



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

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| Name of the designated operational entity (DOE) submitting this form | TÜV SÜD Industrie Service GmbH |
| Title of the proposed CDM project activity (Section A.2 of the attached CDM-PDD) submitted for registration | ARAPUtanga Centrais ELétricas S. A. - ARAPUCEL - Small Hydroelectric Power Plants Project |
| Project participants (Name(s)) | <ul style="list-style-type: none"> - Araputanga Centrais Elétricas S.A - Arapucel Indiavaí S.A - Arapucel Ombreiras S.A |
| Sector in which project activity falls | Energy industries (1) |
| Is the proposed project activity a small-scale activity? | Yes / <u>No</u> (underline as applicable) |

Section 2: Validation report

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| List of documents to be attached to this validation report (please check mark): | |
| <p>X The CDM-PDD of the project activity</p> <p>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. 567510, Revision 2;</p> <p>X 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:</p> <p>X Other documents, including any validation protocol used in the validation</p> <ul style="list-style-type: none"> o Validation Report (Validation Report No. 567510, Revision 2) including a validation protocol, information reference list and a list of persons interviewed by DOE validation team during the validation process. <p>X Information on when and how the above validation report is made publicly available.</p> <p>q Banking information on the payment of the non-reimbursable registration fee</p> <p>X 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</p> | |

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)**

The objective of the ARAPUCCEL Project is to generate renewable electricity using hydro power resources and to sell the generated output to the South-Southeast-Midwest Grid on the basis of a power purchase agreement (PPA). The project activity will generate greenhouse gas (GHG) emission reductions by avoiding CO₂ emissions from electricity generation by fossil fuel power plants that supply the South-Southeast-Midwest Grid, which is connected to the North- Northeast Grid of Brazil and with one interconnection to Argentinian grid.

The proposed ARAPUCCEL Project is located along the Jauro River within the State of Mato Grosso. The project involves the installation of 3 hydro power plants, providing a total of 74 MW. All of them are according Brazilian regulation operated as "small hydro power plants".

Project participants are the three operators of the individual plants Araputanga Centrais Eléctricas S. A., Arapucel Indiavaí S.A. and Arapucel Ombreiras S.A. as Project Proponents. Majority shareholder of all these Brazilian project participants is BK Energia Ltda.

The project starting date is September 1, 2002 and the seven year renewable crediting period starts September 1, 2002, too.

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 end of November 2004. Based on this documentation a document review and a fact finding mission in form of an on site audit have taken place. Afterwards the client decided to revise the PDD according to the CARs and CRs indicated in the audit process also taking into account new developments on the regulatory side (as for example the new PDD format). This PDD version submitted in May 2005 was published from May 4 until to June 3, 2005. This revised PDD serves as the starting point for the final validation presented herewith. Afterwards the PDD was revised twice. First revision includes a changed crediting period, most recent numbers of daily dispatch information and new weights regarding operating margin factor and build margin factor respecting the guidance by EB. This version submitted in November 2005, which has also undergone a renewed document review, serves as the basis for the final assessment presented herewith.

TÜV SÜD has received on May 11, 2006 the written approval by the DNA including confirmation of Brazil that the project assists in achieving sustainable development based on our validation report rev 1 from November 9, 2005. Meanwhile were the PDD revised once more due to the revision 5 of CDM Methodology ACM0002. The main consequence is the lowered combined margin emission factor because the oldest plant which has to be considered in the Build Margin must be fully included and not only in part. This version submitted in June 2006, which has also undergone a renewed document review, serves as the basis for the final assessment presented

herewith.

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 hydro power plants and grid operation
- Monitoring concepts
- Political, economical and technical 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":

Werner Betzenbichler. Werner Betzenbichler is physicist and head of the department "TÜV Carbon Management Service" located in the head office of TÜV Süddeutschland in Munich. Furthermore he is appointed as head of the certification body "Climate and Energy", which is accredited at UNFCCC as Designated Operational Entity. Before entering this department he worked as expert on air quality measurements and emissions inventories as well as on environmental auditing within the environmental branch of the company.

Odair Roveri is a consultant for quality and environmental management systems (according to ISO 9001 and ISO 14001) at Ingwaass Qualidade Continua. He is based in Sao Paulo. In his position he is responsible for the implementation of management systems. He has received extensive training in the CDM validation process and participated already in several CDM project assessments.

Klaus Nürnberger is head of the division energy certification at TÜV Industrie Service GmbH TÜV SÜD Group. In his position he is responsible for the implementation of verification and certifications processes for electricity production based on renewable sources. The division has assessed more than 600 plants and sites all over Europe in particular hydro power plants. He has received extensive training in the CDM and JI validation processes and participated already in several CDM and JI project assessments.

The audit team covers the above mentioned requirements as follows:

- Ø Knowledge of Kyoto Protocol and the Marrakech Accords (BETZENBICHLER / NÜRNBERGER)
- Ø Environmental and Social Impact Assessment (NÜRNBERGER / ROVERI)
- Ø Skills in environmental auditing (ALL)
- Ø Quality assurance (RUMBERG)
- Ø Technical aspects of hydro power plants and grid operation (NÜRNBERGER / BETZENBICHLER)
- Ø Monitoring concepts (NÜRNBERGER / BETZENBICHLER)
- Ø Political, economical and technical random conditions in host country (ROVERI)

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 the Certification Body "Climate and Energy"

For further details please refer to the “Introduction” section of the validation report (Validation Report No. 567510, Revision 2).

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 validation of the project consists of the following three phases:

- Desk review
- Follow-up interviews
- Resolution of clarification and corrective action requests

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 completed validation protocol is enclosed in Annex 1 to this report.

Findings established during validation can either be seen as a non fulfillment of validation criteria or where a risk to the fulfilment of the project objectives is identified. Such findings are termed Corrective Action request. The term “Clarification request” is used when the validation team has identified a need for further clarification.

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 of the validation report and documented in more detail in the validation protocol in annex 1 to the validation report. The validation of the project resulted in eighteen Corrective Action Request and twelve Clarification Requests.

For further details please refer to the “Methodology” section of the validation report (Validation Report No. 567510, Revision 2).

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 its website on May 4, 2005 and invited comments within 30 days, until June 3, 2005 by Parties, stakeholders and non-governmental organisations. The PDD and the received comment have been publicly available under the following link:

http://www.netinform.de/KE/Wegweiser/Guide2E.aspx?Ebene1_ID=179

A comment has been submitted 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:

1. The project bundle has a capacity of more than 15 MW and thus does not satisfy the criteria for bundling. Project participants would have to submit separate PDDs. While I would like the bundling threshold to be lifted by the EB, there should be a level playing field for all developers.
2. With an IRR of 17%, the case for additionality is inconclusive. Given the strong incentive policies of the Brazilian government after the electricity crisis of 2001, there are no prohibitive barriers for hydropower expansion in Brazil. The small argumentation about barriers in the PDD is thus not convincing.

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.

The audit team came to the following conclusion:

1. The validation team can not identify any rules which do not allow bundling of sites to one CDM project. Furthermore such rules would contradict the definition of a small scale project according to the Kyoto Protocol that a small scale project can not be part of a de-bundled project.
2. The demonstration of additionality in the PDD was assessed by the validation team. Investment barrier is part of demonstrating additionality. Taking into consideration the investment climate in Brazil, CDM is an important incentive for the decision to implement the project. The implementation of the Brazilian PROINFA-program proves that funding of such renewable projects is also necessary by local authorities. Moreover it is accepted that projects applying for the Proinfa-program will still be eligible to use CDM. The project assessed does not go for both components, hence the statement that CDM had an important impact during the decision making process is deemed to be more reliable.

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**

TÜV SÜD has performed a validation of the ARAPUCEL Project in the state of Mato Grosso in 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.

The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria.

In summary, it is TÜV SÜD's opinion that the ARAPUCEL Project, as described in the revised project design document of June 2006, 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 ACM0002.

TÜV SÜD has received on May 11, 2006 the written approval by the DNA including confirmation of Brazil that the project assists in achieving sustainable development based on our validation report rev 1 from November 9, 2005. Meanwhile the PDD was revised due to the revision 5 of CDM Methodology ACM0002.

Hence, TÜV SÜD will recommend the "ARAPUCEL 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 need an attestation that the issued approval of the DNA is still valid, despite of the fact that the PDD is revised and in the consequence lower emission reductions are mentioned herein. Finally a new LoA has been submitted.

The Corrective Action Requests and Clarification Requests raised by TÜV SÜD were resolved during communication between the client and TÜV SÜD in a satisfactory manner.

The participation requirements defined in paragraph 28-30 of the modalities and procedures (decision 17/CP.7) for the Clean Development Mechanism are satisfied.

Comments by local stakeholders have been invited, a summary of comments received has been provided and a report on how due account was taken of any comment has been received.

The environmental impacts of the project are described plausibly in chapter F of the PDD.

The project is based on an approved methodology.

By displacing fossil fuel-based electricity 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 748,470 tonnes CO₂e over a renewable crediting period of seven years, resulting in a calculated annual average of 106,924

tonnes CO₂e represents a reproducible 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.

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.

Werner Betzenbichler

Name of authorized officer signing for the DOE

Date and signature for the DOE

14.07.2006



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