VALIDATION REPORT

ITURAMA BAGASSE COGENERATION PROJECT (IBCP) IN BRAZIL

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DET NORSKE VERITAS

VALIDATION REPORT

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Summary:
Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Iturama Bagasse Cogeneration Project (IBCP)" 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 "Iturama Bagasse Cogeneration Project (IBCP)" project, as described in the revised PDD of 06 December 2005, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology AM0015. Hence, DNV will request the registration of the "Iturama Bagasse Cogeneration Project (IBCP)" project 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.

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Appendix A Validation Protocol

Abbreviations

ANEEL	Agência Nacional de Energia Elétrica (Brazilian Electricity Regulatory Agency)
BM	Build Margin
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
COPAM	Environmental Minas Gerais State Agency
CH_4	Methane
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
FEAM	Fundação Estadual de Meio Ambiente (Environment State Foundation)
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IBCP	"Iturama Bagasse Cogeneration Project"
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operating margin
ONS	Operador Nacional do Sistema (National Electricity System Operator)
PDD	Project Design Document
S-SE-CO	South-Southeast-Midwest (one of two regional grids in Brazil)
UNFCCC	United Nations Framework Convention on Climate Change

1 INTRODUCTION

Coruripe Energética S.A. (Cururipe) and Econergy Brasil Ltda (Econergy) have commissioned Det Norske Veritas Certification Ltd. (DNV) to validate the "Iturama Bagasse Cogeneration Project (IBCP)", at Iturama Municipality; Minas Gerais State, Brazil.

This report summarises the findings of the validation of the project, performed on the basis of UNFCCC and host Party 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
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 assess 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 (CERs).

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 /4/ a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

1.3 "Iturama Bagasse Cogeneration Project"

The "Iturama Bagasse Cogeneration Project(IBCP)" includes the increase of the bagasse cogeneration capacity and the improvement of the energy efficiency at the Iturama sugar mill located at Iturama, Minas Gerais State. The project allows the Iturama sugarcane mill to improve the energy efficiency in the bagasse cogeneration facility as well as the supply of additional excess electricity to the grid. The project activity involves a capacity addition and already prior to the implementation of the project, the Iturama sugarcane mill supplied in 2000-2001 on average 14 381 MWh of electricity per year to the grid. After project implementation, the electricity supply to the grid is expected to be at least 60 500 MWh per year.

The project has already been implemented and started operation on 01 April 2002. The cogeneration facility is operated by Coruripe Energética S.A..

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

The estimated amount of GHG reduction from the project is 89 884 tCO_2e during the first crediting period (7 years), resulting in estimated average annual emission reductions of 12 841 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 /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 "Iturama Bagasse Cogeneration Project (IBCP)" is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as 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 PDD /1/ submitted by Coruripe and Econergy on 25 March 2005 was assessed. Moreover, a revised version of the PDD /2/ dated 06 December 2005 /2/, which was submitted to address DNV's initial validation findings, was assessed. In addition, a spreadsheet containing detailed calculations for the combined margin emission coefficient /3/ which is applied by the project was 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 relevant information.

2.2 Follow-up Interviews

DNV performed on 30 June 2005 follow up 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;
- Consultation of local stakeholders;
- Overview of the cogeneration technology;
- The possibility of leakage due to a historical practice of selling bagasse.

2.3 Resolution of Clarification and Corrective Action Requests

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

The initial validation of the project identified 03 (three) *Corrective Action Requests* and 01 (one) request for *Clarification*. These were presented to the project participant in the form of a draft validation report (rev. 0 dated 30 June 2005). The project participant's response to DNV's initial findings, which also included the submission of a revised PDD dated 06 December 2005, addressed the raised *Corrective Action Requests* and request for *Clarifications* to DNV's satisfaction.

To guarantee the transparency of the validation process, the concerns raised and responses given are documented in more detail in the validation protocol in Appendix A.

3 VALIDATION FINDINGS

The findings of the validation "Iturama Bagasse Cogeneration Project (IBCP)" 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 06 December 2005 /2/.

3.1 Participation Requirements

The project participants are Coruripe Energética S.A. and Econergy Brasil Ltda. The host country Brazil meets all relevant participation requirements. No Annex I Party is yet identified.

Prior to the submission of the final validation report to the CDM Executive Board, DNV will have to receive the written approval of voluntary participation from the DNA of Brazil, including a confirmation that the project assists it 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 prevailing bagasse based energy generation, by adding new high-pressure boilers and by installing an additional 11 MW generation capacity (total installed capacity will be 24MW). This capacity addition will allow for generation of additional 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 using high pressure boilers.

A 7-year renewable crediting period is selected (with the potential of being renewed twice), starting on 01 April 2002. The starting date of the project activity is 01 April 2002. The expected operational lifetime of the project is 25 years.

The project is expected to bring social (employment, day care and improved labour conditions), environmental (by supporting programs of the Forestry State Institute, controlling erosion, optimizing water use and other environmental programs) 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

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. bagasse is only utilized to generate small amounts of

excess electricity to be supplied to the grid and an equivalent amount of the additional excess electricity supplied to the grid by the project 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 average of the operating margin (OM) and build margin (BM) emission factors (see section 3.6).

The quantity of electricity that has been supplied prior to project implementation, i.e. 14 381 MWh per year, was determined based on the average the electricity supplied to the grid in the years 2000-2001 (the average of the last two years instead of the average of the last three years as required by the AM0015 was applied because no electricity was supplied to the grid before 2000). The net quantity of electricity supplied to the grid is thus determined as the difference of the electricity supplied to the grid after project implementation and the quantity of electricity supplied to the grid prior to project implementation.

3.4 Additionality

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. 1 April 2002, falls between 1 January 2000 and the date of the registration of the first CDM project activity (November 2004). As evidence for the project's starting date of 1 April 2002 electricity bills were presented with reference to the amount of energy sold to the electricity company (CEMIG) in the period April to August 2002.

As evidence for proving that the benefits of the CDM were considered in the decision to proceed with the project implementation, the PDD mentions the participation of a representative of Coruripe-Iturama Sugar Mill in at CDM seminar of FGV (Fundação Getulio Vargas) in 2000. On DNV' request, further evidence was presented in the form of an internal communication of Mr André Valio, Agronomist of Coruripe-Iturama, to Paulo Kronka, Agricultural Manager, dated 11 April 2000, in which the CDM benefits for bagasse cogeneration projects are identified and which recognises that the CDM could provide the necessary complementary funding for Coruripe's bagasse cogeneration projects. In DNV's opinion, the presented evidence demonstrates that the incentive from the CDM was seriously considered in the decision to proceed with the project.

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 only small supply of electricity to the gird 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 barrier.* Although the steam-Rankine cycle technology is well known in Brazil, the sugar cane units mainly operate with low-efficiency generation options. It is

claimed that 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. However, Iturama/Coruripe Energética sold electricity to the grid already in the years 2000 and 2001 which was produced by the old units (5MW and 8MW). Hence, DNV is not able to confirm the presented technological barrier.

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 barrier*. DNV was not able to confirm a economic and investment barrier because Iturama and sugarcane producers in general seem to have easy access to long-term financing as they have strong securities from their core activity, i.e. production of sugar and alcohol.

d) *Cultural barrier.* The project participant argued that an investment in a more efficient cogeneration system is considered a deviation to the core business of sugar and alcohol producers. DNV acknowledges that the additional capacity of the mill is considered a cultural barrier to be overcome by the CDM incentive.

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 complementary incentives for the project to alleviate the above presented barriers.

Given the above and in particular the 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 correctly applies the approved monitoring methodology AM0015 - “Bagasse-based cogeneration connected to an electricity grid” /6/.

The monitoring plan is 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 Iturama. The baseline grid electricity 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, the frequency of data recording, format and storage location are described. The recording frequency of the data is appropriate for the project.

Iturama 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 straightforward and no specific procedures beyond the already established ISO 9001 certified QA/QC procedures will be necessary. The established procedures reflect good monitoring and reporting practices.

3.6 Calculation of GHG Emissions

Baseline emissions due to displacement of electricity, which is partly generated based on fossil fuels, are calculated by multiplying the electricity exported by the project activity to the S-SE-CO grid (from which the quantity of electricity that has been supplied prior to project implementation, i.e. 14 381 MWh per year, is subtracted) 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.

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. For the determination of the operating margin (OM) emission coefficient, average plant efficiencies for different power plant types established in the IEA study on the Brazilian grid /6/ and IPCC carbon emission factors for specific fuels were applied to calculate plant specific emission coefficients. For the calculation of the build margin emission coefficient, the conservative plant efficiencies recommended by the CDM Executive Board at its 22nd meeting were applied. The resulting simple-adjusted OM emission coefficient is 0.4310 tCO_2e/MWh (applying an average λ of 0.5135) and the BM emission coefficient 0.1045 tCO_2e/MWh, resulting in a combined margin emission coefficient of 0.2677tCO_2e/MWh (weighted average of the build and operating margin). The emission coefficient calculations were transparently presented in spreadsheets **Error! Reference source not found.** submitted to and verified by DNV.

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.

Generation data for the years 2002-2004 are the most recent statistics available.

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 λ was calculated by interpolating daily dispatch data for thermal power plants and daily dispatch data for hydropower plants based on data provided by ONS for the years 2002 to 2004. 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 AM00015.

3.7 Environmental Impacts

Iturama has been granted an Operational Environmental License issued by the Environmental State Agency (COPAM-Conselho Estadual de Política Ambiental) on 09 July 2002. This license

is issued after an analysis of all possible impacts performed by the Environment State Foundation (FEAM - Fundação Estadual de Meio Ambiente).

This license included requirements that needed to be adhered-to by Iturama. Compliance with these requirements was verified during the follow up interview.

3.8 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. No comments were received.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

DNV Certification published the PDD of 25 March 2005 on the DNV Climate Change web site (http://www.dnv.com/certification/ClimateChange) and Parties, stakeholders and UNFCCC accredited NGOs were through the UNFCCC CDM web site invited to provide comments within a 30 days period from 05 April 2005 to 05 May 2005. No comments were received.

5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Iturama Bagasse Cogeneration Project (IBCP)" at Iturama 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 Coruripe Energética SA and Econergy Brasil Ltda of Brazil. The host Party Brazil meets all relevant participation requirements. No Annex I Party is yet identified.

The project involves an increase of the bagasse cogeneration capacity at the "Iturama Bagasse Cogeneration Project" (IBCP)". With the implementation of this project, the mill is able to sell additional excess electricity to the regional South-Southeast-Midwest (S-SE-CO) grid, avoiding thus the dispatch of the same amount of electricity partly generated by thermal power plants supplying electricity to that grid.

The baseline scenario is that the current practice continues, i.e. the bagasse is only utilized to generate small amounts of excess electricity to be supplied to the grid. The quantity of electricity that has been supplied prior to project implementation, i.e. 14 381 MWh per year, was determined based on the average electricity supplied to the grid in the years 2000-2001.

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 0.2677 tCO_2e/MWh is calculated ex-ante 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 AM0015 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. No comments were received. Public stakeholder input has also been invited via the UNFCCC web-site. No comments were received.

In summary, it is DNV's opinion that the "Iturama Bagasse Cogeneration Project" (IBCP)", as described in the revised and resubmitted project design document of 06 December 2005, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology AM0015. Hence, DNV will request the registration of the "Iturama Bagasse Cogeneration Project (IBCP)" 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

6 REFERENCES

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

/1/ Econergy: Project Design Document for the "Iturama Bagasse Cogeneration Project" (IBCP). Version 1 of 25 March 2005

/2/ Econergy: Project Design Document for the "Iturama Bagasse Cogeneration Project" (IBCP). Version 2 of 06 December 2005)

/3/ Spreadsheets for the calculation of the combined margin emission Coefficient (ONS-Emission factors 2002-2004 v 2005-11-29.xls).

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

/4/ International Emission Trading Association (IETA) & the World Bank's 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 Executive Board: *Tool for the demonstration and assessment of additionality.* Version 02 of 28 November 2005.

/8/ 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.

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

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APPENDIX A

CDM VALIDATION PROTOCOL

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

Requirement	Reference	Conclusion	Cross Reference / Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art.12.2	OK	Table 2, Section E.4.1
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
7. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an	Decision 17/CP.7, CDM Modalities and	OK	There is no public funding involved in the project. The validation did

Requirement	Reference	Conclusion	Cross Reference / Comment
affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Procedures Appendix B, § 2		not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards Brazil.
8. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures §29	OK	The Brazilian designated national authority for the CDM is the Comissão Interministerial de Mudança Global do Clima.
9. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol	CDM Modalities §30/31a	OK	Brazil has ratified the Kyoto Protocol on 23 August 2002
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	Not applicable	No participating Annex I Party is yet identified
11. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7	CDM Modalities and Procedures §31b	Not applicable	No participating Annex I Party is yet identified
12. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	CDM Modalities and Procedures §37b	OK	Table 2, Section G
13. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	OK	Table 2, Section F
14. Baseline and monitoring methodology shall be previously approved by the CDM Executive Board	CDM Modalities and Procedures §37e	OK	Table 2, Section B.1.1 and D.1.1
15. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	CDM Modalities and Procedures §37f	OK	Table 2, Section D
16. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and	CDM Modalities and Procedures §40	OK	The PDD was published for public comments in the period of 05 April 2005 to 05 May 2005 on

Requirement	Reference	Conclusion	Cross Reference / Comment
comments have been made publicly available			climatechange.dnv.com and comments were invited via the UNFCCC CDM website. No comment was 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 CERs 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/	DR	The "Iturama Bagasse Cogeneration Project" is located in the municipality of Iturama, 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 GHGs) boundaries clearly defined?	/1/	DR	The project's system boundary is limited by the Iturama cogeneration facilities. The spatial boundary for the displacement of grid electricity and the determination of the combined margin emission coefficient is the Brazilian grid subsystem of the South-Southeast and Midwest (S-SE-CO) grid to which the project is connected.		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/	DR	The project design engineering reflects good practice through the use of Rankine		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			technology for steam and power generation.		
A.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	/1/	DR	The technology used is the Rankine technology adopted worldwide. The project involves expanding the cogeneration capacity of the sugar mill which will allow for the generation of excess electricity to be supplied to the grid.		OK
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	/1/	DR	The project is unlikely to be replaced by other more efficient technologies, at least within the first seven years 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/	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 assured.		OK
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/1/	DR	The project documentation does not detail provisions for training nor maintenance. However for reasons indicated in A.2.4, this appears reasonable.		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/	DR/I	The project has the Environment Licences issued by COPAM. Authorization by ANEEL for Iturama Thermoelectric Unit to produce energy trough Resolution 11 was issued on 11 January 2002.		OK
A.3.2. Is the project in line with host-country specific CDM requirements?	/1/	DR	The project invited local stakeholders to comment on the project according to Resolution 1 of the DNA of Brazil.		OK
A.3.3. Is the project in line with sustainable	/1/	DR	The project is in line with current		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
development policies of the host country?			sustainable development priorities in Brazil.		
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	/1/	DR	Besides the job creation, the project presents some benefits related to health and education for employees and relatives.		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/	DR	The project applies the baseline methodology AM0015 Bagasse based cogeneration connected to an electric grid.		OK
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/1/	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

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
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/	DR	The baseline for cogeneration considers the operation margin calculated as the simple adjusted Operation Margin, according to ONS information. According to the default weight for calculating the Combined Margin, i.e. W_{OM} = W_{BM}=0.5, the emission coefficient would be 0.274 tCO_2e/MWh. However, the project applies a weight of W_{OM}=1.0 and W_{BM}=0. This new alternative weight option was proposed to the EB but has not yet been approved.	~~CAR 1~~	OK
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/1/	DR	The project uses data from ANEEL 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 emission	~~CAR 2~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			coefficient figures that result from applying the selected approach.		
B.2.3. Has the baseline been established on a project-specific basis?	/1/	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/	DR	See B.2.1	~~CAR 1~~	OK
B.2.5. Is the baseline determination compatible with the available data?	/1/	DR	The λ was calculated by interpolating hourly dispatch data for thermal power plants and hourly dispatch data for hydropower plants. Data was provided by ONS for the years 2001 to 2003 for the plants centrally dispatched ONS. 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/	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 (e.g. through (a) a flow-chart or series of questions that lead to a narrowing of potential baseline options, (b) a qualitative or quantitative assessment of different potential options and an indication of why the non-project option is more likely, (c) a qualitative or quantitative assessment of one or more barriers facing the proposed project activity or (d) an indication that the project type is not common practice in the proposed area of implementation, and not required by a Party's legislation/regulations)?	/1/	DR	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. April 2002, falls between 1 January 2000 and the date of the registration of the first CDM project activity (November 2004). As evidence for the project's starting date of April 2002 electricity bills were presented for the amount of electricity sold to CEMIG for	~~CAR 3~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			the months April to August 2002. The evidence presented for proving that CDM was considered to proceed the project implementation was that a representative of Iturama Sugar Mill participated in a CDM seminar of FGV (Fundação Getulio Vargas) in 2000. However, more project specific evidence is requested. 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 only electricity and steam for self consumption with low efficiency and only a small dispatch of excess electricity to the grid 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 barrier. Although the steam-Rankine cycle technology is well known in Brazil, the sugar cane units mainly operate with low-efficiency generation options and use the energy on-site. It is claimed that there is a technological barrier		

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			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. However, Iturama/Coruripe Energética sold electricity to the grid already in the years 2000 and 2001 which was produced by the old units (5MW and 8MW). Hence, DNV is not able to confirm the presented technological barrier. 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 barrier. DNV was not able to confirm a general economic and investment barrier because sugarcane producers do normally not have problems with securing long-term financing as they have strong securities from their core activity, i.e. production of sugar and alcohol. d) Cultural barrier. The project participant argued that an investment in a more efficient cogeneration system is considered a deviation to the core business of sugar and alcohol producers. However, Iturama/Coruripe supplied electricity to the		

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			grid already before the implementation of the project. The barriers presented in the PDD do not sufficiently demonstrate that the project faces substantial barriers which make it not a likely baseline scenario. Hence, the additionality of project is questioned 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 not able to demonstrate that the sale of CERs will provide the complementary incentives for the project to alleviate the above presented barriers.		
B.2.8. Have the major risks to the baseline been identified?	/1/	DR	Yes		OK
B.2.9. Is all literature and sources clearly referenced?	/1/	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/	DR	Yes, the project starting date is 01 April 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/	DR	A 7 years crediting period starting in 01 April 2002 has been chosen with the potential for being renewed twice.		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/	DR	The project applies the 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/	DR	Yes, the monitoring of electricity supplied to the grid is adequate.		OK
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/1/	DR/I	The reliability of the measurement of the net electricity supplied to the grid is assured through two-party verification of the amount of electricity sold to CEMIG (the electricity company) by Iturama.		OK
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	/1/	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/	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/	DR/I	According to the chosen methodology, the only potential source of leakage comes from organizations that were used to buy bagasse from the sugar mill prior to the project's implementation. Without this bagasse supply, these organizations might burn fossil fuel instead. Iturama sugar mill sold bagasse prior to project implementation but according to the PDD this amount has not changed due to a low demand. 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/	DR	The combined margin emission coefficient used to determine baseline emissions is determined ex-ante and will remain fixed during the first crediting period. Hence no data needs to be collected in this regard.		OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR	See D.4.1		OK
D.4.3. Will it be possible to monitor the specified baseline indicators?	/1/	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/	DR	AM0015 and Resolution 1 of the Brazilian DNA do not require the monitoring of social nor environmental indicators.		OK
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/	DR/I	Existing QC and QA procedures seem adequate and are certified according to ISO 9001:00.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/1/	DR/I	Yes, CEMIG (electric company which buys the energy) and Iturama both register the sold electricity.		OK
D.6.3. Are procedures identified for training of monitoring personnel?	/1/	DR/I	No procedures for training of monitoring personnel are described, but the project only requires limited monitoring, which is part of normal operations.		OK
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR/I	No emergency situations are identified		OK
D.6.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR/I	The calibration of the electricity meter will be carried out according to the law.		OK
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR/I	See D.6.5		OK
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR/I	The routine for measurements and reporting is assured by cross-verification of metered electricity supply with sales receipts.		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/	DR/I	Yes		OK
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR/I	See D.6.7		OK
D.6.10. Are procedures identified for review of reported results/data?	/1/	DR/I	See D.6.7		OK
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	/1/	DR/I	Assured by ISO 9001:00 certification of the project site.		OK
D.6.12. Are procedures identified for project performance reviews before data is submitted	/1/	DR/I	See D.6.7		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
for verification, internally or externally?					
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/	DR/I	See D.6.11		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/	DR	Project emissions are considered zero in line with AM0015 and the IPCC guidelines which stipulate that biomass combustion is assumed to equal its re-growth i.e. to be climate neutral.		OK
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/	DR/I	See D.3.1		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
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/	DR	See B.2.1	~~CAR 1~~	OK
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	/1/	DR	The boundary for the grid electricity displacement is the South-Southeast and Mid-West subsystem. 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/MW regional Brazilian grid and for the conservativeness of the emission coefficient figures that result from applying the selected approach.	~~CAR 2~~	OK
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	/1/	DR	See B.2.1	~~CAR 1~~	OK
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	/1/	DR	See E.3.2	~~CAR 1~~	OK
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	/1/	DR	See B.2.1	~~CAR 1~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
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/	DR	The project is expected to abate CO_2 emissions to the extent of 89 884 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 of the project activity been sufficiently described?	/1/	DR/I	The project has an environmental license which was; issued by COPAM/FEAM (LO 180/02) after an analysis of the potential environmental impacts of the project.		OK
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/	DR/I	See F.1.1		
F.1.3. Will the project create any adverse environmental effects?	/1/	DR/I	No significant environmental impacts are expected to be created. Given the nature of the project design this seems reasonable.		OK
F.1.4. Are transboundary environmental impacts considered in the analysis?	/1/	DR	Not foreseen.		OK
F.1.5. Have identified environmental impacts been addressed in the project design?	/1/	DR/I	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/	DR/I	See F.1.1		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
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/	DR/I	Iturama invited local stakeholders 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/	DR/I	Letters have been sent to local stakeholders in line with Resolution 1.		OK
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/	DR/I	Yes, see G.1.1		OK
G.1.4. Is a summary of the stakeholder comments received provided?	/1/	DR/I	No comments were received.		OK
G.1.5. Has due account been taken of any stakeholder comments received?	/1/	DR/I	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 According to the default weight for the calculation of the Combined Margin, i.e. W_{OM} = W_{BM} =0.5, emission coefficient would be 0.274 tCO_2e/MWh. However the project applies a weight of W_{OM}=1.0 and W_{BM}=0. This new alternative weight option was proposed to the EB, but has not yet been approved .	B.2.1 to B.2.6 E.3.1 E.3.3 E.3.5	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 AM00015 considering W_{OM} = W_{BM} = 0.5. 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 emission coefficient figures that result from applying the selected approach.	B.2.2 B.2.5	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 AM00015 CDM project activities for energy production for the grid. Eventually, data for the period 2002-2004, which is the most recent available data has been applied. 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 as 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.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
			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, 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. 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
CAR 3 The barrier analysis is largely based on studies carried out in 1997-1999. It remains to be clarified whether the 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 Iturama 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	The revised PDD appropriately assessed the barriers that the company faced. The revised barrier analysis is project specific. DNV acknowledges that the project faced barriers.
CAR 3 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 CO2 emissions", and a document regarding	Further evidence was presented in the form of an internal communication of Mr André Valio, Agronomist of Coruripe-Iturama, to Paulo Kronka, Agricultural Manager, dated 11 April 2000, in which the CDM benefits for bagasse cogeneration projects are identified and which recognises that the CDM could provide the necessary complementary funding for Coruripe's bagasse cogeneration projects. In DNV's opinion, the presented evidence demonstrates that the incentive from the CDM was seriously considered in the decision to proceed with the project. The barriers presented in the revised in the PDD showed that the additional energy sold by the plant sufficiently demonstrated that the project is not a likely baseline scenario.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
		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 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	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
		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 "Iturama Bagasse Cogeneration Project" is located in the municipality of Iturama, 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.

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