



Industrie Service

# **Validation Report**

Monte Rosa S.A.

Validation of the Monta Rosa Bagasse  
Cogeneration Project

**Report No. 691171, Revision 0**

**20/12/2005**

TÜV Industrie Service GmbH TÜV SÜD Group  
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Report No.	Date of first issue	Revision No.	Date of this revision	Certificate No.
691171	December 20, 2005	0	December 20, 2005	-
<b>Subject:</b>		Validation of a CDM Project		
<b>Executing Operational Unit:</b>		TÜV Industrie Service GmbH TÜV SÜD Group Carbon Management Service Westendstr. 199 - 80686 Munich Federal Republic of Germany		
<b>Client:</b>		Monta Rosa S.A. Sugar mill Monte Rosa, Km 148 Way to Potosí, Municipio El Viejo, Chinandega, Nicaragua, Central America.		
<b>Contract approved by:</b>		Mr. Betzenbichler		
<b>Report Title:</b>		Validation of the Monta Rosa Bagasse Cogeneration Project		
<b>Number of pages</b>		15 (excluding cover page and annexes)		
<b>Summary:</b>  The Certification Body "Climate and Energy" has been ordered by Monta Rosa S.A. to perform a validation of the above mentioned project.  Using a risk based approach; the validation of this project has been performed by document reviews and on-site inspection, audits at the locations of the project and interviews at the offices of the project developer and the project owner.  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, TÜV SÜD will recommend the Monta Rosa Bagasse Cogeneration Project (MRBCP) for registration as CDM project activity by the CDM Executive Board.  Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of emission reductions of 392 139 tonnes CO <sub>2</sub> e over a crediting period of seven years, resulting in a calculated annual average of 56 020 tonnes CO <sub>2</sub> e, represent a reasonable estimation using the assumptions given by the project documents.				
Work carried out by:	Markus Knödlseider (Project manager, GHG lead auditor, Auditor Environmental Management Systems (ISO 14001))  Mauro Fadda (GHG auditor, local expert)		Internal Quality Control by:  Werner Betzenbichler	



## Abbreviations

<b>AE</b>	Applicant Operational Entity
<b>CAR</b>	Corrective Action Request
<b>CDM</b>	Clean Development Mechanism
<b>CER</b>	Certified Emission Reduction
<b>CNDC-Nicaragua</b>	Centro Nacional de Despacho de Carga (national dispatcher)
<b>CR</b>	Clarification Request
<b>DNA</b>	Designated National Authority
<b>DOE</b>	Designated Operational Entity
<b>EB</b>	Executive Board
<b>EIA / EA</b>	Environmental Impact Assessment / Environmental Assessment
<b>ER</b>	Emission reduction
<b>GHG</b>	Greenhouse gas(es)
<b>KP</b>	Kyoto Protocol
<b>MP</b>	Monitoring Plan
<b>MRBCP</b>	Monta Rosa Bagasse Cogeneration Project
<b>NGO</b>	Non Governmental Organisation
<b>PDD</b>	Project Design Document
<b>TÜV SÜD</b>	TÜV Industrie Service GmbH TÜV SÜD Group
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>VVM</b>	Validation and Verification Manual



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## 1. INTRODUCTION

### 1.1. Objective

Monta Rosa S.A. has commissioned TÜV Industrie Service GmbH TÜV SÜD Group (TÜV SÜD) to validate the Monta Rosa Bagasse Cogeneration Project (MRBCP). The validation serves as design verification and is a requirement of all CDM projects. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

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

### 1.2. Scope

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

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

The audit team has been provided with a draft PDD in August 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 also taking into account new developments on the regulatory side (as for example the new PDD format). The final PDD version submitted on December 15, 2005 serves as the basis for the assessment presented herewith. The correction of CARs and CRs is not considered to be significant with respect to the qualification of the project as a CDM project based on the two main objectives of the CDM to achieve a reduction of anthropogenic GHG emissions by sources and to contribute to sustainable development. Hence no repetition of the public stakeholder process has taken place.

Studying the existing documentation belonging to this project, it was obvious that the competence and capability of the validation team has to cover at least the following aspects:

- Knowledge of Kyoto Protocol and the Marrakech Accords
- Environmental and Social Impact Assessment
- Skills in environmental auditing (ISO 14000, EMAS)
- Quality assurance
- Technical aspects of renewable energy and grid operation

- Monitoring concepts
- Political, economical and technical random conditions in host country

The validation team was consisting of the following two experts:

Markus Knödlseider (Project manager, GHG lead auditor)

Mauro Fadda (GHG auditor, local expert)

**Markus Knödlseider:** After his professional training as chemical assistance Mr. Knödlseider 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. Knödlseider is also an auditor for environmental management systems (ISO 14.000).

**Mr. Mauro Fadda** is a quality and environmental management system auditor at ccaQualitas, TÜV SÜD Group. He is familiar with local laws and regulations and the assessment of technical installations as well as with CDM issues. Meanwhile he can refer to the participation in the validation process of more than 15 CDM-projects in Brazil. Thus he is approved as CDM-auditor at the certification body Climate and Energy.

The audit team covers the above mentioned requirements as follows:

- Knowledge of Kyoto Protocol and the Marrakesh Accords (All)
- Environmental and Social Impact Assessment (All)
- Skills in environmental auditing (All)
- Quality assurance (All)
- Technical aspects (All)
- Monitoring concepts (Knödlseider)
- Political, economical and technical random conditions in host country (Fadda)

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 of the Certification Body “Climate and Energy”

### 1.3. GHG Project Description

Monte Rosa Bagasse Cogeneration Project (MRBCP) activity aims to increase its energy efficiency and cogeneration capacity in order to supply electricity to the grid, therefore adding value to the bagasse produced by the company. Currently, the total installed electric power capacity is 26 MW, but only 18 MW are actually used, leaving 8 MW as standby. Through phased installation of substantially more capacity, improved energy efficiency in its processes, and generation of sufficient bagasse around the harvest season, Monte Rosa has generated surplus electricity of about 94.000 MWh during the 2001 – 2003 period, and will generate surplus electricity of approximately 93.000 MWh in 2004, increasing to 120.000 MWh in 2008. These sales of electricity to the grid allow it to participate in the emissions reduction market.

Monte Rosa does not have a power purchase agreement. Instead, it opted to commercialize its surplus electricity in the spot market, known in Nicaragua as “mercado de ocasión”.

There are 2 phases for this project:

- The first expansion (1<sup>st</sup> phase) was in cane season 2001-2002 with the installation of an extraction turbo generator of 15 MW. At that time, Monte Rosa started to sell energy to the grid.
- The second expansion (2<sup>nd</sup> phase) consists of the phased addition of steam turbo generators and a 900 psi (62 bar) high-pressure boiler which will burn the sugar cane residue produced in the mill to generate steam. The steam will be directed to the turbo generators, generating electricity at a voltage of 13.800 volts. The steam leaving the turbines is condensed in a cooling tower, and the condensate is recycled and redirected to the boilers (a simple steam cycle). The electricity voltage is increased to 69.000 volts at an on-site substation. It is then transmitted to another sub-station 15 km away, located in the city of El Viejo, Nicaragua.

Sugar mill Monte Rosa is located five km away from El Viejo City, at Km 148 Way to Potosí, Municipio El Viejo, Chinandega, Nicaragua, Central America.

Project participants are Monte Rosa S.A and Econergy Brazil Ltda..

The project starting date is March 1, 2002. The 7 year renewable crediting period starts also on March 1, 2002.

## 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](http://www.vvmanual.info)), an initiative of all Applicant Entities, which aims to harmonize the approach and quality of all such assessments.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of three tables. The different columns in these tables are described in Figure 1.

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



<b>Validation Protocol Table 1: Mandatory Requirements</b>			
<b>Requirement</b>	<b>Reference</b>	<b>Conclusion</b>	<b>Cross reference</b>
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 <b>Corrective Action Request (CAR)</b> 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.

<b>Validation Protocol Table 2: Requirement checklist</b>				
<b>Checklist Question</b>	<b>Reference</b>	<b>Means of verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
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 <b>Corrective Action Request (CAR)</b> due to non-compliance with the checklist question (See below). <b>Clarification</b> is used when the validation team has identified a need for further clarification.

<b>Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests</b>			
<b>Draft report clarifications and corrective action requests</b>	<b>Ref. to checklist question in table 2</b>	<b>Summary of project owner response</b>	<b>Validation conclusion</b>
If the conclusions from the draft Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Table 2 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the validation team should be summarised in this section.	This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".

**Figure 1 Validation Protocol Tables**



## 2.1. Review of Documents

The project design document submitted by the Client and additional background documents related to the project design and baseline were reviewed. A complete list of all documents reviewed is attached as annex 2 to this report.

## 2.2. Follow-up Interviews

On September 19, 2005, TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Monte Rosa, Econergy were interviewed, the national dispatcher (CNDC-Nicaragua) were interviewed by phone. The main topics of the interviews are summarised in Table 1.

**Table 1 Interview topics**

Interviewed organisation	Interview topics
Monte Rosa S.A.	<ul style="list-style-type: none"><li>➤ Project design</li><li>➤ Technical equipment</li><li>➤ Sustainable development issues</li><li>➤ Additionality</li><li>➤ Crediting period</li><li>➤ Monitoring plan</li><li>➤ Management system</li><li>➤ Environmental impacts</li><li>➤ Stakeholder process</li><li>➤ Approval by the host country</li></ul>
Econergy Brazil	<ul style="list-style-type: none"><li>➤ Project design</li><li>➤ Technical equipment</li><li>➤ Sustainable development issues</li><li>➤ Baseline determination</li><li>➤ Additionality</li><li>➤ Crediting period</li><li>➤ Monitoring plan</li><li>➤ Environmental impacts</li><li>➤ Stakeholder process</li></ul>
CNDC-Nicaragua	<ul style="list-style-type: none"><li>➤ Electricity grid in Nicaragua</li><li>➤ Public available data</li></ul>

## 2.3. Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which needed to be clarified for TÜV SÜD's positive conclusion on the project design. The Corrective Action Requests and Clarification Requests raised by TÜV SÜD were resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are summarised in chapter 3 below and documented in more detail in the validation protocol in annex 1.

### 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 seven Corrective Action Request and three 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

As mentioned above the purpose of the project is to avoid CO<sub>2</sub> emissions from fossil power plants by increasing the efficiency of the existing renewable energy generation. The surplus of electricity being generated by an installed CHP plant is fed into the grid. The whole energy generation is based on renewable biomass, here bagasse from the sugar cane process. Hence, the project contributes to the sustainable development in Nicaragua, reducing GHG emissions, substituting electricity generated by gas-fired plants through electricity generated from biomass (renewable energy).

The project also contributes to the sustainable development by saving jobs and generating new jobs.

The design engineering does reflect current good practices. The design has been professionally developed. Subsequently the project got approval by the relevant authorities. The project itself does apply state of the art equipment. Regarding the employed technology, there is no requirement to change the existing technology as a result of running out of life-time of the existing technical equipment. There are no significant indications that the technology used to implement the project could be substituted during the envisaged operational lifetime of the project activity (25 years) and in particular in the first crediting period. The first crediting period starts on March 01, 2002, with the intention for renewal.

The project is in line with relevant legislation of the Nicaragua. According to the public available document renewable energy projects belong to the favored options under the CDM. Hence, the project can currently be seen as being in line with the host country specific requirements for CDM.

The funding for the project does not lead to a diversion of official development assistance as according to the information obtained by the audit team ODA does not contribute to the financing of the project.

The starting date as well as the operational lifetime are clearly defined and also handled in a reasonable manner. The first crediting period is with 7 years clearly defined.

Moreover it is assured that as the start of the crediting period is before the registration of the project that the project activities starting date falls in the period between 1 January 2000 and the registration of the first clean development mechanism project. The start of project activities has been before the registration date of the first clean development mechanism project.

### **3.1.2. Findings**

None

### **3.1.3. Conclusion**

The project does comply with the requirements.

## **3.2. Baseline and Additionality**

### **3.2.1. Discussion**

By dispatching renewable electricity to a grid, electricity that would otherwise be produced using fossil fuel is displaced. According to the applied and approved methodology AM0015 the project activity follows the steps provided by the methodology taking into account the (b) Simple Adjusted OM calculation for the STEP 1, since there would be no available data for applying to the preferred option – (c) *Dispatch Data Analysis OM*. For STEP 2, the option 1 was chosen.

Operating and Build Margins have been used to calculate the Combined Margin emission factor for the electrical system. The emission factor for the Combined Margin is the average of the emission factors for both Operating and Build Margin (OM and BM, respectively). The CM was calculated using the most recent data available from the Nicaraguan Institute of Energy (INE), for 2004.

The physical boundary is the Nicaraguan grid.

The application of the Additionality Tool the project can be confirmed as additional. The economic unattractiveness of enhancing the already existing cogeneration process is indicating the additionality of this project; because the improved operation of the energy processes is not considered as necessary for the operation of Monta Rosa. The project baseline is clearly, retraceable and plausibly displayed in the project BLS. Possible project alternatives are discussed.

### **3.2.2. Findings**

#### Clarification Request 1:

The project developer uses option a) which is the third ranked option. He shall demonstrate and make clear in the PDD why option c) “dispatch analysis” is not possible. Furthermore, he has to demonstrate why he does not use the simple adjusted OM which is the second ranked option.

Response: Although the methodology calls for giving priority to the Dispatch data analysis method, lack of data for Nicaragua prevented the use of this option. Nicaragua is a country where less than 50% of total grid

generation comes from low-cost / must-run resources. Therefore, the Simple OM method “a” was applied.

Clarification Request 2:

Please provide an energy diagram including historical and projected values of generation capacities, MWh sells, MWh own consumption, and tonnes of bagasse generated for the period 1998-2021.

Response: The requested information was sent by Mr. Humberto Solis, from Monte Rosa, to Mr. Mauro Fadda, from TÜV, and Mr. David Freire da Costa, from Econergy, by e-mail on October 26<sup>th</sup>, 2005. A spreadsheet containing all information was sent attached in the same e-mail.

Clarification Request 3:

Please clarify how grid imports/exports impact on projects ER calculation

Response: Lacking sufficient information to treat it otherwise, and because imports and exports represent a very small fraction of total electricity volume (less than 1%), the imported energy was considered as Low Cost/Must Run and thus was excluded from the OM and BM calculations.

Corrective Action Request 1:

Please provide earliest evidence of CDM consideration for the project activity. If you don't find any, please inform us in order to consider available documents (e-mails) as evidences.

Response: The evidence of CDM consideration for the project activity is shown below, through the letter sent by Mr. Erasmo Gonzales-Holmann from International Finance Corporation.

### **3.2.3. Conclusion**

The answer to clarification request 1 (CR) is sufficient and reliable. Thus the issue is considered as solved.

The sent data for CR 2 is sufficient and reliable. Thus the issue is considered as solved.

The answer to CR 3 is sufficient and reliable, additional the statement was verified by the local auditor. Thus the issue is considered as solved.

The given information to CAR 1 is sufficient and reliable. Thus the issue is considered as solved.

Concluding the validation team confirms that the project is in line with appropriate requirements.

## **3.3. Monitoring Plan**

### **3.3.1. Discussion**

The monitoring plan is appropriate, traceable and transparent. The generated electricity that is fed into the grid in order to estimate emissions within the project boundary can be measured simply and with an appropriate accuracy. Needed data for calculating the combined margin will be made available to the project developer.

As the project is already in operation it can be confirmed that monthly and annual reporting of the collected data at the several monitoring points is working, the responsibilities for registration, monitoring, measurement and reporting are established.

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

### **3.3.2. Findings**

#### Corrective Action Request 2:

The project start is not exactly defined; the day has to be fixed.

Response: The day for the project start was defined as 01/03/2002 according to the first invoice of electricity sold by Monte Rosa.

#### Corrective Action Request 3:

The start of crediting period is not exactly defined; the day has to be fixed.

Response: The day for the crediting start was defined as 01/03/2002 according to the first invoice of electricity sold by Monte Rosa.

#### Corrective Action Request 4:

The first submitted PDD states a second and third crediting period. It is not business of that validation to assess those periods, furthermore for those periods the grid factor can not be predicted. The PDD has to be revised.

Response: The PDD was revised and it was considered the first 7-years-crediting-period only.

#### Corrective Action Request 5:

Table D.2.1.3. of first submitted PDD states that parameters  $EF_y$ ,  $EF_{OMy}$  and  $EF_{BMy}$  are monitored only at the baseline determination and validation. In fact the approved methodology prefers the ex-post determination at the verification. The monitoring shall be adopted.

Response: According option (a) Simple OM of the AM0015: "The Simple OM emission factor can be calculated using either of the two following data vintages for years(s) y:

- A 3-year average, based on the most recent statistics available at the time of PDD submission, or
- The year in which project generation occurs, if  $EF_{OM,y}$  is updated based on ex post monitoring."

Thus, the first argument satisfies EF calculation. In addition, all information used for OM, BM and EF calculation between 2002 and 2004 is now available into Annex 3 of the PDD instead of 2004 information only.

### **3.3.3. Conclusion**

The issues of CAR 2, 3 and 4 are fulfilled in the updated PDD, hence they are considered as solved.

The given information to CAR 5 is sufficient and reasonable. Thus the issue is considered as solved.

Concluding the validation team confirms that the project is in line with appropriate requirements.

### **3.4. Calculation of GHG Emissions**

#### **3.4.1. Discussion**

The calculation follows the approach of the approved methodology AM0015, using the simple operating margin in order to calculate the combined margin as a fifty-fifty mix of operating and build margin.

The amount of prospective generated electricity is multiplied with this combined margin in order to calculate the emission reduction in the grid.

The data sources are reliable and the approach of calculating the operational and the build margin is traceable and correct against the background of available data and chosen project boundary. Interviews with representatives of CNDC-Nicaragua indicated that imports and exports of electricity are almost negligible – about 1%. As such data are not public available those amounts were not considered in the calculation.

#### **3.4.2. Findings**

##### Corrective Action Request 6:

If option “a” is the choice, please consider recent grid data (values from 2004 and not from 2002). This will enhance projects ER performance, since grid thermal generation fraction has increased in this period. Please provide the respective OM calculation.

Response: The PDD was updated with the new data from 2002-2004 as required. In addition, all linked information was also modified.

#### **3.4.3. Conclusion**

The answer is sufficient and reliable, additional the statement was verified by the local auditor. Thus the issue is considered as solved. The calculated estimation of prospective emission reductions, stated with 392 139 tonnes CO<sub>2</sub>e over a crediting period of seven years, resulting in a calculated annual average of 56 020 tonnes CO<sub>2</sub>e seems to be realistic.

Concluding the validation team confirms that the project is in line with appropriate requirements.

### **3.5. Environmental Impacts**

#### **3.5.1. Discussion**

According to the Nicaraguan laws, the possible environmental impacts are to be analyzed by MARENA (Ministry of Environment and Natural Resources). The environmental impact assessment (EIA) for the proposed cogeneration expansion (Phase 2) project has been done, submitted to MARENA (Ministry of Environment and Natural Resources) and approved by MARENA in April of 2005.

#### **3.5.2. Findings**

##### Corrective Action Request 7:

Evidencing elements of social responsibility of Monte Rosa activity should be submitted.

Response: Additional information regarding social and environmental responsibilities of Monte Rosa activities was included in the section F.2 (Chapter F - Environmental Impacts) of the PDD



### **3.5.3. Conclusion**

The given information is sufficient and reliable, additional the statement was verified by the local auditor. According to the onsite assessment and given information the validation team confirms that the project is in line with appropriate requirements.

## **3.6. Comments by Local Stakeholders**

### **3.6.1. Discussion**

A local stakeholder process was performed in order to inform about project activity.

### **3.6.2. Findings**

None

### **3.6.3. Conclusion**

According to the onsite assessment and given information the validation team confirms that the project is in line with appropriate requirements.

## **4. COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS**

TÜV SÜD published the project documents on its website. The PDD will be open for comments from **November 16 to December 15**, 2005 and invited comments within 30 days, stakeholders and non-governmental organisations. No comments were received.



## 5. VALIDATION OPINION

TÜV SÜD has performed a validation of the Monta Rosa Bagasse Cogeneration Project. The validation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and subsequent decisions by the CDM Executive Board.

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 does meet all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by TÜV SÜD for registration with the UNFCCC.

By displacing fossil fuel-based electricity in principal with electricity generated from a renewable source, the project results in reductions of CO<sub>2</sub> 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 392 139 tonnes CO<sub>2</sub>e over a crediting period of seven years, resulting in a calculated annual average of 56 020 tonnes CO<sub>2</sub>e, 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, December 20, 2005

Munich, December 20, 2005

A blue ink signature of Werner Betzenbichler, consisting of a stylized 'W' and 'B' intertwined.

Werner Betzenbichler  
Certification body  
"Climate and Energy"

A blue ink signature of Markus Knödseder, consisting of a stylized 'M' and 'K' intertwined.

Markus Knödseder  
Project Manager





## **Annex 1: Validation Protocol**

**Table 1 Mandatory Requirements for 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	☑	The project is unilateral.
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, Marrakesh Accords, CDM Modalities §40a	☑	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 the written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Marrakesh Accords, CDM Modalities §40a	☑	Yes the project has a Letter of Approval obtained by the competent authority on 19 <sup>th</sup> Oct. 2005.
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	☑	Table 2, Section E
6. Reduction in GHG emissions shall 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. 12.5c, Marrakesh Accords, CDM Modalities §43	☑	Table 2, Section B.2



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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Ac-cords	☑	According to the information obtained by the audit team ODA does not contribute to the financing of the project.
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakech Ac-cords, CDM Modalities §29	☑	Involved Party has designated national authority for the CDM
9. The host country shall be a Party to the Kyoto Protocol	Marrakech Ac-cords, CDM Modalities §30	☑	Nicaragua has approved the Kyoto Protocol.
10. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	Marrakech Ac-cords, CDM Modalities §37b	☑	Table 2, Section G
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	Marrakech Ac-cords, CDM Modalities §37c	☑	Table 2, Section F
12. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel	Marrakech Ac-cords, CDM Modalities §37e	☑	Table 2, Section B.1.1 and D.1.1
13. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Ac-cords and relevant decisions of the COP/MOP	Marrakech Ac-cords, CDM Modalities §37f	☑	Table 2, Section D



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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
14. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Marrakech Ac-cords, CDM Modalities, §40	☑	A global public stakeholder process on the UNFCCC website has taken place from November 16 to December 15, 2005, no comments have been received.
15. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Ac-cords, CDM Modalities, §45c,d	☑	Table 2, Section B.2
16. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Ac-cords, CDM Modalities, §47	☑	Table 2, Section B.2
17. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Ac-cords, CDM Modalities, Appendix B, EB Decisions	☑	The PDD is in conformance with the CDM Project Design Document (version 02) which is in effect as of July 1, 2004.

**Table 2 Requirements Checklist**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
<b>A. General Description of Project Activity</b> <i>The project design is assessed.</i>					
<b>A.1. Project Boundaries</b> <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i>					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	1, 2, 3, 7	DR, I	The boundaries are clearly described in the PDD. It is the electricity grid of Nicaragua and the physical site of the sugar mill in respect to its electricity generation.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>A.2. Technology to be employed</b> <i>Validation of project technology focuses on the project engineering, choice of technology and competence/maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i>					
A.2.1. Does the project design engineering reflect current good practices?	1, 2, 3, 7	DR, I	Yes, the project design engineering reflects current good practices	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.2. Does the project use state of the art technology	1, 2,	DR,	The technology implemented is state of the	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
or would the technology result in a significantly better performance than any commonly used technologies in the host country?	3, 7	I	art.		
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1, 2, 3, 7	DR, I	It is not likely that the project technology will be substituted by other or more efficient technologies within the project period	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	1, 2, 3, 7	DR, I	No, the operation of energy generating facility is common practice there.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.5. Does the project make provisions for meeting training and maintenance needs?	1, 2, 3, 7	DR, I	No, see above.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>A.3. Contribution to Sustainable Development</b> <i>The project's contribution to sustainable development is assessed.</i>					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	1, 2, 3, 7	DR, I	Yes, the operational license was presented during the onsite assessment.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3.2. Is the project in line with host-country specific CDM requirements?	1, 2, 3, 7	DR, I	Yes, the obtained LoA demonstrates that the project in line with host-country specific CDM requirements	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3.3. Is the project in line with sustainable development policies of the host country?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	1, 2, 3, 7	DR, I	The project owner is involved in different social and environmental programs. The project raises the awareness and creates jobs.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
<b>B. Project Baseline</b> <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>					
<b>B.1. Baseline Methodology</b> <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	1, 2, 3, 7	DR, I	The applied methodology is approved; it is AM0015	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	1, 2, 3, 7	DR, I	The applied methodology is the most applicable one.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>B.2. Baseline Determination</b> <i>The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.</i>					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	1, 2, 3, 7	DR, I	<p>The methodology gives four options for calculating the operational margin (OM). Their choice is ranked.</p> <p><u>Clarification Request 1:</u></p> <p>The project developer uses option a) which is the third ranked option. He shall demon-</p>	<b>CR 1</b>	<input checked="" type="checkbox"/>

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			strate and make clear in the PDD why option c) "dispatch analysis" is not possible. Furthermore, he has to demonstrate why he does not use the simple adjusted OM which is the second ranked option.		
B.2.2. Has the baseline been determined using conservative assumptions where possible?	1, 2, 3, 7	DR, I	According to submitted data, the baseline has been determined using conservative assumptions where possible.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.2.3. Has the baseline been established on a project-specific basis?	1, 2, 3, 7	DR, I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	1, 2, 3, 7	DR, I	<u>Clarification Request 2:</u> Please provide an energy diagram including historical and projected values of generation capacities, MWh sells, MWh own consumption, and tonnes of bagasse generated for the period 1998-2001.  <u>Clarification Request 3:</u> Please clarify how grid imports/exports impact on projects ER calculation.	<b>CR 2</b>  <b>CR 3</b>	<input checked="" type="checkbox"/>
B.2.5. Is the baseline determination compatible with the available data?	1, 2, 3, 7	DR, I	According to submitted data the baseline determination compatible with the available data.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or dis-	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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cussed scenarios?					
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario (e.g. through (a) a flow-chart or series of questions that lead to a narrowing of potential baseline options, (b) a qualitative or quantitative assessment of different potential options and an indication of why the non-project option is more likely, (c) a qualitative or quantitative assessment of one or more barriers facing the proposed project activity or (d) an indication that the project type is not common practice in the proposed area of implementation, and not required by a Party's legislation/regulations)?	1, 2, 3, 7	DR, I	<u>Corrective Action Request 1:</u> Please provide earliest evidence of CDM consideration for the project activity. If you don't find any, please inform us in order to consider available documents (e-mails) as evidences.	<b>CAR 1</b>	<input checked="" type="checkbox"/>
B.2.8. Have the major risks to the baseline been identified?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.2.9. Is all literature and sources clearly referenced?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>C. Duration of the Project/ Crediting Period</b> <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	1, 2, 3, 7	DR, I	<u>Corrective Action Request 2:</u> The project start is not exactly defined; the day has to be fixed.	<b>CAR 2</b>	<input checked="" type="checkbox"/>
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of	1, 2,	DR,	<u>Corrective Action Request 3:</u>	<b>CAR 3</b>	<input checked="" type="checkbox"/>

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
max. two x 7 years or fixed crediting period of max. 10 years)?	3, 7	I	The start of crediting period is not exactly defined; the day has to be fixed.  <u>Corrective Action Request 4:</u>  The PDD states the second and third crediting period. It is not business of that validation to assess those periods, furthermore for those periods the grid factor can not be predicted. The PDD has to be revised.	<b>CAR 4</b>	
C.1.3. Is it assured that in case the start of the crediting period is before the registration of the project that the project activities starting date falls in the period between 1 January 2000 and the registration of the first clean development mechanism project?	1, 2, 3, 7	DR, I	It is assured that in case the start of the crediting period is before the registration of the project that the project activities starting date falls in the period between 1 January 2000 and the registration of the first clean development mechanism project.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>D. Monitoring Plan</b> <i>The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.</i>					
<b>D.1. Monitoring Methodology</b> <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
D.1.1. Is the monitoring methodology previously approved by the CDM Methodology Panel?	1, 2, 3, 7	DR, I	Yes, the monitoring methodology is approved.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.1.2. Is the monitoring methodology applicable for	1, 2,	DR,	Yes the monitoring methodology is applica-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
this project and is the appropriateness justified?	3, 7	I	ble for this project.		
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	1, 2, 3, 7	DR, I	<u>Corrective Action Request 5:</u> Table D.2.1.3. states that parameters EF <sub>y</sub> , EF <sub>OMy</sub> and EF <sub>BMy</sub> are monitored only at the baseline determination and validation. In fact the approved methodology prefers the ex-post determination at the verification. The monitoring shall be adopted.	<b>CAR 5</b>	<input checked="" type="checkbox"/>
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>D.2. Monitoring of Project Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	1, 2, 3, 7	DR, I	The project does not emit any emissions.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2.2. Are the choices of project GHG indicators reasonable?	1, 2, 3, 7	DR, I	See D.2.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	1, 2, 3, 7	DR, I	See D.2.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?	1, 2, 3, 7	DR, I	See D.2.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2.5. Will the indicators enable comparison of project data and performance over time?	1, 2, 3, 7	DR, I	See D.2.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>D.3. Monitoring of Leakage</b> <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i>					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1, 2, 3, 7	DR, I	Leakage is not identified. The equipment is new.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.3.2. Have relevant indicators for GHG leakage been included?	1, 2, 3, 7	DR, I	See D.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.3.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1, 2, 3, 7	DR, I	See D.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.3.4. Will it be possible to monitor the specified GHG leakage indicators?	1, 2, 3, 7	DR, I	See D.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>D.4. Monitoring of Baseline Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the	1, 2, 3, 7	DR, I	Yes, the monitoring plan provides all necessary parameters. Regarding the determination CAR 5 above has to be considered.	See CAR 5	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
crediting period?					
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1, 2, 3, 7	DR, I	Yes, it is according to the applied methodology.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.4.3. Will it be possible to monitor the specified baseline indicators?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts</b> <i>It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.</i>					
D.5.1. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	1, 2, 3, 7	DR, I	The monitoring plan does not foresee any data collection and archiving of relevant data concerning environmental, social and economic impacts. A need for such activities is not identified. Nevertheless the sugar mill Monte Rosa has voluntary monitoring programs. Any adverse effects can be identified in the verification.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.2. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	1, 2, 3, 7	DR, I	See D.5.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.3. Will it be possible to monitor the specified sustainable development indicators?	1, 2, 3, 7	DR, I	See D.5.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.4. Are the sustainable development indicators in line with stated national priorities in the Host Country?	1, 2, 3, 7	DR, I	See D.5.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
<b>D.6. Project Management Planning</b> <i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i>					
D.6.1. Is the authority and responsibility of project management clearly described?	1, 2, 3, 7	DR, I	Reasoned by the fact that the project is already running since 2001, the onsite assessment team identified no lack of missing authority and responsibility of project management.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	1, 2, 3, 7	DR, I	Reasoned by the fact that the project is already running since 2001, the onsite assessment team identified no lack of missing responsibility for registration, monitoring, measurement and reporting.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.3. Are procedures identified for training of monitoring personnel?	1, 2, 3, 7	DR, I	Reasoned by the fact that the project is already running since 2001, the onsite assessment team identified no lack of missing qualification.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	1, 2, 3, 7	DR, I	The sugar mill burns just biomass, hence unintended emissions are not likely.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.5. Are procedures identified for calibration of monitoring equipment?	1, 2, 3, 7	DR, I	Reasoned by the fact that the project is already running since 2001, the onsite assessment team identified no lack of missing responsibility for calibration of monitoring equipment.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	1, 2, 3, 7	DR, I	See. D.6.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.7. Are procedures identified for monitoring, measurements and reporting?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.8. 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, 2, 3, 7	DR, I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1, 2, 3, 7	DR, I	Reasoned by the fact that the project is already running since 2001, the onsite assessment team identified that with possible monitoring data adjustments and uncertainties will be provided.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.10. Are procedures identified for review of reported results/data?	1, 2, 3, 7	DR, I	Special documented procedures were not identified, but the validation team is convinced that the data will be reported in a proper manner.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	1, 2, 3, 7	DR, I	Special documented procedures were not identified, but the validation team can not identify a need.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	1, 2, 3, 7	DR, I	Special documented procedures were not identified, but the validation team can not identify a need.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	1, 2, 3, 7	DR, I	Special documented procedures were not identified, but the validation team is convinced that the data will be reported in a	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			proper manner.		
<b>E. Calculation of GHG Emissions by Source</b> <i>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.</i>					
<b>E.1. Predicted Project GHG Emissions</b> <i>The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.</i>					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	1, 2, 3, 7	DR, I	Yes, project emissions are not expected.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
<b>E.2. Leakage</b> <i>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.</i>					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	1, 2, 3, 7	DR, I	Leakage is not identified. The equipment is new.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.2. Have these leakage effects been properly accounted for in calculations?	1, 2, 3, 7	DR, I	See D.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	1, 2, 3, 7	DR, I	See D.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.4. Are the calculations documented in a complete and transparent manner?	1, 2, 3, 7	DR, I	See D.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.5. Have conservative assumptions been used when calculating leakage?	1, 2, 3, 7	DR, I	See D.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.6. Are uncertainties in the leakage estimates properly addressed?	1, 2, 3, 7	DR, I	See D.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>E.3. Baseline Emissions</b> <i>The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.</i>					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	1, 2, 3, 7	DR, I	See CR1: If data availability allows use of option "c" for OM baseline emission calculation (Chapter E2 of PDD), do not consider	<b>CR 1</b> <b>CAR 6</b>	<input checked="" type="checkbox"/>

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			<p>this CAR. If option “a” is taken, please provide detailed information why option “c” could not be taken.</p> <p><u>Corrective Action Request 6:</u></p> <p>If option “a” is the choice, please consider recent grid data (values from 2004 and not from 2002). This will enhance projects ER performance, since grid thermal generation fraction has increased in this period. Please provide the respective OM calculation.</p>		
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	1, 2, 3, 7	DR, I	Yes, all necessary information is submitted to the team.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	1, 2, 3, 7	DR, I	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
<b>E.4. Emission Reductions</b> 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 scenario?	1, 2, 3, 7	DR, I	According to the energy mix in Nicaragua, it is obvious that the generated electricity will substitute electricity from fossil fuels.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>F. Environmental Impacts</b> <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	1, 2, 3, 7	DR, I	Environmental impacts are not expected.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	1, 2, 3, 7	DR, I	Yes, the EIA was required and it is approved.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.3. Will the project create any adverse environmental effects?	1, 2, 3, 7	DR, I	Adverse effects are not expected. However, if there will occur adverse effects Monte Rosa are able to monitor them by the voluntary programs.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.4. Are transboundary environmental impacts considered in the analysis?	1, 2, 3, 7	DR, I	Transboundary environmental impacts are not expected.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.5. Have identified environmental impacts been addressed in the project design?	1, 2, 3, 7	DR, I	See F.1.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

\* MoV = Means of Verification, DR= Document Review, I= Interview



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
F.1.6. Does the project comply with environmental legislation in the host country?	1, 2, 3, 7	DR, I	<u>Corrective Action Request 7:</u> Please include evidenced elements of social responsibility of Monte Rosa activity in order to enhance PDD quality regarding social aspects (Chapter F - Environmental Impacts).	CAR 7	<input checked="" type="checkbox"/>
<b>G. Stakeholder Comments</b> <i>The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.</i>					
G.1.1. Have relevant stakeholders been consulted?	1, 2, 3, 7	DR, I	Yes, it is documented.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	1, 2, 3, 7	DR, I	Yes, according to the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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 with such regulations/laws?	1, 2, 3, 7	DR, I	Yes, it s done according to regulations/laws of Nicaragua.		
G.1.4. Is a summary of the stakeholder comments received provided?	1, 2, 3, 7	DR, I	The summary is documented in the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
G.1.5. Has due account been taken of any stakeholder comments received?	1, 2, 3, 7	DR, I	The summary is documented in the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

\* MoV = Means of Verification, DR= Document Review, I= Interview

**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 2	Summary of project owner response	Validation team conclusion
<p><u>Clarification Request 1:</u></p> <p>The project developer uses option a) which is the third ranked option. He shall demonstrate and make clear in the PDD why option c) “dispatch analysis” is not possible. Furthermore, he has to demonstrate why he does not use the simple adjusted OM which is the second ranked option.</p>	B.2.1	<p>Although the methodology calls for giving priority to the Dispatch data analysis method, lack of data for Nicaragua prevented the use of this option. Nicaragua is a country where less than 50% of total grid generation comes from low-cost / must-run resources. Therefore, the Simple OM method “a” was applied.</p>	<p>The answer is sufficient and reliable. Thus the issue is considered as solved.</p> <p style="text-align: center;">☑</p>
<p><u>Clarification Request 2:</u></p> <p>Please provide an energy diagram including historical and projected values of generation capacities, MWh sells, MWh own consumption, and tonnes of bagasse generated for the period 1998-2021.</p>	B.2.4	<p>The requested information was sent by Mr. Humberto Solis, from Monte Rosa, to Mr. Mauro Fadda, from TÜV, and Mr. David Freire da Costa, from Econergy, by e-mail on October 26<sup>th</sup>, 2005. A spreadsheet containing all information was sent attached in the same e-mail.</p>	<p>The sent data is sufficient and reliable. Thus the issue is considered as solved.</p> <p style="text-align: center;">☑</p>
<p><u>Clarification Request 3:</u></p> <p>Please clarify how grid imports/exports impact on projects ER calculation</p>	B.2.4	<p>Lacking sufficient information to treat it otherwise, and because imports and exports represent a very small fraction of total electricity volume (less than 1%), the imported energy was considered as Low Cost/Must Run and thus was excluded from the OM and BM calculations.</p>	<p>The answer is sufficient and reliable, additional the statement that public availability of data about electricity imports and exports was verified by the local auditor. Thus the issue is considered as solved.</p> <p style="text-align: center;">☑</p>



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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<u>Corrective Action Request 1:</u> Please provide earliest evidence of CDM consideration for the project activity. If you don't find any, please inform us in order to consider available documents (e-mails) as evidences.	B.2.7.	The evidence of CDM consideration for the project activity is shown below, through the letter sent by Mr. Erasmo Gonzales-Holmann from IFC.	The given information is sufficient and reliable. Thus the issue is considered as solved. <input checked="" type="checkbox"/>
<u>Corrective Action Request 2:</u> The project start is not exactly defined; the day has to be fixed.	C.1.1.	The day for the project start was defined as 01/03/2002 according to the first invoice of electricity sold by Monte Rosa.	The issue is considered as solved. <input checked="" type="checkbox"/>
<u>Corrective Action Request 3:</u> The start of crediting period is not exactly defined; the day has to be fixed.	C.1.1.	The day for the crediting start was defined as 01/03/2002 according to the first invoice of electricity sold by Monte Rosa.	The issue is considered as solved. <input checked="" type="checkbox"/>
<u>Corrective Action Request 4:</u> The PDD states the second and third crediting period. It is not business of that validation to assess those periods, furthermore for those periods the grid factor can not be predicted. The PDD has to be revised.	C.1.1.	The PDD was revised and it was considered the first 7-years-crediting-period only.	The PDD were adjusted appropriately. <input checked="" type="checkbox"/>
<u>Corrective Action Request 5:</u> Table D.2.1.3. states that parameters $EF_y$ , $EF_{OMy}$ and $EF_{BMy}$ are monitored only at the baseline determination and validation. In fact the approved methodology prefers the ex-post determination at the verification.	D.1.3.	According option (a) Simple OM of the AM0015: "The Simple OM emission factor can be calculated using either of the two following data vintages for years(s) y: • A 3-year average, based on the	The given information is sufficient and reliable. Thus the issue is considered as solved. <input checked="" type="checkbox"/>



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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
The monitoring shall be adopted.		<p>most recent statistics available at the time of PDD submission, or</p> <ul style="list-style-type: none"> <li>• The year in which project generation occurs, if EFOM,y is updated based on ex post monitoring.”</li> </ul> <p>Thus, the first argument satisfies EF calculation.</p> <p>In addition, all information used for OM, BM and EF calculation between 2002 and 2004 is now available into Annex 3 of the PDD instead of 2004 information only.</p>	
<p><u>Corrective Action Request 6:</u></p> <p>If option “a” is the choice, please consider recent grid data (values from 2004 and not from 2002). This will enhance projects ER performance, since grid thermal generation fraction has increased in this period. Please provide the respective OM calculation.</p>	E.3.2	<p>The PDD was updated with the new data from 2002-2004 as required. In addition, all linked information was also modified.</p>	<p>The answer is sufficient and reliable, additional the statement was verified by the local auditor. Thus the issue is considered as solved.</p> <p style="text-align: right;">☑</p>
<p><u>Corrective Action Request 7:</u></p> <p>Evidencing elements of social responsibility of Monte Rosa activity should be submitted.</p>	F.1.6	<p>Additional information regarding social and environmental responsibilities of Monte Rosa activities was included in the section F.2 (Chapter F - Environmental Impacts) of the PDD.</p>	<p>The given information is sufficient and reliable, additional the statement was verified by the local auditor. Thus the issue is considered as solved.</p> <p style="text-align: right;">☑</p>

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## **Annex 2: Information Reference List**



Final Report 2005-12-20	Validation of the "Monta Rosa Bagasse Cogeneration Project", Brazil Information Reference List	Page 1 of 1	 Industrie Service
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Reference No.	Document or Type of Information
1.	<p>On-site interview at the Monta Rosa Sugar Mill with the project developer and project owner conducted on September 19, 2005 by auditing team of TÜV SÜD</p> <p><b>Validation team on-site:</b>  Mauro Fadda                      cca Qualitas, TÜV SÜD Group</p> <p><b>Interviewed persons:</b>  Francisco Baltodano              Monta Rosa S.A.  Humberto Solis                      Panthenon  David Freire da Costa              Econergy, Brazil</p>
2.	Project Design Document Monte Rosa Bagasse Cogeneration Project (MRBCP), submitted November 15, 2005
3.	Final Project Design Document Monte Rosa Bagasse Cogeneration Project (MRBCP), issued on December 05, 2005
4.	UNFCCC homepage <a href="http://www.unfccc.int">http://www.unfccc.int</a>
5.	Letter of Approval from Nicaragua, issued on November 11, 2005
6.	Declaration of Approval, issued by the State of the Netherlands, March 2003
7.	Approved baseline methodology AM0015: Bagasse-based cogeneration connected to an electricity grid.
8.	Validation and Verification Manual, IETA/PCF <a href="http://www.vvmanual.info">http://www.vvmanual.info</a>
9.	Centro Nacional de Despacho de Carga (CNDC-Nicaragua), <a href="http://www.cndc.org.ni/index.html">http://www.cndc.org.ni/index.html</a>
10.	Nicaraguan Energy Sector, September 11, 1997, U.S. Embassy in Nicaragua, <a href="http://nicaragua.usembassy.gov/wwwhe34.html">http://nicaragua.usembassy.gov/wwwhe34.html</a>