Industrie Service

Validation Report

USINA ALTA MOGIANA S/A – AÇÚCAR E ÁLCOOL
FAZENDA SANTANA

Validation of the
Usina Alta Mogiana S/A – Açúcar e Álcool
Bagasse Cogeneration Project (AMBCP)

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TÜV Industrie Service GmbH TÜV SÜD Group

Carbon Management Service
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Industrie Service

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Executing Operational Unit:	TÜV Industrie Service GmbH TÜV SÜD Group Carbon Management Service Westendstr. 199 - 80686 Munich Federal Republic of Germany
Client:	Usina Alta Mogiana S/A – Açúcar e Álcool Fazenda Santana São Joaquim da Barra – SP, BRAZIL
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Summary:

The Certification Body ”Climate and Energy” has been ordered by Usina Alta Mogiana S/A – Açúcar e Álcoolto (Alta Mogiana) 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 “Usina Alta Mogiana S/A – Açúcar e Álcool Bagasse Cogeneration Project (AMBCP)”, as described in the revised project design document of August 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 AMBCP 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 78,285 tonnes CO_{2e} over a crediting period of seven years, resulting in a calculated annual average of 11,183 tonnes CO_{2e}, represent a reasonable estimation using the assumptions given by the project documents.

Work carried out by:	Werner Betzenbichler (project manager, ghg lead auditor) Wilson Tomao (ghg auditor, local auditor) Markus Knödlseder (ghg auditor)	Internal Quality Control by: Michael Rumberg

Abbreviations

AE	Applicant Operational Entity
Alta Mogiana	Usina Alta Mogiana S/A – Açúcar e Álcoolto
AMBCP	Usina Alta Mogiana S/A – Açúcar e Álcool Bagasse Cogeneration Project
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
PPA	Power purchase agreement
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 Alta Mogiana S/A – Açúcar e Álcoolhas commissioned TÜV Industrie Service GmbH TÜV SÜD Group (TÜV SÜD) to validate the Usina Alta Mogiana S/A – Açúcar e Álcool Bagasse Cogeneration Project (AMBCP). 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 an early draft PDD in 2002. Based on this documentation a document review and a fact finding mission in form of an on-site audit has taken place. Afterwards the client decided to revise the PDD according to established regulations, an approved methodology and the CARs and CRs indicated in the first audit process also has taken into account new developments on the regulatory side (as for example the new PDD format). That revised PDD version was submitted for publishing in the global stakeholder process in February 2005. It serves as the basis for the assessment presented herewith. In August 2005 a revised final PDD has been submitted in which the all open issues and clarification requests have been solved by the project developer by submitting additional or corrected information. That changes are not considered to be significant with respect to the qualification of the project as a CDM project based on the two main objectives of the CDM to achieve a reduction of anthropogenic GHG emissions by sources and to contribute to sustainable development. 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 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:

Mr. Werner Betzenbichler	(project manager, GhG lead auditor)	TÜV SÜD
Mr. Markus Knödlseder	(GHG auditor)	TÜV SÜD
Mr. Wilson Tomao	(local expert, ghg auditor)	

Mr. Werner Betzenbichler is head of the "Certification Body for Climate and Energy" and expert for conventional energy generation, renewable energy, energy expansion planning and familiar with the recent version of CDM and JI criteria as necessary for the implementation of Art. 6 and Art. 12 of the KP. Since 2000 he has been working in the international climate change and emission trading business as a verifier. He was strong involved in the development of the Validation and Verification Manuals (VVM).

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 the Brazilian grid.

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 (Betzenbichler/Knödlseder)
- Environmental and Social Impact Assessment (Betzenbichler/ Tomao)
- Skills in environmental auditing (Betzenbichler/ Tomao)
- Quality assurance (Betzenbichler/ Tomao)
- Technical aspects (Betzenbichler/Knödlseder)
- Monitoring concepts (Betzenbichler/Knödlseder)
- 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 head of certification body "climate and energy")

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 Alta Mogiana S/A - Açúcar e Álcool** (Alta Mogiana), 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 and contributes to the regional and national sustainable development.

By investing to increase in steam efficiency in the sugar and alcohol production and increase in the efficiency of burning the bagasse (more efficient boilers), Alta Mogiana 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, Alta Mogiana began its efforts in two phases, which are:

Phase 1 (2002): This phase includes the refurbishment of two 21 bar boilers to 42 bar each, which increased the energy efficiency significantly; and the acquisition of a backpressure turbo-generator of 25 MW capacity. Moreover, the energy consumption in the sugar process was reduced by 19% from 530 Kg of steam per ton of sugarcane crushed to 430 Kg. In 2002, Alta Mogiana supplied the grid with 28.948 MWh of renewable electricity. CPFL* is the utility that has signed a ten-year contract with Alta Mogiana. The guaranteed capacity of energy sales, which is under the PPA†, is the basis for calculating the total amount of expected carbon offsets (CERs) from 2002 through 2004. However, as described ahead, AMBCP will likely generate much more energy, therefore more CERs, than what is expected by the PPA. This has actually happened in 2002, when around 21.600 MWh of electricity were to be produced, and the real value surpassed that. Even though AMBCP, in this first phase, reached a total installed capacity of 37,5 MW, the two turbo-generators of 5 MW and 7,5 MW were on stand-by, as this was the first year Alta Mogiana operated the new turbo-generator. Although in the PPA a surplus capacity of 6 MW is guaranteed to operate in order to generate electricity for commercialization, Alta Mogiana is capable to deliver since it may use spare capacity as needed or wanted, and this electricity commercialization not forecasted will also be verified and certified by the Operational Entity to account for the total carbon offset, based at the "Total Capacity for Surplus Electricity". It is worth noticing that small energy projects, like AMBCP, are not dispatched by the National Operator of the Electricity System (ONS), meaning that Alta Mogiana is allowed to supply the grid as much as it can. And in the end Alta Mogiana can commercialize any extra amount of electricity in the Wholesale Electricity Market (MAE) in Brazil.

Phase 2 (2003): In the year 2003, during the harvest season, Alta Mogiana continued the investments from 2002 to reach a higher efficiency for exploiting the biomass through a number of measures in its process and also installing a new 42 bar boiler originally scheduled for Phase 3. The mill was therefore able to generate 41.700 MWh of clean energy to supply the grid. The contracted capacity to supply the grid was 12 MW. In this phase, the already installed capacity is to be better exploited by investing in efficiency increase in the sugar production, therefore saving steam consumption internally. Moreover, bagasse production is also projected to increase. Nevertheless, even though the two stand-by turbo-generators are predicted not to be in use according to the PPA, they can generate electricity if there is a financial advantage for doing it.

Table 1 shows how Alta Mogiana's infrastructure will be updated according to AMBCP.

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* *Companhia Paulista de Força e Luz*, a leading electricity distributor in Brazil.

† Power Purchase Agreement

Table 1: AMBCP's Cogeneration equipment upgrades

	Active/Activating		Stand-by
Phase 1 (2002)	Two refurbished 42 bar boilers		Two backpressure turbo-generators one of 5 and one 7,5 MW
	One 25 MW backpressure turbo-generator		
Phase 2 (2003)	One 42 bar boiler	Two refurbished 42 bar boilers	Two backpressure turbo-generators one of 5 and one 7,5 MW
		One 25 MW backpressure turbo-generator	

The project is located in the municipality of São Joaquim da Barra that is northeast in the State of São Paulo, about 380 km away from the state capital, São Paulo, in the agricultural region of Orlândia.

Project participants are:

- Usina Alta Mogiana S / A Açúcar e Álcool, a Brazilian private company
- Econergy Brasil Ltda., a Brazilian private company
- World Bank Prototype Carbon Fund (PCF).

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 Appendix A 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 Appendix B to this report.

2.2 Follow-up Interviews

In the period of November 27th 2001 – May 30th, 2005, TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the first document review. Representatives of

- Head quarters of CPFL in Campinas, State of Sao Paulo, Brazil, on November 27th, 2001;
- CPFL's Carioba power plant in Americana, State of Sao Paulo, Brazil, on November 27th, 2001;
- Usina Alta Mogiana S/A – Açúcar e ÁlcoolSugar Mill in Morro Agudo, State of Sao Paulo, Brazil, on May 14th, 2002 and
- Econergy International Corporation in Sao Paulo, State of Sao Paulo, Brazil, on November 29th 2001
- Operacão Nacional do Sistema (ONS), the national dispatcher of Brazilian grid in Brasilia, State of Brasilia, Brazil, on 30th May 2005

were interviewed. The main topics of the interviews are summarised in Table 2.

Table 2 Interview topics

Interviewed organisation	Interview topics
Usina Alta Mogiana S/A – Açúcar e ÁlcoolSugar Mill in Morro Agudo	▪ Project design ▪ Technical equipment ▪ Sustainable development issues ▪ Additionality ▪ Crediting period ▪ Monitoring plan ▪ Management system ▪ Environmental impacts ▪ Stakeholder process ▪ Approval by the host country
Econergy International Corporation	▪ Project design ▪ Technical equipment ▪ Sustainable development issues ▪ Baseline determination ▪ Additionality

	▪ Crediting period ▪ Monitoring plan ▪ Environmental impacts ▪ Stakeholder process
CPFL's Carioba power plant in Americana	▪ metering system, calibration, power supply
Head quarters of CPFL	▪ metering system, contracts, bills, responsibilities, sectoral policy
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 Appendix A.

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 Appendix A.

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 Appendix A. The validation of the project resulted in three Corrective Action Requests and one Clarification Request.

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 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 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 is 06/05/2002 – 05/05/2009, 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 and a similar Approval given by PCF participants 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.

3.1.3 Conclusion

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, 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.

The application of the Additionality Tool the project can be confirmed as 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 Alta Mogiana S/A – Açúcar e ÁlcoolSugar Mill. The project baseline is clearly, retractably and plausibly displayed in the project BLS. Possible project alternatives are discussed,

3.2.2 Findings

Corrective Action Request No 1:

The application of the methodology and the discussion and determination of the chosen baseline is transparent, but not correct. Used data for calculating the emission factors from the OECD study are not eligible, as they are too old. Updated data should be applied. If data from ONS will be used for

calculation of new emission factor, the special circumstances and weakness of that approach shall be pointed out.

Response:

Revised PDD and revised baseline calculations were submitted.

Clarification Request No. 1:

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.

Response:

Reliable and plausible statement of the facility manager confirms that there an increase bagasse production is not envisaged.

3.2.3 Conclusion

The revised baseline calculation is based on latest available data and in line with calculation method of applied and approved Methodology AM0015. Delivered information can be confirmed. However the baseline calculations have according to available data some weaknesses:

i. The ONS grid includes only 76% of installed capacity and 20% of installed power plants,
ii. ONS dispatch only power plant bigger than 30 MWel,
iii. ONS has no control over sub grids below 138 kV.

In spite of those weaknesses the validation team confirms that the chosen baseline determination is transparent and according to approved methodology against the background of available data. Those special circumstances of the project boundary are also described in the final PDD version, which is the base for that conclusion.

The projects baseline and additionality is in line with appropriate 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.

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

3.3.2 Findings

Corrective Action Request No 2:

The stated crediting period (7y-0m) and the prospected emission reductions (table chapter E.6.) do not coincide. The PDD has to be adjusted.

Response: Submission of revised PDD.

Corrective Action Request No 3

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

Response: Submission of revised PDD.

3.3.3 Conclusion

The validation team confirms the monitoring plan; the projects monitoring plan is in line with approved methodology AM0015.

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

None

3.4.3 Conclusion

The project will result in a reduction of GHGs. The calculated estimation of prospective emission reductions, stated with **78,285** tonnes CO2 totally within the crediting period of seven years seems to be realistic.

3.5 Environmental Impacts

3.5.1 Discussion

An Environmental Impact assessment has to be submitted to the responsible national authorities.

A RAP (“Preliminary Environmental Report”) was submitted to the relevant authority (SMA - State Secretary of Environment and CETESB). The RAP was approved by CETESB and an Installation License has been awarded to Usina Alta Mogiana S/A – Açúcar e Álcool sugar mill in 2002.

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

None

3.6.3 Conclusion

Alta Mogiana did not receive any adverse comments on the project. It fulfils appropriate 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.de/KE/Wegweiser/Guide2.aspx?ID=926&Ebene1_ID=26&Ebene2_ID=167). The PDD was open for commenting from 06th of February 2005 for 30 days.

One comment was received.

4.1 Content of the comments received

A comment has been submitted on 24.02.2005 by Axel Michaelowa, Hamburger Welt-Wirtschafts-Archiv (HWWA). HWWA is an accredited observer organisation to the United Nations Framework Convention on Climate Change Conference of the Parties.

The comment has the following content:

"The baseline emission factors are from an outdated (three-year old) IEA study and should be updated with more recent data. "

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.

TÜV SÜD has included the aspects addressed by the comment in the discussions with the project developer (see Corrective Action Request No. 1 in chapter 3.2.2). The project developer investigated a new data base for calculating a most recent grid factor. The data base is provided by the national dispatch centre and the Brazilian Ministry of Energy and Mining.

Due to the rejection of the old data base and the development of a new reliable data base by the project developer the validation team regards as the comment sufficiently considered in its opinion.

5 VALIDATION OPINION

TÜV SÜD has performed a validation of the Validation of the Usina Alta Mogiana S/A – Açúcar e Álcool Bagasse Cogeneration Project, 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 "Usina Alta Mogiana S/A – Açúcar e Álcool Bagasse Cogeneration Project (AMBCP)", as described in the revised project design document of August 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 AMBCP 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 78,285 tonnes CO_{2e} over a crediting period of seven years, resulting in a calculated annual average of 11,183 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, 30/08/2005

Michael Rumberg

Deputy of certification body "climate and energy"

Munich, 30/08/2005

Werner Betzenbichler

Project Manager

Industrie Service

Appendix A: Validation Protocol

Appendix B: Information Reference List