Validation Report

BK Energia Itacoatiara Ltda.

Validation of the

"BK Energia Itacoatiara Project", Brazil

Report No. 629709

2005, September 8

TÜV Industrie Service GmbH – TÜV SÜD Group
Carbon Management Service
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Executing Operational Unit:	TÜV Industrie Service GmbH – TÜV SÜD Group Carbon Management Service Westendstr. 199 - 80686 Munich - GERMANY
Client:	BK Energia Itacoatira Ltda Rodovia Torquato Tapajós, km 227 / Caixa Postal 39 69100-000 Itacoatiara Amazonas Brazil
Contract approved by:	Werner Betzenbichler
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Summary:

The Certification Body "Climate and Energy" has been ordered by BK Energia Itacoatira Ltda to validate the above mentioned project.

The validation of this project has been performed by document reviews, interviews by e-mail and on-site inspection, audits at the locations of the projects and interviews at the involved ministry. 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 our opinion, the project meets all relevant UNFCCC requirements for the CDM.

Hence, we will request the registration of BK Energia Itacoatiara Project, Brazil as CDM project activity. 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 Brazil, including confirmation that the project assists in achieving sustainable development.

The need for corrective action request (CAR) and clarification requests (CR) is described in the report and in the attached validation protocol.

Additionally the assessment team reviewed the estimation of the projected emission reductions, which amount 1,167,926 t CO_{2e} over a crediting period of seven years, resulting in a calculated annual average of 166,846.5 tonnes CO_{2e} that represents a reasonable estimation using the assumptions given by the project documents.

Work carried out by:	Markus Knödlseder (Project manager, GHG auditor) Klaus Nürnberger(GHG auditor) Johannes Thaler (Local expert, GHG auditor)	**Internal Quality Control by**: Michael Rumberg Werner Betzenbichler

Abbreviations

AOE	Applicant Operational Entity
CAR	Corrective action request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CR	Clarification request
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change
VP	Validation Protocol
VVM	Validation and Verification Manual

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1 INTRODUCTION

1.1 Objective

BK Energia Itacoatira Ltda has commissioned TÜV Industrie Service GmbH – TÜV SÜD Group (TÜV SÜD) to validate the BK Energia Itacoatiara Project.

The validation service is design verification and a requirement of all CDM projects. The purpose of a validation is to have an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities as agreed in the Bonn Agreement and the Marrakech Accords.

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. TÜV SÜD has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

The audit team has been provided with a draft PDD April 2005. 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 the CARs and CRs indicated in the audit process. In May 2005 a revised PDD has been submitted in which next to responses to the issued CAR/CRs the project participants have been changed. In September 2005 the final PDD was submitted to TÜV SÜD. All changes aim at a clarification of open issues and have resulted in substantiating the arguments given in the final version of the PDD. The changes are not considered to be significant with respect to the qualification of the project as a CDM project - as they rather have helped to clarify single aspects. 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 hydro power plants and grid operation

- 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":

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).

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. He has received extensive training in the CDM and JI validation processes and participated already in several CDM and JI project assessments.

Thaler Johannes graduated as Master of environmental Economy at the University of Augsburg. During his study he got first experiences in environmental management systems. His master thesis was about a fuel switch program in Brazil as a CDM project. Due to his emigration to Brazil he has been working for TÜV SÜD as a GHG auditor as a free lancer since March 2005.

The audit team covers the above mentioned requirements as follows:

- Knowledge of Kyoto Protocol and the Marrakech Accords (KNÖDSLEDER/NÜRNBERGER)
- Environmental and Social Impact Assessment (KNÖDSLEDER/NÜRNBERGER)
- Skills in environmental auditing (ALL)
- Quality assurance (KNÖDSLEDER/NÜRNBERGER)
- Energy generation technologies (NÜRNBERGER, KNÖDLSEDER)
- Methane Avoidance (NÜRNBERGER)
- Technical aspects of methane avoidance, methane generation in disposals and grid operation (KNÖDSLEDER/NÜRNBERGER)
- Monitoring concepts (ALL)
- Political, economical and technical random conditions in host country (THALER/KNÖDLSEDER)

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

- Werner Betzenbichler (head certification body "climate and energy")

1.3 GHG Project Description

The project consists in the generation of electricity with a thermoelectric power plant using wood residues from an FSC* certified forest management and wood processing company in the city of Itacoatiara, in the State of Amazonas, Brazil.

The project was planned by and is belonging to BK Energia Itacoatiara Ltda., a Brazilian Consortium consisting of two companies; Koblitz Ltda. and Brennand Group. The power plant started its operation at the end of 2002 on the site of the Mil Madeireira Itacoatiara Ltda. wood processing plant, which guarantees the supply of wood residues.

The project is operated by BK Energia Itacoatiara Ltda. that is a special purpose company set up to use residues from the FSC-certified operations of the wood processing company Mil Madeireira Itacoatiara Ltda., in the city of Itacoatiara, State of Amazonas, north of Brazil. BK Energia Itacoatiara Ltda..

The power plant consists of a high pressure boiler (42 bar – 420° C) and a multiple stage condensing steam turbine coupled with a 9 MW_{el} generator with an expected electricity output of around 56,000 MWh (assuming a 71% capacity factor and having deducted approx. 5,000 MWh own consumption). The project replaces diesel generation and covers around 70% of the electricity demand in the city of Itacoatiara.

A second component of the project is thus related to the substantial reductions in methane emissions from the wood waste, which used to be left to decay. Wood residues have come from three different types of sources (sawmill, clearing roads, and landfill).

* The Forest Stewardship Council (FSC) is an international non-profit organization, founded in 1993 to support environmentally appropriate, socially beneficial, and economically viable management of the world's forests.

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 (VVM). 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 TÜV SÜD has documented 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

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

The completed validation protocol is enclosed in Appendix A to this report.

2.1 Review of Documents

The PDD and additional background documents related to the project design and baseline were reviewed. Those documents were submitted by the Ecoinvest, Brazil, the consultant of BK Energia Itacoatiara Ltda.

2.2 Follow-up Interviews

On May 27, 2005 TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of EcoInvest, BK Energia Itacoatiara Ltda. and affiliated companies were interviewed. The main topics of the interviews are summarised in Table 1. The complete and detailed list of all persons interviewed is enclosed in Appendix B to this report. Further information received by following telephone conferences and by e-mail.

Table 1 Interview topics

Interviewed organisation	**Interview topics**
EcoInvest, BK Energia Itacoatiara Ltda. and affiliated companies	Project design, Baseline, Monitoring Plan, Environmental Impacts, Stakeholder Comments
Precious Woods Brazil	Sustainable forest management, FSC-Certificate, Wood supply
Companhia Energética do Amazonas (CEAM) - the local power utility	Local energy generation in the past and with the project.

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 annex 1.

2) Where TÜV SÜD had identified issues that needed clarification or that represented a risk to the fulfilment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in annex 1. The validation of the project resulted in two Corrective Action Request and five Clarification Requests.

3) Where Clarification or Corrective Action Requests have been issued, the exchanges between the Client and TÜV SÜD to resolve these Clarification or Corrective Action Requests 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

The project claims two tracks of emission reductions. One source is the substitution of electricity generated by diesel and the second the avoidance of methane from decayed biomass. In spite of that combination the project is within the characteristics of the simplified modalities and procedures for small-scale CDM project activities.

Following approved methodologies are applied:

Type I.D Renewable electricity generation for a grid

Type III.E Avoidance of methane production from biomass decay through controlled combustion

As the project claims two tracks for generating CERs both sources have to analysed according to the characteristics of the simplified modalities and procedures for small-scale CDM project activities, which are:

- *Type (i) project activities: renewable energy project activities with a maximum output capacity equivalent to up to 15 megawatts (or an appropriate equivalent) (decision 17/CP.7, paragraph 6 (c) (i))*

- *Type (iii) project activities: other project activities that both reduce anthropogenic emissions by sources and directly emit less than 15 kilotonnes of carbon dioxide equivalent annually (decision 17/CP.7, paragraph 6 (c) (iii)):*

The project itself does qualify as a small scale project as it fulfils the requirements defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM.

Similar to above characteristics the project boundaries have to be defined for each claimed project type. According to the applied and approved methodologies they are:

Type I.D The project boundary encompasses the physical, geographical site of the renewable generation source.

Type III.E The project boundary is the physical, geographical site where the treatment of biomass takes place.

The project boundary for type I.D is well defined and clearly applicable to the project. The methodology for project type III.E allows interpretation in its wording.

The wording of "the place where the treatment of biomass takes place" is interpretive. It is not clear if the place of treatment includes only the controlled combustion or the wood processing. In the submitted project sawmill of Mil Madeireira Itacoatiara Ltda. is delivering the wood waste from its wood processes, from its forest directly and from its old disposals. A wide interpretation could include all wood processing and also the old disposal.

Due to the rejection of the project Olavarría Landfill Gas Recovery Project in the 19th EB meeting (http://cdm.unfccc.int/EB/Meetings/019/eb19repan13.pdf) and according to the applied methodology (AMS-III.E.) the validation team interprets the project boundary at first in a conservative manner. The methodology states: "The boundary is the physical, geographical site where the treatment of biomass takes place." In a conservative manner the treatment of biomass in the submitted project starts in sawmill where the wood waste is produced. There has been extensive discussion whether the project qualifies as SSC project.

The validation team follows the interpretation of the project developer. That opinion is additionally reasoned by the fact that the methodology does not consider any emissions from a potentially included disposal. Also, an exclusion of the old disposals from the project boundary is fleshed out by the fact that the complete wood processing is not under the control of the project owner; the project owner can just control the wood waste which is prepared for combustion in his stocks.

The project design engineering does reflect current good practices. BK Energia Itacoatiara Ltda., and its affiliated companies Koblitz Ltda. and Brennand Group have a substantial track record in the field of renewable energy engineering, management and maintenance. The project is professionally managed and the applied technology represents state of the art technique. A transfer of technology takes place into the Amazons region. Most of the installed equipment is produced in Brazil. All installed and relevant equipments are listed in the final PDD.

In order to implement the project successfully and to operate the power plant as presumed during the project period, the staffs need extensive initial training and maintenance efforts. An appropriate maintenance and management system was installed that ensures the further operation of the project.

The project has to obtain different permissions and licences for operation. The relevant documentation is described in the PDD and the corresponding documents have been submitted to TÜV SÜD. Additional the legal situation of the wood supplier and its sustainable wood management was validated by TÜV SÜD.

From a sustainable development perspective the project has to be seen positive. It created employment opportunities during the construction phase of the project and in addition during the operation and maintenance phase of the project. Almost 80% of the employees are expected to be from the local and regional area. As described in the PDD, the project completes the approach of Precious Woods using the tropic wood in a sustainable and environmental friendly manner in order to generate green electricity for the region.

The project's starting date is defined in the PDD as the date of starting operation in 2002. Project idea and the start of financial planning were done during the year of 2000; the engineering and construction had started in the beginning of 2002. Hence, the chosen starting date defined as start of operation is comprehensible.

The crediting period is clearly defined.

3.1.2 Findings

During the document review and the on site visit following Corrective Action Requests (CARs) were identified.

Corrective action request No. 1:

At the time when the validation team came to its final validation opinion about the submitted project a written letter of approval from the designated national authority was not available.

Before starting the registration process at the UNFCCC Executive Board for this project a written Letter of Approval (LoA) by the Brazilian Designated National Authority (DNA) including confirmation that the projects assists in achieving sustainable development has to be submitted to the validation team.

Clarification Request No. 1:

In order to assess whether a project is small scale or not the project activity emissions are relevant.

The project developer shall describe how the amount of 7987 tCO2e is calculated. It has to be demonstrated that the project emissions will be not more than 15000 tCO2e per year.

Response:

The project developer provided reliable information by the revised PDD.

The technical principle is mentioned, but not sufficiently.

Clarification Request No. 2:

Due to that the project is already installed, the specific components and measurement equipment has to be listed in detail, as information is already available on site.

Response:

All information on installed equipment is submitted correctly in the final PDD.

3.1.3 Conclusion

The project boundary is clear; no findings regarding the project design are identified. According to the interpretable wording of methodology type III.E the validation team follows the project owner's view in defining the project boundary by excluding the old disposals.

Missing information, calculations and installed equipment were completed by the onsite visit and by additional information submitted by Ecoinvest.

Thus the validation team can confirm that the project does fulfil all requirements for CDM projects.

But before starting the registration process for this project at the UNFCCC Executive Board a written Letter of Approval (LoA) by the Brazilian Designated National Authority (DNA) including confirmation that the project assists in achieving sustainable development has to be submitted to the validation team.

3.2 Baseline and Additionality

3.2.1 Discussion

The project claims two methodologies; first emission reduction against the baseline is the avoidance of methane; the second is the substitution of electricity from other fossil power plant in the grid.

The selected baseline methodologies are eligible for the relevant project categories and are applicable to the project being considered. The application of the baseline methodology and the discussion and determination of the chosen baseline is transparent and conservative.

Concerning the methane avoidance aspect the baseline of the project is the continuation of the old situation which was sawmills operation and disposing the wood waste without any using and energy production.

As mentioned above the project claims CERs from the avoidance of methane. A conservative approach means to consider only wood, which really would emit methane. The biomass power plant gets from different sources wood. One source comes from sawmill being real wood waste from the process, second is wood waste from the old disposals and the third part is wood collected along the roads, which is done by the power plant operator.
The wood waste that comes direct from the wood processing and from the old disposal would emit methane, if it is not burned by the power plant, but the residues coming directly from the forest will not emit methane likely, because the conditions there are not anaerobic enough. Hence, a conservative approach does not account that wood for claiming methane avoidance.

The electricity grid in Itacoatiara is isolated by other power systems. The electricity was mainly feed by Companhia Energética do Amazonas (CEAM) - the local power utility. CEAM delivered about 80% of the demand. The second path for delivering electricity is from a private company which operates an own industrial power plant; however its main purpose is to supply the manufacturing with power. Both are operated by diesel. After implementation of the project grid of Itacoatiara is fed by BK Energia Itacoatiara Ltda., the manufacturing company and CEAM for peak loads.

A further important step when assessing a baseline approach is to prove that the project itself does not represent the baseline scenario. For demonstrating that, the Executive Board established on its 16th meeting the "Tool for the demonstration and assessment of additionality". The project uses that tool for demonstrating its additionality, although it would not be necessary completely for small scale projects.

The company of Koblitz Ltda. made in 2000 first experiences with CDM by purchasing carbon credits to the Canadian government in the project of Piratini. Since that purchasing Ecoinvest has been ordered to analyse the project activities of Koblitz Ltda. regarding CDM opportunities. The project of Itacoatiara was one of other selected projects which had been developed under

the consideration of CDM.
In order to demonstrate the need of CDM the project owner and developer explained the difficulties in the Brazilian finance sector for project financing. The difficulties are reasoned by only less financing options from banks. In order to get loans the evidence of high guarantees is necessary.

3.2.2 Findings

For demonstrating the additionality of the project the project developer uses the Additionalty Tool from the EB.

Clarification request No. 3

The project owner shall provide reliable information in order to prove the serious consideration of CDM (step 0 test).

Response:

The company of Koblitz Ltda. which is affiliated with BK Energia Itacoatiara Ltda. made first very concrete experiences which CDM as described in the PDD (in 2000). This coincides with the time when the project owner decided to invest in that specific project. The serious consideration is also proved by the early engagement of EcoInvest, a specialized CDM consultancy company. As further proof a PIN note has been submitted dated more than half a year before the project has been set into operation. Furthermore the PPs claimed that their decision to apply the additionality test exceeds the requirements for SSC projects.

Clarification request No. 4

Due to missing background calculation and information the determination can not be confirmed as transparent and conservative.

After onsite visit and submitting the calculation the validation team can not confirm the transparency and conservativeness of the baseline. That opinion is reasoned due to the sources of wood residues which are combusted.

Corrective action request No.2:

For calculation the avoided methane the project developer shall consider only the amount wood residues that would emit methane according to applied methodology.
Wood residue that would not be disposed and hence would not emit methane has to be deducted from the total amount.
Combusted wood residues from the old disposals is contaminated with mud and soil which affect the measuring of the biomass; additional old disposed wood has already a certain amount of methane, hence the default factors of the methodology are not sufficient conservative.
If those biomass shall be accounted for generation of emission reduction from specific and evidences factors has to be used.

Response:

The old PDD accounts all wood residues for accounting of emission reductions.

The revised PDD performed on 27.06.2005 and the final PDD (dated September 6th, 2005) deduct the amount of fresh wood from the road clearing. The wood residues from the disposals will be monitored regarding its biomass content which emits methane.

Corrective action request No. 3:

The crediting period is defined but not consistent. In the first submitted PDD there is an inconsistency regarding starting of crediting period (1/11/2002), crediting lifetime (7y-0m) and the calculation of prospective emission reduction in the first crediting period. The inconsistency

is reasoned by the fact that the end of the first crediting period will be on 31.10.2009 and not 31.12.2008 like in the calculation.

Response:

The crediting period and the calculated prospective emission reductions are stated correctly from 1-11-2002 to 31-10-2009 in the revised PDD from Jun 27, 2005 and in the final PDD from September 6, 2005.

3.2.3 Conclusion

As a conclusion the validation team confirms that the project does fulfil the requirements.

3.3 Monitoring Plan

3.3.1 Discussion

As the project claims two sources for emission reductions and two methodologies in respective, the monitoring plan has to consider these both aspects.

According to methodology type III.E the significant key parameter is the amount of treated biomass. That value determines the baseline emissions and the project activity emissions. Apart from the energy content of the biomass, all other parameters can be taken from literature.

Leakages do not have to be monitored according to methodology type III.E.

However, regarding the treated biomass one aspect has to be considered in the monitoring plan in the submitted project. As already described above the power plant gets different kind of wood residues, but according to the methane avoidance approach of methodology type III.E only that wood can be accounted which would emit methane. Wood that comes direct from the forest has to be subtracted from the total combusted wood. Wood residues from the disposal has to be analysed according to its content, hence that mass can be contaminated with soil or already dissimilated biomass.

In isolated grids methodology type I.D considers only the amount of electricity that was produced and fed into the grid.

3.3.2 Findings

Clarification request no 5:

The authority and responsibility of project management have to be clearly described in the PDD.

Response:

Information about responsibility of project management was submitted to the validation team: "*Credit owner and project operator is the special purpose company Precious Wood Energia Itacoatiara; is author and the responsible for all activities related to the project management, registration, monitoring, and measurement and reporting.*

Statement of the project developer:

In accordance with the approved methodology the PDD lists two data to be monitored:

- *Electricity quantity: The project owner measures with an electronic supervisory system the amount of total electricity generation, electricity exported to the grid, and electricity consumed by the project.*

There is a meter that informs the supervisory system, this meter is periodically calibrated. The system keeps historical data that can be accessed when necessary.

Double check is done with the receipt of sales issued by CEAM, the local electricity utility, in the case of exported electricity.

Therefore, BK Energia Itacoatiara is the main responsible for generating, monitoring, measuring and reporting data regarding electricity exportation to the grid.

Fuel quantity: The project owner monitors wood residues that are burned to generate electricity. The measurement is made at two stationary points: The first one is the total of biomass fed into the boiler. This data is obtained through a load cell that sends the information to the supervisory system. This historical data also can be obtained accessing the system. The second is a scale used to quantify wood residues entering the site. This measurement is made manually in the field using a periodically calibrated a mechanical scale. Every day this information is electronically store into a spreadsheet.

Clarification request no 7:

The procedures for dealing with possible monitoring data adjustments and uncertainties have to be clearly described in the PDD.

Response:

All monitored data are measured twice with different equipments (meters or scales). If any small divergence is found, both equipments are re-calibrated. The numbers that lead to the smallest electricity generation and methane avoidance will be used if the uncertainty is not considered significant (less than 1% difference). The electricity generation and methane avoidance will not be accounted for GHG emission reductions if the uncertainty is considered significant.

Clarification request no 8:

The procedures for corrective actions have to be clearly described in the PDD.

Response:

The project owners could not identify any necessity of procedures for corrective actions related to the project management planning.

3.3.3 Conclusion

The validation team follows that point of view generally; a need for corrective actions regarding project managing planning can be identified if additional equipment is needed which have not been planed yet. Such changes are obvious and need no special procedures.

The validation team confirms that the monitoring plan is according to the requirements.

3.4 Calculation of GHG Emissions

3.4.1 Discussion

The calculation of emission reductions is mainly depending on the baseline, potential leakages, the monitoring and the parameter of both. For both applied methodologies the issues of baseline and project activity parameters are discussed sufficiently in above chapters. Leakages are not identifiable.

3.4.2 Findings

No conclusion findings after revision of the PDD.

3.4.3 Conclusion

The projects calculation does fulfil the requirements.

3.5 Environmental Impacts

3.5.1 Discussion

One requirement of the Marrakech Accords is the consideration of environmental impacts within a CDM project. Optional positive impacts can be mentioned in the PDD, but obvious negative environmental impacts should be described in the PDD. These impacts should be described also, if those impacts are assessed and confirmed by responsible local authorities. For such small projects the host country legislation requires not an EIA but a report about impacts that was performed.

3.5.2 Findings

Corrective action request no 3:

Identifiable environmental impacts shall be mentioned in the PDD, even if they are allowed and in line with national law.

Response:

Potential environmental impacts identified were related to particulate matter emissions and wastewater management.

A multi-cyclone was installed to reduce particulate matter emissions, which are periodically monitored to assure compliance with the required environmental standards.

There is wastewater treatment facility inside the plant. Effluents are periodically monitored to assure compliance with the required environmental standards.

3.5.3 Conclusion

The project is in line with national and regional law. Additional information about environmental impacts and measurements against are described in the final submitted PDD. The validation team agrees with stated impacts and confirms that the project fulfil all requirements.

3.6 Comments by Local Stakeholders

3.6.1 Discussion

A local stakeholder process was done according to Brazilian requirements and additional through local articles in local newspaper. Follwing were invited

1. Itacoatiara´s City hall
2. IPAAM Instituto de Proteção Ambiental do Estado do Amazonas
3. Itacoatiara´s Secretary of the environment
4. Greenpeace Brazil
5. WWF-Brazil

6. Fórum Brasileiro de ONGs e Movimentos Sociais para o Meio Ambiente e o Desenvolvimento (the association of all NGOs in Brazil)
7. Itacoatiara´s City council
8. State attorney of the state

3.6.2 Findings

No findings identifiable.

3.6.3 Conclusion

The validation team confirms that the project fulfil all requirements.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project document on its website on May 4, 2005 and invited comments within Jun 3, 2005 by Parties, stakeholders and UNFCCC accredited non-governmental organisations. The PDD and the comment is publicly available under the following link: http://www.netinform.de/KE/files/pdf/Ecoinvest-PWE_Itacoatiara_CDM_SSC.pdf .

The project and the published PDD states clearly and correct the applied methodologies which are type I.D. and III.E. The UNFCCC webpage stated however that methodology of type I.D. and III.D are applied, which is wrong stated.

As the really applied methodologies are mentioned correctly in the PDD; additional that confusion does not affect the assessment of the project and hence the commenting of the project, that confusion is a minor issue

4.1 Content of the comments received

No comments received.

4.2 Response by TÜV SÜD

No response by TÜV SÜD.

5 QUALIFIED VALIDATION OPINION

TÜV SÜD has performed a validation of the BK Energia Itacoatiara Project, Brazil. The validation was performed on the basis of UNFCCC 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 our opinion, the project meets all relevant UNFCCC requirements for the CDM.

Hence, we will request the registration of BK Energia Itacoatiara Project, Brazil as CDM project activity. 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 Brazil, including confirmation that the project assists in achieving sustainable development.

Lacks in the documentation of the quality managements system are acceptable for the validation team. As all involved participants and staff are high professional and monitored parameters are necessary or other purposes, the validation sees no significant risk for projects success.

Additionally the assessment team reviewed the estimation of the projected emission reductions, which amount 1,167,926 CO_{2e} over a crediting period of seven years, resulting in a calculated annual average of 166,846.5 tonnes CO_{2e}, that 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, 2005-09-08

Werner Betzenbichler

Head of certification body "climate and energy"

Munich, 2005-09-08

Markus Knödlseder

Project Manager

Appendix A: Validation Protocol

Table 1 Mandatory Requirements for Small Scale Clean Development Mechanism (CDM) Project Activities

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art. 12.2	☑	Table 2, Section E.4.1
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	**Open, see Corrective action request No. 1 (CAR No. 1)**	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art. 12.2.	☑	Table 2, Section E.4.1
4. The project shall have written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	**Corrective action request No. 1 (CAR No. 1)**	The project was designed as unilateral CDM-project. The host country is Brazil. At the time when the validation team came to its final opinion about the submitted project a written letter of approval from the designated national authority was available. Before starting the registration process a written Letter of Approval (LoA) by the Brazilian Designated National Authority (DNA) has to be submitted to the validation team.

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/Comment
5. The emission reductions should be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	☑	Table 2, Section E.1 to E.4
6. Reduction in GHG emissions must be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5.c, Simplified Modalities and Procedures for Small Scale CDM Project Activities §26	☑	Table 2, Section B.2.1
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords (Decision 17/CP.7)	There is no official development assistance for this project.	☑
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakesh Accords (CDM modalities§ 29)	☑	Brazil has a designated national authority (DNA): Comissão Interministerial de Mudança Global do Clima Address: Esplanada dos Ministérios, Bloco E - 2 andar - sala 242 70.067-900, Brasilia DF • Brazil Mr. Jose Domingos Gonzalez Miguez (miguez@mct.gov.br) Phone: (55-61)317-7923 Fax: (55-61)317-7657
9. The host country shall be a Party to the Kyoto Protocol	Marrakesh Accords (CDM modalities§ 30)	☑	Brazil ratified the Kyoto Protocol

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/Comment
10. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	☑	Table 2, Section A.1
11. The project design document shall conform with the Small Scale CDM Project Design Document format	Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A	☑	The PDD follows the Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A
12. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	☑	Table 2, Section A.1.3 and B.1 The proposed project activity confirms to Type I: Renewable energy for a grid. Category D: Renewable electricity generation for a grid. and Type III: Other project activities. Category E: Avoidance of methane production from biomass decay through controlled combustion.
13. Comments by local stakeholders are invited, and a summary of these provided	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22b	☑	Table 2, Section G

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/Comment
14. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c	☑	Table 2, Section F
15. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available	Simplified Modalities and Procedures for Small Scale CDM Project Activities §23b,c,d	☑	Parties, stakeholders and UNFCCC accredited NGO were invited for comments in a global stakeholder process (GSP) by the validator. The GSP was performed from from May 18 to June 17, 2005.

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. Project Description The project design is assessed.					
A.1. Small scale project activity It is assess whether the project qualifies as small scale CDM project activity.					
A.1.1. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	2, 3, 4, 12	DR, I	The PDD describes not in detail transparent what are that baseline emissions and what are project emissions. Hence, the statement of project emission of 7987 tCO2e can not be validated. Clarification Request No. 1: The project developer shall describe how the amount of 7.987 tCO2e is calculated. It has to be demonstrated that the project emissions will be not more than 15000 tCO2e per year.	CL No.1	☑
A.1.2. The small scale project activity is not a debundled component of a larger project activity?	1	I	The validation team could not identify any debundled components of a larger project.	☑	☑
A.1.3. Does proposed project activity confirm to one of the project categories defined for small scale CDM project activities?	2, 3, 4, 12, 13, 14	DR, I	Yes	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2. Project Design Validation of project design focuses on the choice of technology and the design documentation of the project.					
A.2.1. Are the project's spatial (geographical) boundaries clearly defined?	1, 2, 3, 4	I, DR	Yes, as the validation team follows the interpretation of the project boundary the project categories are defined for small scale CDM project activities. The geographical boundaries are defined in general. The physical and geographical project boundary for claiming emission reductions from avoided methane is the biomass power plant. The physical and geographical project boundary for claiming emission reductions from substituted energy from fossil fuels is the power plant and the grid of the municipality of Itacoatiara.	☑	☑
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	2, 3, 4	DR	The technical principle is mentioned, but not sufficiently. <u>Clarification Request No. 2:</u> Due to that the project is already installed, the specific components and measurement equipment should be listed in detail, as information is already available on site.	CL No. 2	☑
A.2.3. Does the project design engineering reflect current good practices?	1, 2, 3, 4	I, DR	Yes, the implemented components reflect state of the art.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2.4. Will the project result in technology transfer to the host country?	1, 2, 3, 4	I, DR	As the used technology of the project requires only basic technology a technology transfer was not necessary	☑	☑
A.2.5. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?	1	I	The operation of a biomass power plant requires extensive training, which was performed by the operator. Referring to monitoring and reporting extensive training and the work share of BK Energia Itacoatiara Ltda. and Ecoinvest an extensive training is not required.	☑	☑
A.3. Contribution to Sustainable Development The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or social benefits than GHG emission reductions?	1, 2, 3, 4, 5, 6	DR, I	Yes, as stated in the PDD the project helps to avoid the disposal of wood waste, which affects the soil on a long term. Social benefits are reasoned by the fact that the saw mills can create additional income by purchasing the biomass to BK Energia Itacoatiara Ltda.. That minimize the price risk in the wood market and hence save jobs in an otherwise underdeveloped region.	☑	☑
A.3.2. Will the project create any adverse environmental or social effects?	1, 2, 3, 4, 5, 6	DR, I	The combustion of wood and the operation of the power plant create noise and exhausts. These effects are approved by competent environmental authority.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Adverse social effects can not be identified.		
A.3.3. Is the project in line with sustainable development policies of the host country?	1, 2, 3, 4	DR, I	Yes.	☑	☑
A.3.4. Is the project in line with relevant legislation and plans in the host country?	1, 2, 3, 4	DR, I	Yes.	☑	☑
B. Project Baseline The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.					
B.1. Baseline Methodology It is assessed whether the project applies an appropriate baseline methodology.					
B.1.1. Is the selected baseline methodology in line with the baseline methodologies provided for the relevant project category?	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14	DR	The project is line with both claims baseline methodologies: Type I: Renewable energy for a grid. Category D: Renewable electricity generation for a grid. and Type III: Other project activities. Category E: Avoidance of methane production from biomass decay through controlled combustion.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.1.2. Is the baseline methodology applicable to the project being considered?	13, 14	DR	Yes, both methodologies are applicable.	☑	☑
B.2. Baseline Determination It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario.					
B.2.1. Is it demonstrated that the project activity itself is not a likely baseline scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to prevailing practice or other barriers?	1, 2, 3, 4	I, DR	For demonstrating the additionality of the project the project developer uses the Additionalty Tool from the EB. Clarification request No. 3 The project owner shall provide reliable information in order to prove the serious consideration of CDM (step 0 test).	CL No. 3	☑
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	2, 3, 4, 12	DR, I	Can not be confirmed; Clarification request No. 4 Due to missing background calculation and information the determination can not be confirmed as transparent and conservative. After onsite visit and submitting the calculation the validation team can not confirm the transparency and conservativeness of the baseline. That opinion is reasoned due to the sources of wood residues which are combusted. Corrective action requests No.2:	CL No. 4 CAR No. 2	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			For calculation the avoided methane the project developer shall consider only the amount wood residues that would emit methane. Wood residue that would not be disposed and hence would not emit methane has to be deducted from the total amount. Combusted wood residues from the old disposals is contaminated with mud and soil which affect the measuring of the decomposable biomass; additional old disposed wood has already undergone a conversion process, hence the default factors of the methodology are not sufficient conservative. If those biomass shall be accounted for generation of emission reduction from specific and evidences factors has to be used.		
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?	1	I	Yes	☑	☑
B.2.4. Is the baseline selection compatible with the available data?	1, 2, 3, 4, 6, 7, 8, 9, 10	I, DR	Data for calculating the grid factor are available.	☑	☑
B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?	1, 2, 3, 4	I, DR	Yes	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
C. Duration of the Project / Crediting Period It is assessed whether the temporary boundaries of the project are clearly defined.					
C.1.1. Are the project's starting date and operational lifetime clearly defined?	2, 3. 4	DR	The starting date is defined and reasonable.	☑	☑
C.1.2. Is the crediting period clearly defined (seven years with two possible renewals or 10 years with no renewal)?	2, 3, 4	DR	The crediting period is defined but not consistent. Corrective action request No. 3: In submitted PDD there is an inconsistency regarding starting of crediting period (1/11/2002), crediting lifetime (7y-0m) and the calculation of prospective emission reduction in the first crediting period. The inconsistency is reasoned by the fact that the end of the first crediting period will be on 31.10.2009 and not 31.12.2008 like in the calculation. Has to be corrected.	CAR No 3	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D. Monitoring Plan The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.					
D.1. Monitoring Methodology It is assessed whether the project applies an appropriate monitoring methodology.					
D.1.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category?	13, 14	DR	Yes, the selected monitoring methodologies are in line with approved.	☑	☑
D.1.2. Is the monitoring methodology applicable to the project being considered?	13, 14	DR	Yes.	☑	☑
D.1.3. Is the application of the monitoring methodology transparent?	13, 14	DR	Yes.	☑	☑
D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	13, 14	DR	Yes.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.2. Monitoring of Project Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.2.1. Are the choices of project emission indicators reasonable?	1, 2, 3, 4, 13, 14	I, DR	Yes, the choices of project emission indicators is reasonable	☑	☑
D.2.2. Will it be possible to monitor / measure the specified project emission indicators?	1	I	Yes.	☑	☑
D.2.3. Do the measuring technique and frequency comply with good monitoring practices?	1	I	Yes	☑	☑
D.2.4. Are the provisions made for archiving project emission data sufficient to enable later verification?	1	I	Yes, according to procedures for archiving the data shall be available to enable a later verification.	☑	☑
D.3. Monitoring of Leakage It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.					
D.3.1. If applicable, are the choices of leakage indicators reasonable?	1, 2, 3, 4, 13, 14	I, DR	According to methodology III.E and I.D significant leakages are not identified.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.3.2. If applicable, will it be possible to monitor / measure the specified leakage indicators?	1, 2, 3, 4, 13, 14	I, DR	See D.3.1.	☑	☑
D.3.3. If applicable, do the measuring technique and frequency comply with good monitoring practices?	1, 2, 3, 4, 13, 14	I, DR	See D.3.1.	☑	☑
D.3.4. If applicable, are the provisions made for archiving leakage data sufficient to enable later verification?	1, 2, 3, 4, 13, 14	I, DR	See D.3.1.	☑	☑
D.4. Monitoring of Baseline Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.4.1. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1, 2, 3, 4, 13, 14	I, DR	The power plant uses three different sources of wood waste ▪ Fresh wood waste from the saw mills, ▪ Residues which are trees which are not useful for the saw mill (diameter up to 40 cm) and ▪ Residues from the old disposals The baseline emissions are different for each wood waste type. The project developer shall	Open see CAR No 2	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			consider that aspect in a conservative manner in the calculation.		
D.4.2. Will it be possible to monitor / measure the specified baseline emission indicators?	1	I	Yes.	☑	☑
D.4.3. Do the measuring technique and frequency comply with good monitoring practices?	1,2, 3, 4, 5, 6, 9	I	Yes, it would.	☑	☑
D.4.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification?	1	I	Yes, according to procedures for archiving the data shall be available to enable a later verification.	☑	☑
D.5. Project Management Planning It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
D.5.1. Is the authority and responsibility of project management clearly described?	1, 2, 3, 4	I, DR	Clarification request no 5: The authority and responsibility of project management have to be clearly described.	CL No 5	☑
D.5.2. Is the authority and responsibility for registration monitoring measurement and reporting clearly described?	1, 2, 3, 4	I, DR	No, see CL 5	CL No 5	✓
D.5.3. Are procedures identified for training of monitoring personnel?	1	I	No, but according to the work share between BK Energia Itacoatiara Ltda.and Ecoinvest the validation team can not identify a need for a specific training, because the monitored data are used for other relevant purposes, too; and they are only	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			less.		
D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	1	I	No, but according to the work share between BK Energia Itacoatiara Ltda.and Ecoinvest the validation team can not identify a need for a specific emergency procedures, because the monitored data are used for other relevant purposes, too; and they are only less.	☑	☑
D.5.5. Are procedures identified for calibration of monitoring equipment?	1	I	Yes	☑	☑
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	1	I	Yes	☑	☑
D.5.7. Are procedures identified for monitoring, measurements and reporting?	1, 12	I	No, procedures for monitoring, measurements and reporting can not be identified. Clarification request no 6: The procedures identified for monitoring, measurements and reporting have to be clearly described.	CL No 6	☑
D.5.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	1, 12	I	Yes	☑	☑
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1, 12	I	No, procedures for dealing with possible monitoring data adjustments and uncertainties are not identified.	CL No 7	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Clarification request no 7: The procedures for dealing with possible monitoring data adjustments and uncertainties have to be clearly described.		
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	1	I	No, but according to the work share between BK Energia Itacoatiara Ltda.and Ecoinvest the validation team can not identify a need for a internal audits of GHG project compliance with operational requirements, because the monitored data are used for other relevant purposes, too.	☑	☑
D.5.11. Are procedures identified for project performance reviews?	1, 2, 3, 4	I, DR	No, but the validation team can not identify a need for procedures for project performance reviews.	☑	☑
D.5.12. Are procedures identified for corrective actions?	1, 2, 3, 4, 12	I, DR	No, procedures for corrective actions are not identified. Clarification request no 8: The procedures for corrective actions have to be clearly described.	CL No 8	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E. Calculation of GHG emission It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.					
E.1. Project GHG Emissions The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.					
E.1.1. Are all aspects related to direct and indirect project emissions captured in the project design?	1, 2, 3, 4	I, DR	Yes	☑	☑
E.1.2. Have all relevant greenhouse gases and sources been evaluated?	1, 2, 3, 4	I, DR	No, according to the not included landfill, the total amount of ghg sources is not included.	☑	☑
E.1.3. Do the methodologies for calculating project emissions comply with existing good practice?	1, 2, 3, 4	I, DR	Yes	☑	☑
E.1.4. Are the calculations documented in a complete and transparent manner?	1, 2, 3, 4	I, DR	Yes	☑	☑
E.1.5. Have conservative assumptions been used?	1, 2, 3, 4	I, DR	Yes	☑	☑
E.1.6. Are uncertainties in the project emissions estimates properly addressed?	1, 2, 3, 4	I, DR	Yes, uncertainties of used balances are addressed in the revised PDD dated 15.6.2005.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.2. Leakage It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.					
E.2.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?	2, 3, 4, 13, 14	DR	Leakages are not identifiable.	☑	☑
E.2.2. Are potential leakage effects properly accounted for in the calculations (if applicable)?	2, 3, 4, 13, 14	DR	Leakages are not identifiable.	☑	☑
E.2.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)?	2, 3, 4, 13, 14	DR	Leakages are not identifiable.	☑	☑
E.2.4. Are the calculations documented in a complete and transparent manner and (if applicable)?	2, 3, 4, 13, 14	DR	Leakages are not identifiable.	☑	☑
E.2.5. Have conservative assumptions been used (if applicable)?	2, 3, 4, 13, 14	DR	Leakages are not identifiable.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.2.6. Are uncertainties in the leakage estimates properly addressed (if applicable)?	2, 3, 4, 13, 14	DR	Leakages are not identifiable.	☑	☑
E.3. Baseline GHG Emissions The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					
E.3.1. Are the baseline emission boundaries clearly defined and do they sufficiently cover sources for baseline emissions?	1, 2, 3, 4, 8, 9, 10, 11, 12, 13, 14	I, DR	No, see CAR No 2	CAR No 2	☑
E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	1, 2, 3, 4, 13, 14	I, DR	No, see E.3.1.	CAR No 2	☑
E.3.3. Have all relevant greenhouse gases and sources been evaluated?	1, 2, 3, 4, 13, 14	I, DR	No, see E.3.1.	CAR No 2	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	1, 2, 3, 4, 13, 14	I, DR	No, see E.3.1.	CAR No 2	☑
E.3.5. Are the calculations documented in a complete and transparent manner?	1, 2, 3, 4, 13, 14	I, DR	Yes	☑	☑
E.3.6. Have conservative assumptions been used?	1, 2, 3, 4, 13, 14	I, DR	No, see E.3.1.	CAR No 2	☑
E.3.7. Are uncertainties in the baseline emissions estimates properly addressed?	1, 2, 3, 4, 8, 9, 10, 11, 12, 13, 14	I, DR	No, see E.3.1.	CAR No 2	☑
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline case?	1, 2, 3, 4, 8, 9,	I, DR	Yes the validation team can confirm that the project will result in fewer GHG emissions. However the total amount is not yet correctly determined.	CAR No 2	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	10, 11, 12, 13, 14				
F. Environmental Impacts It is assessed whether environmental impacts of the project are sufficiently addressed.					
F.1.1. Does host country legislation require an analysis of the environmental impacts of the project activity?	1	I	For such small projects the host country legislation requires not an EIA but a report about impacts, that was performed	☑	☑
F.1.2. Does the project comply with environmental legislation in the host country?	1	I	Yes, the operator has all relevant licenses.	☑	☑
F.1.3. Will the project create any adverse environmental effects?	1	I	The combustion of wood and the operation of the power plant create noise and exhausts. These effects are allowed by competent environmental authority.	☑	☑
F.1.4. Have environmental impacts been identified and addressed in the PDD?	1, 2, 3, 4, 13, 14	I, DR	No; environmental impacts have not been identified and addressed in the PDD Corrective action request no 4: Identifiable environmental impacts shall be mentioned in the PDD, even if they are allowed and in line with national law.	CAR No.4	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
G. Comments by Local Stakeholder Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	1, 2, 3, 4	I, DR	A stakeholder process was performed, following were invited 1. Itacoatiara´s City hall 2. IPAAM Instituto de Proteção Ambiental do Estado do Amazonas 3. Itacoatiara´s Secretary of the environment 4. Greenpeace Brasil 5. WWF-Brasil 6. Fórum Brasileiro de ONGs e Movimentos Sociais para o Meio Ambiente e o Desenvolvimento (the association of all NGOs in Brazil) 7. Itacoatiara´s City council 8. State attorney of the state	☑	☑
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	1, 2, 3, 4	I, DR	Newspaper, mailing and the world wide web were used for.	☑	☑
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance	1, 2, 3, 4	I, DR	Yes	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
with such regulations/laws?					
G.1.4. Is a summary of the comments received provided?	1, 2, 3, 4	I, DR	No comments received.	☑	☑
G.1.5. Has due account been taken of any comments received?	1, 2, 3, 4	I, DR	No comments received.	☑	☑

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
In order to assess whether a project is small scale or not the project activity emissions are relevant. Clarification Request No. 1: The project developer shall describe how the amount of 7987 tCO2e is calculated. It has to be demonstrated that the project emissions will be not more than 15000 tCO2e per year.	Table 2, A.1.1	The project developer provided reliable information by the revised PDD.	☑
The technical principle is mentioned, but not sufficiently. Clarification Request No. 2: Due to that the project is already installed, the specific components and measurement equipment has to be listed in detail, as information is already available on site.	Table 2, A.2.2	All information on installed equipment is submitted correctly in the final PDD.	☑
For demonstrating the additionality of the project the project developer uses the Additionalty Tool from the EB. Clarification request No. 3 The project owner shall provide reliable information in order to prove the serious consideration of CDM (step 0 test).	Table 2, B.2.1	The company of Koblitz Ltda. which is affiliated with BK Energia Itacoatiara Ltda. made first very concrete experiences which CDM as described in the PDD (in 2000). This coincides with the time when the project owner decided to invest in that specific project. The serious consideration is also proved by the early engagement of EcoInvest, a specialized CDM consultancy company. As further proof a PIN note has been submitted dated more than half a year before the project has been set into	The communication with parties involved showed that there has been early awareness on the possible impacts of CDM. Thus, there is a high likelihood that CDM has been seriously

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
		operation. Furthermore the PPs claimed that their decision to apply the additionality test exceeds the requirements for SSC projects.	taken into consideration for the investment decision, although not all doubts could be cleared. With regard to the fact that SSC projects only require a barrier test, this issue is considered to be resolved. ☑
Clarification request No. 4 Due to missing background calculation and information the determination can not be confirmed as transparent and conservative. After onsite visit and submitting the calculation the validation team can not confirm the transparency and conservativeness of the baseline. That opinion is reasoned due to the sources of wood residues which are combusted. Corrective action request No.2: For calculation the avoided methane the project developer shall consider only the amount wood residues that would emit methane	Table 2, B.2.2	The old PDD accounts all wood residues for accounting of emission reductions. The PDD performed on 27.06.2005 deduct the amount of fresh wood from the road clearing. The wood residues from the disposals will be monitored regarding its biomass content which emits methane.	☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
according to applied methodology. Wood residue that would not be disposed and hence would not emit methane has to be deducted from the total amount. Combusted wood residues from the old disposals is contaminated with mud and soil which affect the measuring of the biomass; additional old disposed wood has already a certain amount of methane, hence the default factors of the methodology are not sufficient conservative. If those biomass shall be accounted for generation of emission reduction from specific and evidences factors has to be used.			
The crediting period is defined but not consistent. <u>Corrective action request No. 3:</u> In submitted PDDs there is an inconsistency regarding starting of crediting period (1/11/2002), crediting lifetime (7y-0m) and the calculation of prospective emission reduction in the first crediting period. The inconsistency is reasoned by the fact that the end of the first crediting period will be on 31.10.2009 and not 31.12.2008 like in the calculation. Has to be corrected.	Table 2, C.1.2	The revised PDD from 27 June 2005 states the crediting period from 1/11/2005 for seven years. The prospective emission reductions are estimated until 31.10.2009.	☑
<u>Clarification request no 5:</u> The authority and responsibility of project management have to be clearly described in the PDD.	Table 2, D.5.1	Information about responsibility of project management was submitted to the validation team: "*Credit owner and project operator is the special purpose company Precious Wood Energia Itacoatiara; is author and the responsible for all activities related to the project management, registration, monitoring, and measurement and reporting.*"	☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
Procedures for monitoring, measurements and reporting can not be identified. Clarification request no 6: The procedures identified for monitoring, measurements and reporting have to be clearly described in the PDD.	Table 2, D.5.7.	Statement of the project developer: *In accordance with the approved methodology the PDD lists two data to be monitored:* • *Electricity quantity: The project owner measures with an electronic supervisory system the amount of total electricity generation, electricity exported to the grid, and electricity consumed by the project.* *There is a meter that informs the supervisory system, this meter is periodically calibrated. The system keeps historical data that can be accessed when necessary.* *Double check is done with the receipt of sales issued by CEAM, the local electricity utility, in the case of exported electricity.* *Therefore, BK Energia Itacoatiara is the main responsible for generating, monitoring, measuring and reporting data regarding electricity exportation to the grid.* • *Fuel quantity: The project*	☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
		owner monitors wood residues that are burned to generate electricity. The measurement is made at two stationary points: The first one is the total of biomass fed into the boiler. This data is obtained through a load cell that sends the information to the supervisory system. This historical data also can be obtained accessing the system. The second is a scale used to quantify wood residues entering the site. This measurement is made manually in the field using a periodically calibrated a mechanical scale. Every day this information is electronically store into a spreadsheet.	
No, procedures for dealing with possible monitoring data adjustments and uncertainties are not identified. <u>Clarification request no 7:</u> The procedures for dealing with possible monitoring data adjustments and uncertainties have to be clearly described in the PDD.	Table 2 D.5.9	All monitored data are measured twice with different equipments (meters or scales). If any small divergence is found, both equipments are re-calibrated. The numbers that lead to the smallest electricity generation and methane avoidance will be used if the uncertainty is not considered significant (less than 1% difference). The electricity generation and methane avoidance	☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
		will not be accounted for GHG emission reductions if the uncertainty is considered significant.	
No, procedures for corrective actions are not identified. Clarification request no 8: The procedures for corrective actions have to be clearly described in the PDD.	Table 2, D.5.12	The project owners could not identify any necessity of procedures for corrective actions related to the project management planning.	The validation team follows that point of view generally; a need for corrective actions regarding project managing planning can be identified if additional equipment is needed which have not been planed yet. Such changes are obvious and need no special procedures. ☑
No; environmental impacts have not been identified and addressed in the PDD Corrective action request no 3: Identifiable environmental impacts shall be mentioned in the PDD,	Table 2, F.1.4	Potential environmental impacts identified were related to particulate matter emissions and wastewater management. A multi-cyclone was installed to reduce	☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
even if they are allowed and in line with national law.		particulate matter emissions, which are periodically monitored to assure compliance with the required environmental standards. There is wastewater treatment facility inside the plant. Effluents are periodically monitored to assure compliance with the required environmental standards.	

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Appendix B: Information Reference List

Reference No.	Document or Type of Information
1.	On-site interviews at the power plant, the sawmill and the sawdust disposals conducted on May 27, 2005 by auditing team of TÜV SÜD Validation team on site: Markus Knödlseder — TÜV Industrie Service GmbH TÜV SÜD Group Johannes Thaler — free lancer, working for TÜV Industrie Service GmbH TÜV SÜD Group Interviewed persons: Bonifacio Rocha de Madeiros Filho — BK Energia Itacoatiara Ltda.(plant manager) Luciana A. Koblitz — Koblitz Ltda. (project manager) Renato Scop — Precious Woods Amazon (financial director) Marco A. N. Mazaferro — Ecoinvest (consultant)
2.	Project Design Description published by Ecoinvest in the global stakeholder process performed on 28.4.2005; File name: Ecoinvest-PWE Itacoatiara CDM SSCPDD-v.2005.04.28
3.	Project Design Description published by Ecoinvest in the global stakeholder process performed on 27.6.2005; File name: Ecoinvest-PWE Itacoatiara CDM SSCPDD-2005.06.27
4.	Project Design Description (final version) published by Ecoinvest in the global stakeholder process performed on 06.9.2005; File name: Ecoinvest-PWE Itacoatiara CDM SSCPDD-2005.09.06

Reference No.	Document or Type of Information
5.	*FSC certificate of Precious Woods Brazil:* **Certificado no: SW-FM/COC-019;** issued at first on 1st Jun 1997 and renewed in 2002, 2003 and 2004; issued by Instituto de Manejo e Certificação Florestal e Agrícola (IMAFLORA) Av. Carlos Botelho, 853 Piracicaba, Sao Paulo CEP 13418-240 Brazil TEL/FAX: (55) 1934-33-0234 or 22-6253 (call first): Email: imaflora@imaflora.org
6.	Excel file for demonstrating the financial disadvantage of the project: FCF_BK Itacoatiara(CER).xls
7.	OECD (2001). OECD Economic Surveys: Brazil. Organization for Economic Co-Operation and Development, Paris, France.
8.	Schaeffer, R., J. Logan, A. S. Szklo, W. Chandler and J. C. de Souza (2000). *Electric Power Options in Brazil.* Pew Center on Global Climate Change
9.	Simplified Modalities and Procedures for Small-Scale CDM project activities
10.	Biomass supply contract between Precious Woods Amazon and BK Energia Itacoatiara Ltda.
11.	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories published by the International Panel on Climate Change (IPCC) in 1996 and revised in 1997
12.	Methodology Type I.D. Renewable electricity generation for a grid; version 05: 25 Feb. 2005
13.	Methodology Type III.E. Avoidance of Methane production from biomass decay through controlled combustion; version 05: 25 Feb. 2005
14.	Discussion and information exchange by telephone and e-mail