VALIDATION REPORT

CARGILL UBERLÂNDIA BIOMASS RESIDUES FUEL SWITCH PROJECT IN BRAZIL

REPORT NO. 2007-0187

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DET NORSKE VERITAS

VALIDATION REPORT

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Approved by: Einar Telnes Director	Organisational unit: DNV Certification, International Climate Change Services
Client: Ecosecturities Group plc.	Client ref.: Courtney Blodgett

Summary:

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Cargill Uberlândia Biomass Residues Fuel Switch Project" in Brazil on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board. This validation report summarizes the findings of the validation.

The validation consists of the following three phases: i) a desk review of the project design and the 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, with the exception of the approval by the Parties involved and the confirmation of the project contribution to the sustainable development of Brazil, the project as described in the project design document of 6/02/07 meets all relevant UNFCCC requirements for the CDM and correctly applies the approved baseline and monitoring methodology AM0036, version 01. Hence, DNV requests the registration of the " Cargill Uberlândia Biomass Residues Fuel Switch 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 Letters of Approval from the DNA of Brazil, Switzerland and United Kingdom.

Report No.: 2007-0187	Subject Group: Environment	
Report title: Cargill Uberlândia Biomass Residues Fuel Switch Project in Brazil		
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Table of Content *Page*

Abbreviations

CAR	Corrective Action Request
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
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
N_2O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change

1 INTRODUCTION

The EcoSecurities Group plc has commissioned Det Norske Veritas Certification Ltd. (DNV) to perform a validation of the "Cargill Uberlândia Biomass Residues Fuel Switch Project" in Brazil. This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation team consists of the following personnel:

Ms Shruthi Poonacha	DNV Certification, Bangalore	GHG auditor.
Mr Raphael Souza	DNV Certification Brazil	GHG auditor
Mr Miguel Rescalvo	DNV Certification Oslo	CDM Validator
Mr Einar Telnes	DNV Certification Oslo	Technical reviewer
Mr Michael Lehmann	DNV Certification, Oslo	Sector expert

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, 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 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 AM0036. The validation team has, based on the recommendations in the Validation and Verification Manual /10/ 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 project participants for the project are Cargill Agrícola S/A of Brazil, Cargill International S.A. of Switzerland and EcoSecurities Group plc. of the United Kingdom of Great Britain and Northern Ireland. The Cargill Uberlândia biomass residues fuel switch project is located in the state of Minas Gerais in Brazil. This project activity involves the replacement of three fossil fuelled boilers with one biomass fuelled boiler with an installed capacity of 95 tons/hour of saturated steam at 12 bar. This project aims to reduce the GHG emissions from the production process by switching from fuel oil to a biomass residue fuelled boiler.
The starting date of the crediting period is 1 June 2004 with a fixed crediting period of 10 years.
The total estimated GHG reduction from the project activity is expected to be 122379 tCO_2 per

year during the ten crediting period. This estimate has been verified by DNV and it is deemed likely that the projected amount is achieved given that the underlying assumptions do not change.

2 METHODOLOGY

The validation consists of the following three phases:

I a desk review of the project design documents
II follow-up interviews with project stakeholders
III the resolution of outstanding issues and the issuance of the final validation report and opinion.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual /10/. The protocol shows in 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 "Cargill Uberlândia Biomass Residues Fuel Switch Project" is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of validation protocol 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) validation protocol 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 PDD /1/ original version of 12 December 2006, version 2 dated 26 January 2007 and version 3 dated 06 February 2007 for the "Cargill Uberlândia Biomass Residues Fuel Switch Project" was assessed by DNV. Other documents such as the emission reduction calculation spreadsheet, environmental impact assessment (EIA) report and environmental licenses were also reviewed during the validation process. Please refer to se section "references" below.

2.2 Follow-up Interviews

In the period of (12-01-2007 to 18-01-2007), DNV performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Cargill Agrícola S/A were interviewed. The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
Cargill Agrícola S/A	➢ Biomass residue availability ➢ environmental impacts due to project activity ➢ quantity of biomass residue and fossil fuel used ➢ stakeholder consultation

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 corrective action requests and requests for clarification raised by DNV and presented to the project participants in DNV's draft validation report of 25 January 2007 (rev. 1) were resolved during communications between the project participants and DNV. To guarantee the transparency of the validation process, the concerns raised and responses given are documented in the validation protocol in Appendix A.

Since modifications to the project design were necessary to resolve DNV's concerns, the project participants decided to revise the PDD and resubmitted the PDD on 6 February 2007. After reviewing the revised PDD, DNV issued this final validation report and opinion.

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

In the following sections the initial findings of the validation are stated. 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.

3.1 Participation Requirements

The project participants are Cargill Agrícola S/A of Brazil, Cargill International S.A. of Switzerland and EcoSecurities Group plc. of United Kingdom. The Host country Brazil and the Annex I countries Switzerland and United Kingdom meets all relevant participation requirements, having ratified the Kyoto Protocol on 23 August 2002, 9 July 2003 and 31 May 2002 respectively.

The Letter of Approval from DNA of Brazil confirming the projects contribution to sustainable development is to be submitted to DNV. The letter of approval from the Annex I Parties Switzerland and United Kingdom confirming voluntary participation are to be provided to DNV.

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, including the confirmation that the project assists it in achieving sustainable development

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 Switzerland and the United Kingdom.

3.2 Project Design

The Cargill plant in Uberlândia consists of three production units for soyabeans, corn and citric acid. The processes in these units use steam for direct and indirect heating, which was earlier produced from three fossil fuelled boilers Z30, Z40 and A55. The project design involves the replacement of the three fossil fuelled boilers with a single biomass residue fueled Zanini 180 (SZ-180) boiler with a simliar capacity. This boiler will be fed with biomass residue sourced from other industries and from forestry companies. The boiler has a capacity to generate 95 tons/hour of low pressure saturated steam with 12 bar pressure at 83% efficiency. The project design and technology adopted is deemed to represent good practice.

The expected operational life time of the project activity is around 50 years. The commissioning date of the project activity is 1 June 2004 The project proponent submitted a request for new methodology for this project in 2004. Furthermore it could be verified by DNV during the site visit that production records exits from that date and thus the project complies with the requirements for being eligible under prompt start project. The fixed crediting period of the project activity is from 1 June 2004 to 31 May 2014.

3.3 Baseline Determination

The project applies the approved consolidated baseline methodology AM0036, version 01, 29 September 2006, “Fuel switch from fossil fuels to biomass residues in boilers for heat generation”. The project activity is eligible under scenario 2 of AM0036, “Replacement of

existing boilers". The application of the methodology for this project is justified as the project activity complies with all the applicability criteria as stated in the methodology. DNV was able to confirm that

- Heat generated in the boiler is not used for power generation
- The three fossil fuelled boilers have been replaced by one biomass residue boiler that enables to switch from fossil fuel to biomass residue.
- No biomass was used in the three most recent historical years prior to the implementation of the project.
- Only biomass residues (i.e. wood chips and branches) are used, some fossil fuels maybe be co-fired in the present boiler.
- There will be no increase in the processing capacity of the raw input or in other substantial changes in the processing unit as the biomass residue is being sourced from external process industries.
- It was confirmed by DNV that the biomass residue used for fuel is not stored for more than one year. The biomass residue received is stored in two places for use. One storage area is used for receiving biomass residue and an other for transferring it to the boiler. This process is carried out alternatively for the both storage areas. It was demonstrated that the amount of biomass consumed in three month is around 17 400 tonnes while the capacity of the each storage area is around 16 000 tonnes.
- The biomass residues are transported to the project area by trucks from an average distance of 110 km.
- The three existing boilers Z30, Z40, A55 were commissioned in the year 1992, 1995 and 1995 respectively. Documents were presented during the site interview to demonstrate that the remaining life time of each of the boilers was 30 years[*].

As per AM0036, the following alternatives were considered

The alternatives for heat generation:

- H1: The proposed project activity is not undertaken as a CDM project activity (heat generation with biomass residues).
- H2: Continued operation of the existing boiler(s) using the same fuel mix or less biomass residues as in the past.
- H3: Continued operation of the existing boiler(s) using a different fuel (mix)
- H4: Improvement of the performance of the existing boiler(s)
- H5: Continued operation of the existing boiler(s) using the same fuel mix or less biomass residues as in the past AND installation of (a) new boiler(s) that is/are fired with the same fuel type(s) and the same fuel mix (or a lower share of biomass) as the existing boiler(s)
- H6: Replacement of the existing boiler(s) with new boiler(s)

During the site visit the project participants demonstrated to DNV that fuel oil is easily available in Brazil, the existing boiler efficiencies are around 83% to 86 %, and existing boilers have a

[*] attached as annex 5 in the CDM PDD/1/

lifetime of more than 30 years[*]. Hence, alternative H3, H4 and H6 have been eliminated as additional investments are not necessary.
Alternative H5 has been eliminated as an increase in boiler capacity is not required.

The alternatives for use of biomass residues

- B1: The biomass residues are dumped or left to decay under mainly aerobic conditions.
- B2: The biomass residues are dumped or left to decay under clearly anaerobic conditions. This applies, for example, to deep landfills with more than 5 meters depth.
- B3: The biomass residues are burnt in an uncontrolled manner without utilizing them for energy purposes.
- B4: The biomass residues are sold to other consumers in the market and the predominant use of the biomass residues in the region/country is for energy purposes (heat and/or power generation)
- B5: The biomass residues are used as feedstock in a process (e.g. in the pulp and paper industry)
- B6: The biomass residues are used as fertilizer
- B7: The proposed project activity not undertaken as a CDM project activity (use of the biomass residues for heat generation).
- B8: Any other use of the biomass residues.

Alternative B3 was eliminated as it is not in compliance with the applicable legal requirements.
The alternatives B2, B4, B5 and B6 are eliminated as during the site visit and with presentation of documents the project proponent was able to demonstrate to DNV that

- There is excess of biomass residue produced in and around 110km average distance.[*]
- The wood chips being sourced are not land filled.
- Technically not feasible to use wood chips with barks (biomass residue used for this project activity) in pulp and paper industries.
- The biomass residue used in this plant is mainly wood chips, which is not used as a fertilizer.

A financial analysis using NPV as the financial indicator was carried for

- The proposed project activity not undertaken as a CDM project activity (H1) and (B7)
- Continued operation of the existing boiler using the same fuel mix or less biomass residue as compared in the past with the biomass residue being dumped or left to decay under clearly anaerobic conditions (H2) and (B1).

The baseline scenario would be that the heat would be generated by (H2) continued operation of the existing boilers using the same fuel mix or less biomass residues as in the past. The biomass residues, (B1) would be dumped or left to decay under mainly aerobic conditions.

[*] Letters from suppliers attached in Annex 5 of CDM PDD*: "Cargill Uberlândia Biomass Residues Fuel Switch Project"*, version 2 dated 26 January 2007.

3.4 Additionality

The additionality of the project has been analysed with respect to the technological barriers, barriers due to prevailing practise and other barriers that the project faces, using the "*Tool for the demonstration and assessment of additionality*".

Step 0: The project proponent has submitted a new methodology NM0065 for the project in August 2004 to DNV/, providing clear evidence that CDM was considered prior to the start of the project activity Furthermore, during the site visit it was verified that production data exist from the date of commissioning in June 2004. /5/

Step 1: DNV was able to confirm that the alternatives considered (with the exception of B3 that has been eliminated from further consideration) as per AM0036 are in compliance with the laws and regulatory requirements for energy generation in Minas Gerais and Brazil.

Step 2: Investment Analysis
The investment analysis has been carried out and the NPV is the financial indicator that has been used to prove the additionality of the project. The NPV has been demonstrated to be -126,324 USD. /6/. A sensitivity analysis has been carried separately for the following scenarios; increase of revenue by 10%, reducing the investment costs by 10% and reduce operational costs by 10%. The NPV turns marginally positive in all the above stated scenarios. However, considering the economic circumstances of Brazil, it can be concluded that a project with negative financial indicators in the base case and only marginally attractive numbers in the best case is not an attractive course of action.

Step 3: Barrier Analysis
This step has not been selected

Step 4: Common Practice analysis
Heat generation from biomass residue is not a common practice in the region of Minas Gerais. There is one other biomass residues boiler similar to the size of the project activity exists at the Satipel facility. This was a new installation and the boiler uses biomass residue from a plantation owned by Satipel. The risks of continous biomass residue supply is neglible compared to the proposed CDM project activity.

Step 5: Impact of CDM registration
Registration of the CDM project activity is likely to result in:

- Making the project financially viable.
- Integrate process industries to achieve sustainable development.

From the above it can therefore be concluded that the emission reductions caused by the project would not have happened in baseline case.

3.5 Monitoring Plan

The project applies the approved monitoring methodology AM0036 "Fuel switch from fossil fuels to biomass residues in boilers for heat generation,"(Version 01, 29 September 2006).

The project activity is confirmed to be in line with the methodology and monitors the following parameters.

$EF_{FF,CO2,y}$ – CO2 emission factor of the fossil fuel type displaced by biomass residues – 2006, IPCC guidelines, monitored.

$HG_{PJ,total,y}$ – Total heat generated in boiler at the Project site, firing both biomass residues and fossil fuels – monitored continuously and aggregated annually.

$BF_{k,y}$ – Quantity of biomass residue type *k* fired in all boiler(s) at the project site – monitored continuously and aggregated annually.

Moisture content of the biomass residues – tested daily and aggregated annually.

$Fc_{i,y}$ – Quantity of fossil fuel type *I* fired in all boiler(s) at the project site – monitored continuously and aggregated annually.

$EC_{PJ,y}$– On-site electricity consumption attributable to the project activity– monitored continuously and aggregated annually.

tL_{y}– Average truck load – measured continuously and aggregated annually.

AVD_{y}– Average return trip distance (from and to) between the biomass fuel supply sites and the site of the Project plant – monitored continuously.

NCV_{i}– Net calorific value of fuel oil – 2006, IPCC – monitored annually.

NCV_{k}– Net calorific value of wood biomass residue *k* – monitored.

$eF_{km,CO2,y}$– Average CO2 emission factor per km for the trucks– 1996 IPCC Guidelines.

$eF_{burning,CH4,k,y}$– CH4 emission factor for uncontrolled burning of the biomass residue type *k*– 2006 IPCC Guidelines – monitored annually.

All the data monitored will be archived in paper and electronic form for the life time of the project.

DNV has verified and confirmed that all the indicators of importance for controlling and reporting of project performance have been incorporated in the monitoring plan.

3.6 Calculation of GHG Emissions

The estimation of GHG emissions for the project activity has been done as per AM0036. All aspects related to the direct and indirect GHG emissions have been addressed and the calculations are presented in a transparent manner.

The baseline emissions have been estimated as the sum of the emissions from crude oil combusted for heat generation in the boiler 121 447 tCO_2/yr and the emissions due to decay of the biomass residues 3637 tCO_2/yr.

The baseline emissions from crude oil combustion the boiler are determined by multiplying the heat generated with crude oil that are displaced by biomass residues with the CO_2 emission factor of heavy oil 0.08 tCO_2/GJ (IPCC, 2006 fixed ex-ante) and by dividing by the average net efficiency of heat generation in the boiler 86% (fixed ex-ante).

The baseline emissions from the decay of methane have been estimated assuming that biomass would be burnt in an uncontrolled manner (as per AM0036). Baseline emissions are calculated by multiplying the quantity of biomass residues 87870 tons that would not be used in the absence of the project activity with the net calorific value of 11.36 GJ/ton (IPCC, 2006 fixed ex-ante) and emission factor of 0.001971 tCH_4/t biomass (AM0036, Table 3, fixed ex-ante).

The project emissions have been estimated as the sum of

a) CO_2 emissions from on-site fossil fuel combustion due to project activity,

b) CO_2 emissions from on-site electricity consumption attributable to the project activity

c) CO_2 emissions from transportation of biomass residues to the project site

d) Product of the methane emissions from the combustion of biomass residues in the boiler(s) and the global warming potential for methane

a) The CO_2 emissions from on-site fossil fuel combustion due to project activity is calculated by multiplying the fossil fuels consumption with appropriate net calorific values of 40.40 GJ/t (IPCC, 2006, monitored annually) and CO_2 emission factor of 0.08 tCO_2/GJ (IPCC, 2006 fixed ex-ante).

b) The CO_2 emissions from on-site electricity consumption are calculated by multiplying the electricity consumption by the grid emission factor of 0.26 tCO_2/MWh. The baseline emission factor ($EF_{grid,y}$) has been calculated as a combined margin (CM), following the guidance in the section "Baselines" in "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (ACM0002). The operating margin emission factor (EF_{OM}) has been estimated using the simple OM method at 0.4349 tCO_2/MWh (based on data for three years, prior to the start of the project activity) and the build margin emission factor (EF_{BM}) has been estimated using a sample group consisting of 20% of the system generation (in MWh) that have been built most recently at 0.0872 tCO_2/MWh. The combined emission factor has therefore been verified to be 0.26 tCO_2/MWh, fixed *ex-ante*. Data for the estimations has been verified to be sourced from the Centre for System operation, Brazil/8/.

c) CO_2 emissions from transportation of biomass residues to the project site has been estimated as a product of

- the ratio of the quantity of biomass residue type k used for heat generation as a result of the project activity and the average truck load of the trucks used (monitored).
- the round trip distance between the biomass fuel supply sites and the site of the project plant (monitored)
- average CO_2 emission factor for the trucks 0.0008 tCO_2/km (IPCC, 1996)

d) Product of the methane emissions from the combustion of biomass residues in the boiler(s) and the global warming potential for methane 21 GWP_{CH4}.

The methane emissions from the combustion of biomass residues in the boiler(s) is estimated as the product of CH4 EF for the combustion of the biomass residues in the boiler 0.000041

tCH4/GJ (IPCC, 2006 with conservativeness factor of 1.37), quantity of biomass residue type k used for heat generation as a result of the project activity (monitored continuously) and NCV of the biomass residue type k 11.36 GJ/ton (Lab tested annually).

The project emissions have been estimated to be 2705 tCO_2/yr.

The leakage has not been considered for this project as it has been demonstrated that there is excess biomass residue available with the suppliers.

3.7 Environmental Impacts

As per the requirements of the the State Foundation of Environment of Minas Gerais State (FEAM), the project proponents have carried out an environmental impact assessment (EIA). This Report of Evaluation and Environmental Performance (RADA) has been approved.

During the site visit DNV was able to review the report and confirm that there no negative enviornmental impacts related to implementation and operation of this project activity.

3.8 Comments by Local Stakeholders

Relevant stakeholders like land owners, local groups and communities have been consulted. The comments of the stakeholders were presented during the site visit. All the comments received were positive.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD, version 1 dated 12 December 2006 was made publicly available on DNV's climate change website (www.dnv.com/certification/climatechange) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 14 December 2006 to 13 January 2007.

No comments were received.

5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Cargill Uberlândia Biomass Residues Fuel Switch Project" in Brazil. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

The host country is Brazil and the Annex I countries are Switzerland and United Kingdom. The three countries fulfil the participation criteria.. Prior to the submission of the validation report

for registration to the UNFCC, the letter of approval from the DNA of Brazil, Switzerland and United Kingdom are to be submitted to DNV as well as the confirmation of the project contribution to the sustainable development of Brazil.

The project correctly applies the baseline methodology AM0036 (Version 01)–- "Fuel switch from fossil fuels to biomass residues in boilers for heat generation". By the replacing three boiler that run on heavy oil with one boiler run on biomass residue, this project activity will be reduce the emissions from the operation of the existing fossil fuelled boilers. The project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The average total emission reductions from the project are estimated to be 122 379 tCO_2e per year over the selected 10 year selected fixed crediting period. The emission reduction forecast has been checked and it is deemed likely that the state amount is achieved given that the underlying assumptions do not change.

In summary, it is DNV's opinion that, with the exception of the approval by the Parties involved and the confirmation of the project contribution to the sustainable development of Brazil, the project as described in the project design document of 6/02/07 meets all relevant UNFCCC requirements for the CDM and correctly applies the approved baseline and monitoring methodology AM0036, version 01. Hence, DNV requests the registration of the " Cargill Uberlândia Biomass Residues Fuel Switch Project " as a CDM project activity..

REFERENCES

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

/1/ EcoSecurities Group plc, CDM PDD*: "Cargill Uberlândia Biomass Residues Fuel Switch Project"*, 12 December 2006, version 2 dated 26 January 2007 and version 3 dated 6 February 2007.

/2/ Host country approval letter

/3/ Annex 1 country approval letter

/4/ Annex 1 country approval letter

/5/Planillass de caldeiras 6.2.06 CB.xls

/6/ Financial Analysis Uberlandia 06.02.07 (CB) v12.xls

/7/ Uberlandia calcs 03.02.06 CB.xls

/8/ ONSS Emission Factor S-SE-CO 2003-2005_2006.08.28xls

Operador Nacional do Sistema Elétrico, Centro Nacional de Operação do Sistema, Acompanhamento Diário da Operação do SIN, (daily reports from Jan. 1, 2003 to Dec. 31, 2005

/9/ DNV Assessment NM0065.pdf

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

/10/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Validation and Verification Manual*. http://www.vvmanual.info

/11/ AM0036 "Fuel switch from fossil fuels to biomass residues in boilers for heat generation,"(Version 01, 29 September 2006).

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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	CAR 1	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	OK	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authority of each party involved	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	CAR 1	The letter of approval from Brazil, Switzerland and the United Kingdom are awaited.
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	There is no public funding involved in the project. The validation did not reveal any information that

Requirement	Reference	Conclusion	Cross Reference / Comment
			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	Comissão Interministerial de Mudança Global do Clima, Federal Office for the Environment FOEN, Climate Unit and The Department for Environment, Food and Rural Affairs are the national authorities designated for Brazil, Switzerland and United Kingdom of Great Britain and Northern Ireland respectively.
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, Switzerland has ratified the Kyoto Protocol on 9 July 2003 and United Kingdom of Great Britain and Northern

Requirement	Reference	Conclusion	Cross Reference / Comment
			Ireland has ratified the Kyoto Protocol on 31 May 2002.
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	OK	
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	
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 comments have been made publicly available	CDM Modalities and Procedures §40	OK	DNV published the PDD of 24 October 2005 on the DNV Climate Change web site (http://www.dnv.com/certification/ClimateChange) and stakeholders were

Requirement	Reference	Conclusion	Cross Reference / Comment
			through the UNFCCC CDM web site invited to provide comments within a 30 days period from 15 Decmeber 2006 to 13 January 2007. No comments have been received as of date.
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	The project design document is in conformance with the UNFCCC CDM-PDD, version 3.1 format.

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 project is located in 880, Will Cargill Street, Uberlândia – Minas Gerais State, Brazil CEP 38402-350.		OK
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	/1/	DR	The projects system includes a biomass residue fuelled Zanini 180 (SZ-180) boiler provided by Engevap. The system also includes complementary facilities and equipment such as a wood chip storage warehouse and a water demineralization system and the trucks used for the transportation of biomass residues to the project site.		OK
A.2. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The □alidator 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 technology employed in this project activity involves the replacement of three fossil fuelled boilers with a biomass residue		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			fuelled Zanini 180 (SZ-180) boiler. This burns dry biomass residues: wood chips from harvest residues and sawmill wastes and branches. This boiler is supplied by Engevap, a Brazilian technology provider.		
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	Yes		OK
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	/1/	DR	This project technology is not likely to be substituted by other technologies.		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 training requirement for the operation and maintenance of this project activity is to be described.	~~CL 1~~	OK
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/1/	DR	As per A.2.4		
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 developers received approval for the report of evaluation and environmental performance (RADA) which is required by the state foundation of environment of Minas Gerais State (FEAM) for complying with environmental legislation in 2003. This was presented to DNV during the site visit. The operation permits for the project were verified during the follow up interviews.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A.3.2. Is the project in line with host-country specific CDM requirements?	/1/	DR	The host country approval is to be submitted to DNV.	CAR 1	
A.3.3. Is the project in line with sustainable development policies of the host country?	/1/	DR	The host country approval is to be submitted to DNV.	CAR 1	
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	/1/	DR	The project will increase employment opportunities, reduce pollution, increase the revenues for the biomass residue suppliers and set an example for initiating clean technology.		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 activity uses approved methodology AM0036, version 01, 29 September 2006, "Fuel switch from fossil fuels to biomass residues in boilers for heat generation".		OK
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/1/	DR I	The project activity is applicable as it complies with the following criteria. The heat generated in the boiler is not used for power generation and is used in the Cargill production process. Significant capital investment is required to replace the fossil fuelled boilers with the		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			biomass residue boilers. It is to be demonstrated that the existing boilers used only biomass residue (no other type of biomass) for heat generation. No other biomass other than biomass residue will be combusted during the crediting period. It is to be demonstrated that there is abundant supply of biomass residue to sustain this project activity during the entire crediting period. It has been demonstrated during the site visit this project will not result in the increase in processing capacity of raw input or other substantial change in the process. The biomass residue used at the project site will not be stored for more than one year. During the site visit, it was demonstrated that the biomass will not be stored for more than 3 months as stated in the PDD. It was demonstrated during the site visit that no significant amount of energy is required for the treatment of biomass residue prior to fuel combustion. It was confirmed during the site visit that the biomass residue is transported by trucks to the project site. It was verified during the site visit that the remaining life time of the three fuel oil boilers is 30 years, starting from the boiler operation start dates, i.e. 1992, 1995 and 1999.		

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	Yes, the application of the methodology and baseline determination is transparent. The baseline has been determined as per AM0036. The most plausible baseline scenarios have been determined ensuring the applicability of the methodology AM0036. Heat generation: H2 – continued operation of the existing boilers using the same fuel mix or less biomass residues as in the past Use of biomass residues: B1 – the biomass residues are dumped or left to decay under mainly aerobic conditions.		
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/1/	DR	As per AM0036, to be conservative, the minimum value obtained from the two equations for the estimation of the heat generated with incremental biomass residues used in the project activity was used for the baseline emission calculation. The default emission factor of 0.0027 tCH4/t biomass was used with a conservativeness factor of 0.73.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
B.2.3. Has the baseline been established on a project-specific basis?	/1/	DR	Yes		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	Yes		OK
B.2.5. Is the baseline determination compatible with the available data?	/1/	DR	Yes		OK
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	/1/	DR	The baseline scenario has been determined as the continuation of the current process. Heat generation from the continued use of the existing boilers by mix of fossil fuels and biomass or less biomass. The biomass residues are continued to be dumped and left to decay.		OK
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario?	/1/	DR	The project's additionality is demonstrated using the latest "Tool for the demonstration and assessment of additionality". STEP 0 – Preliminary screening based on the starting date of the project activity. The starting date of this project activity is 1 June 2004. The project proponent submitted a request for new methodology for this project in 2003, providing evidence for being eligible under prompt start projects. STEP 1 – Identification of the alternatives All the alternatives analyzed are in compliance with the laws and regulations in Brazil. STEP 2 – Investment comparison analysis was chosen to prove additionality. The NPV was for the project activity was		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			negative without CDM revenue. With the inclusion CDM revenue, a positive NPV has been obtained. The value of investment, operation and management used for the NPV analysis is to be verified during the site visit. The sensitivity analysis further confirms that the NPV remains negative without CDM revenue while is positive with CDM revenue. STEP 3 – Barrier analysis It is argued that getting of loans for the project activity from the banking institutions is difficult with high interest rates. It has been demonstrated through NPV analysis that the project is not financially viable and thus there is no incentive to provide the capital necessary for the project activity. It has been argued that the use of biomass residues not only increases the cost, but also increases the inconvenience in handling of fuel. STEP 4 – Common Practice Analysis No facilities in the surrounding region burn biomass to produce heat or electricity. STEP 5 – Impact of CDM The CDM revenue will make this project economically feasible. This has been established by the NPV and sensitivity analysis. This project in turn will bring revenue to the local forest industry and the local people.	~~CAR 2~~	
B.2.8. Have the major risks to the baseline been	/1/	DR	The baseline does not have any major risks.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
identified?					
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 I	The project activity commenced on 1 June 2004. The expected operational lifetime of the project activity is 50 years. The operational life time of the boiler was verified during the site visit.		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	The project applies a fixed crediting period of 10 years starting from 1 June 2004.		OK
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 approved consolidated monitoring methodology AM0036, version 01, 29 September 2006, "Fuel switch from		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			fossil fuels to biomass residues in boilers for heat generation".		
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	/1/	DR	As per B.1.2		
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/1/	DR	Yes, in line with the methodology the following data will be monitored and reflects good monitoring and reporting practices. $EF_{FF,CO2,y}$ – CO2 emission factor of the fossil fuel type displaced by biomass residues – 2006 IPCC guidelines $HG_{PJ,total,y}$ – Total heat generated in all boilers at the project site, firing both biomass residues and fossil fuels – metered $BF_{k,}$ - Quantity of biomass residue type k fired in all boiler(s) at the project site – measured $Fc_{i,y}$ – Quantity of fossil fuel type I fired in all boiler(s) at the project site – measured $EC_{PJ,y}$ – On-site electricity consumption attributable to the project activity – metered $EF_{grid,y}$- CO2 emission factor for electricity used from the grid – calculated Tl_y – Average truck load of the trucks used – measured AVD_y – Average return trip distance (from and to) between the biomass fuel supply sites and the site of the project plant – records NCV_i – Net calorific value of fossil fuel type I – measured NCV_k – Net calorific value of biomass residue type k – measured $Ef_{km,CO2,y}$ – Average CO2 emission factor per		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			km for the trucks – 1996 IPCC Guidelines $EF_{CH4,BF}$ – CH4 emission factor for the combustion of the biomass residues in the boilers – default value from AM0036 $Ef_{burning,CH4,k,y}$ – CH4 emission factor for uncontrolled burning of the biomass residue type k – 2006 IPCC Guidelines $EF_{CO2,LE}$ – CO2 emission factor of the most carbon intensive fuel used in the country- 2006 IPCC default for coal.		
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	The monitoring plan provides for the collection and archiving of all the relevant data. The following parameters will be monitored to estimate the project emissions from the project boundary. $EC_{PJ,y}$ – On-site electricity consumption attributable to the project activity – metered $EF_{grid,y}$- CO2 emission factor for electricity used from the grid – calculated $Fc_{i,y}$ – Quantity of fossil fuel type I fired in all boiler(s) at the project site – measured Tl_y – Average truck load of the trucks used – measured AVD_y – Average return trip distance (from and to) between the biomass fuel supply sites and the site of the project plant –		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			records $Ef_{km,CO2,y}$ – Average CO2 emission factor per km for the trucks – 1996 IPCC Guidelines $EF_{CH4,BF}$ – CH4 emission factor for the combustion of the biomass residues in the boilers – default value from AM0036 NCV_k – Net calorific value of biomass residue type k – measured		
D.2.2. Are the choices of project GHG indicators reasonable?	/1/	DR	Yes, the choice of the baseline indicators is reasonable.		OK
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	/1/	DR	Yes		OK
D.2.4. Will the indicators give opportunity for real measurements of project emissions?	/1/	DR	Yes		OK
D.2.5. Will the indicators enable comparison of project data and performance over time?	/1/	DR	Yes		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	The PDD states that there will be no leakage as there is an excess of biomass residue in the region (110 km). This was demonstrated by letters from contracted biomass residue suppliers within this region. The letters are to be submitted to DNV.		OK
D.3.2. Are the choices of leakage indicators reasonable?	/1/	DR	As per D.3.1		
D.3.3. Will it be possible to monitor / measure the specified leakage indicators?	/1/	DR	As per D.3.1		

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.3.4. Will the indicators give opportunity for real measurements of leakage effects?	/1/	DR	As per D.3.1		
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 monitoring plan provides for the collection and archiving of all the relevant data necessary for determining the baseline emissions. $BF_{k,}$ - Quantity of biomass residue type k fired in all boiler(s) at the project site – measured $Ef_{burning,CH4,k,y}$ – CH4 emission factor for uncontrolled burning of the biomass residue type k – 2006 IPCC Guidelines NCV_k – Net calorific value of biomass residue type k – measured $HG_{PJ,total,y}$ – Total heat generated in all boilers at the project site, firing both biomass residues and fossil fuels – metered		OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR	Yes, the choice of the baseline indicators is reasonable.		OK
D.4.3. Will it be possible to monitor / measure the specified baseline indicators?	/1/	DR	Yes		OK
D.4.4. Will the indicators give opportunity for real measurements of baseline emissions?			Yes		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
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	The baseline and monitoring methodology of AM0036 does not require the monitoring of sustainable development indicators. During site visit was confirmed that the DNA of Brazil does not require the sustainable development indicators to be monitored.		OK
D.5.2. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	/1/	DR	See D.5.1		OK
D.5.3. Will it be possible to monitor the specified sustainable development indicators?	/1/	DR	See D.5.1		OK
D.5.4. Are the sustainable development indicators in line with stated national priorities in the Host Country?	/1/	DR	See D.5.1		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	The authority and responsibility of the project management has been clearly described.		OK
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/1/	DR I	The authority and responsibility of the project management has been clearly described.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.6.3. Are procedures identified for training of monitoring personnel?	/1/	DR I	The monitoring and maintenance will be carried out by the operational manager at Cargill Agricola S/A		OK
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR I	No possible emergencies are foreseen.		OK
D.6.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR I	Calibration of the monitoring equipment will be carried out the equipment supplier and will be overseen by the site engineer from Cargill Agricola S/A.		OK
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR I	Maintenance of the monitoring equipment will be carried out the equipment supplier and will be overseen by the site engineer from Cargill Agricola S/A.		OK
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR I	Monitoring, measurements and reporting will be executed by the site engineer and overseen by the lead engineer from Cargill Agricola S/A.		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	Record handling will be done by EcoSecurities.		OK
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR I	This has been described.		OK
D.6.10. Are procedures identified for review of reported results/data?	/1/	DR I	This has been described.		OK
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	/1/	DR I	This has been described.		OK
D.6.12. Are procedures identified for project	/1/	DR	This has been described.		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
performance reviews before data is submitted for verification, internally or externally?		I			
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/	DR I	This has been described.		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. 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	The project emissions are estimated as a sum of emissions from fossil fuel used along with biomass residue, emissions from the use of electricity in the project activity, emissions caused due to the transportation of biomass residue from the source to the project site and methane emissions from the combustion of biomass residues from the boilers. $PE_y = PE_{CO2,FF,y} + PE_{CO2,EC,y} + PE_{CO2,TR,y} + GWP_{CH4} * PE_{CH4,BF,y}$ PE_y – Total Project activity emissions (tCO2e/yr) $PE_{T,y}$ – Project emissions due to the transportation of biomass to the biomass		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			plant and/or boilers during year y $PE_{FFCO2,y}$ – CO2 emissions during the year y due to fossil fuels co-fired by the generation facility in tonnes of CO2, $PE_{Biomass,CH4,y}$ – Methane emissions from the combustion of biomass during year y GWP_{CH4} – Global Warming Potential for methane valid for the relevant commitment period The estimation emission factor for the grid is to be described.	~~CL 4~~	
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	/1/	DR	Yes		OK
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	/1/	DR	Yes, as per AM0036, conservative assumptions have been used.		OK
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	/1/	DR	Yes		OK
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	/1/	DR	Yes		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 and estimated ex-ante.*					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	/1/	DR I	The PDD states that there will be no leakage as there is an excess of biomass residue in the region (110 km). This was		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			demonstrated by letters from contracted biomass residue suppliers within this region.		
E.2.2. Have these leakage effects been properly accounted for in calculations?	/1/	DR	As per E.2.1		OK
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	/1/	DR	As per E.2.1		OK
E.2.4. Are the calculations documented in a complete and transparent manner?	/1/	DR	As per E.2.1		OK
E.2.5. Have conservative assumptions been used when calculating leakage?	/1/	DR	As per E.2.1		OK
E.2.6. Are uncertainties in the leakage estimates properly addressed?	/1/	DR	As per E.2.1		OK
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 baseline emissions have been estimated as the sum of emission from the fossil □alidat combustion for heat generation in the boilers and emissions due to the decay of the biomass residue. The emissions fossil □alidat combustion for heat generation in the boilers has been estimated as follows, $BE_{HG,y} = (HG_{PJ,biomass,y} * EF_{FF,CO2,y}) / n_{boiler,FF}$ $BE_{HG,y}$ – Baseline emissions from fossil fuel combustion for heat generation in the boiler(s) (tCO2e /yr) $HG_{PJ,biomass,y}$ – Heat generated with		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			incremental biomass residues used as a result of the project activity during the year y (GJ/yr) $EF_{FF,CO2,y}$ – CO2 emission factor of the fossil fuel type displaced by biomass residues (tCO2e /GJ) $\eta_{boiler,FF}$ – Average net efficiency of heat generation in the boiler(s) when fired with fossil fuels The emissions due to the decay of the biomass residue has been estimated as follows, $BE_{BF,y} = GWP_{CH4} * \sum_{k} BF_{PJ,k,y} * NCV_{k} * EF_{burning,CH4,k,y}$ $BE_{BF,y}$ – Baseline emissions due to uncontrolled burning or decay of the biomass residues (tCO2e/yr) GWP_{CH4} – Global Warming Potential of methane valid for the commitment period (tCO2e/tCH4) $BF_{PJ,k,y}$ – Quantity of biomass residue type k used for heat generation as a result of the project activity during the year y (tons of dry matter or litter) NCV_{k} – Net calorific value of the biomass residue type k (GJ/ton of dry matter or GJ/liter) $EF_{burning,CH4,k,y}$ – CH4 emission factor for uncontrolled burning of the biomass residue type k during the year y (tCH4/GJ).		
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for	/1/	DR	Yes, they include the emission from the fossil combustion for heat generation in the boilers and emissions due to the decay of		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
baseline emissions?			the biomass residue		
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	/1/	DR	The GHG calculations are documented in a complete and transparent manner.		OK
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	/1/	DR	Yes		OK
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	/1/	DR	Yes		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	Yes		OK
E.4. Emission Reductions *Validation of ex-ante estimated emission reductions.*					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	/1/	DR	Yes. The project is expected to reduce GHG emissions by nearly 122379 tCO_2e per year for a period of 10 years.		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 □alidator.*					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/	DR I	The project developers have received an approval for the report of evaluation and environmental performance (RADA). This approval was verified during the site visit.		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	The report evaluation and environmental performance (RADA) is a requirement by the State foundation of environment of Minas Gerias State (FEAM). The approval		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			has been obtained and verified during the site visit.		
F.1.3. Will the project create any adverse environmental effects?	/1/	DR I	As per the PDD, the project does not have any adverse environmental impacts. The report of evaluation and environmental performance (RADA) was verified during the site visit to confirm that there are no negative environmental impacts due to this project activity.		OK
F.1.4. Are transboundary environmental impacts considered in the analysis?	/1/	DR	No transboundary environmental impacts are likely to occur due to the project activity.		OK
F.1.5. Have identified environmental impacts been addressed in the project design?	/1/	DR I	The environmental impacts have not been indicated in the PDD as they have not been considered significant. The RADA was verified during site visit.		OK
F.1.6. Does the project comply with environmental legislation in the host country?	/1/	DR	Yes		OK
G. *Stakeholder Comments* *The □alidator 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	As per the Brazilian regulations the project developer must send a letter with description of the project and an invitation for comments by local stakeholders. The letter was sent to the following stakeholders, inviting them to send there comments. ➢ Municipal Secretariat for the environment; ➢ FEAM – Minas Gerais State		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			Environment Agency, ➢ Municipal Chamber, ➢ Uberlândia City hall, ➢ National NGOs Fórum & Local Social Association, ➢ Neighbourhood public association.		
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR	As mentioned above letters were sent on 17 March 2004 to stakeholders and on 9 March 2004, Cargill published information about the stakeholder consultation in the state-owned official newspaper – "Diário do Executivo, Legislativo e Publicações de Terceiros" and in the local newspaper "Correio".		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	Yes		OK
G.1.4. Is a summary of the stakeholder comments received provided?	/1/	DR	No comments have been received.		OK
G.1.5. Has due account been taken of any stakeholder comments received?	/1/	DR	No comments have been received.		OK

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
CAR 1: The letter of approval from Brazil, Switzerland and the UK is to be submitted to DNV.		To be submitted after validation	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, including the confirmation that the project assists it in achieving sustainable development 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 Switzerland and the UK.
CAR 2 A revised financial analysis has been provided after the site interview. The source for the input values used for the financial analysis is to be provided. There is a difference in value in the cost of fuel/ t of steam (fuel) and the cost of fuel/ t of steam (chips) from the original financial analysis and the revised one. Why is this? The cost per ton of chips has not been provided.		The difference in the value of the cost of fuel per tonne of steam from fuel oil and chips is because of new information that was given to the project participant by the developer. The PP was given a spreadsheet that stated the historical price of tonne of steam produced per tonne of fuel for both fuel oil and chips. The price of tonne of chips or tonne of fuel was not used; only the historical price of tonne of	The financial breakup for the project activity has been provided by the project developer. These documents have been verified and deemed acceptable by DNV. CAR 2 is closed.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
The cost estimation of US$/t of steam (biomass) is incorrect. The cost estimation of US$/t of steam (fuel oil) is incorrect The proof for the equipment and boiler cost is to be presented to DNV. The financial break-up of the investment approved by the stakeholder is to be presented to DNV for verification of the input values in the financial analysis. The discount rate 16% should be appropriate to the country and sector. The government bond rates can be provided as reference.		steam per tonne of fuel. Please refer to spreadsheet "planihas de caldeiras", cells H95 and H97, for cost of $6.65/t of steam from the CBC biomass boiler and $11.92/ ton of steam from fuel oil. The cost per tonne of fuel in the financial analysis was removed to avoid confusion. Boiler costs are attached in document "Boiler costs". Plantation costs are attached in document "plantation costs". 16.25% is the official Central Bank of Brazil discount rate for 2004.	
CAR 2 (continued) The cost chips: $/t steam provided in the financial analysis (E10) is $11 contradicting to the value provided in spreadsheet "planihas de caldeiras", cells H95 (cost of $6.65/t of steam from the CBC biomass boiler). The purchase receipts for fossil fuel and biomass residue is to be provided. The various types of biomass residue fed into the boiler are to be given		The PP was given a spreadsheet that stated the historical price of tonne of steam produced per tonne of fuel for both fuel oil and chips. This cost (biomass: $6.7, fuel oil: $13.9) can be seen in planihas de caldeiras (cells in financial analysis have a comment describing the corresponding cell in the	The revised PDD includes the correct calculation. The excel sheet /5/ and /7/ include detailed data of biomass residues. CAR 2 is closed.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
along with per ton cost. Additionally the amount of fuel used to produce one tonne of steam and the amount biomass used to produce one tonne of steam is to be provided. Depreciation cannot be considered for NPV analysis, since it involves only real cash flows.		planihas spreadsheet). Depreciation was removed	
CAR 3 The total estimated reductions (tonnes of CO_2e) in table A.4.4 is incorrect and is to be revised.		Corrected	The calculations have been revised along with the input values. The reason for change in the input values is to be verified.
CAR 3 (continuation) The values of the following parameters have been changed after the site visit verification of the data provided in the PDD. ➢ Historical annual heat generation from firing biomass residues in boilers at the project site during the year n, n-1 or n-2, where n corresponds to the year prior to the implementation of the Project activity. ➢ Quantity of biomass residue type k fired in all boiler(s) at the project site during the historical		Parameters were changed due to the providing of a spreadsheet with actual numbers from the developer. Spreadsheets demonstrating the monthly numbers for year 1 of the Project activity have been provided to DNV. Spreadsheets for years n, n-1, n-2 are being provided. A sample of receipts from the purchase of biomass residues (3 a month) and of fuel oil (1 a month) are being provided to DNV. However, costs on these	The spread sheets /5/ and /7/ detail the data used. CAR 3 is closed.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
year n, n-1 or n-2, where n corresponds to the year prior to implementation of the Project activity ➢ Total heat generated in all boilers at the Project site, firing both biomass residues and fossil fuels, during the year y ➢ Quantity of biomass residue type k fired in all boiler(s) at the Project site during the year y ➢ Quantity of fossil fuel type *i* fired in all boiler(s) at the Project site during the year *y* The parameter 'Highest historical electricity generation at the Project site during the most recent three years prior to the implementation of the Project activity' has been included in the section B.6.2, and no value has been given.		receipts fluctuate greatly with daily and monthly variations; the average for the year was used for all calculations. The PDD has been updated to include the value 0 for MWh generated because no electricity is generated on site.	
CAR 4: Alternative B8 has not been taken into consideration in the determination of the baseline scenario.		Added to the PDD	This has been verified and accepted. CAR 4 is closed.
CL 1 The map with GPS information about each supplier with all routes taken to transport the biomass residues until		The figure in the PDD is a conservative estimate from the developer (distance provided in spreadsheet to	The average return trip distance will be monitored by the project participants. This parameter has been incorporated accordingly in the parameters to be

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
the site is to be submitted to DNV. This was proposed by the client during the site interview to establish that 110km is the average distance from which the biomass residue is sourced.		DNV with this report). The distance is to be monitored during the crediting period of the project activity and verified by a DOE therefore the figure in the PDD is indicative only.	monitored in the PDD. This has been accepted by DNV. CL 1 is closed.
CL 2: The training requirement for the operation and maintenance of this project activity is to be described**.**		Documentation about training provided	The training for the operation and maintenance has been provided and the relevant certificates have been submitted to DNV. These certificates have been verified by DNV, Brazil and deemed acceptable. CL 2 is closed.
CL 3: It is to be demonstrated that there is abundant supply of biomass residue to sustain this project activity during the entire crediting period. It is also to be demonstrated that this biomass residue being sourced for this project activity is not currently being used for any other purpose. ANNEX 5 is missing		Letters from biomass suppliers are available to Validator and will be included in Annex 5	A letter from the largest biomass supplier , signed with guaranties for the biomass residues supplies for the following amount: Madeira Pessonha: 3 000 t/month; Madestrela: 1 500 t/month; Sercal: 850 t/month; Refloresce: 1 000 t/month; Agrotec: 2 500 t/month; Has been submitted to DNV. This letter evidences that there is excess biomass residue available to sustain the project through the entire crediting period. The letter has been verified by DNV, Brazil and has been deemed acceptable. CL 3 is closed.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
CL 4: In the calculation sheet the grid emission factor for the grid has been given as 0.26 tCO2/MWh. The source for the same is to be provided or the method used for estimating the grid emission factor is to be provided along with calculation sheet.		0.26 tCO2/MWh has been approved by DNV as the grid emissions factor for the Brazilian S-SE-Midwest grid. The calculations are provided.	The calculation sheet provided by the project developer has been verified by DNV, Brazil and is deemed transparent and reasonable. CL 4 is closed.
CL 5: PDD, version 1 states that the plantation was established as a necessary component of the project activity. It is to be evidenced that the biomass from this plantation will not be used for this project activity.		The biomass will not be burned for a number of reasons: 1. As 1 tonne of timber yields 3 tonnes of biomass residues, there will be a sufficient quantity of residues to combust in the boilers. 2. In the design of the Project activity, contractual relationships will exists between the project developer and forestry product companies assigning rights of the timber to the forestry product companies. Therefore, the	The biomass suppliers have submitted letters ensuring monthly supply of biomass residue. They also ensure that excess biomass residue is available.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
		developer will not have the right to use the timber. Furthermore, the biomass residue used by the Project activity will be monitored during the crediting period and verified by a DOE.	
CL 5: (continued) As the project has already been implemented the contractual agreement between the forest product companies and the project developer is to be submitted to DNV.		The plantations will not be ready to be harvested until 2010 and so the contracts are only being negotiated at this point in time.	CL 5 is closed.
CL 6: The amount of steam generated from the new biomass boiler is 564,451 tons and the earlier fossil fuelled boilers were 651,884 tons. How is the difference amount of steam required for the process units going to be generated?		The amount of steam required is subject to inter-annual variations therefore the earlier fossil fuel boilers is indicative of the steam requirements in year n (2003-2004).	The heat generation patterns provided in "planihas de caldeiras" is indicative of variations of steam requirements. This is deemed acceptable. CL 6 is 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

Høvik, 6 November 2006

Einar Telnes
Director, International Climate Change Servicer

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Shruthi Poonacha

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

GHG Auditor:	Yes		
CDM Validator:	--	***JI Validator:***	--
CDM Verifier:	--	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 6 November 2006

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Raphael Souza

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

GHG Auditor:	Yes		
CDM Validator:	--	***JI Validator:***	--
CDM Verifier:	--	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 6 November 2006

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

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:***	--
CDM Verifier:	--	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 6 November 2006

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

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 1,2,3,6 & 10		
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

Høvik, 6 November 2006

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