



FINAL ASSESSMENT REPORT OF

**Fuel Switch to Renewable Biomass for Thermal
Applications, Version 2.0**

**under
Voluntary Carbon Standard 2007.1
(VCS 2007.1)**

REPORT No. BRAZIL-02373/2010
REVISION No. 02

BUREAU VERITAS CERTIFICATION



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Client: SustainableCarbon – Projetos Ambientais LTDA	Client ref.: BRAZIL-02373/2010

Summary:

Bureau Veritas Certification has made the second assessment for validation of the new methodology "**Fuel Switch to Renewable Biomass for Thermal Applications**", version 2.0 on the basis of UNFCCC criteria and Voluntary Carbon Standard Program (VCS Program) which includes the Voluntary Carbon Standard (VCS 2007.1) and the VCS Program Guidelines 2007.1. The VCS 2007.1 is design for project proponents, validators and verifiers and provides a global standard for voluntary GHG emission reduction and removal projects and their validation and verification. The core of this standard are the requirements in ISO 14064-2:2006, ISO 14064-3:2006 and ISO 14065:2007.

This is the second output of the evaluation process where the responses to the Clarification and Corrective Actions Requests (CL and CAR) raised in the first assessment (please refer to Annex A), where addressed by the methodology proponent.

The validation serves as new methodology verification. The validation is an independent third party assessment of the new methodology. In particular the validation has to confirm that the baseline, the monitoring plan, and the entire methodology are in compliance with relevant UNFCCC and VCS rules and procedures. The methodology is assessed also in order to verify that the methodology design, as documented, is sound and reasonable. The validation of the new methodology is double approval process and according to VCS standard is required as necessary to provide assurance to stakeholders of the quality of the new methodology.

In this second assessment, it is Bureau Veritas Certification's opinion that the new methodology is technically solid and was correctly and well designed, the clarifications as well as some corrective actions and public comments (see Annex A and Annex B) were solved by the methodology proponent, thus the methodology can be recommended to validation under the VCS 2007.1

Report No.: BRAZIL-02373/2010	Subject Group: VCS	
Project title: " Fuel Switch to Renewable Biomass for Thermal Applications " version 2.0		
Work carried out by: Mr. Rubens Ferreira		
Work verified by: Mr. Ricardo Fontenele		
Date of this revision: 22/10/2010	Rev. No.: 02	Number of pages: 35

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1 Introduction

SustainableCarbon – Projetos Ambientais LTDA has commissioned Bureau Veritas Certification to perform an assessment of the proposed : “Fuel Switch to Renewable Biomass for Thermal Applications”, work out by SustainableCarbon – Projetos Ambientais LTDA.

This report summarizes the findings of assessment of the new methodology, performed on the basis of IPCC criteria, criteria proposed to provide consistent Voluntary Carbon Standard 2007.1 as well as applicable technical knowledge and documentation.

Bureau Veritas Certification operates in the capacity of first reviewer as independent entity for the evaluation.

The preliminary assessment for examination of new baseline and monitoring methodology was prepared based on the following document: “Fuel_Switch_to_Renewable_Biomass_for_Thermal_Applications_v1” and the second and final assessment was prepared based in the “Fuel_Switch_to_Renewable_Biomass_for_Thermal_Applications_v2”.

2 Objective

2.1 The purpose of independent entity assessment report is to review the new methodology documentation and to assess whether the following issues are determine appropriate and adequate and are resolve:

- methodology’s applicability criteria;
- project baseline;
- additionality;
- definition of the project’s physical boundary
- sources and types of gases included;
- estimation of baseline emissions,
- estimation of project emissions, and emission reductions;
- approach for calculating leakage;
- monitoring approach;
- monitored and not monitored data and parameters used in emissions calculations.

2.2 The new methodology have to comply with the following VCS 2007.1 requirements:

- All methodologies applying for approval under the VCS Program shall be approved via the double approval process (VCS 2007.1,Section 6.1).
- VCS Program methodologies shall comply with all requirements in the VCS 2007.1 clause 6.1 to 6.4.4 (VCS 2007.1,Section 6.1).



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- VCS Program methodologies shall include (VCS 2007.1, Section 6.1):
 - applicability criteria that defines the area of project eligibility;
 - a process that determines whether the project is additional or not (based on criteria laid down in clause 6.4);
 - determination criteria for the most likely baseline scenario; and
 - all necessary monitoring aspects related to monitoring and reporting of accurate and reliable GHG emission reductions or removals
- Methodologies shall be informed by a comparative assessment of the project and its alternatives in order to identify the baseline scenario (VCS 2007.1, Section 6.1).
- The project proponent shall select the most conservative baseline scenario for the methodology. This shall reflect what most likely would have occurred in the absence of the project (VCS 2007.1, Section 6.3).
- In developing the baseline scenario, the project proponent shall select the assumptions, values and procedures that help ensure that GHG emission reductions or removal enhancements are not overestimated (VCS 2007.1, Section 6.3).
- Based on selected or established criteria and procedures, the project proponent shall quantify GHG emissions and/or removals separately for:
 - Each relevant GHG for each GHG source, sink and/or reservoir relevant for the project; and each GHG source, sink and/or reservoir relevant for the baseline scenario.
 - When highly uncertain data and information are relied upon, the project proponent shall select assumptions and values that ensure that the quantification does not lead to an overestimation of GHG emission reductions or removal enhancements (VCS 2007.1, Section 6.5.2).

3 Assessment Scope

The assessment scope is defined as an independent and objective review of the new baseline and monitoring methodology document. The information in this document is reviewed against Kyoto Protocol requirements, UNFCCC rules, Voluntary Carbon Standard 2007.1 (VCS 2007.1) and VCS Program Normative Document: Double Approval Process, v1.1.

The scope of this assessment, as required by the VCS Program Normative Document: Double Approval Process, v1.1 includes at a minimum, the following:

- i. Eligibility criteria. Assessment of whether the methodology's eligibility criteria are appropriate and adequate.
- ii. Baseline approach: Assessment of whether the approach for determining the project baseline is appropriate and adequate.



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- iii. **Additionality:** Assessment of whether the approach/tools for determining whether the project is additional are appropriate and adequate.
- iv. **Project boundary:** Assessment of whether an appropriate and adequate approach is provided for the definition of the project's physical boundary and sources and types of gases included.
- v. **Emissions:** Assessment of whether an appropriate and adequate approach is provided for calculating baseline emissions, project emissions and emission reductions.
- vi. **Leakage:** Assessment of whether the approach for calculating leakage is appropriate and adequate.
- vii. **Monitoring:** Assessment of whether the monitoring approach is appropriate and adequate.
- viii. **Data and parameters:** Assessment of whether monitored and not monitored data and parameters used in emissions calculations are appropriate and adequate.
- ix. **Adherence to the project-level principles of the VCS Program:** Assessment of whether the methodology adheres to the project-level principles of the VCS Program (see Section 5.1.1).

4 Evaluation process

The evaluation process consisted of the following two phases:

- Desk review of the new methodology document;
- Resolution of outstanding issues and the issuance of the final assessment report and opinion.

The overall validation, from Contract Review to Assessment Report and Opinion, was conducted using Bureau Veritas Certification internal procedures.

5 Conflict of Interest Review

Prior to beginning of the independent assessment work on the methodology, Bureau Veritas Certification has conducted an evaluation to identify any potential conflicts of interest associated with the task. No potential conflicts were found for this project.

6 Assessment team



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Bureau Veritas Certification assessment team consisted of the following individuals who were selected based on their projects experience, as well as familiarity with the sectoral scopes 04 of the UNFCCC (Manufacturing industries):

- 1.) Rubens da Silva Ferreira

7 Corrective Actions, Clarifications and Supplemental Information

The team requested clarification and supplemental information as well as several corrective actions during the validation. The corrective action requests, clarifications, and the responses provided are summarized in sections 9 and the Annex A for transparency reasons.

8 Assessment Results: Evaluation of the proposed new methodology by the desk reviewer

The validation process focused on assessing the appropriateness and adequacy of the new methodology's applicability criteria, baseline approach, additionality, project boundary, emissions, leakage, monitoring, data and parameters, and compliance in the application of the new methodology with the Voluntary Carbon Standard 2007.1 (VCS 2007.1). The assessment results are summarized below, which are further substantiated with details in the following sections and in the attached annex.

8.1 Coverage of the Voluntary Carbon standard 2007.1 new methodology sections as outlined in the applicable guidelines.

8.2 The language is sufficiently transparent, precise and unambiguous to undertake a full assessment.

8.3 The proposed methodology reflects methodology-specific information and not project specific information.

8.4 The baseline methodology is internally consistent i.e., the applicability conditions, project boundary, baseline emissions estimation procedure, project emission estimation procedure, leakage, and monitoring.

8.5 The baseline scenario identification has a clear and concise presentation of methodological steps to identify baseline scenario and baseline emissions.

8.6 The additionality section has clear and concise presentation of methodological steps to assess additionality.

8.7 The emission reductions calculation section has relevant formula provided and all variables used are adequately explained.

8.8 All the issues raised in the methodology desk review are addressed and are sufficiently and properly explained.

8.9 The baseline methodology is internally consistent with the monitoring methodology, which is clearly documented in accordance with applicable guidelines.



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9 Outline changes needed to improve the methodology during the preliminary assessment.

9.1 Major changes:

No major changes or structural changes are needed to improve the methodology.

9.2 Minor changes:

All CAR's and CL's raised during the process of methodology review were considered punctual, and not supposed to have impact in the structure of the methodology as a whole, however all the CAR's and the CL's must to be correctly addressed by the methodology proponent in order to enable the conclusion of the validation process. Please refer to section 6, below.

10. General information on the submitted proposed new methodology

10.1 One sentence describing the purpose of the methodology

This methodology comprises a shift to an alternative production process or partial substitution of Non-renewable Fuel with the Renewable Biomass, in thermal applications. Utilization of any combination of fuels that are compliant with the aforementioned definition of Renewable Biomass during crediting period is allowed.

10.2 Summary description of the methodology

1.) Baseline scenario

The baseline scenario comprises the use of non-renewable fuel for thermal applications.

2.) Additionality

Project participants shall demonstrate that the project is additional using one of three tests as described in the Voluntary Carbon Standard 2007.1, clause 5.8 or the latest version of the Voluntary Carbon Standard.

3.) Baseline emissions

The baseline emissions are the Non-renewable Fuel, consumption-related emissions (amount of fuel consumed multiplied by its emission factor) associated with the system(s), which were or would have otherwise been used, in the production facility(ies) in the absence of the project activity.

4.) Project emissions

For small-scale energy CDM project activities involving renewable biomass, there are



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three types of emission sources that are potentially significant (>10% of emission reductions) and attributable to the project activities:

- A. **Shifts of pre-project activities.** Decreases of carbon stocks, for example as a result of deforestation, outside the land area where the biomass is grown, due to shifts of pre- project activities.
- B. **Emissions** related to the production of the biomass.
- C. **Competing uses for the biomass.** The biomass may in the absence of the project activity be used elsewhere, for the same or a different purpose.

5.) Leakage emission

According to the proposed methodology the leakage is assumed to occur as a result of the types of emission sources, as related on item 4.) Project emissions.

6.) Calculation and monitoring of emission reductions:

The Emission reductions are calculated as below:

$$ER_y = EF_{BL} * P_{PJ,y} \quad (1)$$

Where:

ER_y Emission reductions during the year y (of the crediting period) in tCO_{2e}

EF_{BL} The annual production-specific emission factor for year y , in tCO₂/kg or m³ or quantity of units produced.

$P_{PJ,y}$ The annual amount of units produced at the facility in year y , in kg or m³ or quantity of units produced



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The annual production-specific emission factor (EF_{BL}) can be calculated *ex ante* as follows:

$$EF_{BL} = \sum (FC_{BL,ij} \times NCV_j \times EF_{CO_2,j}) / P_{Hy} \quad (2)$$

- $FC_{BL,ij}$ Average annual baseline Non-renewable Fuel consumption value for fuel type j combusted in the process i , using volume or weight units
- NCV_j Average net calorific value of fuel type j combusted, TJ per unit volume or mass unit
- $EF_{CO_2,j}$ CO₂ emission factor of fuel type j combusted in the process i in tCO₂/TJ
- P_{Hy} Average annual historical baseline production rate in kg or m³ or quantity of units produced

Monitoring shall consist of an annual check of all appliances or a representative sample thereof to ensure that they are still operating or are replaced by an appliance that is equivalent in service.

Monitoring should confirm the displacement or substitution of the Non-renewable Fuel at each location.

Monitoring during the crediting period shall include:

The amount of units produced at the facility (kg or m³ or quantity of units produced per month);

The Renewable Biomass consumption at the production facility (kg or m³ per month). Each type of biomass shall be monitored separately.

10.3 Relationship with approved or pending methodologies

Some parts of the document “Fuel Switch to Renewable Biomass for Thermal Applications” were taken directly from:

- AMS-I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User - Version 2;
- AMS-I.C. Thermal energy production with or without electricity - Version 17;
- AMS-III.Z. Fuel Switch, process improvement and energy efficiency in brick manufacture - Version 3;
- AM0036 Fuel switch from fossil fuels to biomass residues in heat generation equipment - Version 3.

This methodology also refers to the following tools and standards:

- UNFCCC; Annex 28 of EB 47; General guidance on leakage in biomass project activities (Version 03)



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- 2006 IPCC Guidelines for National Greenhouse Gas Inventories (Chapter 11: N₂O Emissions from Managed Soils, and CO₂ Emissions from Lime and Urea Application);
- UNFCCC; Annex 8 of EB 20;
 - UNFCCC; Annex 18 of EB 23;
- VCSA; Voluntary Carbon Standard 2007.1.

11. Details and evaluation of the proposed new methodology.

11.1 Applicability conditions

A proposed project activity must satisfy the following conditions in order for the proposed methodology to be applicable:

A. The methodology comprises a shift to an alternative production process or partial substitution of Non-renewable Fuel with the Renewable Biomass, in thermal applications. Utilization of any combination of fuels that are compliant with the aforementioned definition of Renewable Biomass during crediting period is allowed.

B. The measures may replace, modify or retrofit systems in existing facilities or be installed in a new facility (Greenfield project). Project participants have to be able to show that Non-renewable Fuel has been used at the facility since 31 December 1989 using survey methods. Provided such proof does not exist, it can be alternatively shown that same type(s) of Non-renewable Fuel(s) has been commonly used in the region where the project operates using survey methods.

C. This methodology is not applicable if local regulations require the use of proposed technologies or raw materials for industrial use, unless widespread non compliance (less than 50% of production in the industry/sector complies within the country) of the local regulation evidenced.

11.1.1. Considerations of the validator regarding methodology applicability conditions

The applicability conditions stated by the methodology are consistent with the proposal and the technical approaches presented by the methodology. The CL's regarding the applicability conditions were all closed in the version 2.0 of the methodology (for more information please refer to Annex A – CL's 06, 07 and 08).

11.2 Definition of the project boundary

The project boundary is the physical, geographical location where the production takes place (i.e. production facility coordinates) during both the baseline and crediting periods.



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11.2.1. Considerations of the validator regarding the project boundary

The project boundary defined is appropriate and rational.
No CAR or CL was raised for this section of the methodology.

11.3 Determining the baseline scenario and demonstrating additionality

The baseline scenario comprises the use of non-renewable fuel for thermal applications. Project participants shall demonstrate that the project is additional using one of three tests as described in the Voluntary Carbon Standard 2007.1, clause 5.8 or the latest version of the Voluntary Carbon Standard.

The CL regarding the applicability conditions was closed in the version 2.0 of the methodology (for more information please refer to Annex A – CL 09).

11.3.1. Considerations of the validator regarding the baseline scenario determination and additionality demonstration

The basis for assessing the baseline scenario is appropriate and adequate.
The demonstrating additionality is exactly the same proposed at the Voluntary Carbon Standard 2007.1, in other words, appropriate and adequate.

11.4 Methodological basis for calculating baseline emissions and emission reductions

a) Baseline emissions estimation in the methodology

The baseline emissions are the Non-renewable Fuel, consumption-related emissions (amount of fuel consumed multiplied by its emission factor) associated with the system(s), which were or would have otherwise been used, in the production facility(ies) in the absence of the project activity.

b) Project emissions estimation in the methodology

For small-scale energy CDM project activities involving renewable biomass, there are three types of emission sources that are potentially significant (>10% of emission reductions) and attributable to the project activities:

- A. **Shifts of pre-project activities.** Decreases of carbon stocks, for example as a result of deforestation, outside the land area where the biomass is grown, due to shifts of pre- project activities.



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B. **Emissions** related to the production of the biomass.

C. **Competing uses for the biomass.** The biomass may in the absence of the project activity be used elsewhere, for the same or a different purpose.

11.4.1. Considerations of the validator regarding the methodological basis for calculating baseline emissions and emission reductions.

The basis for estimating of baseline emissions and project emissions are appropriate and adequate. The CAR 02, 03 and 04 raised in this section were closed (for more information please refer to Annex A).

11.5 Leakage

According to the proposed methodology the leakage shall be calculated as the General guidance on leakage in biomass project activities – EB 47 Annex 28 version 03.

Moreover in case the project activity involves replacement of equipment and the leakage effect from the use of the replaced equipment in another activity is neglected because the replaced equipment is scrapped, an independent monitoring of scrapping of replaced equipment needs to be implemented.

In case of use/diversion of Non-renewable Biomass saved under the project activity by non-project households/users that previously used renewable energy sources. If this leakage assessment quantifies an increase in the use of non-renewable biomass used by the non-project households/users attributable to the project activity, then ERY shall be adjusted to account for the quantified leakage.

11.5.1 Considerations of the validator regarding the leakage treatment

The treatment of leakage is appropriate and adequate. The CL 11 raised in this section was closed (for more information please refer to Annex A).

11.6 Key assumptions

- It is recommended that project participants identify key parameters that would significantly influence the accuracy of estimates. Local values that are specific to the project circumstances should then be obtained for these key parameters whenever possible.
- In choosing key parameters or making important assumptions based on information that is not specific to the project circumstances, such as in use of default data, project participants should select values that will lead to an accurate estimation of net GHG emissions, taking into account uncertainties. If uncertainty is significant,



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project participants should choose data such that it tends to underestimate, rather than overestimate, net avoided emissions.

11.6.1 Considerations of the validator regarding the key assumptions treatment

The treatment of Key assumptions, are appropriate and adequate addresses in the proposed methodology. The CL regarding the key assumptions treatment was closed in the version 2.0 of the methodology (for more information please refer to Annex A – CL 09).

11.7 Data and parameters not monitored (applied for ex-ante estimation)

Key data and parameters which data sources or default values are used and how the data or the measurements are obtained:

The proposed methodology describes for each parameter the: data unit, the equations of the methodology where the parameter must to be applied and a description of each parameter.

11.7.1 Considerations of the validator regarding the treatment of Data and parameters not monitored (applied for ex-ante estimation)

In section 6 of the methodology all data and parameter referred in the ex-ante estimation are addressed, thus the data and parameters not monitored for ex-ante calculation are appropriate and adequate addresses. The CAR 02 and 03 raised in this section were closed (for more information please refer to Annex A).

11.8 Data and parameters for ex-post calculation and monitored data

The proposed methodology describes for each parameter to be collected for ex-post calculation the: data unit, the equations of the methodology where the parameter must to be applied and a description of each parameter.

11.8.1 Considerations of the validator regarding the treatment of data and parameters for ex-post calculation and monitored data

Most of the data and parameter referred in the proposed methodology do not need to be monitored once the GHG emission reduction is based in the baseline scenario estimated ex-ante, which does not need to be monitored. The CAR 04 and CL 11 raised in this section were closed (for more information please refer to Annex A).

11.9 Assessment of uncertainties



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There is no guidance on the approaches to assessing the uncertainty of key parameters and input data used in the calculations of emission reductions.

11.9.1. Considerations of the validator regarding the treatment of the key assumption

The treatment of key assumptions, are appropriate and adequate addresses in the proposed methodology. No CAR or CL was raised regarding specific VCS program requirements.

11.10 Transparency, conservativeness and consistency

11.10.1. Considerations of the validator regarding the Transparency, conservativeness and consistency of the methodology

a) Transparency

The proposed baseline methodology is presented in a generally adequate and transparent manner

b) Conservativeness:

Whether the methodology is conservative or not will depend on the integrity of the data used for determination of baseline emissions factors and monitoring of reliable performance data at the project plant and at the project customers.

c) Consistency:

The new baseline and monitoring methodology is internally consistent.

In general terms the proposed methodology is technical transparent, the technical approaches are conservative and the methodology as a whole is consistent.

11.11 Monitoring

Monitoring shall consist of an annual check of all appliances or a representative sample thereof to ensure that they are still operating or are replaced by an appliance that is equivalent in service.

Monitoring should confirm the displacement or substitution of the Non-renewable Fuel at each location.

Monitoring during the crediting period shall include:

The amount of units produced at the facility (kg or m³ or quantity of units produced per month);

The Renewable Biomass consumption at the production facility (kg or m³ per month). Each type of biomass shall be monitored separately.

11.11.1. Considerations of the validator regarding the monitoring methodology



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The monitoring methodology is appropriate and adequate. The CAR 04 and CL 11 raised in this section were closed (for more information please refer to Annex A

11.12 Adherence to the project-level principles of the VCS Program

The baseline scenario is identified and quantified ex ante at the beginning of the project activity.

There is a process that determines whether the project is additional or not.

There are applicability criteria that defines the area of project eligibility.

All necessary monitoring aspects related to monitoring and reporting of accurate and reliable GHG emission reductions or removals.

11.12.1 Validator considerations regarding the Adherence to the project-level principles of the VCS Program

In general terms the proposed methodology meets the VCS requirements stated in the VCS 2007.1. No CAR or CL was raised regarding specific VCS program requirements.

11.13 Public comments consideration

According with the the VCS double approval process methodology elements are posted on the VCS website for public comment. The questions received during the public comment period (6 July 2010 – 4 August 2010) were listed as CL's on the Annex B.

11.14 Any other comments

The following methodologies and reference documents have been used as base for the elaboration of the proposed methodology, as described in the item 1 of the proposed methodology.

- AMS-I.E
- AMS-I.C.
- AMS-III.Z.
- AM0036
- EB 47 Annex 28
- EB 20 Annex 8
- EB 23 Annex 18
- Voluntary Carbon Standard 2007.1

12 Final recommendations for the proposed new VCS baseline and monitoring methodology



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The assessed and evaluated methodology with the title “Fuel Switch to Renewable Biomass for Thermal Applications”, Version 2.0 – July 2010 (revised from previous version: V.1.0 - June 2010), meets the requirements of the Voluntary Carbon Standard 2007.1 (VCS 2007.1) and relevant UNFCCC regulations and can be recommended to validation.

13 Curricula Vitae of the Assessment Team Members

Rubens da Silva Ferreira – Is graduated in Chemical Engineering with experience in Quality and Environmental management in glass industries. He is ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 Lead Auditor and has also experience in the implementation of Environmental Management Systems. Rubens is qualified as Lead Verifier GHG – Green House Gases.

Ricardo Fontenele – MSc in Environmental Risk Assessment by the Universidade Federal Fluminense. Post Graduate in Environmental Management at the Open University (UK). ASQ Certified Quality Engineer (USA). Graduate in Mechanical Engineering. Environmental Lead Auditor in Brazil. Verifier of sustainability reports. Tutor on training course for environmental auditors leaders recognized by IRCA (UK). Instructor training MMA for environmental auditors on CONAMA Resolution 306 of compulsory statutory audits. Technical Manager of Bureau Veritas Certification until 2006, responsible for all product certification in Latin America, and is currently Product Manager for Sustainability and Climate Change business responsible for Validation and Verification Project of Carbon Credits and Emissions Inventories. Validator of CDM Projects.

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ANNEX A

List of Corrective Action Requests (CARs) and Clarification requests (CLs) Table

Proposed new VCS Methodology “Fuel Switch to Renewable Biomass for Thermal Applications, Version 1.0”

- Date: 07/26/2010
- Person in charge: Rubens da Silva Ferreira

Corrective Action Requests	Reference	Summary of project owner response	Validation team conclusion
CAR 01: The methodology element documentation didn't state clearly the date on which it was issued, as determined by the VCS Program Normative Document: Double Approval Process, Version 1.1, item 4.2.1.	Section 10, pg 09.	The date was added	The VCS Methodology Fuel Switch to Renewable Biomass for Thermal Applications, Version 2.0 presents the date on section 10. The CAR 01 is closed.
CAR 02: The Emissions Reductions presented on the methodology “Fuel Switch to Renewable Biomass for Thermal Applications” is based on the methodology AMS-III.Z. version 2. In this methodology the product $EF_{BL} * P_{PJ,y}$ is equal to BE_y (The annual baseline emissions from fossil fuels	Section 6, pg 3.	<p>The calculation from the methodology AMS-III.Z. version 2 resp. 3 is the best basis for the calculation used in the methodology “Fuel Switch to Renewable Biomass for Thermal Applications” (Methodology).</p> <p>However, inclusion of another formula and introduction of another term “Baseline emissions” is redundant and goes against the simplicity of the Methodology.</p> <p>The chosen approach comes from the methodology I.E version 2, where only Emission reductions are calculated and Leakage section provides for adjusting the B_y parameter to account for quantified leakage.</p> <p>The Methodology provides for the same in the edited Leakage section, allowing for adjusting a parameter $FC_{BL, i, j}$, synonymous to B_y from the</p>	The explanations were accepted. The CAR 02 is closed.



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displaced by the project activity in t CO _{2e} in year y (of the crediting period)) and not ER _y as presented on version 1.0 of “Fuel Switch to Renewable Biomass for Thermal Applications”		methodology I.E version 2, by following formulation: “then FC _{BL, i, j} shall be adjusted to account for the quantified leakage.”. For better consistency the parameter ER _y was replaced by FC _{BL, i, j} , as the leakage directly influences the latter parameter in the calculation of ER _y , which it thus influenced only indirectly. Also in terms of units leakage as well as FC _{BL, i, j} , is tons [t], as opposed to ER _y which is in [tCO _{2e}].	
CAR 03: The units to P _{PJ,y} and P _{Hy} shall be used in kg or m ³ , if the units used were in quantity of units produced, the value to BE _y will not be available in tCO _{2e} .	Section 6, pg 3.	The EF _{BL} was not correctly defined. If the “unit” of PH _y is quantity of units produced, i.e. [-], the resulting “unit” of EF _{BL} is tCO _{2e} /quantity of units produced, i.e. [tCO _{2e}]. Hence, the definition of units of the EF _{BL} was completed by adding “or quantity of units produced”.	The explanations were accepted. The CAR 03 is closed.
CAR 04: In function of CAR 02, the methodology “Fuel Switch to Renewable Biomass for Thermal Applications” needs to incorporate the calculation of the Emissions Reductions.	Section 6, pg 3.	As per Summary of project owner response on CAR 02 the calculation of the Emissions Reductions is incorporated.	Ok. The CAR 04 is closed.
CL’s			
CL 01: The methodology AMS-I.C. is currently in version 17. Please explain why the actual version was not used.	Section 1, pg 1.	The previous version of the Methodology was used because at the time of the methodology development, the version 16 was the latest version. There is no reason for not using the latest version (v 17) and it was updated in the methodology.	The methodology AMS-I.C now appears in version 17. The CL 01 is closed.



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<p>CL 02: The methodology AMS-III.Z. is currently in version 3. Please explain why the actual version was not used.</p>	<p>Section 1, pg 1.</p>	<p>The previous version of the Methodology was used because at the time of the methodology development, the version 02 was the latest version. There is no reason for not using the latest version (v 03) and it was updated in the methodology.</p>	<p>The methodology AMS-III.Z now appears in version 3. The CL 02 is closed.</p>
<p>CL 03: Please explain why the source [5] was not presented as the sources [7] and [8], with the identification of the EB and the Annex.</p>	<p>Section 1, pg 1.</p>	<p>It was added</p>	<p>Ok. The CL 03 is closed.</p>
<p>CL 04: Please explain why the source: Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories is used if we already have the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.</p>	<p>Section 1, pg 1.</p>	<p>The Annex III is based on the following document: UNFCCC; Annex 28 of EB 47; General guidance on leakage in biomass project activities (Version 03), which contains a reference on the “Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories”.</p> <p>The reference [6] in the Sources section was updated to:</p> <p>2006 IPCC Guidelines for National Greenhouse Gas Inventories (Chapter 11: N2O Emissions from Managed Soils, and CO2 Emissions from Lime and Urea Application); http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_11_Ch11_N2O&CO2.pdf</p>	<p>The explanations were accepted. The CL 04 is closed.</p>
<p>CL 05: Please explain why the definition of Biomass and Biomass Residues were not listed on Section 2. Definitions.</p>	<p>Section 2, pg 1.</p>	<p>Only terms, which needed to be defined and which are used later in the actual text of the methodology “Fuel Switch to Renewable Biomass for Thermal Applications” were listed in the Section 2.</p> <p>It was only necessary and sufficient to include the Annex I to the Annexes section to provide a definition of terms “Biomass and Biomass Residues” contained in the Annex II of the methodology.</p> <p>The Annex II, which is listed in the Section 2, is the Definition of Renewable Biomass and contains the definition of all types of renewable</p>	<p>The explanations were accepted. The CL 05 is closed.</p>



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		biomass. The Annex I contains the definitions of Biomass and Biomass Residues.	
CL 06: How the possible improvement of energy efficiency due to the substitution of fuel used is treated?	Section 3, Item 3.1, pg 1.	<p>Generally, the Project Activities introducing the use of Renewable Biomass result in improved production process efficiency, however on account of the installed technology and enhanced, better controlled burning process.</p> <p>Higher efficiency doesn't influence the Emission Reductions, as these are the result of ceasing the utilization of the original (baseline) amount of the Non-renewable Fuel in the old (baseline) less efficient production process, which would continue emitting on the same scale without the Project Activity.</p>	The explanations were accepted. The CL 06 is closed.
CL 07: Please clarify the meaning of retrofit systems.	Section 3, Item 3.2, pg 2.	<p>As per Glossary of CDM terms, (Version 05); http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf</p> <p>Retrofit (SSC) To modify existing industrial, commercial and residential facilities, automobiles, energy conversion systems etc., which are already in service using new, improved or more efficient parts and equipment developed or made available after the time of original manufacture or installation of the facility.</p> <p>Second summary of project owner response:</p> <p>It was included in the definitions of the methodology.</p>	<p>As the example from the methodology AMS-III.Z/Version 03, why the definition of retrofit systems does not appears on the the VCS Methodology Fuel Switch to Renewable Biomass for Thermal Applications, Version 2.0?</p> <p>The CL 07 is still open.</p> <p>Second Conclusion:</p> <p>The definition about retrofit was included on the methodology. The CL 07 is closed.</p>



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<p>CL 08: Please explain why the requirements concerning demonstration of the remaining lifetime of the replaced equipments were not taken into account.</p>	<p>Section 3, Item 3.2, pg 2.</p>	<p>In order to follow the correct procedures, the requirements of the demonstration of the remaining lifetime of the replaced equipments were added as paragraph 3.2.</p>	<p>Ok. The CL 08 is closed.</p>
<p>CL 09: Please explain the basis for the following definition: "...the average of <u>one-year</u> historical fuel consumption data shall be used to determine an average annual baseline fuel consumption value."</p>	<p>Section 6, Item 6.1.1, pg 2.</p>	<p>The original text was replaced by following: "...the total of one-year historical fuel consumption data (excluding abnormal months) shall be used to determine an average annual baseline fuel consumption value."</p> <p>Second summary of project owner response:</p> <p>The three-year historical fossil fuel criteria has not been used for the reason that in small businesses, the maintenance of evidences for such a long time would be not likely, therefore it would exclude most of the projects. The small businesses inclusion perspective is a voluntary market characteristic, therefore, in order to provide greater coverage of the methodology, without losing any data credibility, it was adopted the one-year historical fossil fuel.</p> <p>Moreover, a full year comprises all the seasons and so the variations of the climate which directly interfere on the supply of the biomass once the harvest conditions are related to climate conditions. In addition, economic factors may promote different prices to the raw material during one year timeframe.</p>	<p>The VCS Methodology Fuel Switch to Renewable Biomass for Thermal Applications, Version 2.0, Section 6 Emissions Reductions follow the definitions from the methodology AMS-III.Z/Version 03. Why in this case the immediately prior three-year historical fossil fuel consumption data was not used? The CL 09 is still open.</p> <p>Second Conclusion: The explanations were accepted. The CL 09 is closed.</p>



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<p>CL 10: Please explain why the phrase: “For biomass from forests and biomass from croplands or grasslands, the project boundary shall include the area where the biomass is extracted or produced” from the EB 47 Annex 28 version 03 is not presented on the Section 9, item III, sub-item II.2., pg 5.</p>	<p>Section 9, item III, sub-item II.2., pg 5.</p>	<p>This phrase states that the area of production and extraction of the biomass is included in the project boundary. On a contrary, section III. Leakage, paragraph 5 of the same document states that: “These emission sources may be project emissions (if under the control of project participants, i.e. if is included in the project boundary)”.</p> <p>As the biomasses are typically bought from a third party, the project participants cannot have the land area where the biomass is grown under control.</p> <p>The phrase was excluded from the Annex III in order not to collide with the Project Boundary section of the .Methodology itself.</p>	<p>The explanations were accepted. The CL 10 is closed.</p>
<p>CL 11: Please explain why the possible incremental emissions associated with the transport of raw and/or additive materials consumed as compared to baseline, was not be calculated as leakage.</p>	<p>Section 7, pg 3.</p>	<p>These kinds of emissions were not considered as leakage because in the baseline scenario there is also transportation of the fuel by trucks (either wood or fossil fuel). Another reason is that in the baseline scenario, the biomass would be produced and transported anyway.</p> <p>Therefore, it can be concluded that there are insignificant incremental emissions associated with the transport of raw and/or additive materials consumed.</p> <p>Second summary of project owner response:</p> <p>The inclusion of this type of leakage was included according to the methodology AMS-III.Z in Annex III, para. 19: “...the possible incremental emissions associated with the transport of raw and/or additive materials consumed as compared to baseline”.</p>	<p>In accordance with methodology AMS-III.Z/Version 03, - Leakage, paragraph 12 “In the case of project activities involving change in production process or a change in type or quantity of raw and/or additive materials as compared to the baseline, the incremental emissions associated with the production/consumption and transport of those raw and/or additive materials consumed as</p>



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			<p>compared to baseline, shall be calculated as leakage.” The CL 11 is still open.</p> <p>Second Conclusion:</p> <p>The inclusion was done. The CL 11 is closed.</p>
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ANNEX B

List of Clarification requests (CLs) Table from the process of public comment

Proposed new VCS Methodology “Fuel Switch to Renewable Biomass for Thermal Applications, Version 1.0”

- Date: 13/08/2010
- Person in charge: Rubens da Silva Ferreira



CL's

<p>CL 01: Definition of Renewable Biomass</p> <p>The VCS should specify how long carbon stocks may temporarily decrease due to harvesting. The goal of carbon reduction is to reduce greenhouse gas pollution in order to avoid the most catastrophic impacts of climate change. These emissions must be reduced in a timely fashion in</p>	<p>Public Comment from Friends of the Earth - US</p>	<p>The text was taken from the UNFCCC DEFINITION OF RENEWABLE BIOMASS”; Annex 18 of EB 23; http://cdm.unfccc.int/EB/023/eb23_repan18.pdf., which is the official definition in compliance with which even the more rigorously validated CER credits for the compliance markets are validated.</p> <p>Clearly, the local governmental institutions responsible for the environment are aware of both issues mentioned – the “temporary” carbon stock reduction and the necessity to avoid non-carbon related impacts of the biomass use.</p> <p>The proofs of the origin of biomass, assure that the area is</p>	<p>Please explain explain the basis to the phrase “The proofs of the origin of biomass, typically issued or controlled by governmental institutions, assure that the area is managed sustainably (including carbon stocks concern), is not a protected area</p>
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<p>order to be most effective. Reducing carbon stocks “temporarily” could hasten the likelihood of reaching a “tipping point”, after which worldwide climate-caused catastrophes would occur. For this reason, the VCS must give a distinct timeframe within which a decrease in carbon stocks would be acceptable. A maximum time frame of 20 years to assure that all emission from the original land clearing has been re-sequestered would be more appropriate than vague terms such as “temporarily”.</p> <p>The VCS should also assure that non-carbon related impacts of their biomass projects are avoided at all costs. In the goal to reduce carbon, other environmental and social impacts must not be ignored. The purpose of avoiding climate change is to prevent environmental disaster that could result in drastic changes in ecosystems that result in species extinction. For this reason, the definition of renewable biomass should include measures to ensure that protected areas and critical habitat are not harmed as a result of biomass projects.</p>		<p>managed sustainably (including carbon stocks concern), so it can be concluded that the proofs of the origin of biomass assures that the area is not a protected area and that the supplier of the biomass complied with all national and local regulations (including protected areas and areas with endangered species concern). No biomass without clear proofs of the origin and renewability can be included into the calculations of the emission reductions.</p> <p>Finally, the definition of renewable biomass deals with renewability issue, not the status of the areas of origin. It is not possible that biomass is renewable if it is originated from a protected area.</p> <p>The existence of conservation areas are areas with the purpose of preservation and these areas are not submitted to sustainable management plan, therefore there are no harm to habitat or species in this area.</p> <p>Contrarily, many of other areas are avoided to be deforested with the implementation of an approved sustainable management plan. Also, the sustainable management plan and the consequent conservation results in benefits for the community (better income distribution); environmental benefits (less illegal logging) and benefits for structuring the system (taxes of the commercialization of the renewable wood and less demand for illegal wood)</p> <p>In order to enhance in the social impacts concerned to the project, it is suggested to the project proponent to use an additional tool like SOCIALCARBON Standard. In addition, as per BRASIL. Manejo sustentável dos recursos florestais da Caatinga/MMA. Secretaria de Biodiversidade e Florestas. Departamento de Florestas. Programa Nacional de Florestas. Unidade de Apoio do PNF no Nordeste._Natal: MMA, 2008. 28p. low-income population is favorable with the management of the Forest.</p>	<p>and that the supplier of the biomass complied with all national and local regulations (including protected areas and areas with endangered species concern). No biomass without clear proofs of the origin and renewability can be included into the calculations of the emission reductions. Certainly, guidelines for the DOEs cover the requirements on accepted biomass even further.” Also, the question do not refers to the DOE work, them, do not input responsibilities to the DOE.</p> <p>The CL 01 is still open.</p>
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<p>The VCS should exempt biomass extracted from protected areas, which should be defined in some fashion. For example, The International Union for Conservation of Nature (IUCN)'s definition of protected areas is <i>"A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values."</i> IUCN's definition specifies six types of protected areas, of which only category IV, "Protected Area with Sustainable Use of Natural Resources" would be appropriate for VCS biomass projects.</p> <p>In addition to avoiding protected areas, the VCS should exempt areas that are habitat to species that are endangered, vulnerable, or threatened by extinction. Some 40 percent of all organisms are considered to be threatened at some level. IUCN also provides geographic information about where these threatened species live and could be used as a starting point for determining where habitats to be</p>		<p>Therefore, no further changes of the Methodology text are necessary.</p> <p><i>Second Summary of project owner response</i></p> <p>The text above was rephrased.</p> <p>The origin of the biomasses used in all the projects activities will be a determinative factor, considering that any project that intends to generate carbon credits cannot do it based on the generation of more greenhouse gas emissions. Therefore, the project proponent has to prove that the biomass used by the project activity is renewable.</p> <p>Also, it was removed from the text above the following parts:</p> <p><i>"...typically issued or controlled by governmental institutions..."</i> <i>"The DOEs must verify the proofs of the origin of biomass of all projects, in order to conclude their validation."</i> and <i>"Certainly, guidelines for the DOEs cover the requirements on accepted biomass even further."</i></p>	<p>Second Conclusion:</p> <p>The explanations were accepted. The CL 01 is closed.</p>
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<p>avoided exist. The VCS should consult IUCN’s mapping and assure that VCS’s definition of renewable biomass does not include biomass extracted from land that is habitat for endangered species.</p>			
<p>CL 02: Inadequate Forest Definitions The VCS indicates that it will use the current UNFCCC definition of forests as elaborated in 11/CP.7 and 19/CP.9. The current definition states: “Forest” is a minimum area of land of 0.05-1.0 hectares with tree crown cover (or equivalent stocking level) of more than 10-30 per cent with trees with the potential to reach a minimum height of 2-5 metres at maturity in situ. A forest may consist either of closed forest formations where trees of various storey and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10-30 per cent or tree height of 2-5 metres are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention such as</p>	<p>Public Comment from Friends of the Earth - US</p>	<p>As affirmed in the CL 02, the text was taken from the UNFCCC definition. Even though the UNFCCC is considering using the definition of biome-specific forest as the next period, is still not sure. As there is still a discussion on this topic, we can not anticipate taking as correct the use of this definition. Thus, the more coherent is to maintain the current definition which is still considered the most appropriate.</p>	<p>The explanations were accepted. The CL 02 is closed.</p>



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<p>harvesting or natural causes but which are expected to revert to forest.”</p> <p>By allowing plantations and what is referred to as “temporarily destocked” land to count as forests, this definition will potentially incentivize activities that harm both native ecosystems and biological diversity. This definition of forests has been noted to be inadequate by several research organizations and many Parties to the UNFCCC. Further, both of these decisions note that the second commitment period of the Kyoto Protocol, which is currently being negotiations, should consider a more robust and environmentally sound definition of forests. We recommend using biome-specific definitions in place of the current definitions used at the UNFCCC.</p>			
<p>CL 03: Relevant Emissions</p> <p>There are several ways in which biomass energy can result in greenhouse gas emissions; however the VCS methodology to assess these emissions does not adequately cover all relevant emissions. We recommend that the VCS update their methodology to include additional</p>	<p>Public Comment from Friends of the Earth - US</p>	<p>The text was taken from the UNFCCC General guidance on leakage in biomass project activities (Version 03) http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid04.pdf, which is the most up-to-date version of the specialized document dealing with the issues of leakage, issued by the most respected institution in the world. The Methodology Developer do not think it is proper to change that number, which resulted from a panel of world-leading scientists. Then the UNFCCC should be addressed with this comment, not the Methodology Developer.</p>	<p>The explanations were accepted. The CL 03 is closed.</p>



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<p>emission sources.</p> <p>The VCS lists only two elements of bioenergy’s emissions lifecycle that they consider significant enough to consider in their accounting: 1) emissions from fertilizers and 2) emissions from land clearance. There are several other elements in the lifecycle of bioenergy emissions, including, for example, the emissions from soil disturbance, such as from land tilling and plowing, the transportation of materials either to help produce the biomass or to bring the biomass to the electricity facility and the energy and fuel emissions in order to harvest biomass. The VCS should investigate additional sources of emissions caused by each project in order to determine what the true emissions impact would be.</p> <p>Another recommendation is that the VCS not just look at carbon emissions, as these are numerous other heat-trapping emissions that can come from biomass projects, including, for example, methane emissions from disturbed peatlands.</p>		<p>The methodology developer considers that emission from production processes should not be included in the calculation of emission reductions. As defined on UNFCCC Guidelines on apportioning emissions from production processes between main product and co- and by-products (version 01), http://cdm.unfccc.int/Reference/Guidclarif/meth/meth_guid37.pdf, these provisions are currently limited to the approved methodology ACM0017. The applicability of such guidelines for other methodologies is depending on further revisions by the Methodologies Panel. Consequently, no guidelines on how to account process emissions on the context of the methodology are available.</p> <p>Moreover, the proposed emissions are not viable to consider as it would result in a very complicated monitoring, at all sites from where the biomass is extracted, at very high costs which make the project unviable. It is also not clear which institutions would be qualified enough to do the monitoring and according to what standards. Also, the project always follows high conservative levels in every step, so in certain way it complies with this request. All in all, this provision would make some projects unfeasible and therefore eliminate their emission-reducing potential to zero, which would be counterproductive for the environment.</p>	
<p>CL 04: Leakage Leakage comes in two main forms: “activity-shifting leakage,” when</p>	<p>Public Comment from</p>	<p>The proposed “market leakage” is the same as the leakage “competing use of biomass” addressed in Leakage B (c) on page 10.</p>	<p>The explanations were accepted. The CL 04 is closed.</p>



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<p>forest carbon activities directly cause carbon-emitting activities to be shifted to another location outside of the project boundaries (or outside the country, at the national scale); and “market leakage,” when a project or policy changes the supply-and-demand equilibrium, causing market actors to shift their activities. Both of which have significant implications for what the atmosphere sees. While we believe there is no way to robustly quantify leakage the project level, at a minimum, we recommend the following be taken in to account. The VCS should not “neglect leakage effects” at any point in their carbon accounting, including pre-project leakage. Shifts in land use outside of the project boundary are highly likely when one form of land use is converted to another. Ignoring these external shifts, as noted above, is not consistent with current country-level regulations on bioenergy emissions. Saming lifecycle emissions and is included in both the United State’s Renewable Fuels Standard’s accounting of biofuel emissions as well as in the European Union’s accounting of biofuel emissions.</p>	<p>Friends of the Earth - US</p>	<p>Looking the leakage globally is probably more precise but doubtless close to impossible which would make the project unviable. It won’t be possible to trace the whole market of all the suppliers and consumers for all around the globe and consider how each action affects another one.</p> <p>It is not coherent to compare the percentages of people affected because of the projects and the quantity of credits generated. These are different magnitudes and the percentages are a kind of approximation range, so it is possible to make a credit discount based on the shift of pre-project activities.</p> <p>Also, if the UNFCCC considers the approximations on percentages threshold sufficient, the Methodology Developer do not think it is proper to change that number, which resulted from a panel of world-leading scientists. The UNFCCC should be addressed with this comment, not the Methodology Developer</p>	
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<p>Explicitly excluding these emissions from the VCS's emission accounting for biomass projects is contrary to country-level laws on measuring emissions from bioenergy. We recommend that the VCS open its assessment of GHG emission from bioenergy to include indirect international emissions in their leakage assessment.</p> <p>Also, in assessing the possibility of leakage, the VCS should not base leakage assessment purely on economic modeling and discount factors. The possibility of significant errors in leakage assessment rise exponentially when using only economic modeling, which depended on significant guesswork. Project sponsors must be required to use rigorous, field-based leakage monitoring techniques.</p> <p>The VCS indicates that it will not consider land use leakage emissions that are outside of the project's region. This section uses an example of a 50 km radius. Leakage emissions should not be looked at regionally, but rather on a global scale. Doing less than a global analysis of land use changes as a result of increased</p>			
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<p>bioenergy consumption is not justified by science or by precedent set in country-level laws. Further, Murray et. al. (2004) point out that: “It is commonly argued that small projects will have negligible effects on the affected markets and therefore generate little leakage...For small projects, leakage may be small in absolute terms but it tends to be larger in proportion to the direct project benefit than a larger program. Thus leakage outside the boundaries of even small projects should not be ignored.”</p> <p>The VCS also asserts that if valued lower than 10% it would consider the emissions as 0% and if valued between 10% and 50% the emissions would be considered as 15%. Instead, the VCS should account for the emissions as they actual are and not give a false figure that is far less than what their own analysis indicates it as.</p>			
<p>CL 05: Abandoned Land and Wastes/Residues The VCS should also define what they mean by “abandoned” land to ensure that the land is not informally managed or used for livelihood activities such as gathering food or</p>	<p>Public Comment from Friends of the Earth - US</p>	<p>The definition of the term “abandoned land” came from the meaning of each word itself. As “abandoned” is understood something that has not been taking care of, neglected, and, in this case, the term “managed” is a good definition. When it refers to “land”, it is possible to enlarge this meaning, once that a land that is not managed can be used for livelihood activities such as gathering food or other resources, and it would be done, probably, by local</p>	<p>Please explain the origin from the definition of abandoned land, also, explain the basis to the phrase “An recoverable area can recover itself naturally,</p>



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<p>other resources by local communities. Also, the VCS' assumption that abandoned land does not have a carbon value is incorrect. The specific example that lands that would be abandoned were the project not to occur assumes that the carbon impact of abandoning lands is neutral. In fact, land that is abandoned and allowed to reforest or otherwise become a more natural ecosystem could result in significant carbon sequestration. We recommend that VCS include potential emission reduction loss from cultivating "abandoned" lands that could be reforested instead of converted to bioenergy production. The emission for future sequestration capabilities, known as "foregone sequestration, must be included in the lifecycle emissions of a bioenergy project. These emission reductions could be significant, as stated above, and "simplification" is not a good enough justification to ignore these emissions. It is not appropriate to "neglect" emissions that would occur on abandoned land were it not to be cultivated for biomass as point B (b (15)) suggests.</p> <p>Lastly, assuming that "wastes" or</p>		<p>communities.</p> <p>The definition of abandoned land was added as foot-note 4 in order to ensure that there is no shift of pre-project activities.</p> <p>The methodology developer has the consent that an abandoned land has a chance to be recovered naturally or by human activities but it is known that is very unlikely to happen. An area can recover itself naturally, but the typical scenario is that it would take a long time for the recovery. Therefore, it is better that this area is used to generate bioenergy, once it is impossible to foresee if or when it is going to be recovered. This bioenergy will be useful to prevent the deforestation of other areas. Moreover, there are no guarantee that throughout the recovery period, this area will not be deforested again by the common deforestation drivers once it is located near to regions with deforestation as a common practice.</p> <p>Biomass wastes and residues that are included in the DEFINITION OF RENEWABLE BIOMASS [UNFCCC; Annex 18 of EB 2] are renewable biomasses so not considered carbon pools. Therefore, the emissions from burning these types of biomasses don't results in net rising of the CO₂. Finally, the emissions of methane and N₂O are commonly excluded from the methodologies due to its insignificant amount.</p> <p>Second summary of project owner response:</p> <p>The definition of abandoned land that we understand is the above mentioned, however it was removed from the methodology since there is no specific definition for this term and as soon as this definition is officially defined, the methodology can be updated to</p>	<p>in the best scenario, approximately in 6 years and, in the worst scenario in approximately 50 years, depending on the biome and the situation of the surroundings"</p> <p>The CL 05 is still open.</p> <p>Second Conclusion:</p> <p>The explanations were accepted.</p> <p>The CL 05 is closed.</p>
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<p>residues can be used and not result in carbon emissions is false. If these resources were allowed to compost and decompose naturally, the carbon emission impact would be far less than that which would occur if it were burned for biomass electricity.</p>		<p>comply with the definition.</p> <p>Secondly, as we don't have an official reference, the following sentence was removed from the explanation above: <i>"An recoverable area can recover itself naturally, in the best scenario, approximately in 6 years and, in the worst scenario in approximately 50 years, depending on the biome and the situation of the surroundings"</i></p>	
<p>CL 06: <i>Section B. Emission from the production of the renewable biomass</i> <i>Regarding clause 12 Page 8:</i> Forest management activities can result in the emission of carbon dioxide from the fossil fuel if machinery is used. The amount of carbon emitted can be large or small (relative to the total carbon in biomass) depending on the degree of machine operations. In mechanized woody biomass production systems, machinery is used for site preparation, planting, thinning, felling, skidding, preprocessing, processing, kiln drying and transportation to the facility. In long-lived forests, i.e. forest managed under a long rotation (i.e. over 50</p>	<p>Public Comment from Terra Global Capital</p>	<p>The text was taken from the UNFCCC General guidance on leakage in biomass project activities (Version 03) http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid04.pdf, which is the most up-to-date version of the specialized document dealing with the issues of leakage, issued by the most respected institution in the world. If the UNFCCC considers the 10% threshold sufficient, the Methodology Developer do not think it is proper to change that number, which resulted from a panel of world-leading scientists. The UNFCCC should be addressed with this comment, not the Methodology Developer.</p> <p>Moreover, the following requirement from the comment: "...carbon emission from machinery application be tested explicitly for significance" is not viable, as it would result in a very complicated monitoring, at all sites from where the biomass is extracted, at very high costs which make. It is also not clear which institutions would be qualified enough to do the monitoring and according to what standards. Also, the project always follows high conservative levels in every step, so in certain way it complies with this request. All in all, this provision would make some projects unfeasible and therefore eliminate their emission-reducing potential to zero, which would be counterproductive for the environment.</p>	<p>The explanations were accepted. The CL 06 is closed.</p>



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<p>years), the fraction of carbon emitted from the use of machinery is usually small or even insignificant compared to total carbon in biomass. On the other hand, short-rotation woody biomass crops are grown usually within a period of 4-10 years and are machine-intensive (aimed at higher productivity). This production intensive process usually results in a larger and significant fraction of fossil fuel based carbon emission relative to carbon in biomass. It is not unlikely that fossil fuel based emissions from growing bioenergy feedstock (or fuel switching) represent more than 10% of the GHG benefits (contrary to assumption made in the methodology) unless accompanying machines use biomass grown fuel such as ethanol or biodiesel. Therefore, the methodology should ensure that the carbon emission from machinery application be tested explicitly for significance and should be neglected only if significance test results in less than stated 10% threshold of fossil based carbon. Alternatively, applicability criteria that will ensure that fossil-fuel based carbon emissions are insignificant</p>			
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<p>should be added.</p>			
<p>CL 07: <i>Section B. Emission from the production of the renewable biomass</i> <i>Regarding clause 12 Page 8:</i> Without the requirement that the biomass for the fuel switching come from new plantations, leakage is not adequately addressed. For example, if the biomass that is being used by communities for fuel-wood or other uses is diverted for use in fuel switching facilities, these communities will need to find alternative sources of fuel-wood, thus causing leakage. Therefore, the applicability criteria should include either the requirement that the biomass comes from new plantations or the requirement that leakage monitoring should be expanded to properly account for this situation.</p>	<p>Public Comment from Terra Global Capital</p>	<p>The text was taken from the UNFCCC General guidance on leakage in biomass project activities (Version 03) http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid04.pdf, which is the most up-to-date version of the specialized document dealing with the issues of leakage, issued by the most respected institution in the world.</p> <p>Requiring that biomass came from a new plantation would come against the purpose of the proposed methodology, since it would restrict the use of other types of renewable biomass. The monitoring of the mentioned leakage sources is already taken into account in the present calculation, under Table 1 - leakage of competing use of biomass. This leakage is to be considered in cases where the biomass originates from existing forests. Moreover, it is not necessary to include leakage from competing use of biomass when the biomass comes from new forests, once this type of biomass is new, in other words, being produced and obviously never utilized before by anybody.</p>	<p>The explanations were accepted. The CL 07 is closed.</p>