

Validation Report

USINA ALTO ALEGRE S/A - AÇÚCAR E ÁLCOOL

Validation of the Alto Alegre Bagasse Cogeneration Project (AABCP), Brazil

Report No. 694560, Revision 01

2005, November 12

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

"Alto Alegre Bagasse Cogeneration Project (AABCP)", Brazil



Page 1 of 23

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|-----------------------------|-------------------------------|---|-----------------------------|--------------------------------|-----------------|--|--|
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| Subject: | | Val | 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: | | Usina Alto Alegre S/A – Açúcar e Álcool Av. Cel. José Soares Marcondes, 3537 Presidente Prudente São Paulo 19050-901 | | | | | |
| | | Brazil | | | | | |
| Contract approved by: | | Werner Betzenbichler | | | | | |
| Report Title: | | Validation of the Alto Alegre Bagasse Cogeneration Project (AABCP), Brazil | | | | | |
| Number of pages | | 23 (excluding annexes and front page) | | | | | |

Summary:

The Certification Body "Climate and Energy" has been ordered by Usina Alto Alegre S/A (São Paulo) 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 "Alto Alegre Bagasse Cogeneration Project (AABCP)", as described in the revised project design document of November 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 AABCP 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 70 399 tonnes CO_{2e} over a crediting period of seven years, resulting in a calculated annual average of 10 057 tonnes CO_{2e} , represent a reasonable estimation using the assumptions given by the project documents.

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

"Alto Alegre Bagasse Cogeneration Project (AABCP)", Brazil



Page 2 of 23

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 |
| TÜV SÜD | TÜV Industrie Service GmbH TÜV SÜD Group |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VVM | Validation and Verification Manual |
| | |

"Alto Alegre Bagasse Cogeneration Project (AABCP)", Brazil

Page 3 of 23



Annex 2: Information Reference List



Page 4 of 23



1 INTRODUCTION

1.1 Objective

Usina Alto Alegre S/A – Açúcar e Álcool has commissioned TÜV Industrie Service GmbH TÜV SÜD Group (TÜV SÜD) to validate the Alto Alegre Bagasse Cogeneration Project (AABCP). 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. 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 August 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 November 10th, 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

"Alto Alegre Bagasse Cogeneration Project (AABCP)", Brazil

Page 5 of 23



> 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) |
| Wilson Tomao | (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.

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.

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)

"Alto Alegre Bagasse Cogeneration Project (AABCP)", Brazil





- Monitoring concepts (Rumber/Kleiser)
- 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":

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



Page 7 of 23

1.3 GHG Project Description

This project activity consists of increasing the efficiency in the bagasse (a renewable fuel source, residue from sugarcane processing) cogeneration facility at **Usina Alto Alegre S/A** – **Açúcar e Álcool (Alto Alegre)**, a Brazilian sugar mill. With the implementation of this project, the mill is 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, also contributing to the regional and national sustainable development.

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

Using steam-Rankine cycle as the basic technology of its cogeneration system, for achieving an increasing amount of surplus electricity to be generated, Alto Alegre began its efforts in two phases, which are:

Phase 1 (2004): The expansion plan started with the operation of a new 20 MW backpressure turbo-generator and one 65 bar boiler. Hence, the total installed capacity of the mill got nearly 25,2 MW (20 MW active turbo-generators, one 4,0 MW and one 1,2 MW turbo-generators and one 23 bar boiler were put in stand by).

Phase 2 (2007): Alto Alegre has plans to proceed with the expansion of its cogeneration facilities in 2007, installing another 12 MW backpressure turbo-generator and one 63 bar boiler (another 21 bar boiler was put in stand by). With that, Alto Alegre will have nearly 15 MW to exploit for commercialisation (the capacity available for internal consumption is predicted to be 10 MW). This means increasing renewable energy share in the Brazilian matrix.

Project participants are:

- Usina Alto Alegre S/A Açúcar e Álcool, 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.

"Alto Alegre Bagasse Cogeneration Project (AABCP)", Brazil



Page 8 of 23

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.



Page 9 of 23

| 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 pro- vided (OK), or a Corrective Action Request (CAR) of risk or non-compliance with stated requirements. The corrective action requests are numbered and pre- sented to the client in the Validation report. | Used to refer to the rele- vant checklist questions in Table 2 to show how the specific requirement is validated. This is to en- sure a transparent Valida- tion process. |

| Validation Protocol Table 2: Requirement checklist | | | | |
|---|---|--|---|---|
| Checklist Question | Reference | Means of verifi- cation (MoV) | Comment | Draft and/or Final Conclusion |
| The various require- ments in Table 1 are linked to checklist questions the project should meet. The checklist is organised in seven different sec- tions. Each section is then further sub- divided. The lowest level constitutes a checklist question. | Gives ref- erence to documents where the answer to the check- list question or item is found. | Explains how con- formance with the checklist question is investigated. Examples of means of verifica- tion are document review (DR) or interview (I). N/A means not appli- cable. | The section is used to elabo- rate and discuss the checklist question and/or the confor- mance to the question. It is further used to explain the con- clusions reached. | This is either acceptable based on evidence pro- vided (OK), or a Correc- tive Action Request (CAR) due to non- compliance with the checklist question (See below). Clarification is used when the valida- tion team has identified a need for further clarifi- cation. |

| Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests | | | | |
|---|--|---|--|--|
| Draft report clarifica- tions and corrective action requests | <i>Ref. to checklist question in table 2</i> | Summary of project owner response | Validation conclusion | |
| If the conclusions from the draft Validation are either a Corrective Ac- tion Request or a Clari- fication 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 communica- tions with the valida- tion team should be summarised in this section. | This section should sum- marise the validation team's responses and final conclusions. The conclu- sions should also be in- cluded in Table 2, under "Final Conclusion". | |

Figure 1 Validation Protocol Tables



Page 10 of 23

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 October 13th, 2005 TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of:

- Usina Alto Alegre S/A, Brazil
- Econergy Brasil Ltda. Sao Paulo, State of Sao Paulo, Brazil

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

| Interviewed organi- sation | Interview topics |
|-------------------------------|--|
| Usina Alto Alegre 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 |
| Econergy Brasil Ltda. | Project design |
| | Technical equipment |
| | Sustainable development issues |
| | Baseline determination |
| | Additionality |
| | Crediting period |
| | Monitoring plan |
| | Environmental impacts |
| | Stakeholder process |

Table 1Interview topics



Page 11 of 23

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.



Page 12 of 23

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 4 Corrective Action Requests and 17 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 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 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 starts 04/05/2004, the length of the first crediting period is seven years with the intention for renewal.

Nevertheless the starting date as well as the operational lifetime are clearly defined and also handled in a reasonable manner, but have to be ensured more detailed by additional justification. Furthermore the experience of the company with cogeneration already in the past has to be demonstrated. The positive environmental effects of the project, the social benefits and the



Page 13 of 23

contribution to sustainable development in Brazil have to be illustrated more detailed. Furthermore the project boundaries have to be explained/viewed more clearly.

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.

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.

The project hasn't received a written Letter of Approval (LoA) currently. One of the requirements to receive such a LoA by the Brazilian DNA is a positive validation opinion in the final validation report. The signed written Letter of Approval has to be submitted to the validator before starting the registration process for this project at the UNFCCC-EB.

3.1.2 Findings

Outstanding issue:

The project has not obtained a Letter of Approval/ Letter of Authorization from the Investor Contry and 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 Letter of Approval (LoA) can be issued by the Brazilian DNA only after the presentation of the validation report issued by the DOE (TÜV SÜD).

Clarification Request No. 1:

A drawing illustrating the project boundaries should be submitted to the validator.

Response:

The drawing illustrating the project boundaries has been sent to the validator by e-mail at No-vember 11th, 2005.

Clarification Request No. 2:

More detailed information concerning the dates of initial operation of the new equipment (for both phases) and the current status of the old equipment (use as stand-by equipment or demolished) should be added to the PDD and integrated (status demolished or stand-by) in table 1).

Also project-specific information concerning the old equipment, its status and age/life-time should be added.

Response:



Page 14 of 23

The requested information was submitted to the validator. For further information see Annex 1 of this validation report (validation Protocol).

Clarification Request No. 5:

It should be explained whether Alto Alegre sugar mill already used cogeneration for its own needs without governmental incentives before starting the project.

Response:

The use of electricity generated by cogeneration facility for internal consumption of the own mill is a "business-as-usual" practice. Thus Alto Alegre already used cogeneration for his own needs before starting the process.

Corrective Action Request No. 3:

It has to be demonstrated clearly, re-traceably, transparently and secured in written form that the sugar mill 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 Marrakech Accords).

Response:

The requested information was submitted to the validator. For further information see Annex 1 (validation protocol).

Clarification Request No. 6:

The decision to choose May 4th, 2004 as starting date for the project activity should be explained (how is this date justified).

Furthermore the estimation of a lifetime of 25 years for the equipment used in this project should be supported by a plausible argumentation or written 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. 10:

The positive effects of the project have to be demonstrated and elaborated a little bit more detailed in the PDD. New job opportunities as result of the implementation of the project have to be quantified.

Response:

All the environmental and social benefits of the project are demonstrated in section A.2 of the PDD

In addition, 15 direct and 45 indirect job opportunities were created for implementation and operation of Alto Alegre's cogeneration system.



Page 15 of 23

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 Alto Alegre. This should be elaborated more detailed. The project baseline is clearly, retractably and plausibly displayed in the project BLS. Possible project alternatives are discussed.

The discussion of leakage effects has to be elaborated more argumentative.

3.2.2 Findings

Corrective Action Request No. 4:

The financial and technical advantages and the feasibility of following the path "business-asusual" 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.

Response:



Page 16 of 23

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

Clarification Request No. 8:

It has been demonstrated in a plausible manner (argumentation) that leakage emissions are not expected to occur.

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.

3.2.3 Conclusion

The corrective action and clarification 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. 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.

The already existing monitoring system has to be demonstrated and explained more clearly in the PDD and attached documentation. Furthermore the existing QMS has to be described

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

3.3.2 Findings

Clarification Request No. 7:

Monitoring procedures with responsibilities, work instructions and information concerning dealing with emergency cases etc. have to be elaborated and examples for work instructions have to be submitted to the validator.

As the project is already running since 2004 an example for the annual CDM-specific reporting in this project has to be submitted to the

Response:

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



Page 17 of 23

Clarification Request No. 11:

The quality management system (QMS) currently implemented in the sugar mill is not described clearly enough in the PDD.

Additional information has to be submitted to the validator.

Response:

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

Clarification Request No. 12:

The issue "procedures and responsibilities for maintenance of monitoring equipment and installations" should be addressed and elaborated more detailed.

Response:

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

3.3.3 Conclusion

The clarification 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. But more current data have to be used for the calculations. Furthermore there are some open issues concerning the calculation of emission reductions especially in the second phase of the project. The calculations have to be worked out and explained more clearly.

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. 1:

More actual data should be used. The operating and built margin are calculated on basis of data from the years 2001 - 2003. As there are already data available for the year 2004 the data (lambda, operating and built margin) used in the PDD have to be updated.

"Alto Alegre Bagasse Cogeneration Project (AABCP)", Brazil



Page 18 of 23

Response:

The PDD was updated with new data from 2002-2004 as required. All linked information was also modified.

Corrective Action Request No. 2a:

The planned sale of electricity – maybe there is a contact with the responsible local/regional grid operator – for the years 2004 – 2010 (2011) – should be stated in the PDD to have a source for the calculations in chapter A.4.4.1. and in table E.6.). Furthermore the monthly amount of electricity sold to the grid from starting the project (may 2004) until September or October 2005 has to be submitted to the validator. Without these background data for the calculations it cannot be confirmed that the calculations are conservative.

Furthermore the data given in table E.6 would be much more transparent if, in separate figures, the baseline emissions (and assumptions for calculating these baseline emissions), the project emissions ("0") and the emission reductions would be specified. Nowhere in the PDD a list with the baseline emissions (and the basis for the calculations (supplied electricity to the grid on monthly basis) of baseline emissions in the years 2004 - 2005) is existing. Thus it is impossible to confirm that the calculations are conservative.

All these background information has to be added to the PDD.

Response:

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

Corrective Action Request No. 2b:

The data on page 8 and 26 – for example the emission reductions in the year 2009 (14.940 and 14.490) are not identical? What is the reason for this? As long as no further data are available (operating hours, efficiency factor, planned amount of electricity to sell to the grid on monthly basis etc.) are available we cannot confirm the correctness of calculations!

Response:

The emissions reductions data was updated.

The electricity produced in the period 2005-2010 is an estimative, elaborated by the cogeneration department of the mill, admitting that bagasse is produced and burned during the sugarcane harvest season (about 7 months in a year) and that Electricity Sold = Total Installed Capacity – Stand-by Equipments – Internal Consumption.

A new table with additional information was added on Annex 3, as required (Figure 6).

Clarification Request No. 3:

It has to be checked whether the crediting period (first 7 years) is really envisaged to be closed at the end of 2010 (see chapter A.4.4.1, there seems to be a mistake) or whether the finish date should not be May 3rd, 2011, which would be possible (and correct).

Response:

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

"Alto Alegre Bagasse Cogeneration Project (AABCP)", Brazil



Page 19 of 23

Clarification Request No. 4:

The actual data until 2004, which are already available, have to be used to determine lambda and the operating / built margin.

Response:

The PDD was updated with new data from 2002-2004 as required. All linked information was also modified.

Clarification Request No. 9:

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 will be updated with a more recent data for EF calculation, considering the period between 2002 and 2004, and all linked information also.

Clarification Request No. 13:

Brief information concerning uncertainties should be added to the PDD.

Response:

The meters have an accuracy higher than 99,8% and are calibrated every two years according to the Brazilian electric sector Norm: "IEC 60687(06/1992) - classe 0,2".

3.4.3 Conclusion

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



Page 20 of 23

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 the State Secretary of Environment (*Secretaria de Estado do Meio Ambiente*) through CETESB (*Companhia de Tecnologia de Saneamento Ambiental*) – state of São Paulo environmental agency. The assessment demonstrated the compliance of the project with all referred environmental legislation in Brazil.

The relevant background documentation has to be submitted to the validator.

3.5.2 Findings

Clarification Request No. 14:

Date (period) for the environmental impact assessment (carried out by CETESB) and a short summary have to be included in the PDD.

A copy of the existing CETESB report has to be submitted to the validator.

Response:

Regarding the cogeneration system expansion of Alto Alegre, the mill has received their Operation License, issued by CETESB on June 25th, 2002.

Alto Alegre is in compliance with all the requests regarding its licensing procedures and this information is already inserted into the section F.1 of the PDD.

3.5.3 Conclusion

The clarification request has been fully resolved and the project does hence comply with the requirements.



Page 21 of 23

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. The invitation procedure has to be elaborated more detailed.

3.6.2 Findings

Clarification Request No. 15:

More detailed information concerning the invitation letter for the local Stakeholder Process has to be added to the PDD.

Response:

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

Clarification Request No. 16:

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

Response:

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

Clarification Request No.17:

The information that an official "Local Stakeholder Process" normally is not required for such projects (according to the information during the on-site audit) has to be explained.

Response:

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

3.6.3 Conclusion

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



Page 22 of 23

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on UNFCCC website and on its own website (http://www.netinform.de/KE/Wegweiser/Guide2.aspx?ID=1173&Ebene1_ID=26&Ebene2_ID=2 86&mode=1). The PDD was open for commenting from August 12th, 2005 to September 10th, 2005.

No comments have been received.



Page 23 of 23

5 FINAL VALIDATION OPINION

The Certification Body "Climate and Energy" has been ordered by Usina Alto Alegre S/A - Açúcar e Álcool 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 "Alto Alegre Bagasse Cogeneration Project (A-ABCP)", as described in the revised project design document of November 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 AABCP 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 70 399 tonnes CO_{2e} over a crediting period of seven years, resulting in a calculated annual average of 10 057 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, 2005-11-15

and energy"

Werner Betzenbichler Head certification body "climate Munich, 2005-11-15

Thomas Kleiser Lead Auditor