Industrie Service

Validation Report

USINA CAETÉ S.A.

Validation of the Southeast Caeté Mills Bagasse Cogeneration Project (SECMBCP), Brazil

Report No. 704245, Revision 01

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TÜV Industrie Service GmbH TÜV SÜD Group
Carbon Management Service
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Subject:	Validation of a CDM Project
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Client:	Usina Caeté S.A. Av. Menino Marcelo, 99 – via Expr. 57083-410 Maceió – AL Brazil
Contract approved by:	Werner Betzenbichler
Report Title:	Validation of the Southeast Caeté Mills Bagasse Cogeneration Project (SECMBCP), Brazil
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Summary:

The Certification Body "Climate and Energy" has been ordered by Usina Caeté S.A. (Maceió) to perform a validation of the above mentioned project.

Using a risk based approach the validation of this project has been performed by document reviews and on-site inspection, audits at the locations of the project and interviews at the offices of the project developer and the project owner.

In summary, it is TÜV SÜD´s opinion that the "Southeast Caeté Mills Bagasse Cogeneration Project (SECMBCP)", as described in the revised project design document of December 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 SECMBCP 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.

Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of emission reductions of 212 280 tonnes CO_{2e} over a crediting period of seven years, resulting in a calculated annual average of 30 326 tonnes CO_{2e}, represent a reasonable estimation using the assumptions given by the project documents.

Work carried out by:	Thomas Kleiser (Project manager, GHG lead auditor) Michael Rumberg (GHG lead auditor) Johann Thaler (GHG auditor, local expert) Javier Castro (technical expert, GHG trainee)	Internal Quality Control by: Werner Betzenbichler

Abbreviations

AE	Applicant Operational Entity
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CR	Clarification Request
DOE	Designated Operational Entity
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
PDD	Project Design Document
SECMBCP	Southeast Caeté Mills Bagasse Cogeneration Project
TÜV SÜD	TÜV Industrie Service GmbH TÜV SÜD Group
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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1 INTRODUCTION

1.1 Objective

Usina Caeté S.A. has commissioned TÜV Industrie Service GmbH TÜV SÜD Group (TÜV SÜD) to validate the Southeast Caeté Mills Bagasse Cogeneration Project (SECMBCP). 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 August 2005 (Augsut 25th, 2005). Based on this documentation a document review and a fact finding mission in form of an on site audit has taken place. The PDD submitted in September 2005 was made public in the global stakeholder process. Afterwards the client decided to revise the PDD according to the CAR and CRs indicated in the audit process. The final revision, dated December 07th, 2005 serves as basis of the final assessment presented by this report.

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 the use of biomass
- 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":

The validation team was consisting of the following two experts:

Thomas Kleiser	(Project manager, GHG lead auditor)
Michael Rumberg	(GHG lead auditor)
Johann Thaler	(GHG auditor, local expert)
Javier Castro	(technical expert, GHG trainee)

Thomas Kleiser is a lead auditor for CDM and JI projects at TÜV Industrie Service GmbH TÜV SÜD Group. In his position he is responsible for the implementation of verification and certifications processes for GHG mitigation projects. He has received extensive training in the CDM and JI validation processes and participated already in more than 20 CDM and JI project assessments.

Michael Rumberg is head of the division CDM/JI at TÜV Industrie Service GmbH TÜV SÜD Group. In his position he is responsible for the implementation of validation, verification and certifications processes for greenhouse gas mitigation projects in the context of the Kyoto Protocol. Before entering this company he worked as an expert for renewable energy, forestry, environmental issues, climate change and sustainability within the environmental branch of an insurance company. His competences are covering risk assessments, quality and environmental auditing (EMS auditor), baseline setting, monitoring and verification due to the requirements of the Kyoto Protocol.

Johann Thaler graduated as Master of environmental Economy at the University of Augsburg. During his study he got first experiences in environmental management systems. His master thesis was about a fuel switch program in Brazil as a CDM project. Based in Brazil he has been working for TÜV SÜD as a GHG auditor on freelance basis since March 2005.

Javier Castro is an energy expert for CDM and JI projects at TÜV Industrie Service GmbH TÜV SÜD Group. He has an academic background in chemical engineering and energy systems. In his position he participates as an expert in energy related projects during the validation, verification and certifications processes for GHG mitigation projects. He has received extensive training in the CDM and JI validation processes.

The audit team covers the above mentioned requirements as follows:

- Knowledge of Kyoto Protocol and the Marrakech Accords (Rumberg/Kleiser)
- Environmental and Social Impact Assessment (All)
- Skills in environmental auditing (All)
- Quality assurance (All)
- Technical aspects (All)

- Monitoring concepts (Rumberg/Kleiser)
- Political, economical and technical random conditions in host country (Thaler)

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":

- Werner Betzenbichler – Head of the Certification Body "Climate and Energy"

1.3 GHG Project Description

This project activity consists of increasing efficiency in the bagasse (a renewable fuel source, residue from sugarcane processing) cogeneration facility at two Southeast Caeté Sugar and Alcohol Mills (Usina Delta and Unidade Volta Grande) from the Carlos Lyra Group - **Usina Caeté S.A. –** both Brazilian sugar mills. With the implementation of this project, the mills are able to sell electricity to the national grid, avoiding the dispatch of same amount of energy produced by fossil-fuelled thermal plants to that grid. By that, the initiative avoids CO_2 emissions.

By investing to increase steam efficiency in the sugar and alcohol production and increase in the efficiency of burning the bagasse (more efficient boilers), Usina Caeté generates surplus steam and uses it exclusively for electricity production (through turbo-generators).

Using Steam-Ranking cycle as the basic technology of its cogeneration system, for achieving an increasing amount of surplus electricity to be generated, Usina Caeté in 2002 began its efforts to implement this project activity (SECMBCP). The Delta project is divided in two phases: Phase 1 (2002) and Phase 2 (2003). This project consists of installation of one new 42 bar boiler, in Phase 1 (2002), achieving a total of 5 MW capacity available for sale. In Phase 2 (2003), an additional 15 MW condensing turbo-generator were installed, aiming to achieve a total of 11,5 MW available for sale. The Volta Grande project is also divided in two phases: Phase 1 (2003) and Phase 2 (2006). This project consists of installation of one new 16 MW backpressure turbo-generator, in Phase 1 (2003), achieving a total of 9 MW capacity available for sale. In Phase 2 (2006), an additional 30 MW backpressure turbo-generator and a new 65 bar boiler will be installed, aiming to achieve a total of 34 MW available for sale. This means increasing renewable energy share in the Brazilian matrix.

The project participants in Southeast Caeté Mills Bagasse Cogeneration Project are:

- Usina Caeté S.A. ("Unidade Delta" and "Unidade Volta Grande") a Brazilian private company
- Econergy Brasil Ltda., a Brazilian private company

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 subdivided. 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 September 22nd and 23rd, 2005 TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review.

Representatives of:

- Usina Caeté S.A., Brazil
- Econergy Brasil Ltda. Sao Paulo, State of Sao Paulo, Brazil

were interviewed. The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
Usina Caeté S.A.	▪ Project design ▪ Technical equipment ▪ Sustainable development issues ▪ Additionality ▪ Crediting period ▪ Monitoring plan ▪ Management system ▪ Environmental impacts ▪ Local Stakeholder process and Approval by the host country
Econergy Brasil Ltda.	▪ Project design ▪ Technical equipment ▪ Sustainable development issues ▪ Baseline determination ▪ Additionality ▪ Crediting period ▪ Monitoring plan ▪ Environmental impacts ▪ Local Stakeholder process

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 communications between the Client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that will be 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 project design documents 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 5 Corrective Action Requests and 15 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 is summarised.

4) The draft 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 CO2 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 plants 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 (25 years) and in particular in the first crediting period. The first crediting period start 15/06/2002; the length of the first crediting period is seven years with the intention for renewal.

The project is in line with relevant legislation of Brazil. According to the publicly available document renewable energy projects belongs 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 to a large extent.

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. The start of project activities has been before the registration date of the first clean development mechanism project.

It has been substantiated that CDM and the possible revenues of CDM already have been known and taken into account in the phase of final deciding to go for the project.

The written Letter of Approval currently still is missing.

3.1.2 Findings

Outstanding Issue No. 1:

The written Letter of Approval (LoA) issued by the host country has to be presented before starting the registration process of this project at the UNFCCC Executive Board (EB).

Response:

The Letter of Approval will be presented after the DNA's evaluation.

Clarification Request No. 13:

The project description (see chapter A.2.) and the description of the spatial boundaries are not complete in all points.

In detail (concerning chapter A.2: "Description of the project activity") this means:

- It has to be elaborated more clear (maybe as a separate annex) in which scale the two SE Caete Sugar mills already produced electricity (for their own requirements)in the last years.
- The aspect irrigation has to be worked out more detailed. The aspect irrigation is missing in the common project description
- Furthermore the spatial boundaries of the project should be illustrated in a drawing and on an excerpt of a map for all the two sites (Unidade Delta and Unidade Volta Grande). The information concerning the ownership of the irrigated fields and the question of responsibilities (are there contracts?) have to be clarified. A mix-up of the irrigation fields in this project with other irrigation fields has to be excluded.

Response:

Additional information, such as the internal consumption in MW, among others, have been added on PDD's Annex 3, Tables 4.

The irrigation part of the project has been excluded from the PDD.

All required drawings and plans concerning the spatial boundaries of the project, for both mills (Delta and Volta Grande) and their industrial facilities, have been delivered to the local TÜV auditor during the site visit and have been illustrated and explained to the audit team in several additional clarifying e-mails.

Clarification Request No. 14:

In the listing in tables 1 and 2 it is not clearly demonstrated in total, which equipment was existing before the project started, which equipment is used now after project implementation and which parts of the old equipment have already been demolished or are still used for stand-by purposes. Furthermore, to avoid any confusion, table 1 additionally has to be broken down for each site.

Furthermore it has to be explained (for all sites separately) which diesel engines are part of the project and which are not.

Also the concrete starting dates of the different phases (in case of Unidade Volta Grande) have to be stated.

Also in the time before the project started (same information in the PDD concerning starting date of the project and starting of the crediting period March 4th, 2002) there have been changes in the number of diesel engines and also (new) electric engines (between 2002) have been installed. This should be explained more detailed.

Response:

The requested information was submitted to the validator. For further information see Annex 1.

Corrective Action Request No. 3

It has to be demonstrated clearly, re-traceably, transparently and secured in written form that the sugar mills owner has been informed about the Kyoto mechanisms and about the possible revenues from selling CERs of a CDM-project before he started the project and that he first after this information decided to go for the project taking into account the financial possibilities of CDM (see step "0" and common requirements for the qualification of a project as CDM-project as formulated in the Kyoto protocol and specified in the Marrakesh Accords).

Response:

The requested information was submitted to the validator. For further information see Annex 1.

Clarification Request No. 4a:

The decision to choose March 4th, 2002 as starting date for the project should be explained more detailed. How is this date justified?

Furthermore the estimation of a lifetime of 25 years for the project (both parts: cogeneration and also using electric engines for irrigation purposes) should be supported by documents. Is there

a guarantee by the supplier of the new equipment or are there experiences from comparable projects?

Response:

The requested information was submitted to the validator. For further information see Annex 1.

Clarification Request No. 4b:

Normally the crediting period lasts until March 3rd, 2009. Why are no emission reductions calculated for the year 2009?

Response:

An additional note was inserted below the Tables of PDD's sections A.4.4.1 and E.6.

3.1.3 Conclusion

The corrective action and clarification requests have been resolved.

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.

3.2 Baseline and Additionality

3.2.1 Discussion

By dispatching renewable electricity to a grid, electricity that would otherwise be produced using fossil fuel is displaced. This electricity displacement will occur in the system's margin, i.e. this CDM project will displace electricity that is produced by marginal sources - fossil fueled thermal plants - , which have higher electricity dispatching costs and are solicited only over the hours that base load sources (low-cost or must-run sources) cannot supply the grid.

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.

Using the "tool for the demonstration and assessment of additionality", issued by UNFCCC October 22nd, 2004, it can be confirmed that the project is additional. The economic unattractiveness of enhancing the already existing cogeneration process is indicating the additionality of this project, because the improved operation of the energy processes is not considered as necessary for the operation of Usina Caeté. Furthermore there exist relevant cultural barriers (electricity selling is no core business of the sugar mills) and technological barriers (missing knowledge and experiences with high-developed technologies in the cogeneration field) to carry out such a project. Nevertheless these points have to be elaborated and explained more detailed.

3.2.2 Findings

Corrective Action Request No. 1:

It has to be worked out much more detailed that in contrary to other sugar bagasse cogeneration projects two different methodologies are included in this project as the AM0015 methodology does not consider the substitution of Diesel.

Thus it has to be mentioned that a second methodology has been used in this project (substitution of diesel with electricity from renewable sources) and this second methodology has to be elaborated (with references) more detailed and with refence to an approved cdm methodology.

Response:

The irrigation part of the project has been excluded from the PDD.

Clarification Request No. 3:

One application criteria of the methodology is that the project will not result in an increase of bagasse production reasoned by the project. When the project owner came to the decision to start the project, was this reasoned by a envisaged increase of bagasse production? In case that an increase of bagasse production was envisaged, the project owner shall demonstrate that the old baseline plant had been able to supply the increased energy demand. Additional if the expansion of bagasse production was envisaged the project owner shall demonstrate reasonable that it was not due to energy production.

Response:

The required clarification has been submitted to the validator. For further information see Annex 1.

Corrective Action Request No. 4:

The financial and technical advantages and the feasibility of following the path "business-as-usual" have to be elaborated more detailed.

In detail:

- the financial framework of the project has to be demonstrated via financial figures such as IRR, payback period etc.. It should be made clear that continuing "business-as-usual" would have been the more attractive solution. If available the main content of the investment analysis for this project should be included in the PDD.

If possible, a feasibility study should be added to the PDD, furthermore it should be demonstrated that the end of the lifetime of the old equipment was not reached at all.

Response:

The requested information was submitted to the validator. For further information see Annex 1.

Clarification Request No. 6:

It has to be declared and explained clearly that there are no project emissions.

The aspects "maintenance of the technical equipment of the irrigation system" and "emergency cases" have to be addressed and it should be discussed in which way these scenarios could influence the project case.

The emissions in project case and in the baseline scenario should be faced in the PDD to demonstrate the emission reductions.

Response:

The required information has been submitted to the validator. For further information see Annex 1.

3.2.3 Conclusion

The clarification and corrective action requests have been fully resolved and the project does hence comply with the requirements.

3.3 Monitoring Plan

3.3.1 Discussion

The monitoring plan is appropriate, traceable and transparent to a large extent. 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.

Uncertainty and possibility of monitoring errors are addressed and discussed plausible in the project documents.

3.3.2 Findings

Clarification Request No. 5:

It has to be explained and elaborated more detailed in which way the path "irrigation" influences the monitoring.

ISO 9001 Certificates should be added to the PDD to demonstrate the high level of qualification of the sugar mills for this project.

Response:

The requested information was submitted to the validator. For further information see Annex 1.

Clarification Request No. 7:

It should be demonstrated that such activities – collecting and archiving of data for calculating leakage effects - are not necessary for both paths – electricity generation and operation of the irrigation system.

Response:

The emission due to leakage happens when there's a decrease on bagasse sold from one year to another. However, this project activity did not sell bagasse prior to its implementation.

The irrigation part of the project has been excluded from the PDD.

Clarification Request No. 8:

According to the 20th EB meeting, the board decided that emission factors have to be adjusted ex-post each year. That is not demonstrated clearly and considered in the Monitoring Plan and tables in chapter D.2.1.3. of the PDD. This has to be adjusted.

Response:

The PDD has been updated with a more recent data for EF calculation, considering the period between 2002 and 2004. All information linked to this change in the carbon emission factor has been updated, too.

Corrective Action Request No. 5:

The meter(s) for the internal electricity consumption for the irrigation system have to be included in the monitoring system. The responsibilities for this meter system also have to be clarified, too, and furthermore, how crosschecks are possible for these meters and how data can be reconstructed if these meters fail.

Also it should be checked whether the electricity which already was consumed before project implementation and which has to be subtracted from the total electricity used by the irrigation system can be described by a factor (x % of the total consumed electricity by the irrigation system). If you use weighted-average electricity and there would be a year with long rain periods in which no or extremely less irrigation would be required (even if this is hypothetical) the use of weighted average electricity from the last years would lead to a wrong result.

Response:

The irrigation par of the project has been excluded in the final PDD.

Clarification Request No. 10:

This question.- necessity of (project-specific) day-to-day records - should be clarified for the irrigation path, too.

Response:

The irrigation part of the project has been excluded from the final PDD.

Clarification Request No. 11:

Concerning the path "irrigation" the question -dealing with possible monitoring data adjustments and uncertainties - should be discussed.

Response:

The irrigation part of the project has been excluded from the final PDD.

3.3.3 Conclusion

The clarification and corrective action requests have been fully resolved and the project does hence comply with the requirements.

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

Corrective Action Request No. 2:

Used data for calculating the emission factors, lambda factors (data used are from 2001 – 2003) are not eligible, as they are too old. Updated data (already available date for the period 2002 – 2004) should be applied.

Concerning the project emissions and baseline emissions there has been a major confusion during the on-site audits. Not all assumptions could be confirmed by the farm owners. So please check all the data again and try to demonstrate being conservative.

Response:

The final PDD has been updated with more recent data for EF calculation, considering the period between 2002 and 2004.

Clarification Request No. 12:

This question of potential leakage effects also should be discussed for the part "substitution of Diesel generators by using electricity from renewable sources" of the project.

Response:

The irrigation part of the project has been excluded in the final PDD.

3.4.3 Conclusion

The corrective action and clarification requests have been fully resolved and the project does hence comply with the requirements.

3.5 Environmental Impacts

3.5.1 Discussion

An Environmental Impact Assessment (EIA) has to be submitted to the responsible national authorities.

The environmental impacts have been analyzed by FEAM (Fundação Estadual do Meio Ambiente), which is the responsible organization for environmental impact assessment and for issuing operational and environmental licenses in the Brazilian State of Minais Gerais. The assessment demonstrated the compliance of the project with all referred environmental legislation in Brazil.

3.5.2 Findings

Clarification Request No. 9:

The positive effects have to be elaborated more detailed in the PDD. New job opportunities as result of the implementation of the project have to be illustrated.

Response:

All the environmental and social benefits of the project have been included in section A.2 of the PDD.

In addition, indirect job opportunities were created because the two Southeast Caeté mills (Delta and Volta Grande) needed to contract third parties for the cogeneration system implementation.

Clarification Request No. 13:

It has to be clarified whether a RAP ("Preliminary Environmental Report") had to be submitted to the relevant authority (SMA – State Secretary of Environment and CETESB) – as in all other sugar bagasse cogeneration projects. Further the process "Approval of the RAP" by CETESB and the steps until the receipt of an Installation License have to be described more detailed.

All licenses required for the project have to be added as annex to the PDD.

Information concerning the validity of the licenses (especially environmental license) should be added to the PDD.

Response:

The requested information was submitted to the validator. For further information see Annex 1.

3.5.3 Conclusion

The clarification requests have been resolved and the project does hence comply with the requirements.

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 stakeholders were invited to comment the project. But more detailed information concerning this local stakeholder process is required.

3.6.2 Findings

Clarification Request No. 14:

More detailed information concerning the invitation letter has to be added to the PDD.

Response:

This information is available in the section G.1 of the PDD. The procedures have been adopted as suggested and required by the Brazilian DNA.

Clarification Request No. 15:

It has to be explained why in this case no information via the mass media "newspaper" was sent out.

Response:

The procedures have been adopted as suggested and required by the Brazilian DNA.

3.6.3 Conclusion

The clarification requests have been resolved and the project does hence comply with the requirements.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on UNFCCC website and on its own website http://www.netinform.net/KE/Wegweiser/Guide2.aspx?ID=1217&Ebene1_ID=26&Ebene2_ID=287&mode=1

The PDD was open for commenting in the period from September 1st, 2005 to the September 30th, 2005.

No comments have been received.

5 FINAL VALIDATION OPINION

The Certification Body "Climate and Energy" has been ordered by Usina Caeté S.A. to perform a validation of the above mentioned project. 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 "Southeast Caeté Mills Bagasse Cogeneration Project (SECMBCP)" as described in the revised project design document of December 2005, meets all relevant UNFCCC requirements for the CDM, set by the Kyoto Protocol, the Marrakesh 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 NBCP 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 212 280 tonnes CO_{2e} over a crediting period of seven years, resulting in a calculated annual average of 30 326 tonnes CO_{2e}, represents 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, December 14th, 2005

Werner Betzenbichler

Head certification body "climate and energy"

Munich, December 14th, 2005

Thomas Kleiser

Lead Auditor