VALIDATION REPORT

ZILLO LORENZETTI BAGASSE COGENERATION PROJECT (ZLBCP) IN BRAZIL

REPORT NO. 2005-0636

REVISION NO. 01

DET NORSKE VERITAS

DET NORSKE VERITAS

Report No: 2005-0636, rev. 01

VALIDATION REPORT

Date of first issue: 2005-08-04	Project No.: 28624550 (28)
Approved by: Einar Telnes *Technical Director*	Organisational unit: DNV Certification, International Climate Change Services
Client: Usina Barra Grande de Lençóis S/A (BGL), Açucareira Zillo Lorenzetti S/A (AZL)	Client ref.: Luiz Pretti

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 "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)" (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.

In summary, it is DNV's opinion that the "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)" as described in the revised PDD of 31 October 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 "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)" 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 a confirmation by the DNA of Brazil that the project assists in achieving sustainable development.

Report No.: 2005-0636	Subject Group: Environment
Report title: Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)	
Work carried out by: Vicente San Valero /Luis Filipe Tavares	
Work verified by: Michael Lehmann	

Date of this revision: 2005-11-04	Rev. No.: 01	Number of pages: 13

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*

Abbreviations

AZL	Açucareira Zillo Lorenzetti S/A
ANEEL	Agência Nacional de Energia Elétrica (National Agency Electric Energy)
BAU	"Business as usual"
BGL	Usina Barra Grande de Lençóis S/A
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_2e	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_2O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
ONS	Operador Nacional do Sistema Elétrico (National Electricity System Operator)
PDD	Project Design Document
PROINFA	Programme of Incentives to the Alternative Sources of Electric Energy
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

Usina Barra Grande de Lençóis S/A (BGL), Açucareira Zillo Lorenzetti S/A (AZL) and Ecoinvest have commissioned Det Norske Veritas Certification Ltd. (DNV) to perform a validation of the "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)", located in the municipalities of Lencóis Paulista (BGL) and Macatuba (AZL), São Paulo State, Brazil.

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 Marrakech Accords and relevant decisions by the CDM Executive Board. The validation team has employed, based on the recommendations in the Validation and Verification Manual /8/ 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 Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP) in Brazil

The "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)" is located in the municipalities of Lencóis Paulista (BGL) and Macatuba (AZL), São Paulo State, Brazil. The project involves an increase of the generation capacity at the bagasse cogeneration facility at the BGL and AZL sugar cane mills, allowing both mills to supply 65 MW additional of excess electricity to the grid.

The project has already been implemented and started operation on 15 June 2001.

Emission reductions are claimed from displacing grid electricity that is partly generated based on fossil fuels with electricity generated by the mill and supplied to the grid. The estimated amount of GHG emission reductions from the project is 390 218 tonnes CO_2 equivalents (tCO_2e) during the first renewable 7-year crediting period (with the potential of being renewed twice), resulting in estimated average annual emission reductions of 55 745 tCO_2e.

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 /8/. 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 "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)" 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 Clarification 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 request for **Clarification (CL)** where further clarifications are needed.*	*Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.*

Validation Protocol Table 2: Requirement Checklist				
Checklist Question	***Reference***	***Means of verification (MoV)***	***Comment***	***Draft and/or Final Conclusion***
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in seven different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	*Gives reference to documents where the answer to the checklist question or item is found.*	*Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.*	*The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.*	*This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below).A request for **Clarification (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 Project Design Document (PDD) /1/ of 25 April 2005 submitted by Usina Barra Grande de Lençóis S/A (BGL), Açucareira Zillo Lorenzetti S/A (AZL) and Ecoinvest, was assessed by DNV. Moreover, a revised version of the PDD /2/ dated 31 October 2005 which was submitted to address DNV's initial validation findings, was assessed by DNV. In addition, a spreadsheet containing detailed calculations for the combined margin emission coefficient /3/, which is applied by the project, was assessed during the validation.

DNV also assessed other project documents, such as the Preliminary Environmental Impact Assessment /4/, the Environmental Licence(s) /5/ /6/ as well as the evidence of the letters sent to local stakeholders /7/, 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 /12/ to confirm and to resolve issues identified in the document review.

The main topics of the interviews were:

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

2.3 Resolution of Clarification and Corrective Action Requests

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

The initial validation of the project identified 05 (five) *Corrective Action Request(s)*. These were communicated to the project participants in the form of a draft validation report dated 04 August 2005 (Rev. 00). The *Corrective Action Requests raised* by DNV were resolved through communications between the project participants and DNV and through the submission of a revised PDD on 31 October 2005.

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 31 October 2005.

3.1 Participation Requirements

The project participants is Usina Barra Grande de Lençóis S/A and Açucareira Zillo Lorenzetti S/A of Brazil.

The host Party Brazil meets all relevant participation requirements.

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 a confirmation by the DNA of Brazil that the project assists in achieving sustainable development.

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 capacity of the previous bagasse based energy generation, by adding new high-pressure boilers and by installing an additional 65 MW generation capacity through two phases at the BGL and AZL sugar cane mills. The previously installed capacity of at these mills was 24.4 MW, but this electricity was only generated for internal use in the mills. As per ANEEL Resolutions (172/2005 and 546/2002), the total installed capacity for BGL and AZL is 87 705 kW, which is slightly less than the sum of the existing capacity of 24.4 MW and the added capacity of 65 MW. The capacity addition of the project will allow for dispatch of excess electricity to the regional South-Southeast-Midwest (S-SE-CO) grid.

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

A 7-year renewable crediting period is selected (with the potential of being renewed twice), and the starting date of the crediting period is 15 June 2001. This corresponds with the starting date of the project activity. The expected operational lifetime of the project is 25 years.

The project's estimated emission reductions are 390 218 tCO_2e (55 745 tCO_2e /year on the average) over the selected first 7-year crediting period (June 2001-June 2008).

The project is expected to bring social (employment – around 1 210 workers in the implementation phase and 100 to continuously operate both plants), environmental (environmental education projects, reforestation of degraded areas and support for parks) and economic benefits, thus contributing to the sustainable development objectives of the Brazilian Government. Moreover, the plants are NBR-ISO 14001, SA 8000, and OHSAS 18001 certified.

The validation did not reveal any information that indicates that the project finance is a diversion of ODA funding towards Brazil.

3.3 Project Baseline

The project applies the approved baseline methodology AM0015 - "Bagasse-based *cogeneration connected to an electricity grid"*. /9/

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*" /11/, 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. 15 June 2001, 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 15 June 2001 was presented to DNV. The documentation by means of an e-mail dated April 2001 evidence that the incentive from the CDM was considered in the decision to proceed with the project activity was provided. This email contained a prospect and an analysis of the potential certified emission reductions, carried out by a CDM consultant,. Although issued only after the implementation of the project, a Preliminary Environmental Report - BGL (from Project Engenharia Ambiental) dated in January 2002 /4/ which contains an analysis of the project as a CDM, further supports the claim that the CDM was considered in the decision to proceed with the project activity.

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 production of electricity and steam for self consumption with low efficiency and b) investing in the installation of new boilers and new electricity generators which will allow BGL and AZL 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 and political barriers and cultural barriers are presented in the PDD:

a) Investment barriers. The project has a negative Net Present Value (NPV) with a discount rate of 17% and an IRR of 16,73%. This average project IRR is lower than the SELIC rate in effect at the time of financing, 17,32% on average in May 2001. 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 is 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 undergoes 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"* /9/.

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 based on the monitoring of the electricity amount supplied to the grid. The reliability of this monitoring parameter is assured through second-party verification of the amount of electricity sold to CPFL (the regional electricity company) by BGL and AZL. 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.

Usina Barra Grande de Lençóis S/A (BGL), Açucareira Zillo Lorenzetti S/A (AZL) are 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. Moreover, the plants are ISO 9001 certified.

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 BGL and AZL 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.

The ONS dataset does not include power plants that dispatch locally. However, it is justified to only include plants dispatched by 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 simple-adjusted operating margin (OM) emission coefficient is calculated to be 0.4310 tCO_2e/MWh (applying an average λ of 0.4961) and the build margin (BM) emission coefficient is 0.1256 tCO_2e/MWh, resulting in a combined margin emission coefficient of 0.2783 tCO_2e/MWh (weighted average of the build and operating margin).

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 /10/ are deemed to represent the best data that is currently available.

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 assessed by DNV. The selected approach for calculating λ is in accordance with AM0015.

3.7 Environmental Impacts

BGL and AZL have been granted an environmental licenses (*BGL's Operating License nº 7001294 dated 28/09/2004* /5/ *and AZL's Operating License nº 7001311 dated 15/10/2004* /6/) 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, BGL and AZL 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(s) 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 to the validation team. No comments on the project were received by these stakeholders.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

DNV published the PDD of the "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)" 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 during the period from 01 May 2005 to 31 May 2005. One comment was received in this period. The comment received (in unedited form) is given in the below text box.

Comment by:	Axel Michaelowa, Hamburg Institute of International Economics (HWWA)
Inserted On:	2005-05-30
Subject:	Crediting period, weight of build margin

Comment:

1. The project participants have chosen a non-renewable crediting period of 7 years but calculate emission reductions for a longer period. Maybe they wanted to choose a renewable crediting period of 7 years and chose the wrong field in the template?

2. The weight of zero for the build margin is not acceptable. The supply surplus was a specific situation in the 2001-2004 period and it is unlikely to persist throughout the crediting period. It may be acceptable to have a weight lower than 50% for the years in which the participants can show that the build margin plants had a load factor of less than 50% (ex post monitoring).

***How DNV has considered the comment(s) received in its validation**:*

1. DNV request the project participants to clarify the selection of the crediting period and the revised PDD of 31 October 2005 was corrected to select a renewable 7-year crediting period.
2. In the PDD of 25 April 2005, the Combined Margin emission coefficient was determined applying a weight of $W_{OM} = 1.0$ and $W_{BM} = 0$. The project participants were thus requested to submit a revised PDD according to the default calculation for Combined Margin, considering $W_{OM} = W_{BM} = 0.5$. In the revised PDD of 31 October 2005, the Combined Margin was recalculated considering $W_{OM} = W_{BM} = 0.5$ as required by AM0015.

5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)" located in the municipalities of Lencóis Paulista (BGL) and Macatuba (AZL), São Paulo 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 Usina Barra Grande de Lençóis S/A and Açucareira Zillo Lorenzetti S/A of Brazil. The host Party Brazil meets all relevant participation requirements.

The project is a bagasse-based cogeneration power generation activity, which displaces partly fossil fuel-based grid electricity. By installing a total additional 65 MW bagasse cogeneration capacity at the BGL and AZL sugar mills, the project will be able to supply excess electricity 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 is 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 0.2783 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 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 CO_2 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. One comment was received and taken into account in the validation of the project.

In summary, it is DNV's opinion that the "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)", as described in the revised and resubmitted project design document of 31 October 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 will request the registration of the "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)" 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 a confirmation by the DNA of Brazil that the project assists in achieving sustainable development.

REFERENCES

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

/1/ Usina Barra Grande de Lençóis S/A (BGL), Açucareira Zillo Lorenzetti S/A (AZL) and Ecoinvest: Project Design Document for the "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)", Version 1 of 25 April 2005.

/2/ Usina Barra Grande de Lençóis S/A (BGL), Açucareira Zillo Lorenzetti S/A (AZL) and Ecoinvest: Project Design Document for the "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)", Version 3 of 31 October 2005.

/3/ Spreadsheet of Calculation of Combined Margin Emission Coefficient (ONS-Emission factors SSECO 2002-2004-2005.09.23.xls).

/4/ Preliminary Environmental Report - Projec Engenharia Ambiental (RAP_Termo_UBG.zip – January 2002).

/5/ Usina Barra Grande Operating License – SD No.07003702 dated 28/09/2004 (14C_0700522-03_LO.jpg).

/6/ Açucareira Zillo Lorenzetti Operating License – SD No.07003702 dated 15/10/2004 (15C_0700373-03_LO.jpg).

/7/ Evidences of letters sent to Stakeholders (Lista ARs (Coper 3).xls - 23/07/2005).

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

/8/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Validation and Verification Manual*. http://www.vvmanual.info

/9/ Approved Baseline and Monitoring Methodology AM0015: "*Bagasse-based cogeneration connected to an electricity grid"*. Version 01 of 22 September 2004.

/10/ 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.

/11/ CDM-EB, *"Tool for the demonstration and assessment of additionality"*, Annex 1 of the report of the EB's 16th meeting.

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

/12/ 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	Not applicable	Table 2, Section E.4 No Annex I party has yet been 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 confirmation by the DNA of Brazil that the project assists it 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 the participating Parties.
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
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.

Requirement	Reference	Conclusion	Cross Reference / Comment
8. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures §29	OK	The Brazilian DNA 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	OK	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 Articles 5 and 7	CDM Modalities and Procedures §31b	OK	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	DNV published the" Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)" 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 during the period from 01 May 2005 to 31 May 2005. One comment was 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 *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	Yes. The "Zillo Lorenzetti Bagasse Cogeneration Project (ZLBCP)" is located in the municipalities of Lencóis Paulista (BGL) and Macatuba (AZL), São Paulo State, within the area of Usina Barra Grande de Lençóis S.A. (BGL) and Açucareira Zillo Lorenzetti S.A. - São José (AZL), two of three mills owned by ZL - Zillo Lorenzetti Group.		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 BGL and AZL cogeneration facilities. The South-Southeast and Midwest (S-SE-CO) section of the interconnected subsystem of the Brazilian grid is selected as the system boundary for the determination of the baseline grid emission factor.		OK
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	Yes. The project design engineering reflects good practice using the steam Rankine cycle technology for steam and power generation.		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
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 mills, which will allow for the generation of excess electricity to be supplied to the grid.		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 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 it is only a modification of the currently used system.		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 and maintenance. This seems to be reasonable given the reasons indicated in A.2.4.		OK
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. BGL and AZL have been granted environmental licenses (BGL's Operating License nº 7001294 emitted in 28/09/2004 and AZL's Operating License nº 7001311 emitted in 15/10/2004) 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).		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			As per ANEEL Resolutions (authorizations to generate/sell electricity as an independent producer), total installed capacity for BGL and AZL is 87 705 kW.		
A.3.2. Is the project in line with host-country specific CDM requirements?	/1/ **/2/**	DR	Usina Barra Grande de Lençóis S/A (BGL), Açucareira Zillo Lorenzetti S/A (AZL) have not invited local organizations and institutions to provide comments, according to the Resolution 1 of the Brazilian DNA.	~~CAR 3~~	OK
A.3.3. Is the project in line with sustainable development policies of the host country?	/1/ **/2/**	DR	Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive confirmation by the DNA of Brazil that the project assists in achieving sustainable development.	--	--
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 – around 1 210 in the implementation phase and 100 to continuously operate both plants), environmental (environmental education projects, reforestation of degraded areas and support for parks) and economic benefits, thus contributing to the sustainable development objectives of the Brazilian Government.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
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/**	DR	Yes. The project applies the approved baseline methodology AM0015 - "Bagasse-based cogeneration connected to an electricity grid".		OK
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/1/ **/2/** /9/	DR	Yes. The project fulfils the conditions under which AM0015 methodology 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/** /4/ /9/	DR	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. According to AM0015, the Combined Margin, shall be calculated considering W_{OM} = W_{BM} =	~~CAR 1~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			0.5. The PDD thus has to be revised to apply a weight factor of WOM = WBM = 0.5.		
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/1/ **/2/** /4/	DR	The project uses generation data from ONS (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 available and the most recent data is thus data for 2002-2004.	~~CAR 5~~	OK
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 only 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	The λ was calculated by interpolating daily dispatch data for thermal power plants and daily dispatch data for hydropower plants, with data provided by ONS (2001 to 2003). These data are not the most recent available by the time of PDD submission. See B.2.2	~~CAR 5~~	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 through the "Tool for	~~CAR 4~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
	/9/ /11/		the demonstration and assessment of additionality" /11/, 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. 15 June 2001, 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 15 June 2001 was presented to DNV. 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. 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 production of electricity and steam for self consumption with low efficiency and b) investing in the installation of new boilers and new electricity generators which will allow BGL and AZL 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 and political barriers and cultural barriers are presented in the PDD: a) Investment barriers. The project reaches a negative Net Present Value (NPV) with a		

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			discount rate of 17% and an IRR of 16,73%. This average project IRR is lower than the SELIC rate in effect at the time of financing, 17,32% on average in May 2001. 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 is 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 undergoes 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		

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			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 technological, institutional and cultural barriers the project faces, it is sufficiently demonstrated that the project is not a likely baseline scenario.		
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 *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 15 June 2001 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 renewable 7-year crediting period was selected starting on 15/06/2001.		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/** /9/	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/** /9/	DR	Yes. The monitoring methodology is applicable as established on AM0015.		OK
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/1/ **/2/** /9/	DR	The monitoring methodology of AM0015 is correctly applied and calculation of emission reductions will use data based on electricity exported (energy meter) to the grid and consistency will be ensured through sales records.		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: the bagasse is originated from same facility, the project will not be implemented by the public sector, there is no increase of the bagasse production, and the bagasse will be stored for less than one year.		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/** /9/	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?	/1/ **/2/**	DR	See D.2.1		OK
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	/1/ **/2/**	DR	See D.2.1		OK
D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?	/1/ **/2/**	DR	See D.2.1		OK
D.2.5. Will the indicators enable comparison of project data and performance over time?	/1/ **/2/**	DR	See D.2.1		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/** /9/	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. BGL and AZL never sold bagasse before the project start date. It was confirmed by the owners of the mill that no organizations were buying bagasse from BGL and AZL prior to project implementation therefore, no monitoring of leakage is necessary.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
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/** /4/	DR	The CO_2 emission factor of the grid is based on ONS information for the years 2001 to 2003. These are not the most recent data available. This coefficient is fixed ex-ante and hence no data needs to be collected in this regard.	~~CAR 5~~	OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/ **/2/**	DR	See D.4.1	~~CAR 5~~	OK
D.4.3. Will it be possible to monitor the specified baseline indicators?	/1/ **/2/**	DR	See D.4.1	~~CAR 5~~	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/** /9/	DR	Neither AM0015 nor Resolution 1 of the Brazilian DNA require the monitoring of social and environmental indicators.		OK
D.5.2. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	/1/ **/2/**	DR	See D.5.1.		OK
D.5.3. Will it be possible to monitor the specified sustainable development indicators?	/1/ **/2/**	DR	See D.5.1.		OK
D.5.4. Are the sustainable development indicators in line with stated national priorities in the Host	/1/ **/2/**	DR	See D.5.1.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
Country?					
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 clearly described.		OK
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/1/ **/2/**	DR	The amount of electricity sold will be verified through invoices issued by the regional electricity company (CPFL) and monitoring, registration and review is the responsibility of BGL and AZL.		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 and boilers equipment supplier documentation are also mentioned for training purposes. Equipments used to measure the electricity delivered to the grid are yearly audited (calibrated) by private companies accredited by the national dispatch center.		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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
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
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 *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	Yes. Project emissions are considered zero in line with the AM0015 and IPCC guidelines,		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
	/9/		which stipulate that biomass combustion is assumed to equal its re-growth, i.e. to be climate neutral.		
E.2. Leakage *It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.*					
E.2.1. Are 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 could come from organizations that used to buy bagasse from the sugar mill. It was confirmed by the owners of BGL and AZL mills that they never sold bagasse before the project start date. Therefore, no leakage is expected.		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 chosen as reference for baseline emissions?	/1/ **/2/** /4/ /9/	DR	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 $W_{OM} = W_{BM} = 0.5$.	~~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	Yes. The project system's boundary is limited to the BGL and AZL cogeneration plant. The South-Southeast and Midwest section of the interconnected subsystem of the Brazilian grid, to which the project is connected, is the selected system boundary for determining the baseline		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			grid emission factor.		
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 5~~	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/** /9/	DR	According to the PDD, the project is expected to reduce CO_2 emissions to the extent of 550 722 tCO_2e. Nonetheless, the reductions would be 390 218 tCO_2e (55 745 tCO_2e / year on the average) over the crediting period (June 2001-June 2008) by considering $W_{OM} = W_{BM} = 0.5$ and data of 2002 - 2004. Emission reduction estimate will have to be calculated according to the methodology.	~~CAR 1~~	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 of	/1/		BGL and AZL have been granted environmental		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
the project activity been sufficiently described?	**/2/**		licenses (BGL's Operating License nº 7001294 emitted in 28/09/2004 and AZL's Operating License nº 7001311 issued in 15/10/2004) 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).		
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 PDD does not identify/addresse 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
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 *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	Usina Barra Grande de Lençóis S/A (BGL), Açucareira Zillo Lorenzetti S/A (AZL) have not	~~CAR 3~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			invited local organizations and institutions to provide comments, according to the Resolution 1 of the Brazilian DNA.		
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/ **/2/**	DR	See G.1.1.	~~CAR 3~~	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	~~CAR 3~~	OK
G.1.4. Is a summary of the stakeholder comments received provided?	/1/ **/2/**	DR	See G.1.1.	~~CAR 3~~	OK
G.1.5. Has due account been taken of any stakeholder comments received?	/1/ **/2/**	DR	See G.1.4.	~~CAR 3~~	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 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 of 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 $W_{OM} = W_{BM} = 0.5$. The project is expected to reduce CO_2 emissions to the extent of 390 218 tCO_2e (55 745 tCO_2e / year average) over the crediting period (June 2001-June 2008).
CAR 2 The section heading H (PDD Annexes) needs to be deleted, as the CDM-PDD shall be completed without modifying/adding headings. In addition, the two Annex 3 references should be corrected.	Table 1 - 19	The PDD of 31 October 2005, corrected this issue.	OK. The PDD of 31 October 2005 is in accordance with CDM-PDD (version 02 of 1 July 2004).
CAR 3 Usina Barra Grande de Lençóis S/A (BGL), Açucareira Zillo Lorenzetti S/A (AZL) have not invited local organizations and institutions to provide comments, according to the Resolution 1 of the Brazilian DNA. The names and details for further contacts should also be presented.	Table 1 - 12 A.3.2 G.1.1 to G.1.5	PDD, dated 31 October 2005, corrected this issue.	OK, The reviewed PDD, dated 31 October 2005, documents that 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 letters sent to the local stakeholders were verified during the follow up interviews No comments on the project were received by these stakeholders.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
CAR 4 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 Zillo had considered CDM before the project implementation.	OK. 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 an e-mail dated April 2001 which was carried out by a CDM consultant with a prospect and an analysis of potential credits. Although issued only after the implementation of the project, a Preliminary Environmental Report - BGL (from Projec Engenharia Ambiental) dated in January 2002 /4/ which contains an analysis of the project as a CDM, further supports the claim that the CDM was considered in the decision to proceed with the project activity. ..
CAR 5 The project uses generation data from ONS (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 available and the most recent data is thus data for 2002-2004.	B.2.2 B.2.5 D.4.1 to D.4.3 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 the revised worksheet (ONS-Emission factors SSECO 2002-2004-2005.09.23.xls) uses 2002-2004 data from ONS.

- o0o -