 CDM Project Activity Registration and Validation Report Form <i>(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)</i>	
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	Cruz Alta Bagasse Cogeneration Project (CABCP)
Project participants (Name(s))	<ul style="list-style-type: none"> ▪ Açúcar Guarani S.A. (Cruz Alta), ▪ Econergy Brasil Ltda.,
Sector in which project activity falls	1- Energy industries (renewable - / non-renewable sources)
Is the proposed project activity a small-scale activity?	<u>No</u> / Yes (<i>underline as applicable</i>)
Section 2: Validation report	
List of documents to be attached to this validation report (please check mark):	
<ul style="list-style-type: none"> 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. 438562, <i>rev 02b</i>; <input type="checkbox"/> 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 <ul style="list-style-type: none"> <input type="radio"/> Validation Report (Validation Report No. 438562, <i>rev 02b</i>), including a validation protocol, an information reference list and a list of persons interviewed by DOE validation team during the validation process. <input type="checkbox"/> Information on when and how the above validation report is made publicly available. <input type="checkbox"/> Banking information on the payment of the non-reimbursable registration fee <input type="checkbox"/> 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 efficiency in the bagasse (a renewable fuel source, residue from sugarcane processing) cogeneration facility at Cruz Alta sugar mill (Cruz Alta), one of the two sugar mills owned by **Açúcar Guarani S.A.** (Guarani). 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 CO₂ emissions. By investing to increase steam efficiency in the sugar and alcohol production and increase in the efficiency of burning the bagasse (more efficient boilers), Cruz Alta generates surplus steam and uses it exclusively for electricity production (through turbo-generators).

Using Steam-Ranking cycle as the basic technology of its cogeneration system, for achieving an increasing amount of surplus electricity to be generated, Cruz Alta began its efforts in three phases. Until 2002, Cruz Alta did not use to commercialize electricity. It had two 4 MW and one 2,4 MW backpressure turbo-generators installed and active, totalling 10,4 MW installed capacity. To supply steam, three 22 bar boilers were used.

Phase 1 (2003): In Phase 1, Guarani installed a 21,8 MW backpressure turbo-generator and a 63 bar boiler in Cruz Alta, while deactivating one 2,4 MW backpressure turbo-generator and putting a 22 bar boiler on stand-by, with total capacity in this phase reaching 29,8 MW.

Guarani has a PPA signed with CPFL (Companhia Paulista de Força e Luz, a leading electricity distributor in Brazil), valid from 2003 to 2012, meaning it is contracted to supply electricity. According to this contract, Guarani has to deliver at least 51.360 MWh per year. This is a minimum required for CABCP Phase 1, but the mill can sell any extra-amount produced above of that threshold to CPFL, following PPA's clauses.

For Phase 2, Guarani is negotiating an addendum for the extra amount of electricity it will produce with the new facilities.

The project is located in the municipality of Olímpia is located in the northwest of the State of São Paulo and in the southeast of Brazil.

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 2004. 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 / 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 April 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 Knödseder	(GHG auditor)	TÜV SÜD
Mr. Wilson Tomao	(GHG auditor, local expert)	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 Knödseder: After his professional training as chemical assistance Mr. Knödseder 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. Knödseder is also an auditor for environmental management systems (ISO 14.000).

He interviewed the national Brazilian dispatcher Operação Nacional 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/Knödseder)
- 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”)

In the period of March 14th 2004 – 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

- Guarani sugar mill, State of Sao Paulo, Brazil, on March 14th, 2004,
- Econergy International Corporation in Sao Paulo, State of Sao Paulo, Brazil, and on March 12th 2004
- Operação Nacional do Sistema (ONS), the national dispatcher of Brazilian grid in Brasilia, State of Brasilia, Brazil, on 30th May 2005

were interviewed. For further details, please, refer to the “Methodology” section of the validation report (Validation Report No. 438562, rev 02b).

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. 438562, rev 02b).

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=1000&Ebene1_ID=26&Ebene2_ID=234
The PDD was open for commenting from April 11, 2005 to the May 11, 2005.

No comment was received.

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 met. 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**

The Certification Body "Climate and Energy" has been ordered by Açúcar Guarani S.A. (Guarani) 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 "Cruz Alta Bagasse Cogeneration Project (CABCP)", 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 project 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 CO₂ 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 70 427 tonnes CO_{2e} over a crediting period of seven years, resulting in a calculated annual average of 10 061 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		
Date and signature for the DOE	23/12/2005	
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