusion

The responses are sufficient. The project does comply with the requirements.

3.2 Baseline

3.2.1 Discussion

By dispatching renewable electricity to a grid, electricity that would otherwise be produced using fossil fuel is displaced. According to the applied and approved methodology AM0015 the project activity follows the steps provided by the methodology taking into account the (b) Simple Adjusted OM calculation for the STEP 1, since there would be no available data for applying to the preferred option – *(c) Dispatch Data Analysis OM.* For STEP 2, the option 1 was chosen.

The physical boundary is the Brazilian grid South-Southeast-Midwest, controlled by ONS.

The applied Additionality Tool confirms that the project is additional. The economic unattractiveness of enhancing the already existing cogeneration process indicates the additionality of this project, because the improved operation of the energy processes is not considered as necessary for the operation of Bioenergia S.A:.

The project baseline is clearly, retractably and plausibly displayed in the project BLS.

3.2.2 Findings

Corrective Action Request No. 1:

Chapter B.1.1. of submitted PDD is referring to a table 2. The reference shall demonstrate the discontinuous relation of volume sugar cane to generated bagasse. Table 2 gives different information, referenced information is not available. Information shall be delivered. CR 3 should be considered.

Response:

The reference is corrected in the revised PDD.

Clarification request No. 5:

The baseline should be determined using conservative assumptions. It should be explained, where conservative assumptions are used by determining the baseline.

Response:

The baseline is determined according the approved methodology using default figures from literature for providing input data on plant capacities.

Clarification Request No. 6:

As the project was started in June 2002 step 0 of the tool has to be fulfilled: The fact that involved sugar mills are only associates and members of leading associations, which treat the issue of CDM in the sugarcane industry, is not sufficient. Project related evidences have to be submitted that proves that CDM was seriously considered in the decision for the concrete project.

Response:

Evidence showing that Bioenergia seriously considered CDM prior to the decision to carry out the project activity is described below.

There were personnel communications between Ecoinvest and Bioenergia since 2000 regarding the potential to develop the project as CDM project. The project developer submitted the correspondence ("*Obtenção de energia a partir do bagaço de cana-de-açúcar (306 KB).msg*") showing the communication two years before the starting date of the project activity.

Clarification Request No. 7:

Step 3a discusses the investment barrier. The project owner should provide a investment analysis a/o evidence how much the project cost, how much the PPA effects the IRR and the banks decision to give the credit; how much the CERs effects the IRR and the banks decision to give any credit.

Response:

Ecoinvest submitted the calculation of project financing.

Clarification Request No. 8:

Step 4 discusses the common practise in Brazil. The PDD states that costs of cogeneration electricity range from 35 to 50 $/kWh. These figures shall be referred to a source and the electricity generation costs of the project shall be submitted in detail in order to compare it with stated 33 $/kWh.

Response:

The figures related to marginal cost for electricity expansion of US$ 33/MWh and the cost of cogeneration electricity from US$ 35 to US$ 50 were obtained by MME – Ministério de Minas e Energia (Ministry of Mines and Energy) and it is available in the website www.mme.gov.br “Valor Econômico da Tecnologia Específica da Fonte – VETEF”.

The electricity generation costs of the project can be reviewed in the investment analysis attached. The electricity generation cost vary between 31$/MWh (USD 3 to 1 Real) to 39.6$/MWh (USD 2.35 to 1 Real).

3.2.3 Conclusion

The baseline defines factors according to the applied methodology. The used emission factors can be regarded being derived transparently using default values. Nonetheless it will be necessary during verification to discuss the availability of more accurate figures for modern plants which will show higher efficiencies. Hence accurate figure for modern plants will be considered to be more conservative.

The communication between Econergy and Bioenergia indicates the strong interest of Bioenergia in CDM. The validation considered that evidence as sufficient and considered it as solved.

The calculation is correct. The project IRR without CER is about 18,4 % and with CER 21%. The demonstration of additionality in the PDD was assessed by the validation team. Investment barrier is part of demonstrating additionality. Taking into consideration the investment climate in Brazil, CDM is an important incentive for the decision to implement the project. The issue is considered as solved.

The responses are sufficient. The project does comply with the requirements.

3.3 Monitoring Plan

3.3.1 Discussion

The monitoring plan is appropriate, traceable and transparent. The generated electricity that is fed into the grid in order to estimate emissions within the project boundary can be measured simply and with an appropriate accuracy. According to the interview with ONS needed data for calculating the combined margin will be made available to the project developer.

As the project is already in operation it can be confirmed that monthly and annual reporting of the collected data at the several monitoring points is working, the responsibilities for registration, monitoring, measurement and reporting are established.

Uncertainties are addressed and discussed plausible in the project documents according to applied methodology.

3.3.2 Findings

Clarification Request No. 9:

The concrete dates in dd/mm/yyyy of project start and crediting period have to be stated. Additional information shall be given why the date of project start in chapter B.3. is stated as “June 2002” and in chapter C.1.1. as May 2002.

Response:

Bioenergia project is divided in two sub-projects:

UTE Usina Santo Antonio “USA” sub-project started on 21/06/2002.

UTE Usina São Francisco “USFR” sub-project started on 18/08/2002.

The starting period starts on 21/06/2002.

Corrective Action Request No. 2:

The chosen of length of first crediting period does not coincide with expected period of emission reduction. Either the length of first crediting period or the stated amount of emission reduction has to change in order to be consistent to each other.

Response:

A revised PDD was submitted.

Corrective Action Request No. 3

The monitoring plan provides all relevant data necessary for estimation the greenhouse emissions in the project. However, for determining the GHG reduction data from the electricity grid has to be measured. According to AM0015 not all necessary parameters will be monitored. Following parameters are missing:

6. COEFi thermal energy
7. GENj/k/n,,y Electricity quantity
8. Plant name - Identification of power source / plant for the OM
9. Plant name - Identification of power source / plant for the BM

The PDD should include missing parameters that has to be monitored according to AM0015. Otherwise the plan shall mention why it is not necessary to monitor these or gives eligible alternatives.

Response:

It is not necessary to monitor other parameters than those listed in the PDD. Parameters such as: 5. “fuel quantity”, 6. “emission factor coefficient”, 7. “electricity quantity”, 8., 9. “plant name”, 11. “merit order”, 11.a. “electricity quantity”, 11.b. “emission factor coefficient”, 12 “energy quantity”, 13. “efficiency”, 14. “calorific enthalpy”, 15. “physical quantity”, 16. “calorific enthalpy”, 17. “CO2 emission coefficient”, 18 “physical quantity”, 19. “energy efficiency”, 20. “energy efficiency” since they are default and/or given values and/or not applicable.

Corrective Action Request No. 4

The EB decided in its 20th meeting that factors should be adjusted ex-post. This decision is in opposition to stated monitoring plan (chapter D.2.1.3.) in the PDD where relevant factors for baseline determination shall be recorded at every validation. That has to be corrected.

Response:

The monitoring was revised.

Clarification Request No. 10:

The project owner shall demonstrate if and how much fossil fuel will be used for combustion support.

Response:

Fossil fuel is not used for combustion support. No other fuel is used in the sugar mills but bagasse. A percentage of bagasse is stored from one crop to another. This amount is stored less than one year (from the end of a season to the beginning of the next).

3.3.3 Conclusion

According to the special circumstances in the Brazilian grid and electricity production mentioned and missing parameters are not necessary for the calculation. Furthermore the names of plants are included in the background calculation. Issue is considered as solved.

The statement about use of fossil fuels was proven onsite. Issue is considered as solved.

3.4 Calculation of GHG Emissions

3.4.1 Discussion

The calculation follows the approach of the approved methodology AM0015, using the simple adjusted operational margin in order to calculate the combined margin as a fifty-fifty mix of operational and build margin.

The amount of prospective generated electricity is multiplied with this combined margin in order to calculate the emission reduction in the grid.

The data sources are reliable and the approach of calculating the operational and the build margin is traceable and correct against the background of available data and chosen project boundary.

3.4.2 Findings

Clarification Request 11:

According missing detail information that aspect can not be validated. The project developer shall provide detailed background information, excel calculation sheets.

Corrective Action Request No. 6:

According to AM0015 lambda has to be multiplied with Operational Margin (OM) of low cost must run soucres which are zero in Brazil. On the other hand the OM of all other sources has to be mulitplied with 1-λ, but only λ is multiplied with OM of all other sources. The calculation has to be revised.

Response:

Background calculation was submitted and corrected.

Corrective Action Request No 7:

The project will result in lower emissions with in the project boundary. The estimated amount however is not correctly stated. Correct the prospective emission reductions considering CAR 7 and CAR 3.

Response:

Additional information was submitted and included in revised PDD

3.4.3 Conclusion

Background calculation was submitted and after identification of CAR 6 (see next column) corrected. The responses are sufficient. The project does comply with the requirements.

3.5 Environmental Impacts

3.5.1 Discussion

The project is according national environmental law. There is no indication that the project will cause significant or adverse environmental impacts.

3.5.2 Findings

None

3.5.3 Conclusion

The project is in line with national and regional law. No negative environmental effects are to be expected, environmental impacts are sufficiently documented. The project fulfils the requirements of the UNFCCC.

3.6 Comments by Local Stakeholders

3.6.1 Discussion

A local stakeholder process was performed in order to inform about project activity. According to the requirements of the Brazilian DNA the stakeholder were invited to comment the project.

3.6.2 Findings

Clarification Request No. 12:

According to Brazilian requirements regarding stakeholder comments following ones have to be invited by copy

- Municipal governments and City Councils;
- State and Municipal Environmental Agencies;

- Brazilian Forum of NGOs and Social Movements for Environment and Development;
- Community associations;
- Ministério Público (State Attorney for the Public Interest);

Evidences for such an invitation have to be provided!

Response:

Appropriate invitations were submitted to the team.

3.6.3 Conclusion

The project did not receive any adverse comments on the project.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on its website from May 4 to June 3, 2005 and invited comments within 30 days, by Parties, stakeholders and non-governmental organisations. One comment was received.

4.1 Content of the comments received

A comment has been submitted on 31. Mai 2005 by Axel Michaelowa, Programme International Climate Policy, Hamburg Institute of International Economics, Hamburg.

The comment has the following content:

„with an IRR of 18%, the case for additionality is not clear-cut. Given the strong incentive policies of the Brazilian government after the electricity crisis of 2001, there are no prohibitive barriers for hydropower expansion in Brazil. The argumentation about barriers in the PDD is thus not convincing.“

4.2 Response by TÜV SÜD

The comment has been submitted during the 30 days stakeholder period and is submitted by an accredited observer organisation. Hence the comment had to be considered in the validation process.

The audit team came to the following conclusion:

The demonstration of additionality in the PDD was assessed by the validation team. Investment barrier is part of demonstrating additionality. Taking into consideration the investment climate in Brazil, CDM is an important incentive for the decision to implement the project.

5 VALIDATION OPINION

TÜV SÜD has performed a validation of the Project Bioenergia S.A, Brazil. The validation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and subsequent decisions by the CDM Executive Board.

In summary, it is TÜV SÜD´s opinion that the project “Bioenergia Cogeradora”, as described in the revised project design document of October 2005, meets all relevant UNFCCC requirements for the CDM, set by the Kyoto Protocol, the Marrakech Accords and relevant guidance by the CDM Executive Board and that the project furthermore meets all relevant host country criteria and correctly applies the baseline and monitoring methodology AM0015

Hence, TÜV SÜD will recommend the EBCP for registration as CDM project activity by the CDM Executive Board.

Prior to the submission of this validation report to the CDM Executive Board, TÜV SÜD will have to receive the written approval of the DNA of involved parties, including confirmation by the DNA of Brazil that the project assists in achieving sustainable development.

By displacing fossil fuel-based electricity in principal with electricity generated from a renewable source, the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of the investment and technological barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions.

Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of emission reductions of 151,655 CO_{2e} over a crediting period of seven years, resulting in a calculated annual average of 21,655 tonnes CO_{2e} represent a reasonable estimation using the assumptions given by the project documents.

The validation is based on the information made available to us and the engagement conditions detailed in this report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, 2005-10-31

Michael Rumberg

Deputy of certification body “climate and energy“

Munich, 2005-10-31

Markus Knödlseder

Project Manager

Appendix A: Validation Protocol

Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Project Activities

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art.12.2	☑	Project is unilateral.
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Marrakesh Accords, CDM Modalities §40a	☑	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	☑	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Marrakesh Accords, CDM Modalities §40a	**Open**	At the time when the validation team came to its final opinion about the submitted project a written letter of approval from the designated national authority was available. Open Issue: The Letter of Approval issued by the host country should be submitted to the audit team.

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	☑	Table 2, Section E
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5c, Marrakesh Accords, CDM Modalities §43	☑	Table 2, Section B.2
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords	☑	According to the information obtained by the audit team ODA does not contribute to the financing of the project.
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakech Accords, CDM Modalities §29	☑	Brazil has a designated national authority (DNA): Comissão Interministerial de Mudança Global do Clima Address: Esplanada dos Ministérios, Bloco E - 2 andar - sala 242 70.067-900, Brasilia DF • Brazil Mr. Jose Domingos Gonzalez Miguez (miguez@mct.gov.br) Phone: (55-61)317-7923 Fax: (55-61)317-7657

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
9. The host country shall be a Party to the Kyoto Protocol	Marrakech Accords, CDM Modalities §30	☑	Brazil ratified the Kyoto Protocol.
10. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	Marrakech Accords, CDM Modalities §37b	☑	Table 2, Section G
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	Marrakech Accords, CDM Modalities §37c	☑	Table 2, Section F
12. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel	Marrakech Accords, CDM Modalities §37e	☑	Table 2, Section B.1.1 and D.1.1
13. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	Marrakech Accords, CDM Modalities §37f	☑	Table 2, Section D
14. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Marrakech Accords, CDM Modalities, §40	☑	A global public stakeholder process on the UNFCCC website has taken place from May 4 to June 3, 2005. Received comments are consid-

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
			ered in the validation report and documented in Annex C of the report.
15. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, CDM Modalities, §45c,d	☑	Table 2, Section B.2
16. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, CDM Modalities, §47	☑	Table 2, Section B.2
17. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	☑	The PDD is in conformance with the CDM Project Design Document (version 02) which is in effect as of July 1, 2004.

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of Project Activity *The project design is assessed.*					
A.1. Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project.*					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	1, 3, 4	DR, I	The location of the project is mentioned. Clarification Request No. 1: What is the concrete address of both involved sugar mills and of the power plant of Bioenergia Cogeradora S.A.? The spatial boundary of the grid is defined. The local power utility, which provides the physical connection to the grid is CPFL. Clarification Request No. 2: According to submitted PDD Bioenergia Cogeradora S.A. and CPFL signed a PPA which is valid until 31/12/2005. How is it guaranteed that envisaged emission reductions can be generated as stated in the PDD until the end of the first crediting period?	CR 1 CR 2 CR 3	☑

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			Clarification Request No. 3: The Balbo Group expanded its production of sugar cane, in order to produce more sugar and alcohol in 2001/2002. Since the project has been implemented, have there been additional expansions? If yes, reliable evidences shall be submitted to the validation team that such an increase of acreage of sugarcane, sugarcane production and bagasse production respectively was not done due to the projects implementation.		
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	1, 3, 4	DR, I	Chapter A.4.3. of submitted PDD informs in detailed about employed technology of the project activity. The situation of the old energy generation of both sugarcane mills is not stated sufficiently. Clarification Request No. 4: Information regarding old energy systems of each sugar mill is necessary. Additional information about the change shall be submitted to the validation team. That information shall content old boilers and turbines and their capacity and efficiency,	CL 4	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			efficiency and age of new components energy process schematic from each sugar mill, what old components are reconstructed, out of work or still in operation,		
A.2. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.*					
A.2.1. Does the project design engineering reflect current good practices?	1, 3, 4, 6, 7	DR, I	That can not be validated sufficiently: See above CL 4.	See CL 4	☑
A.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	1, 3, 4, 6, 7	DR, I	That can not be validated sufficiently: See above CL 4.	See CL 4	☑
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1, 3, 4, 6, 7	DR, I	That can not be validated sufficiently: See above CL 4.	See CL 4	☑
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	1, 3, 4,	DR, I	The training was performed to two operators. The involved persons are trained in maintenance at all company equipments. The training is included within the manage-	Open	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			ment system.		
A.2.5. Does the project make provisions for meeting training and maintenance needs?	1, 3, 4,	DR, I	Yes, see A.2.4.	Open	☑
A.3. Contribution to Sustainable Development *The project's contribution to sustainable development is assessed.*					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	1, 3, 4, 6, 7	DR, I	Yes, they have all licenses and are in line with national law.	Open	☑
A.3.2. Is the project in line with host-country specific CDM requirements?	1, 3, 4, 6, 7	DR, I	The project follows the host-country specific requirements.	☑	☑
A.3.3. Is the project in line with sustainable development policies of the host country?	1, 3, 4,	DR, I	The project is sustainable.	☑	☑
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	1, 3, 4,	DR, I	According to the PDD no further benefits can be identified.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B. Project Baseline *The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
B.1. Baseline Methodology					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	1, 3, 4, 5	DR, I	Yes, AM 0015 is applied and approved by approved by the CDM Methodology Panel	☑	☑
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	1, 2, 3, 4, 5, 6, 7	DR, I	Yes, baseline methodology is applicable assuming that the Balbo Group had no further expansions of bagasse production and strong evidences demonstrate that it was not reasoned by the projects implementation. See CL 3, also. <u>Corrective Action Request No. 1:</u> Chapter B.1.1. of submitted PDD is referring to a table 2. The reference shall demonstrate the discontinuous relation of volume sugar cane to generated bagasse. Unfortunately table 2 gives different information, referenced information is not available. Information shall be delivered. CL 3 should be considered.	Open See CL 3 CAR 1	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.2. Baseline Determination *The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.*					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	1, 2, 3, 4, 5	DR, I	Can not be validated sufficiently! See CL 4 in chapter A above: The PDD describe the old technical situation not sufficiently. According to the PDD it is unclear, if the all old boilers a/o turbines were able to run further? The PDD does not mention if the sugarcane mills had purchased electricity in the past before project started. More detailed description and evidences have to provided; if possible it can be checked onsite	CL 4	
B.2.2. Has the baseline been determined using conservative assumptions where possible?	1, 2, 3, 4, 5	DR, I	Clarification request No. 5: The baseline should be determined using conservative assumptions, but this topic is mentioned nowhere.. It should be explained, where conservative assumptions are used by determining the baseline.	CR 5	☑
B.2.3. Has the baseline been established on a project-specific basis?	1, 2, 3, 4,	DR, I	Yes.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
	5				
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	1, 2, 3, 4, 5	DR, I	Relevant macro-economic trends and political aspirations are considered as far as those can be identified.	☑	☑
B.2.5. Is the baseline determination compatible with the available data?	1, 2, 3, 4, 5	DR, I	Yes.	☑	☑
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	1, 2, 3, 4, 5	DR, I	See chapter B.2.1.	open	☑
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario (e.g. through (a) a flow-chart or series of questions that lead to a narrowing of potential baseline options, (b) a qualitative or quantitative assessment of different potential options and an indication of why the non-project option is more likely, (c) a qualitative or quantitative assessment of one or more barriers facing the proposed project activity or (d) an indication that the project type is not common practice in the proposed area of implementation, and not required by a Party's legislation/regulations)?	1, 2, 3, 4, 5	DR, I	The additionality tool provided by CDM EB is used for demonstrating the Additionality. Due to given documents the validation team is not sufficiently convinced that the project is additional according to UNFCC and EB requirements. <u>Clarification Request No. 6:</u> As the project was started in June 2002 step 0 of the tool as to be fulfilled: The fact that involved sugar mills are only associates and members of leading associations, which treat the issue of CDM in the sugarcane industry, is not sufficient. Project related evidences have to be sub-	CR 6 CR 7 CR 8	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			mitted that proves that CDM was seriously considered in the decision for the concrete project. <u>Clarification Request No. 7:</u> Step 3a discusses the investment barrier. The project owner should provide a investment analysis a/o evidence how much the project cost, how much the PPA effects the IRR and the banks decision to give the credit; how much the CERs effects the IRR and the banks decision to give any credit. <u>Clarification Request No. 8:</u> Step 4 discusses the common practise in Brazil. The PDD states that costs of co-generation electricity range from 35 to 50 $/kWh. These figures shall be provided and the electricity generation costs of the project shall be submitted in order to compare it with stated 33 $/kWh.		
B.2.8. Have the major risks to the baseline been identified?	1, 2, 3, 4, 5	DR, I	Major risks can not be identified.	☑	☑
B.2.9. Is all literature and sources clearly referenced?	2, 3, 4, 5	DR	Yes	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	1, 2, 3, 4	DR, I	No, although the project started already the exact date of starting is not mentioned in the PDD. Clarification Request No. 9: The concrete dates in dd/mm/yyyy of project start and crediting period have to be stated. Additional information shall be given why the date of project start in chapter B.3. is stated as "June 2002" and in chapter C.1.1. as May 2002.	CR 9	☑
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two x 7 years or fixed crediting period of max. 10 years)?	1, 2, 3, 4	DR, I	Yes, but the chosen of length of first crediting period does not coincide with expected period of emission reduction. Corrective Action Request No. 2: Either the length of first crediting period or the stated amount of emission reduction has to change in order to be consistent to each other.	CAR 2	☑
C.1.3. Is it assured that in case the start of the crediting period is before the registration of the project that the project activities starting date falls	1, 2, 3, 4	DR, I	Yes	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
in the period between 1 January 2000 and the registration of the first clean development mechanism project?					
D. Monitoring Plan *The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.*					
D.1. Monitoring Methodology					
D.1.1. Is the monitoring methodology previously approved by the CDM Methodology Panel?	3, 4, 5	DR	Yes, the monitoring methodology is determined in AM0015	☑	☑
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	1, 2, 3, 4, 5	DR, I	Yes	☑	☑
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	1, 2, 3, 4, 5	DR, I	Yes	☑	☑
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	1, 2, 3, 4, 5	DR, I	Yes	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.2. Monitoring of Project Emissions					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	1, 2, 3, 4, 5	DR, I	The project itself does not emit any GHG, hence no monitoring is applicable according to AM0015.	☑	☑
D.2.2. Are the choices of project GHG indicators reasonable?	1, 3, 4, 5	DR, I	Yes the indicators are given by AM0015.	☑	☑
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	1, 3, 4, 5	DR, I	Yes.	☑	☑
D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?	1, 2, 3, 4, 5	DR, I	Not directly, it is in the nature of AM0015 that achieved emission reduction can be calculated only.	☑	☑
D.2.5. Will the indicators enable comparison of project data and performance over time?	1	I	Yes	☑	☑
D.3. Monitoring of Leakage *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1, 5	DR, I	Significant leakages are not expected.	☑	☑
D.3.2. Have relevant indicators for GHG leakage been included?	-	DR	See D.3.1.	☑	☑

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.3.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	-	DR, I	See D.3.1.	☑	☑
D.3.4. Will it be possible to monitor the specified GHG leakage indicators?	-	DR, I	See D.3.1.	☑	☑
D.4. Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	1, 2, 3, 4, 5, 6, 7	DR, I	The monitoring plan provides all relevant data necessary for estimation the greenhouse emissions in the project. But for determining the GHG reduction data from the electricity grid has to be measured. According to AM0015 not all necessary parameters will be monitored. Following parameters are missing: 6. COEFi thermal energy 7. GENj/k/n,,y Electricity quantity 8. Plant name - Identification of power source / plant for the OM 9. Plant name - Identification of power source / plant for the BM	CAR 3 CAR 4	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			Corrective Action Request No. 3: The PDD should include missing parameters that has to be monitored according to AM0015. Otherwise the plan shall mention why it is not necessary to monitor these or gives eligible alternatives. Corrective Action Request No. 4: The EB decided in its 20th meeting that factors should be adjusted ex-post. This decision is in opposition to stated monitoring plan (chapter D.2.1.3.) in the PDD where relevant factors for baseline determination shall be recorded at every validation. That has to be corrected.		
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1, 2, 3, 4, 5, 6, 7	DR, I	If all parameters according to AM0015 will be monitored, the indicators are reasonable.	☑	☑
D.4.3. Will it be possible to monitor the specified baseline indicators?	6, 7	DR, I	The project developer shall provide reliable, that he will get access to grid data in future. The validation team were in contact with the national dispatch centre. According to that talk the validation team is confident of availability of necessary data.	open	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts					
D.5.1. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	1, 3, 4, 5, 6, 7	DR, I	No, not necessary, hence negative environmental, social or economic impacts are not expected.	☑	☑
D.5.2. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	1, 3, 4, 5, 6, 7	DR, I	Not applicable	☑	☑
D.5.3. Will it be possible to monitor the specified sustainable development indicators?	1, 3, 4, 5, 6, 7	DR, I	Not applicable	☑	☑
D.5.4. Are the sustainable development indicators in line with stated national priorities in the Host Country?	1, 3, 4, 5, 6, 7	DR, I	Not applicable	☑	☑
D.6. Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
D.6.1. Is the authority and responsibility of project management clearly described?	1, 6, 7	DR, I	The responsibility of monitoring is described in general.	☑	☑
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting	1, 6, 7	DR, I	The responsibility is clear to the Farm manager, but there are no procedures, instruc-	Open	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
clearly described?			tions or other guidelines a/o rules available.		
D.6.3. Are procedures identified for training of monitoring personnel?	1, 6, 7	DR, I	Existing procedures follow the quality assurance system (ISO 9000) which are verified.	Open	☑
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	1, 6, 7	DR, I	There are no emergency plans available. From the point of the validation that is not a major discrepancy to relevant CDM requirements. Recommendation: The project participants shall establish procedures for emergency preparedness for cases where emergencies can cause unintended emissions. A missing of such procedures might endanger the verification.	Open	☑
D.6.5. Are procedures identified for calibration of monitoring equipment?	1, 6, 7	DR, I	There are no emergency plans available. From the point of the validation that is not a major discrepancy to relevant CDM requirements. Recommendation: The project participants shall establish procedures for calibration of relevant monitoring equipment. A missing of such procedures might endanger the verification. Responsibilities shall be described.	Open	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	1, 6, 7	DR, I	Yes, procedures for maintenance of monitoring equipment and installations are in place	Open	☑
D.6.7. Are procedures identified for monitoring, measurements and reporting?	1, 6, 7	DR, I	Records are performed, but procedures identified for monitoring, measurements and reporting were not available onsite. From the point of the validation that is not a major discrepancy to relevant CDM requirements. Recommendation: The project participants shall establish procedures for monitoring, measurements and reporting. A missing of such procedures might endanger the verification.	Open	☑
D.6.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	1, 6, 7	DR, I	See D.6.7.	Open	☑
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1, 6, 7	DR, I	There are no procedures identified for dealing with possible monitoring data adjustments and uncertainties. From the point of the validation that is not a major discrepancy to relevant CDM requirements. Recommendation: The project participants shall establish procedures for monitoring, measurements and reporting. A	Open	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			missing of such procedures might endanger the verification.		
D.6.10. Are procedures identified for review of reported results/data?	1, 6, 7	DR, I	There are no procedures identified for review of reported results/data. From the point of the validation that is not a major discrepancy to relevant CDM requirements. Recommendation: The project participants shall establish procedures for review of reported results/data. A missing of such procedures might endanger the verification.	Open	☑
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	1, 6, 7	DR, I	There are no procedures identified for internal audits of GHG project compliance with operational requirements where applicable. From the point of the validation that is not a major discrepancy to relevant CDM requirements. Recommendation: The project participants shall establish procedures for internal audits of GHG project compliance with operational requirements where applicable. A missing of such procedures might endanger the verification.	Open	☑
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	1, 6, 7	DR, I	There are no procedures identified for project performance reviews before data is submitted for verification, internally or exter-	Open	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			nally. From the point of the validation that is not a major discrepancy to relevant CDM requirements. Recommendation: The project participants shall establish procedures for project performance reviews before data is submitted for verification, internally or externally. A missing of such procedures might endanger the verification.		
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	1, 6, 7	DR, I	There are no procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting. From the point of the validation that is not a major discrepancy to relevant CDM requirements. Recommendation: The project participants shall establish procedures for corrective actions in order to provide for more accurate future monitoring and reporting. A missing of such procedures might endanger the verification.	Open	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E. Calculation of GHG Emissions by Source *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
E.1. Predicted Project GHG Emissions *The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.*					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	1, 2, 4, 5	DR, I	The project itself will not create GHG emissions – in usually case. Clarification Request No. 10: However, the project owner shall demonstrate if and how much fossil fuel will be used for combustion support.	CR 10	☑
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	1, 2, 4, 5	DR, I	See E.1.1	Open see CR 10	☑
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	1, 2, 4, 5	DR, I	See E.1.1	Open see CR 10	☑
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documenta-	1, 2, 4, 5	DR, I	See E.1.1	Open see	☑

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
tion?				CR 10	
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	1, 2, 4, 5	DR, I	See E.1.1	Open see CR 10	☑
E.2. Leakage *It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.*					☑
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	1, 2, 4, 5	DR, I	No leakages are identified	☑	☑
E.2.2. Have these leakage effects been properly accounted for in calculations?	-	DR, I	See E.2.1.	☑	☑
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	-	DR, I	See E.2.1.	☑	☑
E.2.4. Are the calculations documented in a complete and transparent manner?	-	DR, I	See E.2.1.	☑	☑
E.2.5. Have conservative assumptions been used when calculating leakage?	-	DR, I	See E.2.1.	☑	☑
E.2.6. Are uncertainties in the leakage estimates properly addressed?	-	DR, I	See E.2.1.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.3. Baseline Emissions					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	1, 2, 4, 5	DR, I	Yes, the indicators follow AM0015.	☑	☑
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	1, 2, 4, 5	DR, I	Yes, the baseline boundaries are clearly defined and do they sufficiently cover sources and sinks for baseline emissions in principle. <u>Corrective Action Request No. 5:</u> However after the meeting with ONS (Operacão Nacional do Sistema) the chosen grid has specific circumstances. Those circumstances are reasoned by that ONS do not control al plants and grids. All circumstances have to be stated in the PDD.	CAR 5	
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	1, 2, 4, 5	DR, I	Yes	☑	☑
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	1, 2, 4, 5	DR, I	According missing detail information that aspect can not be validated. <u>Clarification Request 11</u>: The project developer shall provide detailed	CR 11	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			background information, excel calculation sheets how he determined the parameters: 1. λ_y 2. $\sum_{i,j} F_{i,j,y}$ 3. $COEF_{i,j}$ 4. $\sum_{j} GEN_{j,y}$ 5. $EF_{BM,y}$) $EF_{BM,y} = \frac{\sum_{i,m} F_{i,m,y} \cdot COEF_{i,m}}{\sum_{m} GEN_{m,y}}$ 6. $F_{i,m,y}$, $COEF_{i,m}$ and $GEN_{m,y}$ After submitting background calculations the validation team is convinced that the Operational Margin is not calculated correctly. <u>Corrective Action Request No. 6:</u> According to AM0015 lambda has to be multiplied with Operational Margin (OM) of low cost must run soucres which are zero in Brazil. On the other hand the OM of all other sources has to be mulitplied		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			with 1-λ, but only λ is multiplied with OM of all other sources. The calculation has to be revised.		
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	1, 2, 4, 5	DR, I	Can not be sufficient validated, see E.3.4. After submitting the background calculation and after the visit of ONS the Validation team is convinced that there are no further uncertainties.	open	☑
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	1, 2, 4, 5	DR, I	No, see E.3.4. and CAR 7	See CAR 6	☑
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	4, 5	DR	Yes, the project will result in lower emissions with in the project boundary. The estimated amount however is not correctly stated. <u>Corrective Action Request No 7:</u> Correct the prospective emission reductions considering CAR 7 and CAR 3.	CAR 7	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
F. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	1, 5, 6, 7	DR, I	No, but environmental impacts are not expected.	☑	☑
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	1, 5, 6, 7	DR, I	According to competent authority an EIA is not required.	☑	☑
F.1.3. Will the project create any adverse environmental effects?	1, 5, 6, 7	DR, I	No, adverse environmental effects are not expected.	☑	☑
F.1.4. Are transboundary environmental impacts considered in the analysis?	1, 5, 6, 7	DR, I	No, but see F.1.1.	☑	☑
F.1.5. Have identified environmental impacts been addressed in the project design?	1, 5, 6, 7	DR, I	No, see F.1.1.	☑	☑
F.1.6. Does the project comply with environmental legislation in the host country?	1, 5, 6, 7	DR, I	Yes	☑	☑
G. Stakeholder Comments *The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.*					
G.1.1. Have relevant stakeholders been consulted?	1, 4, 11	DR, I	According to Brazilian requirements regarding stakeholder comments following ones	CR 12	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			have to be invited by copy - Municipal governments and City Councils; - State and Municipal Environmental Agencies; - Brazilian Forum of NGOs and Social Movements for Environment and Development; - Community associations; - Ministério Público (State Attorney for the Public Interest); Clarification Request No. 12: Evidences for such an invitation has to be provided!		
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	1, 4, 11	DR, I	The revised PDD mentions invitation of local stakeholder for comments.	Open	☑
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	1, 4, 11	DR, I	See G.1.1.	See CR 12	☑
G.1.4. Is a summary of the stakeholder comments received provided?	1, 4, 11	DR, I	See G.1.1.	See CR 12	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
G.1.5. Has due account been taken of any stakeholder comments received?	1, 4, 11	DR, I	Can not be validated yet. See G.1.1.	Open See CR 12	☑

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

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
The location of the project is mentioned. <u>Clarification Request No. 1:</u> What is the concrete address of both involved sugar mills and of the power plant of Bioenergia Cogeradora S.A.?	Table 2, A.1.1	There are two sugar mills and two power plants. Usina Santo Antonio (USA) sugar mill and power plant are located at Fazenda Santo Antônio s/nº, CEP 14177-970, Sertãozinho, SP and Usina São Francisco (UFRA) sugar mill and power plant are located at Fazenda São Francisco s/nº, CEP 14174-000, mail box 537, Sertãozinho, SP.	Issue is considered as solved. ☑
<u>Clarification Request No. 2:</u> According to submitted PDD Bioenergia Cogeradora S.A. and CPFL signed a PPA which is valid until 31/12/2005. How is it guaranteed that envisaged emission reductions can be generated as stated in the PDD until the end of the first crediting period?		The PPA is valid until 31/Dec./2012 since the local power utility (CPFL, "*Companhia Paulista de Força e Luz*") has signed a 10 year Power Purchase Agreement (PPA) with Bioenergia Cogeradora S.A. in 2002. Nevertheless Bioenergia Cogeradora S.A. has the objective to sign another PPA with CPFL post 2012. Bioenergia Cogeradora fosters electricity sale to the grid and reduces "greenhouse gases" (GHGs) emission since the project activity was developed with an expected operational lifetime of 20 years. The main project's objectives are to generate electricity from renewable sources and to reduce GHGs emissions. If the project activity does not generate renewable electricity it will be verified during the monitoring and verification and no emission reductions will be certi-	Issue is considered as solved. ☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
		fied, not to mention that the project will result economically unfeasible.	
Clarification Request No. 3: The Balbo Group expanded its production of sugar cane, in order to produce more sugar and alcohol in 2001/2002. Since the project has been implemented, have there been additional expansions? If yes, reliable evidences shall be submitted to the validation team that such an increase of acreage of sugarcane, sugarcane production and bagasse production respectively was not done due to the projects implementation.	Table 2, A.1.1	There have not been any physical additional expansions since the project has been implemented. The fluctuation of the amount of sugarcane produced and, consequently the bagasse is due to climate, crop and market conditions that could vary from year to year.	Statement is reasonable; issue is considered as solved. ☑
Clarification Request No. 4: Information regarding old energy systems of each sugar mill is necessary. Additional information about the change shall be submitted to the validation team. That information shall content old boilers and turbines and their capacity and efficiency, efficiency and age of new components energy process schematic from each sugar mill, what old components are reconstructed, out of work or still in operation.	Table 2, A.1.2. and B.2.1	In 2002, USA bought a 62 kgf/cm^2 new boiler, and kept two and shut down one 21 kgf/cm^2 boilers. UFRA kept its two 21 Kg/cm^2 boilers. In 2002, USA bought a new turbo generator, transferred one to UFRA and shut down one. UFRA kept its one and started using the one transferred from USA. In revised PDD information about previous and current USA situation and previous and current UFRA situation is stated. Old components were shut down however they can	Statement is reasonable; issue is considered as solved. ☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
The PDD describe the old technical situation not sufficiently. According to the PDD it is unclear, if the all old boilers a/o turbines were able to run further? The PDD does not mention if the sugarcane mills had purchased electricity in the past before project started.		still work. They were left to work as back ups and eventually they can be negotiated.	
Corrective Action Request No. 1: Chapter B.1.1. of submitted PDD is referring to a table 2. The reference shall demonstrate the discontinuous relation of volume sugar cane to generated bagasse. Unfortunately table 2 gives different information, referenced information is not available. Information shall be delivered. CL 3 should be considered.	Table 2, B.1.2.	The reference is corrected in the revised PDD.	Issue is considered as solved. ☑
Clarification request No. 5: The baseline should be determined using conservative assumptions, but this topic is mentioned nowhere. It should be explained, where conservative assumptions are used by determining the baseline.	Table 2, B.2.2.	The baseline is determined according the approved methodology using default figures from literature for providing input data on plant capacities.	The baseline defines factors according to the applied methodology. The used emission factors can be regarded being derived transparently using default values. Nonetheless it will be necessary during verification to discuss the availability of

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
			more accurate figures for modern plants which will show higher efficiencies. Hence accurate figure for modern plants will be considered to be more conservative. Issue is considered as solved. ☑
<u>Clarification Request No. 6:</u> As the project was started in June 2002 step 0 of the tool as to be fulfilled: The fact that involved sugar mills are only associates and members of leading associations, which treat the issue of CDM in the sugarcane industry, is not sufficient. Project related evidences have to be submitted that proves that CDM was seriously considered in the decision for the concrete project.	Table 2, B.2.7.	Evidence showing that Bioenergia seriously considered CDM prior to the decision to carry out the project activity is described below. There were personnel communications between Ecoinvest and Bioenergia since 2000 regarding the potential to develop the project as CDM project. We are sending you an email ("*Obtenção de energia a partir do bagaço de cana-de-açúcar (306 KB).msg*") showing the communication two years before the starting date of the project activity.	The communication between Econergy and Bioenergia indicates the strong interest of Bioenergia in CDM. The validation considered that evidence as sufficient and considered it as solved. ☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
Clarification Request No. 7: Step 3a discusses the investment barrier. The project owner should provide a investment analysis a/o evidence how much the project cost, how much the PPA effects the IRR and the banks decision to give the credit; how much the CERs effects the IRR and the banks decision to give any credit.	Table 2, B.2.7.	Ecoinvest submitted the calculation of project financing.	The calculation is correct. The project IRR without CER is about 18,4 % and with CER 21%. The demonstration of additionality in the PDD was assessed by the validation team. Investment barrier is part of demonstrating additionality. Taking into consideration the investment climate in Brazil, CDM is an important incentive for the decision to implement the project. Issue is considered as solved. ☑
Clarification Request No. 8: Step 4 discusses the common practise in Brazil. The PDD states that costs of cogeneration electricity range from 35 to 50 $/kWh. These figures shall be provided and the electricity generation costs of the project shall be		The figures related to marginal cost for electricity expansion of US$ 33/MWh and the cost of cogeneration electricity from US$ 35 to US$ 50 were obtained by MME – Ministério de Minas e Energia (Ministry of Mines and Energy) and it is available in the website www.mme.gov.br “Valor Econômico da Tecnologia	Issue is considered as solved. ☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
submitted in order to compare it with stated 33 $/kWh.		Específica da Fonte – VETEF" The electricity generation costs of the project can be viewed in the investment analysis attached. The electricity generation cost vary between 31$/MWh (USD 3 to 1 Real) to 39.6$/MWh (USD 2.35 to 1 Real).	
Clarification Request No. 9: The concrete dates in dd/mm/yyyy of project start and crediting period have to be stated. Additional information shall be given why the date of project start in chapter B.3. is stated as "June 2002" and in chapter C.1.1. as May 2002.	Table 2, C.1.1.	Bioenergia project is divided in two sub-projects: • UTE Usina Santo Antonio "USA" sub-project and crediting period started in 21/06/2002. • UTE Usina São Francisco "USFR" sub-project and crediting period started in 18/08/2002.	Statement is reasonable; issue is considered as solved. ☑
Corrective Action Request No. 2: The chosen of length of first crediting period does not coincide with expected period of emission reduction. Either the length of first crediting period or the stated amount of emission reduction has to change in order to be consistent to each other.	Table 2, C.1.2.	A revised PDD was submitted.	Statement is reasonable; issue is considered as solved. ☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
<u>Corrective Action Request No. 3</u> The monitoring plan provides all relevant data necessary for estimation the greenhouse emissions in the project. However, for determining the GHG reduction data from the electricity grid has to be measured. According to AM0015 not all necessary parameters will be monitored. Following parameters are missing: 6. COEFi thermal energy 7. GENj/k/n,,y Electricity quantity 8. Plant name - Identification of power source / plant for the OM 9. Plant name - Identification of power source / plant for the BM The PDD should include missing parameters that has to be monitored according to AM0015. Otherwise the plan shall mention why it is not necessary to monitor these or gives eligible alternatives.	Table 2, D.4.1.	It is not necessary to monitor other parameters than those listed in the PDD. Parameters such as: 5. “fuel quantity”, 6. “emission factor coefficient”, 7. “electricity quantity”, 8., 9. “plant name”, 11. “merit order”, 11.a. “electricity quantity”, 11.b. “emission factor coefficient”, 12 “energy quantity”, 13. “efficiency”, 14. “calorific enthalpy”, 15. “physical quantity”, 16. “calorific enthalpy”, 17. “CO2 emission coefficient”, 18 “physical quantity”, 19. “energy efficiency”, 20. “energy efficiency” since they are default and/or given values and/or not applicable.	According to the special circumstances in the Brazilian grid and electricity production mentioned and missing parameters are not necessary for the calculation. Furthermore the names of plants are included in the background calculation. Issue is considered as solved. ☑
<u>Corrective Action Request No. 4</u> The EB decided in its 20th meeting that fac-		Monitoring has been revised.	Issue is considered as solved.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
tors should be adjusted ex-post. This decision is in opposition to stated monitoring plan (chapter D.2.1.3.) in the PDD where relevant factors for baseline determination shall be recorded at every validation. That has to be corrected.			☑
Clarification Request No. 10: The project owner shall demonstrate if and how much fossil fuel will be used for combustion support.	Table 2, E.1.1.	Fossil fuel is not used for combustion support. No other fuel is used in the sugar mills but bagasse. A percentage of bagasse is stored from one crop to another. This amount is stored less than one year (from the end of a season to the beginning of the next).	The statement was proven onsite. Issue is considered as solved. ☑
Corrective Action Request No. 5: However after the meeting with ONS (Operacão Nacional do Sistema) the chosen grid has specific circumstances. Those circumstances are reasoned by that ONS do not control al plants and grids. All circumstances have to be stated in the PDD.	Table 2, E.3.2.	The revised PDD includes the special circumstances.	Issue is considered as solved. ☑
Clarification Request 11: According missing detail information that aspect can not be validated. The project developer shall provide detailed background information, excel calculation sheets how he determined the parameters:	Table 2, E.3.4. & E.3.6.	Background calculation was submitted and after identification of CAR 6 (see next column) corrected.	After submitting background calculations the validation team is convinced that the Operational Margin is not calculated correctly.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
7. λ_y 8. $\sum_{i,j} F_{i,j,y}$ 9. $COEF_{i,j}$ 10. $\sum_{j} GEN_{j,y}$ 11. $EF_{BM,y}$) $EF_{BM,y} = \frac{\sum_{i,m} F_{i,m,y} \cdot COEF_{i,m}}{\sum_{m} GEN_{m,y}}$ 12. $F_{i,m,y}$, $COEF_{i,m}$ and $GEN_{m,y}$			<u>Corrective Action Request No. 6:</u> According to AM0015 lambda has to be multiplied with Operational Margin (OM) of low cost must run soucres which are zero in Brazil. On the other hand the OM of all other sources has to be mulitplied with 1-λ, but only λ is multiplied with OM of all other sources. The calculation has to be revised. The calculation was revised, correctly; thus, issue is considered as solved. ☑
<u>Corrective Action Request No 7:</u> The project will result in lower emissions with in the project boundary. The estimated amount however is not correctly stated. Cor-	Table 2, E.4.1.	Additional information was submitted and included in revised PDD.	Issue is considered as solved. ☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
rect the prospective emission reductions considering CAR 7 and CAR 3.			
Clarification Request No. 12: According to Brazilian requirements regarding stakeholder comments following ones have to be invited by copy - Municipal governments and City Councils; - State and Municipal Environmental Agencies; - Brazilian Forum of NGOs and Social Movements for Environment and Development; - Community associations; - Ministério Público (State Attorney for the Public Interest); Evidences for such an invitation have to be provided!	Table 2, G.1.1	Evidences were submitted.	Issue is considered as solved. ☑

- o0o -

Appendix B: Information Reference List

Reference No.	Document or Type of Information
1.	Onsite interview at Bioenergie Cogeradora S.A. on May 23, 2005; auditor Wilson Tomao Interviewed person: Antonio Possebom USINA SÃO FRANCISCO Mrcos Roberto de Oliviera USINA SÃO FRANCISCO Jose Renato Franzin USINA SÃO FRANCISCO Antiono Selegatto USINA SANTO ANTONIO Elpidio Palimieri USINA SANTO ANTONIO Marco Mazzaferro Ecoinvest
2.	Interview with National Dispatch Center on May 30, 2005. Following people were interviewed: Delfim Maduro Zaroni Head for department Opercão em Tempo Real (Operador Nacional do Systema Elétrico - ONS) Wilkens Geraldes Filho Engineer at the depertment Opercão em Tempo Real (Operador Nacional do Systema Elétrico - ONS)
3.	Project Design Document: Bioenergia Cogeradora S.A, submitted by Econergy Brasil in April 2005
4.	Project Design Document: Bioenergia Cogeradora S.A, submitted by Econergy Brasil in October 2005
5.	Approved baseline and monitoring methodology: AM0015 – “Bagasse-based cogeneration connected to an electricity grid”
6.	Evidences from São Francisco: • Operation license expire from 04/01/05. • Turbo generator installation license – 4001112 – 24/10/02

Reference No.	Document or Type of Information
	• Chemical products license – 6632 – 20/-7/03 • Certificate ISO 9001 16474 from BVQI valid until 26/11/07 • Turbo generator Sincrono No 10080 – 03/1990 • Maintenance records – 03/05
7.	Evidences from São Antonio • installation license – 4000750 – 28/03/01 • Operation license – 4000773 – 27/08/01 • Instruction manual for the turbine – No 40229 – JANUARY/02 • Training records • Turbo generator Sincrono No 97476 – 03/2002 • Maintenance records from 27/12/04 – 08/01/05 • Record of generated energy of every 2 hours. • Measurement equipment (CPFL) No 40064914 –4 , installed in 03/2004 • Operation license of Bioenergia Cogeradora ltda. – 400376 from 04/05/2005. • Contract with CPFL valid until 31/12/2005.
8.	Validation and Verification Manual, IETA/PCF http://www.vvmanual.info
9.	UNFCCC homepage http://www.unfccc.int
10.	New contract between Bioenergia Cogeradora and CPFL, valid until 2012
11.	Invitations regarding stakeholder process, dated on 4th May 2005:

Reference No.	Document or Type of Information
	• Associação Comunitária do Jardim Alvorada, Rua Paulo Meloni, 604 • Prefeitura de Sertãozinho, Rua: Aprigio de Araujo - 837 • Órgão Ambiental de Sertãozinho, Rua: Aprigio de Araujo - 837 • CETESB Companhia de Tecnologia de Saneamento Ambiental , Av. Professor Frederico Hermann Jr., 345 • Ministério Público de São Paulo, Rua Riachuelo, 115 • Fórum Brasileiro de ONGs e Movimentos Sociais para o Desenvolvimento e Meio Ambiente, SCS, Quadra 08, Bloco B-50 Venâncio 2000 • Câmara Municipal de Sertãozinho, R. Cel. Francisco Schimidt, 1571