VALIDATION REPORT

CAMPO FLORIDO BAGASSE COGENERATION PROJECT (CFBCP)

REPORT NO. 2005-0574

REVISION NO. 01

DET NORSKE VERITAS

VALIDATION REPORT

Date of first issue: 2005/05/06	Project No.: 28624550 (30)
Approved by: Einar Telnes Technical Director	Organisational unit: DNV Certification, Climate Change Services
Client: S/A Usina Coruripe Açúcar e Álcool – Usina Campo Florido Econergy Brasil Ltda	Client ref.: José Gomes Nogueira Ramos

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 "Campo Florido Bagasse Cogeneration Project (CFBCP)" (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 documents; 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.

In summary, it is DNV's opinion that the "Campo Florido Bagasse Cogeneration Project (CFBCP)" as described in the revised PDD of August 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 will request the registration of the "Campo Florido Bagasse Cogeneration Project (CFBCP)" as a CDM project activity. Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of the DNA of Brazil, including confirmation that the project assists in achieving sustainable development.

Report No.: 2005-0574	Subject Group: Environment	
Report title: Campo Florido Bagasse Cogeneration Project (CFBCP)		
Work carried out by: Luis Filipe Tavares, Vicente San Valero, Cintia Dias		
Work verified by: Michael Lehmann		
Date of this revision: 2005-10-26	Rev. No.: 01	Number of pages: 12

Indexing terms

Key words Climate Change Kyoto Protocol Validation Clean Development Mechanism	Service Area Verification Market Sector Process Industry

☒ No distribution without permission from the client or responsible organisational unit

☐ free distribution within DNV after 3 years

☐ Strictly confidential

☐ Unrestricted distribution

Table of Content *Page*

1 INTRODUCTION 1
1.1 Validation Objective 1
1.2 Scope 1
1.3 Campo Florido Bagasse Cogeneration Project 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 Project Baseline and Additionality 5
3.4 Monitoring Plan 7
3.5 Calculation of GHG Emissions 7
3.6 Environmental Impacts 8
3.7 Comments by Local Stakeholders 8

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS 9

5 VALIDATION OPINION 10

6 REFERENCES 12

Appendix A Validation Protocol

Abbreviations

ANEEL	Agência Nacional de Energia Elétrica (National Agency Electric Energy)
BAU	Business as usual
BM	Build Margin
CAR	Corrective Action Request
CEMIG	Companhia Energética de Minas Gerais (State Electricity Company)
CFBCP	Campo Florido Bagasse Cogeneration Project
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH_4	Methane
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
COPAM	Conselho Estadual de Política Ambiental (Environmental State Council)
DNV	Det Norske Veritas
DNA	Designated National Authority
FEAM	Fundação Estadual do Meio Ambiente (Environmental State Foundation)
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
N_2O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operating margin
ONS	Operadora Nacional do Sistema (National Electricity System Operator)
PDD	Project Design Document
PROINFA	Programme of Incentives to the Alternative Sources of Electric Energy
S-SE-CO	South-Southeast-Midwest (one of two regional grids in Brazil)
UNFCCC	United Nations Framework Convention on Climate Change

1 INTRODUCTION

S/A Usina Coruripe Açúcar e Álcool - Usina Campo Florido (Campo Florido) and Econergy Brasil Ltda (Econergy) have commissioned Det Norske Veritas Certification Ltd. (DNV) to validate the "Campo Florido Bagasse Cogeneration Project (CFBCP)", at Campo Florido Municipality, Minas Gerais State, Brazil.

This report summarises the findings of the validation of the project, performed based on UNFCCC and host Party criteria's 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
Ms. 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 the criteria stated in Article 12 of the 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 /4/ 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 Campo Florido Bagasse Cogeneration Project

The "Campo Florido Bagasse Cogeneration Project (CFBCP)" is located in Campo Florido, Minas Gerais State, Brazil. The project involves the improvement of the energy efficiency of the bagasse cogeneration facility at the Campo Florido sugarcane mill. The project allows Campo Florido to supply excess electricity to the grid. The project has already been implemented and started operation on 5 May 2002.

With the implementation of this project, the mill is able to sell the surplus electricity to the 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 reduction from the project is 66 251 tCO_2e during the first crediting period (7 years), resulting in an estimated average annual emission reductions of 9 464 tCO_2e.

2 METHODOLOGY

The validation consisted of the following three phases:

i) a desk review of the project design documents;
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 /4/. 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 "Campo Florido Bagasse Cogeneration Project (CFBCP)" is enclosed in Appendix A to this report.

Findings established during the validation can be either 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 *Clarification Request* (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***
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**), a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements or a **Clarification Request (CL)**, where further clarifications are needed. **N/A** means not applicable.*	*Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.*

Validation Protocol Table 2: Requirement Checklist				
Checklist Question	***Reference***	***Means of verification (MoV)***	***Comment***	***Draft and/or Final Conclusion***
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in seven different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	*Gives reference to documents where the answer to the checklist question or item is found.*	*Explains how conformance with the checklist question is investigated. Examples of means of verification are document review **(DR)** or interview **(I)**. **N/A** means not applicable.*	*The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.*	*This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below).A **Clarification Request (CL)** is used when the validation team has identified a need for further clarification.*

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***
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 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 initial PDD /1/ submitted by Campo Florido / Econergy in March 2005 was reviewed by DNV. A revised version of the PDD /2/ was submitted in August 2005 to address DNV's initial validation findings and was reviewed by DNV. In addition, spreadsheets containing detailed calculations for the combined margin emission coefficient /3/, which is applied by the project, were reviewed.

Other documents, such as the Environmental Licences and licence requirements as well as the letters sent to local stakeholders, were reviewed during the follow up interviews in order to ensure the accuracy of the provided information.

2.2 Follow-up Interviews

On 30 June 2005 DNV performed interviews with Econergy /9/ to confirm and to resolve issues identified in the document review.

The main issues were:

- Environment licenses,
- Baseline emission factor calculation,
- Additionality argumentation,
- Local Stakeholders involvement,
- Overview of the cogeneration technology,
- The possibility of leakage due to a historical practice of selling the bagasse.

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions and clarification and any other 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 Actions Request* and 01 (one) *requests for Clarification.* To guarantee the transparency of the validation process, the concerns raised are summarised in chapter 3 below and documented in more detail in the validation protocol in Appendix A. The project participant's response to DNV's draft validation report findings, including the submission of a revised PDD in August 2005, addressed the *Corrective Actions* and *Clarifications* to DNV's satisfaction. To guarantee the transparency of the validation process, the concerns raised 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 validation findings relate to the project design as documented and described in the PDD of August 2005 /2/.

3.1 Participation Requirements

The project participants are S/A Usina Coruripe Açúcar e Álcool - Usina Campo Florido and Econergy Brasil Ltda of Brazil.

The host Party Brazil meets all relevant participation requirements. No participating Annex I Party is yet identified.

3.2 Project Design

The Campo Florido Bagasse Cogeneration Project (CFBCP) is a grid-connected renewable energy project activity, displacing grid electricity 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 capacity of the previuos bagasse based energy generation, by installing new high-pressure boilers and turbo-generators that provide 24 MW of generation capacity. The cogeneration project includes the installation of two boiler at 45 kg/cm^2 and installation of two 12 MW back pressure turbo-generators. This will allow for generation of excess electricity to be dispatched to the regional S-SE-CO grid.

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

A renewable crediting period of 7 years is selected (with the potential of being renewed twice), starting on 5 May 2002, the starting date of the project activity. The expected operational lifetime of the project is 25 years.

The project is expected to bring social (employment, health, and labour conditions), environmental (air quality) and economic benefits, thus contributing to sustainable development objectives of the Brazilian Government.

The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards Brazil.

3.3 Project Baseline and Additionality

The project applies the approved baseline methodology AM0015 - "*Bagasse-based cogeneration connected to an electricity grid*" /5/. 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 dispatched 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 3.5) energy.

In accordance with AM0015, the additionality of the project is demonstrated through the "*Tool for the demonstration and assessment of additionality*" /7/, 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. 5 May 2002, 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 5 May 2002 was presented in the form of electricity receipts issued by CEMIG.
The evidence presented for proving that the CDM was considered in the decision to proceed with the project implementation was the participation of a representative of Coruripe -Campo Florido Sugar Mill in at CDM seminar of FGV (Fundação Getulio Vargas) in 2000. Furthermore, a meeting record from a board meeting at Coruripe carried on 20 May 2002 deciding the investment based on Carbon Credits was presented, with a signature authenticated by an official registry office. Although this procedure of authentication by a signature of a Board meeting is not a common practice, DNV recognise this document as evidence sustaining that the incentive from the CDM was seriously considered in the decision to proceed with the project until other counter evidence is presented.

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. 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: Technological barriers, institutional and political barriers, economic and investment barriers and cultural barriers are presented in the PDD:

a) *Technological barriers*. The Rankine cycle technology is well known in Brazil and can not be considered a technological barrier, although sugar cane units mainly operate with low-efficiency. However, there is a technological barrier because the project needs to supply energy at a certain quality to the grid which requires better cogeneration technology than generally applied by sugarcane mills.
b) *Institutional and political barriers*. DNV could confirm that the regulatory environment for the electricity sector changes a lot and often in Brazil, resulting in uncertainty 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.
c) *Economic and investment barriers*. DNV confirmed as an economic and investment barrier the fact that the revenues of selling of electricity represent around 3% of the core business revenues, i.e. production of sugar and alcohol, thus constituting a very minor part of the project developer's total income. Moreover, it is demonstrated that the project is not financially attractive in absence of CER revenues..
d) *Cultural barriers*. DNV was able to confirm that the sugarcane production is different from the energy production and that, when energy is produced, it is usually produced only for internal use and inefficiently. 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.

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

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

3.4 Monitoring Plan

The project applies the approved monitoring methodology AM0015 - "*Bagasse-based cogeneration connected to an electricity grid*" /6/.

The monitoring plan for emissions reductions occurring within the project boundary are primarily 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 CEMIG (the electricity company) by Campo Florido. 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, calibration of measurement instruments, and the frequency of data recording, format and storage location are described. The recording frequency of the data seems appropriate for the project.

Campo Florido is responsible for the project management and reporting project activities, organising and training staff in the appropriate monitoring, measurement and reporting techniques.

The monitoring plan is easy and simple and no specific procedures beyond the one already established on QA/QC will be necessary.

3.5 Calculation of GHG Emissions

Baseline emissions due to displacement of electricity are calculated by multiplying the electricity exported by the project activity to the S-SE-CO grid with the baseline emissions factor. The project is not expected to result in GHG emissions due to the use of a renewable energy source (bagasse) for electricity generation.

The combined margin emission coefficient for the S-SE-CO grid is determined *ex-ante* in accordance with AM0015. The calculations are 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 grid in the years 2001-2003. Average plant efficiencies for different power plant types established in the IEA study on the Brazilian grid /8/ and IPCC carbon emission factors for specific fuels were applied to calculate plant specific emission coefficients. The simple-adjusted operating margin (OM) emission coefficient is calculated to be 0.4043 tCO_2e/MWh (applying an average λ of 0.519) and build margin (BM) emission coefficient of 0.0937 tCO_2e/MWh, resulting in a combined margin emission coefficient of 0.249 tCO_2e/MWh (weighted average of the build and operating margin). The emission coefficient calculations were transparently presented in spreadsheets /3/ submitted to and verified by DNV.

Generation data for the years 2001-2003 are the most recent statistics available and 2004 data was not publicly available at the time of submitting the PDD for validation. It is recognised that in the absence of actual fuel consumption data, the calculated plant specific emission coefficients are sensitive to the assumed plant efficiency for each plant. Nonetheless, the applied average plant efficiencies for different power plant types established in the IEA study on the Brazilian grid /8/ is deemed to represent the best data that is currently available.

Even though the S-SE-CO grid is connected with the North-Northeast grid, the energy flow between these grids is heavily limited by the transmission lines capacity. It is hence appropriate to consider the S-SE-CO grid for the purpose of determining the BM and OM emission coefficient and consider imports from the North-Northeast grid at 0 tCO_2/MWh in accordance with AM0015.

The ONS dataset does not include power plants that are locally dispatched. However, it is justified to only include plants dispatched by ONS although they only represent about 80% of the total installed capacity. Data for the remaining plants is not publicly available. Also, these 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 build margin emission coefficient calculated for only power plants dispatched by ONS is 0.0937 tCO_2e/MWh and thus more conservative than the emission coefficient calculated based on IEA data (0.421 tCO_2e/MWh) or the combination of IEA and ONS data (0.205 tCO_2e/MWh).

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 /3/ submitted to and verified by DNV. The selected approach for calculating λ is in accordance with AM0015.

3.6 Environmental Impacts

The project design did not identified/addressed any environmental impact, which seems reasonable due to the nature of the project.

Usina Campo Florido has been granted the Operational Environmental Licences 179 and 392 issued by Environmental State Agency (COPAM-Conselho Estadual de Política Ambiental) on 02 May 2002 (phase 1) and 18 May 2004 (phase 2) respectively. These licenses were issued after an analysis of all possible impacts performed by the Environment State Foundation (FEAM - Fundação Estadual de Meio Ambiente). These environmental licenses included stipulations that needed to be adhered to by Campo Florido. Compliance with these stipulations was verified during the follow up interviews.

3.7 Comments by Local Stakeholders

Local stakeholders were invited to comment on the project in accordance with the requirements of Resolution 1 of the Brazilian DNA. Comments by 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. The letters sent to the local stakeholders were verified during the follow up interviews. Two comments were received, one requesting more information about the project and the second supporting the project. Both comments were sufficiently taken into account by Campo Florido.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

DNV Certification published the initial "Campo Florido Bagasse Cogeneration Project (CFBCP)" PDD on the DNV Climate Change web site (http://www.dnv.com/certification/ClimateChange) and stakeholders were, through the UNFCCC CDM web site, invited to provide comments within a 30 days period from 11 April 2005 to 11 May 2005. No comments were received.

5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Campo Florido Bagasse Cogeneration Project (CFBCP)" at Campo Florido Municipality; Minas Gerais State, 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 participants are S/A Usina Coruripe Açúcar e Álcool - Usina Campo Florido and Econergy Brasil Ltda of Brazil. The host Party Brazil meets all relevant participation requirements. No participating Annex I Party is yet identified.

The project is a bagasse-based cogeneration power generation activity displacing grid electricity. By installing two high-pressure boilers and by installing two 12 MW generators at the Campo Florido sugarcane mill, the project will allow Campo Florido 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 project applies the approved baseline and monitoring methodology AM0015, i.e. "Bagasse-based cogeneration connected to an electricity grid". The baseline methodology has been applied correctly 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 0.249 tCO_2e/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 2001-2003 for the South-Southeast-Midwest grid.

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

By displacing fossil fuel-based electricity with electricity generated from a renewable source, the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. Given that the project is implemented 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. Two comments were received and both were taken into account.

In summary, it is DNV's opinion that the "Campo Florido Bagasse Cogeneration Project (CFBCP)" as described in the revised project design document of August 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 CDM project activities.

Hence, DNV will request the registration of the "Campo Florido Bagasse Cogeneration Project (CFBCP)" as CDM project activity.

Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of the DNA of Brazil, including confirmation that the project assists in achieving sustainable development.

6 REFERENCES

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

/1/ Econergy: *Project Design Document for the "Campo Florido Bagasse Cogeneration Project (CFBCP)"*. Version 1 (April 2005).

/2/ Econergy: *Project Design Document for the "Campo Florido Bagasse Cogeneration Project (CFBCP)"*. Version 2 (August 2005).

/3/ Econergy: *Spreadsheet for Calculation of Combined Margin* (ONS Emission Factor SSECO 2001-2003 v 2005-06-22.xls)

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

/4/ International Emission Trading Association (IETA) & Prototype Carbon Fund (PCF): *Validation and Verification Manual*. http://www.vvmanual.info.

/5/ Approved Baseline Methodology AM0015: "*Bagasse-based cogeneration connected to an electricity grid"*. Version 01 of 22 September 2004.

/6/ Approved Monitoring Methodology AM0015: "*Bagasse-based cogeneration connected to an electricity grid"*. Version 01 of 22 September 2004.

/7/ CDM EB: *Tool for the demonstration and assessment of additionality*, EB 16 Report, Annex 1.

/8/ Bosi, M., A. Laurence, P. Maldonado, R. Schaeffer, A. F. Simons, 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.

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

/9/ David Freire da Costa - Econergy

/10/ Wagner Bonalume – Bacitrus (Orange Juice Plant Bagasse purchaser)

/11/ Luis Cunha – Cutrale (Orange Juice Plant Bagasse purchaser)

- 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	Not applicable	Table 2, Section E.4.1 No participating 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	-	Table 2, Section A.3 Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written confirmation by the DNA of Brazil that the project assists in achieving sustainable development.
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	-	Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of voluntary participation from the DNA of Brazil.
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 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	Not applicable	No participating Annex I Party
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	Not applicable	No participating Annex I Party
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
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

Requirement	Reference	Conclusion	Cross Reference / Comment
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	The PDD was presented for public comments in the period of 11 April 2005 to 11 May 2005 on climatechange.dnv.com and comments were invited via the UNFCCC CDM website. No comments were received.
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 majeure	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	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 *The project design is assessed.*					
A.1. Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project.*					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	/1//2/	DR	The Campo Florido Bagasse Cogeneration Project is located in the S/A USINA CORURIPE AÇÚCAR e ÁLCOOL at the municipality of Campo Florido, Minas Gerais State. However, the precise location of the project is not clearly identified in the PDD	~~CL 1~~	OK
A.1.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	/1//2/	DR	The project's system boundary comprises the USINA CAMPO FLORIDO cogeneration facility for activities related to the cogeneration, and the Brazilian South-Southeast and Midwest grid to which the Campo Florido Bagasse Cogeneration Project is connected for activities related to the grid electricity displacement.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A.2. Technology to be employed *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.*					
A.2.1. Does the project design engineering reflect current good practices?	/1//2/	DR	The project design engineering reflects good practice.		OK
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	The technology used is the standard steam Rankine cycle technology adopted worldwide and available in Brazil. The project also involves the expansion of the steam generating capacities of the sugarcane mill cogeneration system.		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	The project is unlikely to be replaced by other more efficient technologies, at least within the first 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 retrofit is only a modification of the currently used system. Moreover, support from the manufacturer is also assured.		OK
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/1//2/	DR	The project documentation does not detail provisions for training nor maintenance. Due to the reasons indicated in A.2.4, this appears reasonable.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A.3. Contribution to Sustainable Development *The project's contribution to sustainable development is assessed.*					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	/1//2/	DR	Yes, the project is authorized by ANEEL and the environment licences were issued and verified during follow up interviews.		OK
A.3.2. Is the project in line with host-country specific CDM requirements?	/1//2/	DR	Comments by local stakeholders were invited in accordance with Resolution 1.		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.		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), environmental (fauna and flora preservation) and economic benefits, thus contributing to the sustainable development objectives of the Brazilian Government.		OK
B. Project Baseline *The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
B.1. Baseline Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
B.1.1. Is the baseline methodology previously approved by the CDM Executive Board?	/1//2/ /5/	DR	The project applies the approved baseline methodology AM0015, Bagasse-based cogeneration connected to an electricity grid		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/1//2/ /5/	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 *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.*					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	/1//2/	DR	The baseline for cogeneration considers the operating margin calculated based on Simple Adjusted Operating Margin methodology and data from ONS. According to the default calculation for Combined Margin, considering W_{OM} and W_{BM} with a 0.5 weight for each, emission coefficient would be 0.274 tCO_2e/MWh. However the project applied a weight of W_{OM}=1.0 and W_{BM}=0. This alternative weight option was proposed to the EB but has not been approved.	~~CAR 1~~	OK
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/1//2/	DR	The project uses data from ONS for the 120 generation units dispatched centrally by ONS and does not include power plants that	~~CAR 2~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			are locally dispatched. Nonetheless, the methodology AM0015 considers "project electricity system is defined by the spatial extent of the power plants that can be dispatched without significant transmission constraints". Hence DNV request calculations according to this methodology or a justification for the choice of S-SE-CO regional Brazilian grid and for the conservativeness of the approach used..		
B.2.3. Has the baseline been established on a project-specific basis?	/1//2/	DR	See B.2.1	~~CAR 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/	DR	The λ was calculated by interpolating hourly dispatch data for thermal power plants and hourly dispatch data for hydropower plants, based on data provided by ONS for the years 2001 to 2003. See B.2.2	~~CAR 2~~	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	~~CAR 1~~	OK
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario,	/1//2/	DR	In accordance with AM0015, the additionality of the project is demonstrated	~~CAR 3~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
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?			through the "Tool for the demonstration and assessment of additionality", 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. 5 May 2002, 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 5 May 2002 was presented through the electric energy receipts issued to CEMIG. The evidence presented for proving that CDM was considered to proceed the project implementation was that a representative of Coruripe-Campo Florido Sugar Mill participated in the CDM seminar at FGV (Fundação Getulio Vargas) in 2000. However, specific evidence shall be received. 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. Both scenarios are in compliance with all applicable legal and regulatory requirements. Step 2 - Investment analysis: Not applicable	~~CAR 4~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			(Only Step 3 is selected) Step 3 - Barrier analysis: Technological barriers, institutional and political barriers, economic and investment barriers and cultural barriers are presented in the PDD. a) Technological barriers. The Rankine cycle technology is well known in Brazil and can not be considered a technological barrier, although sugar cane units mainly operate with low-efficiency. However, there is a technological barrier because the project needs to supply energy at a certain quality to the grid which requires better cogeneration technology than generally applied by sugarcane mills. b) Institutional and political barriers. DNV could confirm that the regulatory environment for the electricity sector changes a lot and often in Brazil, resulting in uncertainty 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. c) Economic barriers. DNV confirmed as an economic and investment barrier the fact that the revenues of the		

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			selling of electricity represent around 3% of the core business revenues, i.e. production of sugar and alcohol, thus constituting a very minor part of the project developer's total income. Moreover, it is demonstrated that the project is not financially attractive in absence of CER revenues. d) Cultural barriers. DNV was able to confirm that the sugarcane production is different from energy production and that electricity revenues only constitute a very 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. The barrier analysis is largely based on studies carried out in 1997-1999. It remains to be clarified that sectoral circumstances have not significantly changed since then. Also, more project specific evidence is needed for the barrier analysis. The current barrier analysis is very generic and more elaborations on how these generic barriers apply to the Campo Florido project is needed. Step 4 - Common practice analysis DNV was able to confirm that the efficient production of energy and heat by sugarcane		

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			mills is not common practice in Brazil. Usually the sugarcane mills produce energy inefficiently. Step 5 - Impact of CDM registration: The project participants were able to demonstrate that the sale of CERs will provide the necessary incentives for the project to overcome the above presented barriers.		
B.2.8. Have the major risks to the baseline been identified?	/1//2/	DR	The major risk would be related to the PROINFA renewable power sources program, where the Brazilian government sets prices to be paid for renewable power. However, PROINFA was not available at the time that the decision to proceed with the project was taken.		OK
B.2.9. Is all literature and sources clearly referenced?	/1//2/	DR	Yes		OK
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	/1//2/	DR	Yes, the project start date is 05/05/2002 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 7 year crediting period starting in 05/05/2002 has been chosen.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D. Monitoring Plan *The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed ((Blue text contains requirements to be assessed for optional review of monitoring methodology prior to submission and approval by CDM EB).*					
D.1. Monitoring Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
D.1.1. Is the monitoring methodology previously approved by the CDM Executive Board?	/1//2/ /6/	DR	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/ /6/	DR	Yes, the monitoring methodology is applicable as established in AM0015.		OK
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/1//2/	DR	The electricity supplied to the grid will be monitored by an electricity meter at the plant (exporting to grid) and receipts of sales are availalbe. Records of this will be kept for 2 years after the end of crediting period.		OK
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	/1//2/	DR	Yes, the monitoring methodology is in line with the applicability conditions of AM0015.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.2. Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.2.1. 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/	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.3. Monitoring of Leakage *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1//2/	DR	According to the chosen methodology, the only potential source of leakage comes from organizations that used to buy bagasse from the sugarcane mill prior to the cogeneration project's implementation. Campo Florido sold bagasse prior to project implementation to two orange juice industries. The amount of bagasse sold is defined as negligible, (i.e. ca 17 000 tons compared to a total of ca 366 000 tons produced annually). Through interviews with purchase representatives of both orange juice industries , DNV was able to confirm that bagasse provided by Campo Florido was substituted by bagasse provided by others		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			sugarcane mills in the same region.		
D.4. Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.4.1. 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/	DR	The CO_2 emission factor of the grid is based on ONS information for the years 2001 to 2003, as these are the most recent data available. This coefficient is fixed ex-ante and hence no data needs to be monitored 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 *It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.*					
D.5.1. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1//2/	DR	Neither AM0015 nor Resolution 1 of the Brazilian DNA require the monitoring of social nor environmental indicators.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.6. Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
D.6.1. Is the authority and responsibility of project management clearly described?	/1//2/	DR	Project management authority and responsibility are described on operational and management structure and considered adequate.		OK
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/1//2/	DR	Amount of electricity sold will be obtained through invoices issued by CEMIG (regional electric company) and monitoring, registration and review is the responsibility of Campo Florido.		OK
D.6.3. Are procedures identified for training of monitoring personnel?	/1//2/	DR	See D.6.1		OK
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1//2/	DR	See D.6.1		OK
D.6.5. Are procedures identified for calibration of monitoring equipment?	/1//2/	DR	The electric company, according to the law, will carry out the periodical calibration of the electricity meter.		OK
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1//2/	DR	See D.6.1		OK
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/1//2/	DR	See D.6.1		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.6.1		OK

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.6.1		OK
D.6.10. Are procedures identified for review of reported results/data?	/1//2/	DR	See D.6.1		OK
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	/1//2/	DR	See D.6.1		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.6.1		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.6.1		OK
E. Calculation of GHG Emissions by Source *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
E.1. Predicted Project GHG Emissions *The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.*					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	/1//2/	DR	Project emissions are considered zero in line with the AM0015 and IPCC guidelines, which stipulate that biomass combustion is assumed to equal its re-growth, i.e. to be climate neutral.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
E.2. Leakage *It is assessed whether there leakage effects, i.e. change of emissions, which occur outside the project boundary, and which are measurable and attributable to the project, have been properly assessed.*					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	/1/ /2//9/	DR	According to the chosen methodology, the only potential source of leakage comes from organizations that used to buy bagasse from the sugarcane mill prior to the cogeneration project's implementation. Campo Florido sold bagasse prior to project implementation to two orange juice industries. The amount of bagasse sold is defined as negligible, (i.e. ca 17 000 tons compared to a total of ca 366 000 tons produced annually). Through interview with purchase representatives of both orange juice industries DNV was able to confirm that bagasse provided by Campo Florido was substituted by bagasse provided by others sugarcane mills in the same region.		OK
E.3. Baseline Emissions *The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.*					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been	/1//2/	DR	See B.2.1	~~CAR 1~~	OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
chosen as reference for baseline emissions?					
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	/1//2/	DR	See B.2.2	~~CAR 2~~	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 2~~	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 emissions been determined using the same appropriate methodology and conservative assumptions?	/1//2/	DR	For project baseline, see E.3.1. For project emissions, see E.1.1.	~~CAR 1~~	OK
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/	DR	The project is expected to reduce CO_2 emissions to the extent of 66 251 tCO_2e during the first 7 year crediting period.		OK
F. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*					
F.1.1. Has an analysis of the environmental impacts	/1/	DR	The project has obtained environmental		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
of the project activity been sufficiently described?	/9/		licenses 179/02 for the first phase and 392/04 for the second phase of the project. These licenses and compliance with the requirements stated in these licences were verified.		
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/ /9/	DR	See F.1.1		OK
F.1.3. Will the project create any adverse environmental effects?	/1/ /9/	DR	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/ /9/	DR	Not foreseen.		OK
F.1.5. Have identified environmental impacts been addressed in the project design?	/1/ /9/	DR	Project design did not identified/addressed any environmental impact, which seems reasonable due to the nature of the project.		OK
F.1.6. Does the project comply with environmental legislation in the host country?	/1/ /9/	DR	See F.1.1		OK
G. Stakeholder Comments *The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.*					
G.1.1. Have relevant stakeholders been consulted?	/1//2/	DR	Campo Florido Sugarcane mill invited several local organizations and institutions to provide comments, according to the Resolution 1 of the Brazilian DNA.		OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1//2/	DR	Letters have been sent to local stakeholders in line with Resolution 1. These letters were verified during follow up interviews.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
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	Yes, see G.1.1		OK
G.1.4. Is a summary of the stakeholder comments received provided?	/1//2/	DR	Two comments were received and were taken into account by Campo Florido.		OK
G.1.5. Has due account been taken of any stakeholder comments received?	/1//2/	DR	See G.1.4		OK

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 The baseline for cogeneration considers the operating margin calculated based on Simple Adjusted Operating Margin methodology and data from ONS. According to the default calculation for Combined Margin, considering W_{OM} and W_{BM} with a 0.5 weight for each, emission coefficient would be 0.274 tCO_2e/MWh. However the project applied a weight of W_{OM}=1.0 and W_{BM}=0. This alternative weight option was proposed to the EB but has not been approved.	B.2.1 B.2.3 B.2.6 E.3.1 E.3.3 E.3.5 E.3.6	The PDD has been revised in its sections E.4 and Annex 3, where the pertinent explanations for this source use are given.	OK. The revised baseline emission calculations are according to the baseline methodology AM0015 CDM project activities for energy production for the grid considering $W_{OM} = W_{BM} = 0.5$ weight. This CAR is therefore closed.
CAR 2 The project uses data from ONS for the 120 generation units dispatched centrally by ONS and does not include power plants that are locally dispatched. Nonetheless, the methodology AM0015 considers "project electricity system is defined by the spatial extent of the power plants that can be dispatched without significant transmission constraints". Hence DNV request calculations according to this methodology or a justification for the choice of S-SE-CO regional Brazilian grid and for the conservativeness of the approach used.	B.2.2 B.2.5 E.3.2 E.3.4	Project developers have solved this problem using data that is real and available through the national dispatch center ONS. This data is from the period 2001-2003, being the most recent available by the time of PDD submission. The PDD has been revised in its sections E.4 and Annex 3, where the pertinent explanations for this source use are given.	OK. The revised baseline emission calculations are according to the baseline methodology AM0015 CDM project activities for energy production for the grid. It is justified to only include plants dispatched by ONS although they only represent about 80% of the total installed capacity. Data for the remaining plants is not publicly available. Also, these 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

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
			by ONS are thus representative for the operating margin. The build margin emission coefficient is correctly calculated considering the 20% capacity additions of the most recently installed plants dispatched by ONS. Even though the S-SE-CO grid is connected with the North-Northeast grid, the energy flow between these grids is heavily limited by the transmission lines capacity. It is hence appropriate to consider the S-SE-CO grid for the purpose of determining the BM and OM emission coefficient and consider imports from the North-Northeast grid at 0 tCO_2/MWh in accordance with AM0015, It is recognised that in the absence of actual fuel consumption data, the calculated plant specific emission coefficients are sensitive to the assumed plant efficiency for each plant. Nonetheless, the applied average plant efficiencies for different power plant types established in the IEA study on the Brazilian grid is deemed to represent the best data that is currently available.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
CAR 3 The barrier analysis is largely based on studies carried out in 1997-1999. It remains to be clarified that sectoral circumstances have not significantly changed since then. Also, more project specific evidence is needed for the barrier analysis. The current barrier analysis is very generic and more elaborations on how these generic barriers apply to the Campo Florido project is needed.	B.2.7	The PDD has been revised in its sections B3 step 4, where the pertinent explanations for this source use are given	OK. Complementary explanation could evidence particularities on the barriers that justify the additionality of project.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
CAR 4 Further evidence is requested that demonstrates that the CDM was seriously considered in the decision to implement the project. Iturama/Coruripe supplied electricity to the grid already before the implementation of the project. Hence, the barriers presented in the PDD do not sufficiently demonstrate that the project faces substantial barriers which make it not a likely baseline scenario.	B.2.7	Regarding the evidence about the participation of a representative member of Coruripe in the CDM seminar at FGV (Fundação Getulio Vargas) in 2000, was already submitted for Mr. Luis Felipe Tavares from DNV. This evidence was a list of the seminar participants. There are other evidences that may prove that Coruripe had taken into account the CDM and carbon credits subjects. Mr. José Correia Barreto, Director of Coruripe Headquarters, had received a site visit from members of CTC – Centro de Tecnologia Copersucar (Copersucar Technology Centre), where it was made a presentation about "The sugar cane cycle and additional reductions of CO_2 emissions", and a document regarding this subject was received by Mr. Barreto. The document also makes references about GEE emission reductions and cogeneration. The mentioned document was written by Mr. Isaias de Carvalho Macedo, in March, 2000 and it was already sent for Mr. Luis Felipe Tavares from DNV. Mr. Barreto confirms that this visit had occurred in 2000. Mr. Barreto affirms that: "It is important to highlight that in that time (2000, 2001, 2002) nobody in the company could figure that this kind of document would be necessary or required in the future (considering CDM projects purposes), otherwise, we (Mr. Barreto and others Coruripe's	Furthermore, a meeting record of a board meeting at Coruripe carried on 20 May 2002 deciding the investment based on Carbon Credits was presented, with a signature authenticated by an official registry office. Although this procedure of authentication a signature of a Board meeting is not a common practice, DNV recognise this document as evidence that the incentive from the CDM was seriously considered in the decision to proceed with the project until other counter evidence is presented. This CAR is therefore closed.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
		members) could have taken appropriate procedures in order to keep this kind of information properly stored". Mr. Barreto claims that himself was the main person that had pursued and introduced the CDM and carbon credits subjects to Coruripe company. Further the mentioned site visit from CTC members, Mr. Barreto had also participated in another seminar called "Carbon Credits Market" (from Portuguese: "Mercado de Créditos de Carbono"), promoted by IBC – International Business Communications". The certificate that proves the participation of Mr. Barreto in this seminar was issued in 16th October, 2002, after the beginning of the Coruripe's CDM project. A contact was already made with CTC in order to find the person responsible for the site visit in Coruripe Headquarters. Mr. Suleiman, Manager from CTC, confirms that the referenced document is stored in the internal CTC files in fact, but he could not find the person responsible for the visit in order to confirm the site visit, because he/she person does not work in CTC anymore.	
CL 1 The Campo Florido Bagasse Cogeneration Project is located in the municipality of Campo Florido, Minas Gerais State. However, the precise location of project is not clearly identified on PDD.	A.1.1	The PDD has been revised in its sections A3 4, where the pertinent explanations for this source use are given	OK, address is included. This CL is therefore closed

- o0o -