VALIDATION REPORT

CENTRAL IZALCO COGENERATION PROJECT (CICP) IN EL SALVADOR

REPORT NO. 2005-1378

REVISION NO. 02

DET NORSKE VERITAS

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VALIDATION REPORT

Date of first issue: 2005-11-25	Project No.: 28624550(40)
Approved by: Einar Telnes, Director	Organisational unit: DNV Certification, International Climate Change Services
Client: Compañía Azucarera Salvadoreña, S.A. de C.V. and Ecoinvest Carbon S.A -Brazil	Client ref.:

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Summary:

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Central Izalco Cogeneration Project (CICP) in El Salvador" on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board.

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

The validation report of 09 March 2007 was modified after the request for review received on 28 June 2007. Only minor changes were made in page 6 (type of contract for selling the electricity generated) and 10 (calculation of the build margin factor) of the report. The PDD of 09 March 2007 was also revised (change in template format, and minor typo mistake).

In summary, it is DNV's opinion that the "Central Izalco Cogeneration Project (CICP) in El Salvador" as described in the revised PDD of 10 July 2007 meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM0006 version 4. Hence, DNV will request the registration of the "Central Izalco Cogeneration Project (CICP) in El Salvador" as a CDM project.

Report No.: 2005-1378	Subject Group: Environment
Report title: Central Izalco Cogeneration Project (CICP) in El Salvador.	
Work carried out by: Luis Fillipe Tavares, Biswas Subhendu, Michael Lehmann.	
Work verified by: Miguel Rescalvo (acting)	

Date of this revision: 2007-07-10	Rev. No.: 02	Number of pages: 14

Indexing terms

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

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Abbreviations

BAU	"Business as usual"
CAR	Corrective Action Request
CASSA	Compañía Azucarera Salvadoreña S.A. de C.V.
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH_4	Methane
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
ETESAL	Empresa Transmisora de El Salvador, S.A. de C.V.
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MARN	Ministerio de Medio Ambiente y Recursos Naturales
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
N_2O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
PCF (2003)	Prototype Carbon Fund. *Electric power sector baseline study for El Salvador*
PDD	Project Design Document
SIGET	Superintendencia General de Electricidad Y Telecomunicaciones
UNFCCC	United Nations Framework Convention on Climate Change

1 INTRODUCTION

Compañía Azucarera Salvadoreña, S.A. de C.V and Ecoinvest Carbon S.A -Brazil has commissioned Det Norske Veritas Certification Ltd. (DNV) to perform a validation of the "Central Izalco Cogeneration Project (CICP) in El Salvador", located in the Izalco municipality, town of Huiscoyolate, Sonsonate Department, El Salvador.

This report summarises the preliminary 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 Certification Ltd - Brazil	CDM validator, team leader
Mr. Biswas Subhendu	DNV Certification Ltd - India	GHG auditor
Mr. Michael Lehmann	DNV Certification Ltd - Oslo	Energy sector expert
Mr. Miguel Rescalvo	DNV Certification Ltd - Oslo	Technical reviewer (acting)
Mr Einar Telnes	DNV Certification Ltd - Oslo	Technical reviewer

1.1 Validation Objective

The purpose of a validation is to have an independent third party assessing the project design. In particular, the project's baseline, the monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CER's).

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology ACM0006 version 4. The validation team has, based on the recommendations in the Validation and Verification Manual /19/ employed 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/or corrective actions may have provided input for improvement of the project design.

1.3 Description of Proposed CDM Project

The "Central Izalco Cogeneration Project (CICP) in El Salvador" proposes to increase efficiency in the production of electricity from bagasse, a by-product during production of sugar. The power generation capacity at the Central Izalco sugar mill will be increased through

the installation of higher efficiency boilers and turbo-generators. The project has already been implemented and started operation in 25 February 2003.

The estimated amount of GHG emission reductions from the project is 320 253 tCO_2e during the first 7-year crediting period (with the potential of being renewed twice), resulting in estimated average annual emission reductions of 45 750 tCO_2e.

2 METHODOLOGY

The validation consisted of the following three phases:

i) a desk review of the project design documentation;
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 /19/. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

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

The completed validation protocol for the Central Izalco Cogeneration Project (CICP) in El Salvador is enclosed in Appendix A to this report.

Findings established during the validation are 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* (CL) is 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 (Version 01 - July 29, 2005) /1/ submitted by Compañía Azucarera Salvadoreña, S.A. de C.V and Ecoinvest Carbon S.A -Brazil was assessed by DNV. However, this documentation was based on the baseline and monitoring methodology AM0015 which on 28 November 2005 was replaced by the consolidated baseline and monitoring methodology ACM0006. A revised version of the PDD /2/ applying ACM0006 version 02 was submitted to address DNV's initial validation findings. Due to the revision to version 04 of the methodology a new PDD version 10 of 09 March 2007 /4/) was submitted and assessed. This PDD was revised (version 11 of 10 July 2007) as a consequence of a request for review received on 28 June 2007.

In addition, spreadsheets containing detailed calculations for the combined margin emission coefficient /4/, project's IRR /9/ and CERs calculations /10/ were assessed as a part of the validation. Other assessed documents are listed in the section "References" below.

2.2 Follow-up Interviews

On 06 July 2006 DNV performed interviews with representative of Ecoinvest

The main topics of the interviews were:

- Environmental License
- Letter of Approval
- local stakeholders consultation process,
- cogeneration systems,
- additionality argumentation,
- baseline emission calculations,
- baseline scenario,
- the possibility of leakage effects due to a possible practice of selling bagasse prior to the project implementation,
- sustainable development Indicators,
- project starting date,
- step 0 of the additionality tool,
- leakage effects

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 some *corrective action requests* and requests for *clarification.* The project participant's responses to the findings presented in DNV's draft validation report were resolved during communications between the project participants and DNV leading to the issuance of different revisions of the PDD. The version 10 of 09 March 2007, addressed the raised *corrective action requests* and requests for *clarification* to DNV's satisfaction and incorporated the requirements of the latest version of the applied methodology.

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

2.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a technical review before being submitted to the project participants. The final validation report underwent another technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3 VALIDATION FINDINGS

The findings of the validation of the Central Izalco Cogeneration Project (CICP) in El Salvador 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 revised and resubmitted project design documentation of 09 March 2007 (modified on 10 July 2007 as a consequence of a request for review received on 28 June 2007)

3.1 Participation Requirements

The project participants are Compañia Azucarera Salvadoreña S.A. de C.V. (CASSA) of El Salvador and Ricoh Company, Ltd. of Japan. The host Party El Salvador and the participating Annex I Party Japan, meet all relevant participation requirements. The Central Izalco Cogeneration Project (CICP) in El Salvador received the Letters of Approval from the DNA of El Salvador (dated 31 October 2005) and from DNA of Japan (dated 11 November 2005). /17//18/.

The project is expected to bring social (employment), and economic benefits, thus contributing to the sustainable development objectives of the El Salvador Government. The DNA of El Salvador confirmed the project contribution to the sustainable development of the country.

The project does not involve any public funding and the validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards El Salvador.

3.2 Project Design

The "Central Izalco Cogeneration Project (CICP) in El Salvador" 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 aims to increase the efficiency of the prevailing bagasse based energy generation, by installing new boilers and turbo generators.

The project consists of two installation phases. Phase one was completed in 2002-2003 with the installation of a 900 Psig boiler and a 20MW generator. The second phase of the project was completed in November 2005. The equipment installed in this second stage consists of an additional 900 Psig boiler and a 25MW turbo-generator. The final installed capacity (not considering the equipment in stand by) after the completion of the two phases will be 45 MW. The project developer has already secured a contract to sell the electricity in the spot market.

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

A 7-year renewable crediting period is selected (with the potential of being renewed twice) starting on 25/02/2003. The starting date of the project activity is 1 July 2002. The expected operational lifetime of the project is 25 years.

3.3 Baseline Determination

The project applies the approved consolidated baseline methodology ACM0006 - version 04, *"Consolidated baseline methodology for grid-connected electricity generation from biomass residues".* /20/ and ACM0002, version 06 *"Consolidated baseline methodology for grid-connected electricity generation from renewable sources"*/21/.

The methodology ACM0006 is applicable to the Central Izalco Cogeneration Project (CICP) in El Salvador as this project consists the improvement of the energy efficiency of an existing power generation plant for supplying electricity to the El Salvador grid (ETESAL) and the project meets the applicability conditions of ACM0006: i) only bagasse is used in the cogeneration plant; ii) it has been justified that the increase in sugar production is not attributed to the CDM project activity but to the normal development of the sugar mill's business; iii) only small quantities of bagasse are stored from one season to another (always less than one year) and iv) the bagasse do not require to be prepared before being used as fuel.

Project boundaries are defined as: 1) baseline energy grid: the El Salvador grid and 2) baseline cogeneration plant: the site where the cogeneration facility (Compañía Azucarera Salvadoreña, S.A. de C.V) is located.

Baseline scenario 14 as given in the methodology has been selected and is justified.

Power generation: in the baseline scenario the electricity would have been generated in existing and/or new grid connected power plants (P4) and some electricity would have been generated in an existing power plant (P5).

Heat generation: The baseline scenario is the continuation of heat generation in an existing cogeneration plant, fired with the same type of biomass (bagasse) (H5).

For biomass use: In the baseline scenario the biomass would have been used for heat and/or electricity generation at the project site (B4).

The baseline scenario for power and heat generation assumes the project activity would have been implemented, not undertaken as a CDM project activity, at the end of the lifetime of the existing plant. Due to the seasonal characteristics of the sugar production and the maintenance practices it can be assumed a lifetime over 60 years for the boilers. This has been confirmed by the Sugar Industry Association of El Salvador /14/ and is also referenced in technical literature

/14/. Considering that the boilers 1 and 2 were installed in 1964; boiler 3 was installed in 1969; boiler 4 was installed in 1993; turbo 1 was installed in 1964 and sold to Ingenio Chaparrastique after 2004; turbo 2 was installed in 1999; turbo 3 was installed in 1994, the remaining lifetime for the installed equipment before the project activity is justified to be extended after the end of the crediting period.

The analysis of the historic increases in sugar production and capacity expansion plans /12/ by Compañía Azucarera Salvadoreña, S.A. de C.V included in the PDD, together with the expected increase in sugar production in developing countries and more specifically El Salvador, show that the increase in the bagasse firing capacity in the project scenario would have also occurred in the baseline scenario due to the increase in sugar demand (increasing the thermal demand in the baseline configuration). Furthermore, the company strategic plan/7/ from 1999 has been evidenced to include different actions for increasing capacity from 2000 to 2004. The increase in 2004-2005 was due to the fact that Izalco obtained sugar from a mill now closed, San Francisco. Hence, the increase is not attributed to the CDM project activity but to the normal development of the sugar mill's business. It can be concluded that the project activity does not increase the generation of thermal energy (steam) and that the increase in the bagasse use and thermal energy generation would have also occurred in the absence of the project.

3.4 Additionality

In accordance with ACM0006, the additionality of the project is demonstrated through the "*Tool for the demonstration and assessment of additionality*", /22/ which includes the following steps:

Step 0. *Preliminary screening based on the starting date of the project activity*: The starting date of the CDM project activity, i.e. 01 July 2002, falls between 1 January 2000 and the date of the registration of the first CDM project activity (November 2004). The project's starting date refers to the payment done to Hierros and Bronces S.A. de C.V. for the assembling of the boiler /6/. Evidence that Compañía Azucarera Salvadoreña, S.A. de C.V seriously considered the CDM in the decision to proceed with the project was verified on the online newspaper "Hablemos-El Salvador" website

(http://www.elsalvador.com/hablemos/Ediciones/012002/medioambiente.htm).

In this article the company representative describes how the project activity reduces emissions and was likely to allow the company to participate in the CDM. Since the project requested validation prior to 31 December 2005 (version 01 of the PDD was published for comments in September 2005), the project thus may claim retroactive credits.

Step 1. *Identification of alternatives to the project activity consistent with current laws and regulations:* Two possible scenarios are identified, i.e. i) the generation of an equivalent amount of electricity by the generation mix of the Salvadorian electricity system; ii) project scenario: renewable thermal energy as a source of power.

The provided alternatives are in compliance with the legal and regulatory requirements.

Step 2. *Benchmark analysis:* The project IRR has been verified to be 11.3%, which is below the benchmark IRR selected (18.0%. Average El Salvador's active interest rate in 2001 when the project decision was made /8/). The project involves an investment above 22,9 millions USD in two phases. The electricity tariff is from the spot electricity market.

A sensitive analysis has been done increasing the project revenues by 10% and decreasing the operational costs by 10%. In the best case combination the IRR reaches 13.2%. Hence, it can be concluded that the project is not financially attractive under normal financial conditions.

Step 3: *Barrier Analysis*: Technological, investment and regulatory barriers were presented in the PDD:

a) *Technological and Logistic barriers*. The Rankine cycle technology is well known in El Salvador but the implementation of this technology does face barriers. There is a technological barrier because the project needs to import the turbines from Brazil or U.S.A. and depend on imports to set up and maintain the new facility. Moreover, the project uses an imported complex control system that brought the need of Izalco's employees to travel abroad (México and Canada) to be trained on the new control system.

b) *Investment barriers*. The project owner found resources to financing the cogeneration unit as they have strong securities from their core activity, i.e. production of sugar and alcohol. However, considering the electricity open market in El Salvador, the risk to produce for the grid leads to uncertainties for renewable energy generation and discourages investments.

c) *Regulatory barriers*. El Salvador has no incentive for renewable electricity generation, which has to compete with non renewable electricity generation or imported electricity, so the absence of regulatory incentives could be considered as an additional barrier.

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 El Salvador. Usually the sugarcane mills produce energy inefficiently and do not supply excess electricity to the grid. In accordance with the PDD and the electricity produce information on datasheet "El Salvador Baseline 2003-2005" /4/, containing the electricity generation mix for El Salvador, compania Azucarera Salvadorena SA de CV is the only one sugarcane company delivering electrical energy to the El Salvador grid.

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

Given the above it is sufficiently demonstrated that the project is not a likely baseline scenario and the emissions reduction is thus additional.

3.5 Monitoring Plan

The project applies the approved monitoring methodology ACM0006 - version 04 "Consolidated baseline methodology for grid-connected electricity generation from biomass residues" /20/.

Data to be monitored includes the net quantity of electricity generated at the project site, the net quantity of increased electricity generation as a result of the project activity, the average net efficiency of electricity generation, the quantity of bagasse burned and its NCV.

The amount of electricity supplied to the grid is monitored and the reliability of this monitoring parameter is assured through two-party verification of the amount of electricity sold to ETESAL (the electricity company) by Compañía Azucarera Salvadoreña, S.A. de C.V.

The data will be archived in electronic form and be kept for two years after the end of the last crediting period.

Compañía Azucarera Salvadoreña, S.A. de C.V is responsible for the project management and reporting project activities, organising and training staff in the appropriate monitoring, measurement and reporting techniques. Details of the data to be collected, calibration of measurement instruments, and the frequency of data recording, format and storage location are described. The recording frequency of the data is deemed appropriate for the project.

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

3.6 Calculation of GHG Emissions

The emissions reduction is calculated as the net quantity of increased electricity generation by the project activity times an *ex-ante* determined emission factor for the El Salvador electricity grid.

It has been demonstrated that the project emissions are zero as the biomass is not transported and no fossil fuels are used.

According to scenario 14 of ACM0006 the most likely baseline scenario is the use of the biomass for energy generation and the diversion of biomass to the project activity is already considered in the calculation of baseline reductions. In this case, leakage effects do not need to be considered.

The thermal efficiency in the project plant for each phase of the project implementation is higher than in the baseline plant and thus, it is not necessary to account for emissions from this source.

According to ACM0006 scenario 14, the net quantity of increased electricity generation as a result of the project activity shall be determined as follows:

$$EG_y = EG_{projectplant,y} * \left(1 - \frac{\varepsilon_{el,preproject}}{\varepsilon_{el,projectplant,y}}\right)$$

The average net efficiency of electricity generation in the project plant prior to project implementation ($\varepsilon_{el,pre\ project}$) 0,019 $MWh_{el}/MWh_{biomass}$ is calculated *ex-ante* (average for the last three seasons) using the total electricity generated by the power plant and the amount of bagasse burned

The average net energy efficiency of electricity in the project plant (εel,project plant,y) is calculated by dividing the electricity generation during the year y by the amount of bagasse burned, expressed in energy units. The bagasse NCV value was obtained from data measured every six months by Izalco.

The system boundary for the grid electricity system affected by the project is defined as the system of the El Salvador grid. The combined margin emission coefficient for the grid is determined *ex-ante* in accordance with ACM0002 version 6. The calculations are based on electricity generation data provided by the Empresa Transmisora de El Salvador (ETESAL) for

the electricity generated in grid in the years 2003-2005. Data for the years 2003-2005were the most recent statistics available at the time of PDD submission.

As the El Salvador electric grid has more than 50% of low-cost must run, the simple adjusted OM method was considered for the determination of the operating margin (OM). The build margin emission coefficient (BM) was calculated considering the generation from the 5 five power plants that have been built most recently. Both emission factors considered the electricity generated and fuel consumed based on data provided by ETESAL and evidenced in the El Salvador baseline 2003-2005 calculations. /4/ The simple-adjusted operating margin (OM) emission coefficient is calculated to be 0.734 tCO_2e/MWh and the build margin (BM) emission coefficient is 0.652 tCO_2e/MWh, resulting in a combined margin emission coefficient of 0.693 tCO_2e/MWh (weighted average of the build and operating margin).

The estimated amount of GHG emission reductions from the project is calculated to be 320 253 tCO_2e during the selected first 7-year crediting period (with the potential of being renewed twice), resulting in estimated average annual emission reductions of 45 750 tCO_2e.

In summary, the GHG calculations are complete and transparent, and the data accuracy has been verified.

3.7 Environmental Impacts

The Central Izalco mill received the Environmental License nº MARN-081/2002 Afterward amended by Resolution MARN 1596/1124/2005 issued on 09 November 2005 which confirms the required corrective actions pointed out in the first resolution were implemented. It has been confirmed that the project itself did not require a specific EIA as per the Salvadorian legislation.

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

3.8 Comments by Local Stakeholders

Local stakeholders' were invited to comment during the process of the environmental licensing for the operation of the sugar mill and through the publication of a note in a national newspaper (Diario El Mundo on December 2001), to comment on any issues or conflicts of interest arising from the issuance of the Operational License (Permit). With a view to carrying out a more specific process focused on the CDM project, the project developer invited for comments to the Municipality of Izalco on 1 March 2007 sending letters to the town hall and specific people on the municipality. The letters and the confirmation of receipt have been assessed by DNV. No comment was received.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

DNV Certification published the PDD of 07 February 2006 on the DNV Climate Change web site (http://www.dnv.com/certification/ClimateChange) and Parties, stakeholders and NGOs are, through the UNFCCC CDM web site, invited to provide comments during the period from 22 February 2006 to 23 March 2006. No comments were received

Prior to this, The PDD of 29 July 2005, applying AM0015, was made publicly available on DNV's climate change website and Parties, stakeholders and NGOs were, through the CDM

website, invited to provide comments during a 30 days period from 20 September 2005 to 19 October 2005. No comments were received in this earlier call.

5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the Central Izalco Cogeneration Project (CICP) in El Salvador located in the Izalco municipality, town of Huiscoyolate, Sonsonate Department. The validation was performed on the basis of UNFCCC criteria for CDM project activities and relevant Salvadorean criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project participants are Compañia Azucarera Salvadoreña S.A. de C.V. (CASSA) and Ricoh Company, Ltd. of Japan. The participating Parties, El Salvador as the host Party and Japan as Annex 1 Party meet all relevant participation requirements and have provided written approval of voluntary participation in the project.

The Central Izalco Cogeneration Project (CICP) in El Salvador already received the Letters of Approval from the DNA of El Salvador (dated 31 October 2005) and from the DNA of Japan (dated 11 November 2005). The DNA of El Salvador has confirmed that the project assists in achieving sustainable development.

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 aims to increase the efficiency of the prevailing bagasse based energy generation adding an additional 45 MW generation capacity, which will allow Compañía Azucarera Salvadoreña, S.A. de C.V to generate excess electricity to be dispatched to the national grid.

The project applies the approved consolidated monitoring methodology ACM0006 - version 04 - "Consolidated baseline methodology for grid-connected electricity generation from biomass residues". The baseline methodology has been correctly applied and the assumptions made for the selected baseline scenario are sound. It is sufficiently demonstrated that the project is not a likely baseline scenario and that emission reductions attributable to the project are additional to any that would occur in the absence of the project activity.

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. The annual estimated emissions reduction is 45 750 tCO_{2e}/year during the first seven year crediting period starting on 25 February 2003. Given that the project operates as designed, the project is likely to achieve the estimated amount of emission reductions.

Local stakeholder comments were invited. No comments were received. Parties, stakeholders and NGOs were also invited to comment on the validation requirements via the UNFCCC web-site. No comments were received.

In summary, it is DNV's opinion that the Central Izalco Cogeneration Project (CICP) in El Salvador, as described in the revised and resubmitted project design document of 09 March 2007, meets all relevant UNFCCC requirements for the CDM and correctly applies the approved baseline and monitoring methodology ACM0006 - version 04. Hence, DNV requests the registration of the Central Izalco Cogeneration Project (CICP) in El Salvador as a CDM project.

The validation report of 09 March 2007 was modified after the request for review received on 28 June 2007. Only minor changes were made in page 6 (type of contract for selling the electricity generated) and 10 (calculation of the build margin factor) of the report. The PDD of 09 March 2007 was also revised (change in template format, and minor typo mistake).

REFERENCES

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

/1/ Ecoinvest Carbon S.A -Brazil: Project Design Document for the Central Izalco Cogeneration Project (CICP) in El Salvador, Version 1 of 29 July 2005.

/2/ Ecoinvest Carbon S.A -Brazil: Project Design Document for the Central Izalco Cogeneration Project (CICP) in El Salvador, Version 4 of 07 February 2006.

/3/ Ecoinvest Carbon S.A -Brazil: Project Design Document for the Central Izalco Cogeneration Project (CICP) in El Salvador, version 10 of 09 March 2007.

/4/ Spreadsheet of Calculation of Combined Margin Emission Coefficient (El Salvador-Baseline 2003-2005).

/5/ Unidad de Transacciones S.A (El Salvador Grid Operator)
Inyecciones de Energía por Planta Generadora / Inyecciones de Energía por Operador
http://216.184.107.61/utweb/estadisticas.htm

/6/ Payment receipt to Hierros and Bronces S.A. de C.V. for the assembling the boiler HPB VS 500.

/7/ Izalco strategic plan.
Izalco strategic plan 2000.jpg

/8/ Declaration of *Banco Agricola de El Salvador* regarding active interest rates.

/9/ Spreadsheet of Calculation of IRR "Izalco_IRR_2007.03.22.xls"

/10/ ER's calculations
Izalco_recalculation_CERs_2007.02.16.xls

/11/ Spreadsheet Balance of bagasse per harvest.xls

/12/ capacity increase planning
Izalco strategic plan 2000.jpg

/13/ Energia Limpia – Hablemos online
http://www.elsalvador.com/hablemos/Ediciones/012002/medioambiente.htm

/14/ Letter from the *Asociacion Azucarera de El Salvador* (Sugar Industry Association of El Salvador),
Technical literature:

- Babcock & Wilcox Corporation. "Our boilers and environment equipment. (catalog);
- Perez, G. L. "La remodelación de la caldera alemana de 25t/h". Energia, no. 5, pp. 14-27, 1985;
- Foster Wheeler Corporation. "Heat engineering. CFB technology aids in redevelopment", 1999.

/15/ Environment License # MARN-081/2002 issued by Ministério de Medio Ambiente e Recursos Naturales on 19 March 2002.

/16/ Ministerio de Medio Ambiente y Recursos Naturales - El Salvador

Resolucion MARN nº 1596-1124-2005 issued on 09 November 2005

/17/ Ministerio de Medio Ambiente y Recursos Naturales - El Salvador
Letter of Approval. 31 October 2005.

/18/ The Liaisons committee for the Utilization of the Kyoto Mechanisms' (DNA of Japan): Letter of Approval dated 11 November 2005.

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

/19/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Validation and Verification Manual*. http://www.vvmanual.info

/20/ CDM-EB: Approved Consolidated Baseline and Monitoring Methodology ACM0006 - "Consolidated baseline methodology for grid-connected electricity generation from biomass residues",version 04.

/21/ CDM-EB: Approved Consolidated Baseline and Monitoring Methodology ACM0002 - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 06.

/22/ CDM Executive Board: Tool for the demonstration and assessment of additionality. Version 03

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

/23/ Ricardo Sparta - Ecoinvest Carbon S.A -Brazil

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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 The PDD identifies Ricoh Company Ltd. of Japan, as Annex I project participant.
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	OK	Table 2, Section A.3 DNA of El Salvador: Letter of Approval dated 31 October 2005. DNA of Japan: Letter of Approval dated 11 November 2005.
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	OK	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authority of each party involved	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	OK	DNA of El Salvador: Letter of Approval dated 31 October 2005 DNA of Japan: Letter of Approval dated 11 November 2005.
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	OK	Table 2, Section E
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	OK	Table 2, Section B.2
7. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an 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.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK	The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards El Salvador.

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 El Salvador designated national authority for the CDM is the "Ministerio del Medio Ambiente y Recursos Naturales (MARN)". The DNA of Japan is the Liaison Committee for the Utilization of the Kyoto Mechanisms for Environment, Food and Rural Affairs.
9. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol	CDM Modalities §30/31a	OK	El Salvador ratified the Kyoto Protocol on .30 November 1998. Japan ratified the Kyoto Protocol on 4 June 2002.
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	OK	Japan's assigned amount is 94% of the emissions in1990.
11. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7	CDM Modalities and Procedures §31b	OK	Japan has in place a national registry and reported on 24 May 2004 its national GHG inventory for the years 1990-2002
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

Requirement	Reference	Conclusion	Cross Reference / Comment
15. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	CDM Modalities and Procedures §37f	OK	Table 2, Section D
16. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	CDM Modalities and Procedures §40	OK	DNV Certification published the PDD of 07 February 2006 on the DNV Climate Change web site (http://www.dnv.com/certification/ClimateChange) and Parties, stakeholders and NGOs are, through the UNFCCC CDM web site, invited to provide comments during the period from 22 February 2006 to 23 March 2006. No comments were received. Prior to this, The PDD of 29 July 2005, applying AM0015, was made publicly available on DNV's climate change website and Parties, stakeholders and NGOs were, through the CDM website, invited to provide comments during a 30 days period from 20 September 2005 to 19 October 2005. No comments were received in this earlier call.
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	CDM Modalities	OK	PDD is in accordance with the

Requirement	Reference	Conclusion	Cross Reference / Comment
UNFCCC CDM-PDD format	and Procedures Appendix B, EB Decision		CDM-PDD version 03.

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 "Central Izalco Cogeneration Project (CICP) in El Salvador", El Salvador, is located in the Izalco municipality, town of Huiscoyolate, Sonsonate Department.		OK
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	/1/	DR	The project boundary is the site where the cogeneration facilities are located (Central Izalco – CASSA). The system boundary for the determination of the combined margin emission factor is the El Salvadoran grid, which is the grid electricity system affected by the project.		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 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/	DR	The technology used is the Rankine technology, adopted worldwide. The project involves increasing the efficiency in the steam and electricity production, which will allow for the generation of excess electricity to be supplied to the grid.		
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 7-year crediting period. However basis of the remaining technical lifetime of the project is required to access if the change would have come within the crediting period.	CL 6:	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 additional training for project maintenance due to the use of electrical technologies which was not commonly used in CASSA before the project implementation.		OK
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/1/	DR	Personnel from Central Izalco had to go to Mexico and Canada for training in the complexities of the control systems implemented in the cogeneration project. Central Izalco has hired an external company for maintaining and calibrating the measurement equipment.		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	The Central Izalco mill received the Environmental License nº MARN-081/2002, with a plan for Environmental Adaptation.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			As verified on Resolution MARN 1596/1124/2005 issued on 09 November 2005 the compliance with all conditions was assessed, and CASSA received the confirmation of the Environment License.		
A.3.2. Is the project in line with host-country specific CDM requirements?	/1/	DR	Central Izalco granted a LoA issued on 31 October 2005 by the El Salvador DNA, Ministry Environment and Natural Resources.	~~CAR 1:~~	OK
A.3.3. Is the project in line with sustainable development policies of the host country?	/1/	DR	Yes. The Project Participant sent the file *"INDICADORES _ Procedimiento de aprobación nacional-MARZO-2006.doc*" as evidence of sustainable development policies as CASSA is in agreement with all regulatory policies. So, the project is in line with current sustainable development priorities in El Salvador. The DNA of El Salvador confirmed that the project assists in achieving sustainable development.		OK
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	/1/	DR	The project is in line with current sustainable development priorities in El Salvador. The DNA of El Salvador confirmed that the project assists in achieving sustainable development.		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/	DR	The project applies the approved baseline methodology ACM0006 - "Consolidated baseline methodology for grid-connected electricity generation from biomass residues" (version 04) and ACM0002 – "Consolidated baseline methodology for grid-connected electricity generation from renewable sources". The methodology ACM0002 was not addressed in the item "*B.1. Title and reference of the approved baseline and monitoring methodology applied to the project activity*". Also the version of the methodology ACM0006 was not addressed.		OK
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/1/	DR	The project activity involved fulfils the applicability criteria of ACM0006 i.e. "installation of a new biomass power generation unit, which is operated next to existing power generation capacity fired with either fossil fuel or same type of biomass as in the project activity". The project activity complies with scenario		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			14 of ACM0006.		
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 project activity also fulfils all the applicability conditions of the methodology ACM0006. Baseline scenario nº 14 has been selected. For power generation: The generation of power in existing and/or new grid connected power plants(P4) and continuation of power generation in an existing power plant, where the old generators were put as stand by (P5). The continuation of heat generation in an, existing cogeneration plant, fired with the same type of biomass (bagasse) (H5). For Biomass use: The biomass is used for heat and/or electricity generation at the project site (B4). According to ACM0006 scenario 14 ,the net quantity of increased electricity generation as a result of the project activity shall be determined as follows: $EG_y = EG_{projectplant,y} * \left(1 - \frac{\varepsilon_{el,preproject}}{\varepsilon_{el,projectplant,y}}\right)$		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			The simple-adjusted operating margin (OM) emission coefficient is calculated to be 0.734 tCO_2e/MWh (applying an average λ of 0.00274) and build margin (BM) emission coefficient of 0.652 tCO_2e/MWh, which results in a combined margin emission coefficient of 0.693 tCO_2e/MWh (weighted average of the build and operating margin). The emission coefficient calculations were transparently presented in spreadsheets submitted to and verified by DNV.		
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/1/	DR	The baseline emission calculations are according to the baseline methodology ACM0006. The calculations were based on electricity generation data provided by Unidad de Transacciones S.A for the electricity generated in the El Salvadoran grid in the years 2003-2005. In the website mentioned in the step 0 analysis, it can be seen that the project sold electricity to the grid before the Project Implementation and was not considered as baseline and discounted in the calculations of the baseline emission reductions. DNV request more information about that.	~~CL 7:~~	OK
B.2.3. Has the baseline been established on a project-specific basis?	/1/	DR	In accordance of PDD, there is not evidence about that the boilers were 100% biomass fired and no fossil fuel was fired under the project period. DNV request more information about that.	~~**CAR 2:**~~	OK
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral	/1/	DR	Yes. All the national and/or sectoral policies implemented during the initial phase were		

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
policies, macro-economic trends and political aspirations?			considered. In accordance of PDD, there is not evidence about political of incentives for CDM projects activities. In accordance of PDD, the argument presented in page 13 under sub step 1a of section B.3 is not clearly evidenced. DNV request a detailed IRR calculation**.**	~~CL 8:~~	OK
B.2.5. Is the baseline determination compatible with the available data?	/1/	DR	The λ factor was calculated by interpolating daily dispatch data for thermal power plants and daily dispatch data for hydropower plants based on data provided by Unidad de Transacciones S.A for the years 2001 to 2003. The λ calculations were transparently presented in spreadsheets submitted to and verified by DNV. The selected approach for calculating λ is in accordance with ACM0006. In accordance of PDD, under D.2.1.4 εel, preproject I and εel, project, y I are not included in the monitoring plan. DNV request more clarification about that. Under D.2.1.4 of PDD, EGtotal, y is the net quantity of electricity generated in all power plants fired with bagasse (in MWh) is not in line with the approved methodology as in the methodology EGtotal, y is the net quantity of electricity generated in all power units at the project site**.**	~~CL 9:~~ ~~CL 10:~~	OK
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	/1/	DR	In accordance of PDD, there is no evidence about if project have a power purchase agreement in place. DNV request more	~~CL 1:~~ ~~CL 2:~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			information about that There is no mention on PDD about of data basis used in emission reduction calculations. DNV request more information about that.		
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario?	/1/	DR	In accordance with ACM0006, the additionality of the project is demonstrated through the "*Tool for the demonstration and assessment of additionality*", which includes the following steps: *Step 0 - Preliminary screening based on the starting date of the project activity:* The starting date of the CDM project activity, i.e. 01 July 2002, falls between 1 January 2000 and the date of the registration of the first CDM project activity (November 2004). Nonetheless, there is no evidence about the project's starting date. DNV requests evidences of the project's starting date. Documented evidence that the incentive from the CDM was seriously considered in the decision to proceed with the project activity was evidenced on "Hablemos-El Salvador" website. DNV recognizes this document as evidence sustaining 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	~~CAR 4:~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			means production of electricity and steam for self consumption with low efficiency, burning and selling bagasse and b) Investing in modifications of the plant and in the installation of new equipments which will allow Central Izalco to supply excess electricity to the grid. *Step 2.* It is also argued that the IRR of the project (11.3%) is lower than the active interest rates in El Salvador in 2001 (18%) at the time the investment decision was made. A sensitive analysis shows that even when the operating costs decrease by 10% or the revenues increase by 10% the project's IRR is still below the benchmark. *Step 3: Barrier Analysis*: a number of barriers prevent the implementation of the project i.e. producing electricity is not the core business of the company; the technology is required to be imported and the regulatory situation in the country does not support this kind of inititatives. *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 El Salvador. Usually the sugarcane mills produce energy inefficiently and do not supply excess electricity to the grid. In accordance with PDD and the El Salvador Eletro Guia, CASSA is the "single" sugarcane company to produce electrical energy to the El		

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			Salvador grid. *Step 5 - Impact of CDM registration:* The project participants were able to demonstrate that the sale of CERs will provide the necessary incentives for the project to alleviate the above presented barriers. Given the above, it is sufficiently demonstrated that the project is not a likely baseline scenario and that emission reductions are thus additional.		
B.2.8. Have the major risks to the baseline been identified?	/1/	DR	It was not evidenced the justification of the change in 2004~2005 that caused such change in processing of sugarcane capacity, is it attributed to the project activity. DNV request more evidence about that.	~~CAR 3:~~	OK
B.2.9. Is all literature and sources clearly referenced?	/1/	DR	See B.2.7.		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 start date is 01 July 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-year crediting period was defined, starting on 25 February 2003.		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 approved consolidated monitoring methodology for "grid-connected electricity generation from biomass residues" ACM0006 (version 04). See B.1.1.		OK
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	/1/	DR	Yes. The methodology is applicable for the following reasons: The increase in the sugar production is not attributed to the project activity but to business demand. The biomass used in the project activity will not be stored for more than one year. Clarification is required on whether the same type of biomass was used in the system prior to the project activity.		OK
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/1/	DR	Data to be monitored includes the net quantity of electricity generated at the project site, the net quantity of increased electricity generation as a result of the project activity, the average net efficiency of		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			electricity generation, the fossil fuel used for start ups, the quantity of bagasse burned and its NCV. The data will be archived in electronic form and be kept for two years after the end of the last crediting period.		
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	/1/	DR	Yes.		OK
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	Since the project is cogeneration using renewable biomass, there will not be any project emissions. The project does not use any fossil fuels for start up (they store 1% of bagasse between harvest seasons), and there is no transportation of biomass.		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	As per ACM0006, scenario 14, the leakage effects do not need to be addressed.		OK

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

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 correct CO_2 emission factor of the grid is based on information for the years 2003 to 2005, as these are the most updated data available. This coefficient is fixed *ex-ante* and hence no data needs to be monitored in this regard.		OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR	See D.4.1		OK
D.4.3. Will it be possible to monitor / measure the specified baseline indicators?	/1/	DR	See D.4.1		OK
D.4.4. Will the indicators give opportunity for real measurements of baseline emissions?			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	Neither the methodology ACM0006 or the Government of El Salvador requires the monitoring of specific sustainable development indicators.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.6. Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
D.6.1. Is the authority and responsibility of project management clearly described?	/1/	DR	Project management authority and responsibility are clearly described on operational and management structure.		OK
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/1/	DR	The amount of electricity sold will be verified through invoices issued by the regional electricity company and monitoring, registration and review is the responsibility of Central Izalco (CASSA). Calibration and maintenance of the energy meter is under the responsibility of an external company.		OK
D.6.3. Are procedures identified for training of monitoring personnel?	/1/	DR	Personnel from Central Izalco had to go to Mexico and Canada for training in the complexities of the control systems implemented in the cogeneration project. Central Izalco has hired an external company for maintaining and calibrating the measurement equipment.		OK
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR	See D.6.1.		OK
D.6.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR	See D.6.3.		OK
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR	See D.6.1.		OK
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR	See D.6.1.		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/	DR	See D.6.1.		OK
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR	See D.6.1.		OK
D.6.10. Are procedures identified for review of reported results/data?	/1/	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/	DR	See D.6.1.		OK
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	/1/	DR	See D.6.1.		OK
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/	DR	See D.6.1.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
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. Project GHG Emissions *The validation of ex-ante estimated 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	Since the project is cogeneration using renewable biomass, as per the ACM 0006 methodology and IPCC guidelines, there will not be any project emissions. The Project Proponent sent a spreadsheet with Emission Reduction calculation as well as grid dispatch data information and grid emission factor calculation. Evidences of bagasse consumptions were sent, too. All information was assessed and considered sufficient.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
E.2. Leakage *It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed and estimated ex-ante.*					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	/1/	DR	As per the ACM 0006 methodology, leakage needs not be identified. According to the chosen methodology, the only foreseen potential source of leakage could come from organizations that used to buy bagasse from the sugar mill. Although, Central Izalco Cogeneration Project (CICP) in El Salvador sold bagasse before the implementation the project, it could be assessed on CASSA bagasse sell spreadsheet and on "El Salvador Hablemos online" website that this bagasse was used as cattle feed and no leakage is due to this operation.		OK
E.2.2. Have these leakage effects been properly accounted for in calculations?	/1/	DR	See E.2.1.		OK
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	/1/	DR	See E.2.1.		OK
E.2.4. Are the calculations documented in a complete and transparent manner?	/1/	DR	See E.2.1.		OK
E.2.5. Have conservative assumptions been used when calculating leakage?	/1/	DR	See E.2.1.		OK
E.2.6. Are uncertainties in the leakage estimates properly addressed?	/1/	DR	See E.2.1.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
E.3. Baseline Emissions *The validation of ex-ante estimated 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	The simple-adjusted operating margin (OM) emission coefficient is calculated to be 0.734 tCO_2e/MWh (applying an average λ of 0.00274) and build margin (BM) emission coefficient of 0.652 tCO_2e/MWh, which results in a combined margin emission coefficient of 0.693 tCO_2e/MWh (weighted average of the build and operating margin). The emission coefficient calculations were transparently presented in spreadsheets submitted to and verified by DNV.		OK
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	/1/	DR	Yes		OK
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	/1/	DR	In accordance of PDD, there is no reference basis of the 83 813 MWh generated under the project period used in calculation of emission reduction. DNV request more information about that.	~~CL 4:~~	OK
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	/1/	DR	In the criteria of scenario 14 (used for phase 1 of the project) the thermal biomass firing capacity is maintained. But under the project a new boiler is installed over and above the existing boilers. Thus the capacity of biomass firing is increased. DNV request more information how is the criteria fulfilled.	~~CL 5:~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	/1/	DR	In accordance of PDD, there is no reference of basis of the assumption that the replace equipment had a residual lifetime of 20 years. DNV request more information about that.	~~CL 6:~~	OK
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	/1/	DR	For project baseline, see E.3.1. For project emissions, see E.1.1.		OK
E.4. Emission Reductions *Validation of ex-ante estimated emission reductions*.					OK
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	/1/	DR	The project is expected to reduce CO_2 emissions to the extent of 320 253 tCO_2e (45 750tCO_2e / year on average) 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/		In accordance of PDD under section F.1 that the project does not need a separate environmental license. DNV request more information about that.	~~CL 3:~~	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	See F.1.1		OK
F.1.3. Will the project create any adverse environmental effects?	/1/	DR	Project design did not identified/addressed any environmental impact; however, no significant adverse environmental effects		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			are expected to be created, given the nature of the project design.		
F.1.4. Are transboundary environmental impacts considered in the analysis?	/1/	DR	Transboundary environmental impacts are not foreseen.		OK
F.1.5. Have identified environmental impacts been addressed in the project design?	/1/	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/	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/	DR	The environment licence evidence the approval of El Salvador DNA and all Government agencies consulted, however the linkage between the environmental licensing and the stakeholders invitation on starting of CDM project was not clearly evidenced. DNV request evidences about local stakeholders comments invitation.	~~CAR 5~~	OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR	See G.1.1.		OK
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/	DR	See G.1.1		OK
G.1.4. Is a summary of the stakeholder comments received provided?	/1/	DR	See G.1.1.		OK
G.1.5. Has due account been taken of any stakeholder comments received?	/1/	DR	See G.1.1.		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: DNV request evidences for approval status of the project from the DNA of El-Salvador and Japan	A.3.2	See copies, "LoA_ElSalvador.jpg" and "LoAJapan.pdf".	The complementary evidences were considered satisfactory. This CAR is therefore closed
CAR 2: In accordance of PDD, there is no evidence about that the boilers were 100% biomass fired and no fossil fuel was fired under the project period. DNV request more information about that.	B.2.3	The annexed spreadsheet (Balance of bagasse per harvest.xls) shows data on the consumption of bagasse per harvest, as well as its NCV. It shows, in the columns on the right side, that there was enough bagasse to produce all the energy generated.	Complementary information evidencing the amount of bagasse consumption and the lack of fossil fuel utilization, and was considered adequate. This CAR is therefore closed
CAR 3: It was not evidenced the justification of the change in 2004~2005 that caused such change in processing of sugarcane capacity, is it attributed to the project activity. DNV request more evidence about that.	B.2.8	Izalco gained sugar from the San Francisco mill that was closed. See annexed document "SanFrancisco.jpg".	Complementary information justifies the change of bagasse consumption and was considered adequate. This CAR is therefore closed
CAR 4: The starting date of the CDM project activity, i.e. 01 July 2002, falls between 1 January 2000 and the date of the registration of the first CDM project activity (November 2004). Nonetheless, there is no evidence about the project's starting date. DNV requests evidences of the project's starting date.	B.2.7	01/07/2002: date of the payment done to Hierros and Bronces S.A. de C.V. for the assembling of the boiler, see annexed document "Izalco evidence of project start.jpg".	Complementary information evidenced the project start date and was considered adequate. This CAR is therefore closed
CAR 5 The environment licence evidence the	G.1.1	The public consultation was evidenced in the newspaper Diario El Mundo of	With a view to carrying out a more specific process focused on the CDM

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
approval of El Salvador DNA and all Government agencies consulted, however the linkage between the environmental licensing and the stakeholders invitation on starting of CDM project was not clearly evidenced. DNV request evidences about local stakeholders comments invitation		December 2001 and the project start at February 2002. Complementarily, new invitation to others stakeholders were issued on March 2007.	project, the project developer invited for comments to the Municipality of Izalco on 1 March 2007 sending letters to the town hall and specific people on the municipality. The letters and the confirmation of receipt have been assessed by DNV. No comment was received. This CAR is therefore closed
CL 1: In accordance of PDD, there is no evidence about if project have a power purchase agreement in place. DNV request more information about that	B.2.6	No, this kind of contract does not exist in El Salvador.	It has been demonstrated that the way of proceding in El Salvador is selling the produced electricity in the spot market. This CL is therefore closed
CL 2: In accordance of PDD, there is no mention of data basis used in emission reduction calculations. DNV request more information about that.	B.2.6	Data on energy export and bagasse consumption stored by Izalco from 2000 on.	during the interviews it was evidenced the databases used for monitoring and storing the data, showing apporpiate procedures. This CL is therefore closed
CL 3: In accordance of PDD under section F.1 that the project does not need a separate environmental license. DNV request more information about that.	F.1.1	Since the Project is considered by the El Salvadorian government the same kind of activity as before the Project, no separate stakeholders comments were required (see annexed document MARN 1596-1124-2005, which is a renovation of Environmental License MARN 081/2002).	The reviewed PDD version 9 according new template and last version of ACM0006 addressed complementary information and was considered adequate. This CL is therefore closed
CL 4: In accordance of PDD, there is no reference basis of the 83 813 MWh generated under the project period used in calculation of emission reduction. DNV request more	E.3.3	According to Izalco the forecast for energy export in 2006 is 100,386 MWh. The forecast for years 2007, 2008, 2009 and 2010 is 92,220 MWh considering the capacity of power	The reviewed PDD version 9 according new template and last version of ACM0006 addressed complementary information and was considered

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
information about that.		generation and the number of days of harvest period.	adequate. This CL is therefore closed
CL 5: In the criteria of scenario 14 (used for phase 1 of the project) the thermal biomass firing capacity is maintained. But under the project a new boiler is installed over and above the existing boilers. Thus the capacity of biomass firing is increased. DNV request more information how is the criteria fulfilled.	E.3.4	Boilers 1, 2, 3 and 4 were deactivated and boilers 5 and 6 were installed, but the biomass firing capacity did not increase. Nominal firing capacity- Boiler 1: 30.2 tones bagasse / hour. Boiler 2: 30.2 tones bagasse / hour. Boiler 3: 30.2 tones bagasse / hour. Boiler 4: 40 tones bagasse / hour. Boiler 5: 55.2 tones bagasse / hour. Boiler 6: 69 tones bagasse / hour. Though the firing capacity did not increase, the quantity of bagasse fired increased due to the increase in sugar production. Izalco planned already in 2000 an expansion of approx. 16% in their sugar production, from 2000 to 2004, as shown in annexed file "Izalco strategic plan 2000.jpg".	Complementary information evidenced the maintenance of firing capacity and was considered adequate. This CAR is therefore closed
CL 6: In accordance of PDD, there is no reference of basis of the assumption that the replace equipment had a residual lifetime of 20 years. DNV request more information about that.	E.3.5	Asociacion Azucarera de El Salvador (Sugar Industry Association of El Salvador), referring (see document "lifetime.jpg") to the common practice in the country, assures that sugar mill equipment can be used, with good maintenance, for over 60 years. It can be added that the equipments are used at most 6 months per years, the harvest period.	Complementary information evidenced the lifetime of equipment and was considered adequate. This CAR is therefore closed
CL 7: In the website mentioned in the step 0	B.2.2	It was considered don $\varepsilon_{el,\ preproject,}$ calculation as verified on CER	Complementary information evidenced the baseline reductions and was

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
analysis, it can be seen that the project sold electricity to the grid before the Project Implementation and was not considered as baseline and discounted in the calculations of the baseline emission reductions. DNV request more information about that.		datasheet	considered adequate. This CAR is therefore closed
CL 8: In accordance of PDD, the argument presented in page 13 under sub step 1a of section B.3 is not clearly evidenced. DNV request a detailed IRR calculation.	B.2.4	See annexed document (IRR FCF Izalco.xls)	Complementary information was considered satisfactory. This CL is therefore closed
CL 9: In accordance of PDD, under D.2.1.4 εel, preproject I and εel, project, y I are not included in the monitoring plan. DNV request more clarification about that.	B.2.5	εel, preproject is calculated as shown in section E.4. εel, project, y is monitored as shown in section D.2.1.3	The reviewed PDD version 9 according new template and last version of ACM0006 addressed complementary information evidencing the approach of scenario 14 and was considered adequate. This CL is therefore closed
CL 10: Under D.2.1.4 of PDD, EGtotal, y is the net quantity of electricity generated in all power plants fired with bagasse (in MWh) is not in line with the approved methodology as in the methodology EGtotal, y is the net quantity of electricity generated in all power units at the project site.	B.2.5	It is considered that both phases of the Project are scenario 14, as explained in section B.1.	The reviewed PDD version 9 according new template and last version of ACM0006 addressed complementary information evidencing the approach of scenario 14 and was considered adequate. This CL is therefore closed

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APPENDIX B

CERTIFICATES OF COMPETENCE

CERTIFICATE OF COMPETENCE

Michael Lehmann

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	Yes
CDM Verifier:	Yes	***JI Verifier:***	Yes
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1,2,3 & 9		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	*AM0021*	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029	Yes	*AM0023*	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	*AM0024*	Yes
ACM0004	Yes	*AM0027*	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	*AM0028, AM0034*	Yes
ACM0007	Yes	*AM0030*	Yes
ACM0008	Yes	*AM0031*	Yes
ACM0009, AM0008, AMS-III.B	Yes	*AM0032*	Yes
AM0006, AM0016, AMS-III.D	Yes	*AM0035*	Yes
AM0009, AM0037	Yes	*AM0038*	Yes
AM0013, AM0022, AM0025, AM00379, AMS-III.H, AMS-III.I	Yes	*AM0041*	Yes
AM0014	Yes	*AM0034*	Yes
AM0017	Yes	*AMS-II.A-F*	Yes
AM0018	Yes	*AMS-III.A*	Yes
AM0020	Yes	*AMS-III.E, AMS-III.F*	Yes

CERTIFICATE OF COMPETENCE

Biswas Subhendu

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	No
CDM Verifier:	No	***JI Verifier:***	No
Industry Sector Expert for Sectoral Scope(s):			
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	No	*AM0021*	No
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029	No	*AM0023*	No
ACM003, ACM0005, AM0033, AM0040	No	*AM0024*	No
ACM0004	No	*AM0027*	No
ACM0006, AM0007, AM0015, AM0036, AM0042	No	*AM0028, AM0034*	No
ACM0007	No	*AM0030*	No
ACM0008	No	*AM0031*	No
ACM0009, AM0008, AMS-III.B	No	*AM0032*	No
AM0006, AM0016, AMS-III.D	No	*AM0035*	No
AM0009, AM0037	No	*AM0038*	No
AM0013, AM0022, AM0025, AM00379, AMS-III.H, AMS-III.I	No	*AM0041*	No
AM0014	No	*AM0034*	No
AM0017	No	*AMS-II.A-F*	No
AM0018	No	*AMS-III.A*	No
AM0020	No	*AMS-III.E, AMS-III.F*	No

CERTIFICATE OF COMPETENCE

Miguel Rescalvo

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	No
CDM Verifier:	No	***JI Verifier:***	No
Industry Sector Expert for Sectoral Scope(s):			
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	No	*AM0021*	No
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029	No	*AM0023*	No
ACM003, ACM0005, AM0033, AM0040	No	*AM0024*	No
ACM0004	No	*AM0027*	No
ACM0006, AM0007, AM0015, AM0036, AM0042	No	*AM0028, AM0034*	No
ACM0007	No	*AM0030*	No
ACM0008	No	*AM0031*	No
ACM0009, AM0008, AMS-III.B	No	*AM0032*	No
AM0006, AM0016, AMS-III.D	No	*AM0035*	No
AM0009, AM0037	No	*AM0038*	No
AM0013, AM0022, AM0025, AM00379, AMS-III.H, AMS-III.I	No	*AM0041*	No
AM0014	No	*AM0034*	No
AM0017	No	*AMS-II.A-F*	No
AM0018	No	*AMS-III.A*	No
AM0020	No	*AMS-III.E, AMS-III.F*	No

CERTIFICATE OF COMPETENCE

Einar Telnes

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	Yes
CDM Verifier:	Yes	***JI Verifier:***	Yes
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1,2,3 & 9		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	*AM0021*	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029	Yes	*AM0023*	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	*AM0024*	Yes
ACM0004	Yes	*AM0027*	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	*AM0028, AM0034*	Yes
ACM0007	Yes	*AM0030*	Yes
ACM0008	Yes	*AM0031*	Yes
ACM0009, AM0008, AMS-III.B	Yes	*AM0032*	Yes
AM0006, AM0016, AMS-III.D	Yes	*AM0035*	Yes
AM0009, AM0037	Yes	*AM0038*	Yes
AM0013, AM0022, AM0025, AM00379, AMS-III.H, AMS-III.I	Yes	*AM0041*	Yes
AM0014	Yes	*AM0034*	Yes
AM0017	Yes	*AMS-II.A-F*	Yes
AM0018	Yes	*AMS-III.A*	Yes
AM0020	Yes	*AMS-III.E, AMS-III.F*	Yes

CERTIFICATE OF COMPETENCE

Luis Filipe Aboim Tavares

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	No
CDM Verifier:	Yes	***JI Verifier:***	No
Industry Sector Expert for Sectoral Scope(s):			
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	No	*AM0021*	No
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029	No	*AM0023*	No
ACM003, ACM0005, AM0033, AM0040	No	*AM0024*	No
ACM0004	No	*AM0027*	No
ACM0006, AM0007, AM0015, AM0036, AM0042	No	*AM0028, AM0034*	No
ACM0007	No	*AM0030*	No
ACM0008	No	*AM0031*	No
ACM0009, AM0008, AMS-III.B	No	*AM0032*	No
AM0006, AM0016, AMS-III.D	No	*AM0035*	No
AM0009, AM0037	No	*AM0038*	No
AM0013, AM0022, AM0025, AM00379, AMS-III.H, AMS-III.I	No	*AM0041*	No
AM0014	No	*AM0034*	No
AM0017	No	*AMS-II.A-F*	No
AM0018	No	*AMS-III.A*	No
AM0020	No	*AMS-III.E, AMS-III.F*	No

Høvik, 9 March 2007

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