Gold Standard®

Voluntary Gold Standard

Ecologically Sound Fuel Switch to Biomass with Reduced Energy Requirement

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Table of Contents

Section I: SOURCE AND APPLICABILITY

I.1 Sources and validity

This new methodology is based on existing regulation in approved CDM Small Scale methodologies. It extends applicability of AMS III.b to project activities that are primarily a fuel switch to ecologically sound biomass with accompanying measures that promote a more efficient use of the generated energy, by including into this new methodology guidance that addresses the specific aspects (Leakage and Renewability) which distinguish biomass from the use of fossil fuels, referencing to Gold Standard specific requirements such as Gold Standard Toolkit Annex C[g], and to the provisions of "Attachment C (information on leakage in biomass project activities)[b]" in the same way AMS I.C does.

All original quotes are indicated in *cursive fonts*, and attributed to the original CDM or GS sources through the following indices:

[a] AMS III.b, Version 12,13
http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_UW3T7OSMNKZY7EY43QKEO14O77L255
[b] "Attachment C (information on leakage in biomass project activities)" , Version 02
http://cdm.unfccc.int/methodologies/SSCmethodologies/AppB_SSC_AttachmentC.pdf
[c] Annex 18 of the report of the twenty third meeting the CDM Executive Board
http://cdm.unfccc.int/EB/Meetings/023/eb23_repan18.pdf
[d] AMS I.C, Version 13
http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_YL0327DQSKVFXYQREWRT3VNR58402G
[e] CDM Additionality Tool
http://cdm.unfccc.int/methodologies/PAmethodologies/AdditionalityTools/Additionality_tool.pdf
[f] "Revision to general guidance for SSC methodologies" , EB 35 Annex 35
http://cdm.unfccc.int/methodologies/SSCmethodologies/methSSC_guid06_v11.pdf
[g] GS Toolkit Annex C
http://www.cdmgoldstandard.org/uploads/file/Gold%20Standard_v2_Toolkit_annexes_20080730.pdf
[h] Guidance from the Gold Standard Foundation

I.2 Objective

This new methodology intends to incentivise a combination of project activities that are primarily a fuel switch to ecologically sound biomass with accompanying measures that promote a more efficient use of the generated energy, thus reducing the energy demand per unit of output.

I.3 Applicability Conditions

- This methodology is applicable to *fuel switching* from fossil fuel to renewable biomass *in existing industrial, residential, commercial, institutional or electricity generation applications[a],* in the event where the project activity *primarily aims at reducing emissions through fuel switching[a]* , but will involve both fuel switching and energy efficiency measures which reduce the energy demand per unit of output.

- *If fuel switching is part of a project activity focussed primarily on energy efficiency, the project activity falls in category II.D or II.E[a]..*

- *This* methodology *is not applicable to project activities that propose a switch from fossil fuel use in the baseline to renewable biomass (…) in the project scenario* without energy efficiency initiatives that reduce the energy generation requirement. *A relevant type I methodology shall be used for such project activities that generate renewable energy displacing fossil fuel use[a].*

- *Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO2 equivalent annually[a].*

- *The potential of deforestation due to the implementation of the VER project activity must be addressed by considering the following applicability condition[b]:*
  Where the project activity involves the use of a type of renewable biomass that is not a biomass residues or waste, project participants shall *demonstrate that the area where the biomass is grown is not a forest (as per DNA forest definition) and has not been deforested, according to the forest definition by the national DNA, during the last 10 years prior to the implementation of the project activity. In the absence of forest definition from the DNA, definitions provided by relevant international organisations (e.g. FAO) shall be used[b].*

- This methodology is applicable following the specific Gold Standard eligibility criteria as set out in the applicable version of The Gold Standard, where this is the GS Version 2, especially Toolkit Annex C[g]. Whenever there is a conflict between the CDM and GS applicability criteria, GS criteria take precedence.

Section II: CALCULATION OF EMISSION REDUCTIONS

Project participants shall take into account the general guidance to the methodologies, […] abbreviations and general guidance on leakage provided at[a]:
http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html, with the exception of the Small Scale additionality test "Attachment A: Information additionality", which is not applicable under the VER Gold Standard.

1. Project boundary

The project boundary is the physical, geographical site where the fuel combustion affected by the fuel-switching measure occurs[a].
For biomass from forests and biomass from croplands or grasslands, the project boundary shall include the area where the biomass is extracted or produced[b].

2. **Procedure for selection of the most plausible baseline scenario**

CDM Small Scale Methodologies allow the project proponent to select a standardized conservative baseline scenario, as specified below.

3. **Additionality**

Additionality shall be established using the most recent version of the CDM Additionality Tool[e]. Moreover, the project shall also comply with any further additionality tests required by the VER Gold Standard.

4. **Baseline emissions**

The emission baseline is the current (i.e. before-project) *emissions of the facility expressed as emissions per unit of output*[b]. *Emission coefficients for the fuel used by the generating unit before and after the fuel switch are also needed. IPCC default values for emission coefficients may be used*[a].

Baseline emissions are calculated by multiplying the monitored units of output with the baseline emissions factor per unit of output, following paragraphs 4.1 and 4.2.

4.1

Baseline emissions shall be determined as follows[a]:

$$BE_y = EF_{BSL} * Q_y \qquad\qquad (1)$$

Where:

BE_y *Baseline emissions in the project activity in year y (tCO2e)*
EF_{BSL} *Emission factor for the baseline situation (tCO2/*unit of output*)*
Q_y *Net output in the project activity in year y*

The emission factor in the baseline situation (EF_{BSL}) is the coefficient for the fossil fuel used in the baseline expressed as emissions per unit of output.

$$EF_{BSL} = (FC_{BSL} * EF_{CO2} * NCV) / Q_{BLS} \qquad\qquad (2)$$

Where:

FC_{BSL} *Total amount of fossil fuel consumed for captive energy generation in the baseline situation (mass or volume unit)*
EF_{CO2} *CO2 emission factor for the baseline fossil fuel[1] (tCO$_2$/TJ)*
NCV *Net calorific value for the baseline fossil fuel (TJ/ mass or volume unit)[2]*
Q_{BSL} *Net output generated in the baseline situation during the corresponding period of time for which the total fuel consumption was taken.*

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[1] *Reliable local or national data for the emission factor and NCV shall be used; IPCC default values should be used only when country or project specific data are not available or difficult to obtain.*

[2] *The necessary data are probably readily available, but may need to be organized into appropriate records and be supported by receipts for fuel purchases.*

4.2

A unit of output (e.g. unit of energy consuming product/service) selected as reference base for the baseline emission factor must be comparable in the baseline and the project scenario, that is the baseline must be set in line with the principle of 'functional equivalence'. Effects that could affect the comparability of conditions for application of the calculated baseline emission factor per output unit in the project situation (for example other energy efficiency measures, use of other energy sources outside the project boundary, etc.) must be excluded or corrected for.

5. Project emissions

Project activity emissions include:

– *emissions related with the use of fossil fuel* (co-firing) *after the fuel switch. IPCC default values for emission coefficients may be used*[a].

Project emissions are determined as follows[a]:

$$PE_Y = FC_Y * EF_{CO2} * NCV \qquad\qquad (3)$$

Where:

PE_y	*Project emissions in the project activity in year y (tCO_{2e})*
FC_y	*Amount of fossil fuel consumed for captive energy generation in the project activity in year y (mass or volume unit)*
EF_{CO2}	*CO2 emission factor for fossil fuel ($tCO2/TJ$)[2]*
NCV	*Net calorific value for the fossil fuel (TJ/mass or volume unit)[2]*

– emissions related with *A. Shifts of pre-project activities*; *B. Production of Biomass*, and *C. Competing uses of the Biomass, if* the source is *under control of project participants,* shall be considered as *project emissions* following the detailed guidance provided by "Attachment C (information on leakage in biomass project activities)"[b].

6. Leakage

Emission sources related with *A. Shifts of pre-project activities; B. Production of Biomass, and C. Competing uses of the Biomass, if* the source is *not under control of project participants,* shall be considered as *leakage* the detailed guidance provided by "Attachment C (information on leakage in biomass project activities)"[b] and following the Gold Standard specific rules on biomass resources as set out in the applicable version of the GS, where this is the GS Version 2, especially Toolkit Annex C. Whenever there is a conflict between the CDM and GS criteria, GS criteria take precedence.

7. Emission reductions

The emission reduction achieved by the project activity will be calculated as the difference between the baseline emissions and the project emissions[a], minus leakage.

Gold Standard

Section III: DATA SOURCES AND MONITORING

1. Quality Assurance

The project proponent shall describe in the Gold Standard PDD the measures undertaken for Quality Assurance. The project proponent shall take into account section "12. Monitoring" of the "general guidance for SSC methodologies" [f].

2. Quality Control

The project proponent shall describe in the Gold Standard PDD the measures undertaken for Quality Control. The project proponent shall take into account section "12. Monitoring" of the "general guidance for SSC methodologies" [f].

3. Data and parameters

Guidance on the frequency and quality assurance of monitoring is provided in section "12. Monitoring" of the "general guidance for SSC methodologies" [f].
Please note that parameters listed as "not monitored" may nevertheless be subject of validation.

3.1 Baseline and Project Emissions at the project site

Parameters	not monitored	monitored
- *Monitoring of the fuel use and output for an appropriate period (e.g., a few years, but records of fuel use may be used) prior to the fuel switch being implemented (…) (records of fuel used and output can be used in lieu of actual monitoring)*[a]. Each fossil fuel and type of biomass needs to be monitored separately[d].		x
- *Monitoring fuel use and output after the fuel switch has been implemented*[a]. Each fossil fuel and type of biomass needs to be monitored separately[d].		x
- As applicable: most recent[f] *IPCC values for emission coefficients in the baseline and fossil fuel co-firing*[a]	x	
- *In the case of coal, the emission coefficient shall be based on test results for periodic samples of the coal purchased if such tests are part of the normal practice for coal purchases*[a].	x	x

3.2 Data and Parameters resulting from CDM Small Scale "Attachment C (information on leakage in biomass project activities)"[b] and from applicable GS regulation on leakage

[Information: The referred document "Attachment C (information on leakage in biomass project activities)"[b] outlines how to address potential leakage effects in CDM Small Scale biomass project activities. It defines when to treat these effects as either leakage or project emissions, or address them through specific applicability conditions, how to assess and monitor them, and where they are assumed to be insignificant enough to be neglected.)

Types & Renewability of biomass	not monitored	monitored
– Biomass origin (type/activity) as per classification by Table 1 in "Attachment C (information on leakage in biomass project activities)"[b]		**x**
– Renewability of the biomass as per definition annex 18 EB 23[c]		**x**

Shifts of pre-project activities (if applicable)	not monitored	monitored
relevant[3] in the event that the project activity establishes new biomass cultivations:		
– *Either: Demonstration that the project activity makes use of otherwise set aside or marginal land*[g] *Or: Project activities making use of land currently in use for growing food crops must provide convincing evidence that the energy crop is part of a traditional rotational cropping.*[g]	**x**	**x**
– For biomass from *land areas* which *in the absence of the project would be used for other purposes (i.e. agriculture), and* not *be abandoned* [b] *, potential leakages associated with shifts in pre-project activities (such as for example deforestation due to shift of previous pasture activities) must be monitored.*[h]		**x**

Emissions from the production of renewable biomass (if applicable)	not monitored	monitored
relevant[1] where fertilizers are applied to produce biomass		
– *Project participants should monitor the type and quantity of fertilizer applied to the land areas*[b]		**x**
– *N2O emissions from the use of synthetic and organic fertilizers should be estimated according to provisions outlined in the*[b] most recent version of[f] *IPCC Guidelines for National Greenhouse Gas Inventories*[b].	**x**	

Competing uses of biomass (if applicable)	not monitored	monitored
relevant[1] for *Biomass from existing forests*[b]*, Biomass residues or wastes*[b] *, and any other existing biomass resources used by the project*[g]		
– *Quantity of* the *available biomass* resource *in the region* of the project activity *(e.g. 50 km radius) - annually*[b]		**x**
– *Quantity of* the *biomass* resource *that is utilised* in the region *including the project* activity – annually[b]		**x**

3.3 GS specific sustainability parameters

Parameters	not monitored	monitored
Monitoring of sensitive and critical parameters identified in the GS Sustainable Development Matrix		**x**
- Monitoring of parameters related to Gold Standard eligibility of biomass projects (under GS Version 2 especially GS Toolkit Annex C)[g]		**x**

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[3] for relevant cases see "Attachment C (information on leakage in biomass project activities)[b]"