CDM Project Activity Registration and Validation Report Form

(By submitting this form, designated operational entity confirms that the proposed CDM project activity meets all validation and registration requirements and thereby requests its registration)

Section 1: Request for registration	
Name of the designated operational entity (DOE) submitting this form	TÜV Industrie Service GmbH TÜV SÜD Group
Title of the proposed CDM project activity (Section A.2 of the attached CDM-PDD) submitted for registration	Alta Mogiana Bagasse Cogeneration Project (AMBCP).
Project participants (Name(s))	▪ Usina Alta Mogiana S / A Açúcar e Álcool ▪ Econergy Brasil Ltda. ▪ International Bank for Reconstruction and Development as Trustee of the Prototype Carbon Func (PCF)
Sector in which project activity falls	1-Energy industries (renewable - / non-renewable sources)
Is the proposed project activity a small-scale activity?	No / Yes *(underline as applicable)*

Section 2: Validation report	
List of documents to be attached to this validation report (please check mark)*:*	

X	The CDM-PDD of the project activity
X	An explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations. This explanation is included in the Validation Report No. 67139*, rev 02.*
❑	The written approval of voluntary participation from the designated national authority of each Party involved, including confirmation by the host Party that the project activity assists it in achieving sustainable development:
X	Other documents, including any validation protocol used in the validation
○	Validation Report (Validation Report No. 67139*, rev 02*), including a validation protocol, an information reference list and a list of persons interviewed by DOE validation team during the validation process.
❑	Information on when and how the above validation report is made publicly available.
❑	Banking information on the payment of the non-reimbursable registration fee
❑	A statement signed by all project participants stipulating the modalities of communicating with the Executive Board and the secretariat in particular with regard to instructions

regarding allocations of CERs at issuance

Executive Summary and Introduction, including

- **Description of the proposed CDM project activity**
- **Scope of validation process (include all documentation that has been reviewed and name persons that have been interviewed as part of the validation, as applicable)**
- **DOE Validation team (list of all persons involved in the validation, describing functions assumed in the validation)**

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[1] is the utility that has signed a ten-year contract with Alta Mogiana. The guaranteed capacity of energy sales, which is under the PPA[2], 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

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

[2] Power Purchase Agreement

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.

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.

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 the CARs and CRs indicated in the first audit process also has been taking 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 auditor)	TÜV SÜD
Mr. Markus Knödlseder	(GHG auditor)	TÜV SÜD
Mr. Wilson Tomao	(local expert, ISO1400 auditor)	TÜV Bayern Brazil

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/ Wilson)
- Skills in environmental auditing (Betzenbichler/ Wilson)
- Quality assurance (Betzenbichler/ Wilson)
- Technical aspects (Betzenbichler/Knödlseder)
- Monitoring concepts (Betzenbichler/Knödlseder)
- Political, economical and technical random conditions in host country (Wilson)

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

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

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

For further details, please, refer to the "Methodology" section of the validation report (Validation Report No. 67139, rev 02).

Description of methodology for carrying out validation

- **Review of CDM-PDD and additional documentation attached to it**
- **Assessment against CDM requirements (e.g. by use of a validation protocol)**
- **Report of findings by the DOE, e.g. by use of type of findings (e.g. corrective action requests, clarifications or observations). Please explain the way findings are "labelled" during validation.**
- **Include statements or assessments in the section "Conclusions, final comments and validation opinion" below.**

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.

For further details, please, refer to the "Methodology" section of the validation report (Validation Report No. 67139, rev 02).

Explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations;

- **Description of how and when the PDD was made publicly available**
- **Description of how comments were received and made publicly available**
- **Explanation of how due account has been taken of comments received**
- **Compilation of all comments received (Identify the submitter)**

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.

The 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. "

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 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.

Conclusions, final comments and validation opinion

- **Provide conclusions on each requirement under paragraph 37 of the CDM modalities and procedures, describing how these requirements have been meet. This shall include assessments and findings (e.g. corrective action requests, clarifications or observations) in relation to each requirement, including a confirmation that all issues raised have been addressed to the satisfaction of the DOE.**
- **Final comments and 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}, represent a reasonable estimation using the assumptions given by the project documents.

The DOE declares herewith that in undertaking the validation of this proposed CDM project activity it has no financial interest related to the proposed CDM project activity and that undertaking such a validation does not constitute a conflict of interest which is incompatible with the role of a DOE under the CDM.	
By submitting this validation report, the DOE confirms that all validation requirements are met. Name of authorized officer signing for the DOE	Markus Knödlseder
Date and signature for the DOE	31/08/2005 

Section below to be filled by UNFCCC secretariat		
Date when the form is received at UNFCCC secretariat		
Date at which the registration fee has been received		
Date at which registration shall be deemed final		
Date of request for review, if applicable		
Date and number of registration	Date	Number