



VALIDATION REPORT

CENTRAL ENERGÉTICA DO RIO PARDO COGENERATION PROJECT (CERPA) IN BRAZIL

REPORT No. 2005-0635

REVISION No. 02

DET NORSKE VERITAS



VALIDATION REPORT

Date of first issue: 2005-06-21	Project No.: 28624550 (26).
Approved by: Einar Telnes Technical Director	Organisational unit: DNV Certification, International Climate Change Services
Client: Central Energética do Rio Pardo Ltda	Client ref.: Sylvio Ortega

DET NORSKE VERITAS AS

DNV Certification

Veritasveien 1,
1322 HØVIK, Norway
Tel: +47 67 57 99 00
Fax: +47 67 57 99 11
<http://www.dnv.com>
Org. No: NO 945 748 931 MVA

Summary:

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the “Central Energética do Rio Pardo Cogeneration Project (CERPA)” (hereafter called “the project”) in Brazil on the basis of UNFCCC criteria for the CDM, 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 the subsequent decisions by the CDM Executive Board.

The validation consisted of the following three phases: i) a desk review of the project design, baseline and monitoring plan, ii) follow-up interviews with project stakeholders and iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

This validation report summarizes the findings of the validation. The only changes made to this version of the validation report compared to the validation report rev. 01 dated 04 November 2005 referred to in the letter of approval of the DNA of Brazil are linked to the status of issuance of the letter of approval by the DNA of Brazil and the recalculation of the build margin emission factor with the plant efficiencies recommended by the CDM Executive Board at its 22nd meeting.

In summary, it is DNV's opinion that the “Central Energética do Rio Pardo Cogeneration Project (CERPA)” as described in the revised PDD of 21 December 2005, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology AM0015. Hence, DNV requests the registration of the “Central Energética do Rio Pardo Cogeneration Project (CERPA)” as a CDM project activity.

Report No.: 2005-0635	Subject Group: Environment
Report title: Central Energética do Rio Pardo Cogeneration Project (CERPA)	
Work carried out by: Vicente San Valero, Cintia Dias, Luis Filipe Tavares	
Work verified by: Michael Lehmann	
Date of this revision: 2005-12-23	Rev. No.: 02
Number of pages: 12	

Indexing terms

Key words Climate Change Kyoto Protocol Validation Clean Development Mechanism	Service Area Verification
	Market Sector
	Process Industry
<input checked="" type="checkbox"/> No distribution without permission from the client or responsible organisational unit <input type="checkbox"/> free distribution within DNV after 3 years <input type="checkbox"/> Strictly confidential <input type="checkbox"/> Unrestricted distribution	

© 2002 Det Norske Veritas AS

All rights reserved. This publication or parts thereof may not be reproduced or transmitted in any form or by any means, including photocopying or recording, without the prior written consent of Det Norske Veritas AS.



<i>Table of Content</i>	<i>Page</i>
1 INTRODUCTION	1
1.1 Validation Objective	1
1.2 Scope	1
1.3 Central Energética do Rio Pardo Cogeneration Project (CERPA) in Brazil	1
2 METHODOLOGY	2
2.1 Review of Documents	4
2.2 Follow-up Interviews	4
2.3 Resolution of Clarification and Corrective Action Requests	4
3 VALIDATION FINDINGS	5
3.1 Participation Requirements	5
3.2 Project Design	5
3.3 Baseline Determination	5
3.4 Additionality	6
3.5 Monitoring Plan	7
3.6 Calculation of GHG Emissions	7
3.7 Environmental Impacts	8
3.8 Comments by Local Stakeholders	9
4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS	9
5 VALIDATION OPINION	10
REFERENCES.....	12

Appendix A Validation Protocol



Abbreviations

ANEEL	Agência Nacional de Energia Elétrica (National Agency Electric Energy)
BAU	“Business as usual”
BNDES	Brazilian National Bank for Economic and Social Development
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CETESB	Companhia de Tecnologia de Saneamento Ambiental (State Environmental Agency)
CH ₄	Methane
CL	Clarification request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CPFL	Companhia Paulista de Força e Luz (Regional Electricity Company)
DNV	Det Norske Veritas
DNA	Designated National Authority
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
N ₂ O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
ONS	Operador Nacional do Sistema Elétrico (National Electricity System Operator)
PDD	Project Design Document
RAP	Relatório Ambiental Preliminar (Previous Environmental Report)
S-SE-CO	South-Southeast-Midwest (one of two regional grids in Brazil)
SMA	Secretaria de Estado do Meio Ambiente (State Secretary of Environment)
UNFCCC	United Nations Framework Convention on Climate Change
UNICA	União da Agroindústria Canavieira de São Paulo (São Paulo Sugarcane Agroindustry Union)



1 INTRODUCTION

Central Energética do Rio Pardo Ltda and Ecoinvest have commissioned Det Norske Veritas Certification Ltd. (DNV) to validate the “Central Energética do Rio Pardo Cogeneration Project (CERPA)”, located in the municipality of Serrana, State of São Paulo, Brazil.

The only changes made to this version of the validation report compared to the validation report rev. 01 dated 04 November 2005 referred to in the letter of approval of the DNA of Brazil are linked to the status of issuance of the letter of approval by the DNA of Brazil and the recalculation of the build margin emission factor with the plant efficiencies recommended by the CDM Executive Board at its 22nd meeting.

This report summarises the findings of the validation of the project, performed based on UNFCCC criteria for CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation team consisted of the following personnel:

Mr. Luis Filipe Tavares	DNV Rio de Janeiro	Team leader
Mr. Vicente San Valero	DNV Rio de Janeiro	CDM auditor
Mrs. Cintia Dias	DNV Rio de Janeiro	CDM auditor
Mr. Michael Lehmann	DNV Oslo	Energy sector expert, Technical reviewer

1.1 Validation Objective

The purpose of a validation is to have an independent third party assessing the project design. In particular, the project's baseline, the monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the 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 (CER's).

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against Kyoto Protocol criteria for the CDM, the CDM rules and modalities as agreed in the Marrakesh Accords and relevant decisions by the CDM Executive Board. The validation team has employed, based on the recommendations in the Validation and Verification Manual /9/ a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CER's.

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

1.3 Central Energética do Rio Pardo Cogeneration Project (CERPA) in Brazil

The “Central Energética do Rio Pardo Cogeneration Project (CERPA)” is located in the municipality of Serrana, State of São Paulo, Brazil. The project involves an increase of the



cogeneration facility at the Usina da Pedra S.A. sugar cane mill, allowing the mill to supply additional excess electricity to the grid.

The project has already been implemented and started operation on 01 May 2003.

With the implementation of this project, the mill is able to sell the surplus electricity to the South-Southeast-Midwest (S-SE-CO) grid, avoiding the dispatch of the same amount of energy produced by fossil-fuelled thermal plants to that grid.

The estimated amount of GHG emission reductions from the project is 114 031 tCO₂e during the first 7-year crediting period (with the potential of being renewed twice), resulting in estimated average annual emission reductions of 16 290 tCO₂e.

2 METHODOLOGY

The validation consisted of the following three phases:

- i) a desk review of the project design, baseline and monitoring plan;
- ii) follow-up interviews with project stakeholders;
- iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual /9/. 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 for the “Central Energética do Rio Pardo Cogeneration Project (CERPA)” is enclosed in Appendix A to this report.

Findings established during the validation can be seen as either a non-fulfilment of validation criteria or where a risk to the fulfilment of project objectives is identified. *Corrective Action Requests* (CAR) are issued, where:

- i) mistakes have been made with a direct influence on project results;
- ii) CDM or host Party requirements have not been met; or
- iii) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

The term *Request for Clarification* (CL) may be used where additional information is needed to fully clarify an issue.



Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities			
Requirement	Reference	Conclusion	Cross reference
<i>The requirements the project must meet.</i>	<i>Gives reference to the legislation or agreement where the requirement is found.</i>	<i>This is either acceptable based on evidence provided (OK), a Corrective Action Request (CAR) of risk or non-compliance with stated requirements or a request for Clarification (CL) where further clarifications are needed.</i>	<i>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.</i>

Validation Protocol Table 2: Requirement Checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
<i>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.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</i>	<i>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.</i>	<i>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.</i>	<i>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). A request for Clarification (CL) is used when the validation team has identified a need for further clarification.</i>

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

Figure 1 Validation protocol tables



2.1 Review of Documents

The initial PDD of 25 April 2005 /1/ submitted by Central Energética do Rio Pardo Ltda and Ecoinvest was assessed by DNV. A revised version of the PDD /2/ was submitted on 31 October 2005 to address DNV's initial validation findings and was assessed by DNV. Finally, DNV assessed the final version of the PDD /3/ submitted on 21 December 2005, in which the build margin emission factor was recalculated based on the plant efficiencies recommended by the CDM Executive Board at its 22nd meeting. In addition, a spreadsheet containing detailed calculations for the combined margin emission coefficient /4/, which is applied by the project, has been assessed during the validation.

Other documents, such as the Environmental Impact Assessment, the Environmental Licences and licence requirements as well as the letters sent to local stakeholders, have been assessed during the follow up interviews in order to ensure the accuracy of the relevant information.

2.2 Follow-up Interviews

On 28 June 2005 and 28 July 2005, DNV performed interviews with a representative of Ecoinvest /13/.

The main topics of the interviews were:

- Environment licenses,
- Local stakeholder consultation process,
- Additionality argumentation,
- Baseline emission calculations,
- Calibration requirements,
- The possibility of leakage effects due to a possible practice of selling bagasse in the past,
- Monitoring, reporting and QA/QC procedures.

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve any outstanding issues, which needed to be clarified for DNV's positive conclusion on the project design.

The initial validation of the project identified 04 (four) *Corrective Action Requests*. The project participant's response to the findings presented to the project participants in DNV's draft validation report of 21 June 2006 were resolved during communications between the project participants and DNV, including the submission of a revised PDD of 31 October 2005, which addressed the *Corrective Action Requests* to DNV's satisfaction.

To guarantee the transparency of the validation process, the concerns raised and the response provided are documented in Table 3 of the validation protocol in Appendix A.



3 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The final validation findings relate to the project design as documented and described in the PDD of 21 December 2005 /3/.

3.1 Participation Requirements

The project participant is Central Energética do Rio Pardo Ltda of Brazil. The host Party Brazil meets all relevant participation requirements, and the DNA of Brazil has provided written approval of voluntary participation /8/. No participating Annex I Party is yet identified.

3.2 Project Design

The project is a grid-connected renewable energy project activity, displacing grid electricity that is partly generated based on fossil fuels with electricity generated from renewable sources (bagasse) and thus resulting in the reduction of emissions of greenhouse gases in the energy sector. The project increased the efficiency and the capacity of the previous bagasse based cogeneration system used to generate steam and electricity for internal consumption by the installation of a high-pressure boiler and a multiple stage backpressure turbine coupled with two new 15 MW generators that provide an additional 30 MW generation capacity to the previously installed capacity of 10 MW. This has enabled the sugarcane mill to dispatch excess electricity to the regional S-SE-CO grid.

As per ANEEL Dispatch No.608, the total installed capacity for Usina da Pedra S.A. is 40 MW. Of these 40 MW, 10 MW were installed since 1988 and 30 MW were added by the project.

The project design engineering reflects good practice through the use of the steam Rankine cycle technology for steam and power generation.

A 7-year renewable crediting period (with the potential of being renewed twice) is selected, and the starting date of the crediting period is 01 May 2003, corresponding to the starting date of the project activity. The expected operational lifetime of the project is 25 years.

It is estimated that the project results in 114 031 tCO₂e of emissions reduction over the selected 7-year crediting period (16 290 tCO₂e /year on the average).

The project is expected to bring social (employment for nine workers), environmental (reforestation, environmental education and community agriculture programs) and economic benefits, thus contributing to the sustainable development objectives of the Brazilian Government. The DNA

The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards Brazil. The DNA of Brazil confirmed that the project assists in achieving sustainable development /8/.



3.3 Baseline Determination

The project applies the approved baseline methodology AM0015, “Bagasse-based cogeneration connected to an electricity grid”. /10/

The project fulfils the conditions under which AM0015 is applicable. The baseline scenario is that the current practice continues, i.e., the bagasse is not utilized to generate excess electricity to be supplied to the grid and an equivalent of electricity would, in the absence of the project activity, have been generated by the operation of grid-connected power plants and by the addition of new generation sources. In accordance with AM0015, an electricity baseline emission factor is calculated as a combined margin, consisting of the combination of operating margin (OM) and build margin (BM) factors (see section 3.6).

3.4 Additionality

In accordance with AM0015, the additionality of the project is demonstrated through the “*Tool for the demonstration and assessment of additionality*” /12/, which includes the following steps:

Step 0 - Preliminary screening based on the starting date of the project activity: The starting date of the CDM project activity, i.e. 01 May 2003, falls between 1 January 2000 and the date of the registration of the first CDM project activity (November 2004). Evidence for the project’s starting date of 01 May 2003 has been presented. Documented evidence that the incentive from the CDM was seriously considered in the decision to proceed with the project activity was provided by means of a CDM consulting quotation from ERM BRASIL LTDA dated January 2002 which contains an analysis of the project as a CDM.

Step 1 - Identification of alternatives to the project activity consistent with current laws and regulations: The possible baseline scenarios are: a) Business as usual which means producing electricity and steam for self consumption with low efficiency and b) investing in modifications of boilers and installing a new electricity generator which will allow Usina da Pedra S.A. to supply excess electricity to the grid. Both scenarios are in compliance with all applicable legal and regulatory requirements.

Step 2 - Investment analysis: Not applicable (Only Step 3 is selected)

Step 3. Barrier analysis: Investment barriers, institutional barriers and cultural barriers are presented in the PDD:

- a) *Investment barriers.* The project reaches a negative Net Present Value (NPV) with a discount rate of 18% and an IRR of 15%. This average project IRR is lower than the SELIC rate in effect at the time of financing, 26.27% on average in May 2003. The NPV calculations were verified and considered appropriate.. DNV also confirmed the fact that the revenues of the selling of energy represent not more than 5% of the core business revenues, i.e. production of sugar and alcohol, thus constituting a minor part of the project developer’s total income. Therefore, it is sufficiently demonstrated that the project is not financially attractive under normal commercial conditions and thus faces investment barriers.
- b) *Institutional barriers.* DNV could confirm that the regulatory environment for the electricity sector undergo frequent changes in Brazil, resulting in uncertainties for renewable energy generation. The project does not qualify for PROINFA, the Brazilian Programme of Incentives for Alternative Sources of Electric Energy, because it started operation before 2006.



- d) *Cultural barriers.* DNV was able to confirm that the sugarcane production (traditionally production of sugar and alcohol) is different from energy production and that electricity revenues only constitute a minor part of the project developer's total income. Hence, there are cultural barriers for sugarcane mills to invest in increased cogeneration capacity in order to supply excess electricity to the grid.

Step 4 - Common practice analysis: DNV was able to confirm that the efficient production of energy and heat by sugarcane mills is not common practice in Brazil. Usually the sugarcane mills produce energy inefficiently and do not supply excess electricity to the grid.

Step 5 - Impact of CDM registration: The project participants were able to demonstrate that the sale of CERs will provide the complementary incentives for the project to overcome the above presented barriers.

Given the above and in particular the investment, institutional and cultural barriers the project faces, it is sufficiently demonstrated that the project is not a likely baseline scenario.

3.5 Monitoring Plan

The project applies the approved monitoring methodology AM0015, "Bagasse-based cogeneration connected to an electricity grid". /10/.

The methodology considers monitoring emissions reductions generated from cogeneration projects using sugarcane bagasse. The monitoring plan, for emissions reductions occurring within the project boundary, is predominantly based on monitoring the amount of electricity supplied to the grid. The reliability of this monitoring parameter is assured through two-party verification of the amount of electricity sold to CPFL (the regional electricity company) by Usina da Pedra S.A.. The electricity baseline emission factor is determined *ex-ante* and will only be updated at renewal of the crediting period.

Details of the data to be collected, the frequency of data recording, its certainty, and format and storage location are described. The recording frequency of the data is appropriate for the project.

Central Energética do Rio Pardo Ltda is responsible for the project management, monitoring and reporting as well as for organising and training of the staff in the appropriate monitoring, measurement and reporting techniques.

The monitoring plan is straightforward and no specific procedures beyond the established QA/QC procedures will be necessary. The established procedures reflect good monitoring and reporting practices.

Algorithms and formulas used have been clearly presented.

3.6 Calculation of GHG Emissions

Baseline emissions due to displacement of electricity that is partly generated based on fossil fuels are calculated by multiplying the electricity supplied by the project activity to the S-SE-CO grid with an *ex-ante* determined baseline grid emissions factor. The project is not expected to result in project GHG emissions due to the use of a renewable energy source (bagasse) for electricity generation.

According to the chosen methodology, the only potential source of leakage could come from organizations that used to buy bagasse from the sugar mill. It was confirmed by the owners of the



mill that no organizations were buying bagasse from Usina da Pedra S.A. prior to project implementation.

The emission reduction calculations have been presented in tabular form, the energy for internal consumption as well as the energy to be delivered to the grid, the operating hours per year and the months in which electricity is produced have been clearly demonstrated.

The combined margin emission coefficient for the S-SE-CO grid is determined *ex-ante* in accordance with AM0015. The calculations were based on electricity generation data provided by the Brazilian Electricity Agency (ANEEL) and the National Electricity System Operator (ONS) for the electricity generated in the South-Southeast-Midwest (S-SE-CO) grid in the years 2002-2004. Data for the years 2002-2004 are the most recent statistics available and the data was verified against the data published on the ONS website.

For the determination of the operating margin (OM) emission coefficient, average plant efficiencies for different power plant types established in the IEA study on the Brazilian grid /4/ and IPCC carbon emission factors for specific fuels were applied to calculate plant specific emission coefficients. For the calculation of the build margin emission coefficient, the conservative plant efficiencies recommended by the CDM Executive Board at its 22nd meeting were applied. The resulting simple-adjusted OM emission coefficient is 0.4310 tCO₂e/MWh (applying an average λ of 0.5135) and the BM emission coefficient 0.1045 tCO₂e/MWh, resulting in a combined margin emission coefficient of 0.2677 tCO₂e/MWh (weighted average of the build and operating margin). The emission coefficient calculations were transparently presented in spreadsheets /4/ submitted to and verified by DNV.

The ONS dataset does not include power plants that dispatch locally. However, it is justified to only include plants dispatched in the ONS although these represent only about 80% of the total installed capacity. Data for the remaining plants is not publicly available as these remaining plants operate either based on power purchase agreements, which are not under control of the dispatch authority, or they are located in non-interconnected systems to which ONS has no access. Hence, these plants are not likely to be affected by a CDM project and the power plants dispatched by ONS are thus representative for the operating margin.

The λ was calculated by interpolating daily dispatch data for thermal power plants and daily dispatch data for hydropower plants. The λ calculations were transparently presented in spreadsheets /4/ submitted to and assured by DNV. The selected approach for calculating λ is in accordance with AM0015.

3.7 Environmental Impacts

Usina da Pedra S.A. has been granted an Environmental Installation License No.00251 (25/09/2002) and a Precarious Operating License – SD No.04003797 (23/10/2003) by the state environmental agency (CETESB-Companhia de Tecnologia e Saneamento Ambiental) after all possible environmental impacts were analyzed by the State Secretary of Environment (SMA – Secretaria de Estado do Meio Ambiente) through a report called “Previous Environmental Report” (RAP – Relatório Ambiental Preliminar).

Besides the expected jobs creation, employees’ salaries and package of benefits such as social security and life insurance, Usina da Pedra S.A. are working with local communities on environmental education projects, reforestation of degraded areas, regular water quality



assessment, support for environmental parks, hiring of local manpower, erosion control, and support for community agriculture.

No adverse environmental impacts are identified, which seems reasonable given the nature of the project design. Transboundary environmental impacts are not foreseen.

3.8 Comments by Local Stakeholders

Local stakeholders were invited initially through public discussion during the environmental license issuing process. No comments were received.

Complementary, local stakeholders, such as the Municipal Government, the state and municipal agencies, the Brazilian forum of NGOs, neighbouring communities and the office of the attorney general, were invited to comment on the project, in accordance with the requirements of Resolution 1 of the Brazilian DNA. The names and details /7/ of these contacts were presented for the validation team. No comments on the project were received by these stakeholders.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

DNV published the PDD dated 25 April 2005 on the DNV Climate Change web site (<http://www.dnv.com/certification/ClimateChange>) and Parties, stakeholders and NGOs were, through the UNFCCC CDM web site, invited to provide comments during the period from 01 May 2005 to 31 May 2005.

No comments were received in this period.



5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the “Central Energética do Rio Pardo Cogeneration Project (CERPA)” located in the municipality of Serrana, State of São Paulo, Brazil. The validation was performed on the basis of UNFCCC criteria for CDM project activities and relevant Brazilian criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project participant is Central Energética do Rio Pardo Ltda of Brazil. The host Party Brazil meets all relevant participation requirements and has provided written approval of voluntary participation in the project. No participating Annex I Party is yet identified.

The project is a bagasse-based cogeneration power generation activity which displaces fossil-based grid electricity. By installing a high-pressure boiler and a multiple stage backpressure turbine coupled with two new 15 MW generators at the Usina da Pedra S.A. sugarcane mill, the project will allow Usina da Pedra S.A. to generate excess electricity to be dispatched to the regional grid.

By promoting renewable energy, the project is in line with the current sustainable development priorities of Brazil. The DNA of Brazil confirmed that the project assists in achieving sustainable development.

The project applies the approved baseline and monitoring methodology AM0015, i.e. “Bagasse-based cogeneration connected to an electricity grid”. The baseline methodology has been correctly applied and the assumptions made for the selected baseline scenario are sound. It is sufficiently demonstrated that the project is not a likely baseline scenario and that emission reductions attributable to the project are additional to any that would occur in the absence of the project activity.

A combined margin emission coefficient of 0.2677 tCO₂e/MWh is calculated in accordance with AM0015, i.e. the average of the approximate operating margin and the build margin. The determination of this combined margin emission coefficient is based on actual electricity generation data provided by the National Electricity System Operator (ONS) for the years 2002-2004 for the South-Southeast-Midwest grid.

The monitoring methodology is correctly applied. The monitoring plan sufficiently specifies the monitoring requirements of the main project indicators.

By displacing partly fossil fuel-based electricity with electricity generated from a renewable source, the project results in reductions of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. Given that the project operates as designed, the project is likely to achieve the estimated amount of emission reductions.

Local stakeholder comments were invited according to the Brazilian DNA Resolution 1. No comments on the project were received by these stakeholders. Public stakeholder input has also been invited via the UNFCCC web-site. No comments were received.



In summary, it is DNV's opinion that the "Central Energética do Rio Pardo Cogeneration Project (CERPA)", as described in the revised and resubmitted project design document of 21 December 2005, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology for AM0015. Hence, DNV requests the registration of the "Central Energética do Rio Pardo Cogeneration Project (CERPA)" as CDM project activity. .



REFERENCES

Documents provided by the project proponent that relate directly to the project:

- /1/ Central Energética do Rio Pardo Ltda and Ecoinvest: Project Design Document for the “Central Energética do Rio Pardo Cogeneration Project (CERPA)”, submitted on 25 April 2005.
- /2/ Central Energética do Rio Pardo Ltda and Ecoinvest: Project Design Document for the “Central Energética do Rio Pardo Cogeneration Project (CERPA)”. Version 4 of 31 October 2005.
- /3/ Central Energética do Rio Pardo Ltda and Ecoinvest: Project Design Document for the “Central Energética do Rio Pardo Cogeneration Project (CERPA)”. Version 4B of 21 December 2005.
- /4/ Spreadsheet of Calculation of Combined Margin Emission Coefficient (*ONS-Emission factors SSECO 2002-2004-2005-11-29.xls*).
- /5/ ERM BRASIL LTDA CDM consulting quotation (*P012296.01 Usina da Pedra.doc* - January 2002).
- /6/ Environmental Installation License No.00251 (25/09/2002) and Precarious Operating License – SD No.04003797 (23/10/2003).
- /7/ Evidences of letters sent to Stakeholders (*Lista ARs (Coper 3).xls* - 23/07/2005).
- /8/ Comissão Interministerial de Mudança Global do Clima (DNA of Brazil): Letter of Approval. 22 December 2005

Background documents related to the design and/or methodologies employed in the design or other reference documents:

- /9/ International Emission Trading Association (IETA) & the World Bank’s Prototype Carbon Fund (PCF): *Validation and Verification Manual*. <http://www.vvmanual.info>
- /10/ Approved Baseline and Monitoring Methodology AM0015: “*Bagasse-based cogeneration connected to an electricity grid*”. Version 01 of 22 September 2004.
- /11/ Bosi, M., A. Laurence, P. Maldonado, R. Schaeffer, A. F. Simoes, H. Winkler and J.-M. Lukamba: *Road testing baselines for greenhouse gas mitigation projects in the electric power sector*. OECD and IEA information paper, October 2002.
- /12/ CDM Executive Board: *Tool for the demonstration and assessment of additionality*. Version 02 of 28 November 2005

Persons interviewed during the validation, or persons who contributed with other information that are not included in the documents listed above:

- /13/ Fernando Souza Machado – Ecoinvest

- o0o -

APPENDIX A

CDM 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	OK	Table 2, Section E.4.1 No Annex I Party is yet identified
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, CDM Modalities and Procedures §40a	OK	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.	OK	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authority of each party involved	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	OK	The project has the written approval of voluntary participation from DNA of Brazil: Letter of Approval. 22 December 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	OK	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, CDM Modalities and Procedures §43	OK	Table 2, Section B.2

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	Decision 17/CP.7	OK	The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards Brazil.
8. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures §29	OK	The Brazilian designated national authority for the CDM is the "Comissão Interministerial de Mudança Global do Clima".
9. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol	CDM Modalities §30/31a	OK	Brazil has ratified the Kyoto Protocol on 23 August 2002.
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	OK	No participating Annex I Party is yet identified.
11. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7	CDM Modalities and Procedures §31b	OK	No participating Annex I Party is yet identified.
12. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	CDM Modalities and Procedures §37b	OK	Table 2, Section G
13. 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.	CDM Modalities and Procedures §37c	OK	Table 2, Section F

Requirement	Reference	Conclusion	Cross Reference / Comment
14. Baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK	Table 2, Section B.1.1 and D.1.1
15. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	CDM Modalities and Procedures §37f	OK	Table 2, Section D
16. 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	CDM Modalities and Procedures §40	OK	DNV published the PDD of 25 April 2005 on the DNV Climate Change web site (http://www.dnv.com/certification/ClimateChange) and Parties, stakeholders and NGOs were, through the UNFCCC CDM web site, invited to provide comments within a 30 days period from 01 May 2005 to 31 May 2005. No comments were received in this period.
17. 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	CDM Modalities and Procedures §45c,d	OK	Table 2, Section B.2
18. The baseline methodology shall exclude to earn CER's for decreases in activity levels outside the project activity or due to force majored	CDM Modalities and Procedures §47	OK	Table 2, Section B.2
19. The project design document shall be in conformance with the UNFCCC CDM-PDD format.	CDM Modalities and Procedures Appendix B, EB Decision	CAR-2 OK	PDD is in accordance with CDM-PDD (version 02 of 1 July 2004).

Table 2 Requirements Checklist

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
A. General Description of Project Activity <i>The project design is assessed.</i>					
A.1. Project Boundaries <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/	DR	Yes. The "Central Energética do Rio Pardo Cogeneration Project (CERPA)" is located in the municipality of Serrana, State of São Paulo, Brazil, within the area of Usina da Pedra S.A. sugarcane mill. The project's spatial boundaries are clearly defined.		OK
A.1.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	/1//2/	DR	Yes. The project system's boundary is limited to the Usina da Pedra S.A. area. The South-Southeast and Midwest (S-SE-CO) section of the interconnected subsystem of the Brazilian grid, to which the project is connected is selected as the system boundary for determining the baseline grid emission factor.		OK
A.2. Technology to be employed <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/	DR	Yes. The project design engineering reflects good practice through the use of the steam Rankine cycle technology for steam and power		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			generation.		
A.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	/1//2/	DR	Yes. The technology used is the Rankine technology adopted worldwide. The project involves expanding the cogeneration capacity of the sugar mill, which will allow for the generation of excess electricity to be supplied to the grid. As per ANEEL Resolutions (authorizations to generate/sell electricity as an independent producer), total installed capacity for Usina da Pedra S.A. is 40 MW.		OK
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	/1//2/	DR	No. The project is unlikely to be replaced by other more efficient technologies, at least within the 7-year crediting period.		OK
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/	DR	The project will require minimal additional training for project maintenance since the project is only a modification (expansion) of the currently used system.		OK
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/1//2/	DR	The monitoring plan is straightforward and no specific procedures beyond the established QA/QC procedures will be necessary. The established procedures reflect good monitoring and reporting practices.		OK
A.3. Contribution to Sustainable Development <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/	DR	Usina da Pedra S.A. has been granted an Environmental Installation License No.00251 (25/09/2002) and a Precarious Operating License – SD No.04003797 (23/10/2003) by the state environmental agency (CETESB-		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			Companhia de Tecnologia e Saneamento Ambiental).		
A.3.2. Is the project in line with host-country specific CDM requirements?	/1//2/	DR	Brazil established the Resolution 1 in line with CDM requirements. Central Energética do Rio Pardo Ltda has invited local organizations and institutions to provide comments, according to the Resolution 1 of the Brazilian DNA. The names and details of further contacts were also presented.		OK
A.3.3. Is the project in line with sustainable development policies of the host country?	/1//2/	DR	The project is in line with current sustainable development priorities in Brazil. The DNA of Brazil confirmed that the project assists in achieving sustainable development.		OK
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	/1//2/	DR	The project is expected to bring social (employment for nine workers), environmental (reforestation, environmental education and community agriculture programs) and economic benefits, thus contributing to the sustainable development objectives of the Brazilian Government.		OK
B. Project Baseline					
<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.1. Baseline Methodology					
<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 Executive Board?	/1//2/ /10/	DR	Yes. The project applies the approved baseline methodology AM0015, "Bagasse-based		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			cogeneration connected to an electricity grid".		
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/1//2/ /10/	DR	Yes. The project fulfils the conditions under which AM0015 is applicable. The project uses: a) only the bagasse from the same facility where the project activity is implemented, b) the project is not foreseen to be implemented by the public sector, c) the project will not increase the bagasse production and d) the bagasse to be used will not be stored for more than one year.		OK
B.2. Baseline Determination <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/ /4/ /10/	DR	<p>The baseline for cogeneration considers the operation margin calculated based on the Simple Adjusted Operating Margin, methodology and data from ONS.</p> <p>The project applies a weight of $W_{OM} = 1.0$ and $W_{BM} = 0$. This new weight option was submitted to the EB but has not been approved up to now.</p> <p>According to AM0015, the Combined Margin, shall be calculated considering $W_{OM} = W_{BM} = 0.5$. The PDD thus has to be revised to apply a weight factor of $W_{OM} = W_{BM} = 0.5$.</p>	GAR-4	OK
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/1//2/ /4/	DR	The project uses generation data from ONS for the years 2001 to 2003 for 120 generation units dispatched centrally by ONS in the South / Southeast / Midwest (S-SE-CO) interconnected grid. These data are not the most recent available by the time of PDD submission. There is data for 2004 and the most recent data is thus	GAR-4	OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			data for 2002-2004.		
B.2.3. Has the baseline been established on a project-specific basis?	/1//2/	DR	See B.2.1	GAR-1	OK
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/	DR	Yes. All the national and/or sectoral policies implemented during the initial phase were considered. PROINFA (Programme of Incentives to the Alternative Sources of Electric Energy) was only implemented in 2004 and is applicable to projects to be installed from January to December of 2006.		OK
B.2.5. Is the baseline determination compatible with the available data?	/1//2/ /4/	DR	See B.2.2.	GAR-4	OK
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	/1//2/	DR	See B.2.1	GAR-1	OK
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/ /4/ /10/ /12/	DR	In accordance with AM0015, the additionality of the project is demonstrated through the "Tool for the demonstration and assessment of additionality" /12/, which includes the following steps: Step 0 - -Preliminary screening based on the starting date of the project activity: The starting date of the CDM project activity, i.e. 01 May 2003, falls between 1 January 2000 and the date of the registration of the first CDM project activity (November 2004). Evidence for the project's starting date of 01 May 2003 has been presented. Documented evidence(s) that the incentive from the CDM was seriously considered the in the decision to proceed with the project activity at, or prior to, the start of the	GAR-3	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			<p>project activity should be provided.</p> <p>Step 1 - Identification of alternatives to the project activity consistent with current laws and regulations: The possible baseline scenarios are: a) Business as usual which means producing electricity and steam for self consumption with low efficiency and b) investing in modifications of boilers and installing a new electricity generator which will allow Usina da Pedra S.A. to supply excess electricity to the grid. Both scenarios are in compliance with all applicable legal and regulatory requirements.</p> <p>Step 2 - Investment analysis: Not applicable (Only Step 3 is selected)</p> <p>Step 3. Barrier analysis: Investment barriers, institutional barriers and cultural barriers are presented in the PDD:</p> <p>a) Investment barriers. The project reaches a negative Net Present Value (NPV) with a discount rate of 18% and an IRR of 15%. This average project IRR is lower than the SELIC rate in effect at the time of financing, 26.27% on average in May 2003. The NPV calculations were verified and considered appropriate. DNV also confirmed the fact that the revenues of the selling of energy represent not more than 5% of the core business revenues, i.e. production of sugar and alcohol, thus constituting a minor part of the project developer's total income. Therefore, it is sufficiently demonstrated that the project is not financially attractive under normal commercial conditions and thus faces investment barriers.</p>		

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			<p>b) Institutional barriers. DNV could confirm that the regulatory environment for the electricity sector undergo frequent changes in Brazil, resulting in uncertainties for renewable energy generation. The project does not qualify for PROINFA, the Brazilian Programme of Incentives for Alternative Sources of Electric Energy, because it started operation before 2006.</p> <p>d) Cultural barriers. DNV was able to confirm that the sugarcane production (traditionally production of sugar and alcohol) is different from energy production and that electricity revenues only constitute a minor part of the project developer's total income. Hence, there are cultural barriers for sugarcane mills to invest in increased cogeneration capacity in order to supply excess electricity to the grid.</p> <p>Step 4 - Common practice analysis: DNV was able to confirm that the efficient production of energy and heat by sugarcane mills is not common practice in Brazil. Usually the sugarcane mills produce energy inefficiently and do not supply excess electricity to the grid.</p> <p>Step 5 - Impact of CDM registration: The project participants were able to demonstrate that the sale of CERs will provide the complementary incentives for the project to overcome the above presented barriers.</p> <p>Given the above and in particular the investment, institutional and cultural barriers the project faces, it is sufficiently demonstrated that the project is not a likely baseline scenario.</p>		

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
B.2.8. Have the major risks to the baseline been identified?	/1//2/	DR	Yes.		OK
B.2.9. Is all literature and sources clearly referenced?	/1//2/	DR	Yes.		OK
C. Duration of the Project/ Crediting Period <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/	DR	Yes. The project start date is 01 May 2003 with an expected lifetime of 25 years.		OK
C.1.2. Is the assumed crediting time clearly defined (renewable crediting period of seven years with two possible renewals or fixed crediting period of 10 years with no renewal)?	/1//2/	DR	A fixed 7-year crediting period was selected, starting on 01 May 2003.		OK
D. Monitoring Plan <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 ((Blue text contains requirements to be assessed for optional review of monitoring methodology prior to submission and approval by CDM EB).</i>					
D.1. Monitoring Methodology <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 Executive Board?	/1//2/ /10/	DR	Yes. The project applies the approved monitoring methodology AM0015, "Bagasse-based cogeneration connected to an electricity grid".		OK
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	/1//2/ /10/	DR	Yes. The monitoring methodology is applicable as established on AM0015.		OK
D.1.3. Does the monitoring methodology reflect good	/1//2/	DR	The monitoring methodology of AM0015 is		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
monitoring and reporting practices?	/10/		correctly applied and calculation of emission reductions will use data based on electricity exported to the grid (energy meter) and consistency of the reporting will be ensured by double checking the electricity sales records.		
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	/11/2/	DR	Yes.		OK
D.2. Monitoring of Project Emissions <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?	/11/2/ /10/	DR	Project emissions are considered zero in line with AM0015 and IPCC guidelines, which stipulate that biomass combustion is assumed to equal its re-growth, i.e. to be climate neutral.		OK
D.2.2. Are the choices of project GHG indicators reasonable?	/11/2/	DR	See D.2.1		OK
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	/11/2/	DR	See D.2.1		OK
D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?	/11/2/	DR	See D.2.1		OK
D.2.5. Will the indicators enable comparison of project data and performance over time?	/11/2/	DR	See D.2.1		OK
D.3. Monitoring of Leakage <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	/11/2/ /10/	DR	According to the chosen methodology, the only potential source of leakage could come from		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
necessary for determining leakage?			organizations that used to buy bagasse from the sugar mill. However, Usina da Pedra S.A. never sold bagasse prior to the project commencement.		
D.3.2. Have relevant indicators for GHG leakage been included?	/1//2/	DR	See D.3.1		OK
D.3.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1//2/	DR	See D.3.1		OK
D.3.4. Will it be possible to monitor the specified GHG leakage indicators?	/1//2/	DR	See D.3.1		OK
D.4. Monitoring of Baseline Emissions <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 crediting period?	/1//2/ /4/	DR	This coefficient is fixed ex-ante and hence no data needs to be collected in this regard.		OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1//2/	DR	See D.4.1		OK
D.4.3. Will it be possible to monitor the specified baseline indicators?	/1//2/	DR	See D.4.1		OK
D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts <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	/1//2/	DR	Neither AM0015 nor Resolution 1 of the		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
and archiving of relevant data concerning environmental, social and economic impacts?	/10/		Brazilian DNA require the monitoring of social or environmental indicators.		
D.6. Project Management Planning <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/	DR	Project management authority and responsibility are clearly described.		OK
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/1//2/	DR	Usina da Pedra S.A. and the utility company (CPFL) will monitor data.		OK
D.6.3. Are procedures identified for training of monitoring personnel?	/1//2/	DR	No specific procedures for training of monitoring personnel are mentioned, but the project only requires limited monitoring, which is part of normal operations. National standards are also mentioned for training purposes. Calibration of energy meter is the responsibility of the utility company.		OK
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1//2/	DR	See D.6.3.		OK
D.6.5. Are procedures identified for calibration of monitoring equipment?	/1//2/	DR	See D.6.3.		OK
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1//2/	DR	See D.6.3.		OK
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/1//2/	DR	See D.6.3.		OK
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/	DR	See D.6.3.		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1//2/	DR	See D.6.3.		OK
D.6.10. Are procedures identified for review of reported results/data?	/1//2/	DR	Considering the simplicity of the monitoring plan, the verification by the second party (the electricity company) is considered sufficient.		OK
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	/1//2/	DR	See D.6.3.		OK
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	/1//2/	DR	See D.6.3.		OK
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1//2/	DR	See D.6.3.		OK
E. Calculation of GHG Emissions by Source					
<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>					
E.1. Predicted Project GHG Emissions					
<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/ /10/	DR	Yes. Project emissions are considered zero in line with AM0015 and IPCC guidelines, which stipulate that biomass combustion is assumed to equal its re-growth, i.e. to be climate neutral.		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
E.2.Leakage <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/ /10/	DR	According to the chosen methodology, the only potential source of leakage could come from organizations that used to buy bagasse from the sugar mill. However, Usina da Pedra S.A. never sold bagasse prior to the project commencement.		OK
E.3.Baseline Emissions <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/ /4/ /10/	DR	See B.2.1	CAR-1	OK
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	/1//2/ /4/	DR	See B.2.2	CAR-4	OK
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	/1//2/	DR	See E.3.1	CAR-1	OK
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	/1//2/	DR	See E.3.2	CAR-4	OK
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	/1//2/	DR	See E.3.1	CAR-1	OK
E.3.6. Have the project baseline(s) and the project	/1//2/	DR	For project baseline, see E.3.1.	CAR-1	OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
emissions been determined using the same appropriate methodology and conservative assumptions?			For project emissions, see E.1.1.		
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 scenario?	/1//2/ /10/	DR	Emissions reductions will have to be calculated according to the methodology.	CAR-1	OK
F. Environmental Impacts <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/	DR	Usina da Pedra S.A. has been granted an Environmental Installation License No.00251 (25/09/2002) and a Precarious Operating License – SD No.04003797 (23/10/2003) by the state environmental agency (CETESB-Companhia de Tecnologia e Saneamento Ambiental).		OK
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1//2/	DR	See F.1.1		OK
F.1.3. Will the project create any adverse environmental effects?	/1//2/	DR	The project design document did not identify/address any environmental impacts. However, no significant adverse environmental effects are expected to be created, given the nature of the project design.		OK
F.1.4. Are transboundary environmental impacts considered in the analysis?	/1//2/	DR	Transboundary environmental impacts are not foreseen.		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
F.1.5. Have identified environmental impacts been addressed in the project design?	/1//2/	DR	The project is unlikely to create any adverse environmental impacts.		OK
F.1.6. Does the project comply with environmental legislation in the host country?	/1//2/	DR	See F.1.1		OK
G. Stakeholder Comments <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/	DR	Central Energética do Rio Pardo Ltda has invited local organizations and institutions to provide comments, according to the Resolution 1 of the Brazilian DNA. The names and details of further contacts were also presented.		OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1//2/	DR	See G.1.1.		OK
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/	DR	See G.1.1		OK
G.1.4. Is a summary of the stakeholder comments received provided?	/1//2/	DR	No comments were received.		OK
G.1.5. Has due account been taken of any stakeholder comments received?	/1//2/	DR	See G.1.1.		OK

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

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
CAR 1 According to AM0015, the Combined Margin, shall be calculated considering $W_{OM} = W_{BM} = 0.5$. However the project applied a weight of $W_{OM} = 1.0$ and $W_{BM} = 0$. This new weight option was submitted to the EB but has not been approved up to now. The PDD thus has to be revised to apply a weight factor of $W_{OM} = W_{BM} = 0.5$.	B.2.1 B.2.3 B.2.6 E.3.1 E.3.3 E.3.5 E.3.6 E.4.1	The PDD dated 31 October 2005 was revised to use a weight factor of $W_{OM} = W_{BM} = 0.5$.	OK. The revised baseline emission calculations are as required by AM00015 considering $W_{OM} = W_{BM} = 0.5$. It is estimated that the project results in 114 031 tCO ₂ e of emissions reduction over the selected 7-year crediting period (16 290 tCO ₂ e /year average).
CAR 2 The section heading H (PDD Annexes) needs to be deleted as the CDM-PDD shall be completed without modifying/adding headings. Also, at PDD Annexes, the two Annex 3 references should be corrected.	Table 1 - 19	PDD, dated 31 October 2005, corrected this issue.	OK. The reviewed PDD is in accordance with CDM-PDD (version 02 of 1 July 2004) corrected the requested corrective action..
CAR 3 Documented evidence(s) that the incentive from the CDM was seriously considered the in the decision to proceed with the project activity at, or prior to, the start of the project activity should be provided.	B.2.7	The document Preliminary Environmental Report dated January 2002 proves that CERPA had considered CDM before the project implementation.	OK. DNV received the documented evidence that the incentive from the CDM was seriously considered in the decision to proceed with the project activity by means of a CDM consulting quotation from ERM BRASIL LTDA I dated January 2002

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
CAR 4 The project uses generation data from ONS for the years 2001 to 2003 for 120 generation units dispatched centrally by ONS in the South / Southeast / Midwest (S-SE-CO) interconnected grid. These data are not the most recent available by the time of PDD submission. There is data for 2004 and the most recent data is thus data for 2002-2004.	B.2.2 B.2.5 E.3.2 E.3.4	The PDD was updated with the new data from 2002-2004 as required. In addition, all linked information was also modified.	OK. The generation data of revised worksheet uses ONS data for the years 2002-2004.

- o0o -