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TYPE II - ENERGY EFFICIENCY IMPROVEMENT PROJECTS

Project participants shall take into account the general guidance to the methodologies, information on additionality, abbreviations and general guidance on leakage provided at: http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html.

II.G. Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass

Technology/measure

1. This category comprises small appliances involving the efficiency improvements in the thermal applications of non-renewable biomass. Examples of t~~T~~hese technologies and measures include the introduction of high efficiency biomass fired cook stoves or ovens or dryers and/or ~~ovens using biomass~~ improvement of energy efficiency of existing biomass fired cook stoves or ovens or dryers. ~~Project activities, which also involve the switch to renewable biomass, shall apply category I.E.~~

2. If any similar registered small-scale CDM project activities exist in the same region as the proposed project activity then it must be ensured that the proposed project activity is not saving the non-renewable biomass accounted for by the other registered project activities.

3. Project participants are able to show that non-renewable biomass has been used since 31 December 1989, using survey methods.

Boundary

4. The project boundary is the physical, geographical area of the use of non-renewable biomass.

Baseline

5. It is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs.

6. Emission reductions would be calculated as:

$$ER_y = B_{y,savings} \cdot f_{NRB,y}.NCV_{biomass} \cdot EF_{projected\_fossilfuel} \quad \textbf{(1)}$$

Where:

ER_y	Emission reductions during the year y in tCO_2e
$B_{y,savings}$	Quantity of biomass that is saved in tonnes
$f_{NRB,y}$	Fraction of biomass saved by the project activity in year y that can be established as non renewable biomass using survey methods
$NCV_{biomass}$	Net calorific value of the non-renewable biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne)
$EF_{projected\_fossilfuel}$	Emission factor for the substitution of non-renewable biomass by similar consumers. The substitution fuel likely to be used by similar consumers is taken: 71.5 tCO_2/TJ for Kerosene, 63.0 tCO_2/TJ for Liquefied Petroleum Gas (LPG) or the IPCC default value of other relevant fuel

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$$B_{y,savings} = B_y \cdot (1 - \frac{\eta_{old}}{\eta_{new}}) \quad \textbf{(2)}$$

Where:

B_y Quantity of biomass used in the absence of the project activity in tonnes

η_{old} Efficiency of the system being replaced, ~~use 0.10 (i.e. 10%) as default value or local data if available~~ measured using representative sampling methods or based on referenced literature values (fraction)

η_{new} Efficiency of the system being deployed as part of the project activity (fraction)

B_y is determined by using one of the two following options.

(a) Calculated as the product of the number of appliances multiplied by the estimate of average annual consumption of biomass per appliance (tonnes/year). This can be derived from historical data or a survey of local usage, OR

(b) Calculated from the thermal energy generated in the project activity as:

$$B_y = \frac{HG_{p,y}}{NCV_{biomass} \cdot \eta_{old}} \quad \textbf{(3)}$$

Where:

$HG_{p,y}$ Amount of thermal energy generated by the new technology in the project in year y (TJ)

Differentiation between Non-renewable and Renewable biomass

7. Project participants must determine the share of renewable and non-renewable biomass in the total biomass consumption using nationally approved methods (e.g. surveys or government data if available) and determine $f_{NRB,y}$. The following principles shall be taken into account:

Renewable biomass[1]:

Biomass is "renewable" if any one of the following five conditions is satisfied:

I. The biomass is originating from land areas that are forests[2] where:

(a) The land area remains a forest; and

[1] This definition is based on Annex 18, EB 23.

[2] The forest definitions as established by the country in accordance with the decisions 11/CP.7 and 19/CP.9 should apply.

(b) Sustainable management practices are undertaken on these land areas to ensure, in particular, that the level of carbon stocks on these land areas does not systematically decrease over time (carbon stocks may temporarily decrease due to harvesting); and

(c) Any national or regional forestry and nature conservation regulations are complied with.

II. The biomass is woody biomass and originates from croplands and/or grasslands where:

(a) The land area remains cropland and/or grasslands or is reverted to forest; and

(b) Sustainable management practices are undertaken on these land areas to ensure in particular that the level of carbon stocks on these land areas does not systematically decrease over time (carbon stocks may temporarily decrease due to harvesting); and

(c) Any national or regional forestry, agriculture and nature conservation regulations are complied with.

III. The biomass is non-woody biomass and originates from croplands and/or grasslands where:

(a) The land area remains cropland and/or grasslands or is reverted to forest; and

(b) Sustainable management practices are undertaken on these land areas to ensure in particular that the level of carbon stocks on these land areas does not systematically decrease over time (carbon stocks may temporarily decrease due to harvesting); and

(c) Any national or regional forestry, agriculture and nature conservation regulations are complied with.

IV. The biomass is a biomass residue and the use of that biomass residue in the project activity does not involve a decrease of carbon pools, in particular dead wood, litter or soil organic carbon, on the land areas where the biomass residues are originating from.

V. The biomass is the non-fossil fraction of an industrial or municipal waste.

Non-renewable biomass:

To complement the survey results, national or local statistics, or other sources of information such as remote sensing data can be used to establish the portion of the biomass used that can be considered as non renewable ($f_{NRB,y}$). Inference derived from historical data may also be used if available for this purpose. Maps can be used to illustrate the biomass supply area, where necessary. The following indicators may be useful for conducting surveys in the local areas:

- Increasing trend of time spent or distance travelled by users for gathering fuel wood;
- Increasing trends in fuel wood price indicating scarcity;
- Trends in the type of biomass collected by users, suggesting scarcity of woody biomass.

A single indicator may not provide sufficient evidence that biomass in the region is non-renewable and therefore more than one indicator may be used. Project participants shall also provide evidence that the trends seen are not on account of enforcement of local/national regulations.

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II.G. Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass (cont)

Leakage

8. Leakage relating to the non-renewable biomass shall be assessed from ex post surveys of users and areas from where biomass is sourced. The following potential sources of leakage were identified:

(a) Use/diversion of non-renewable biomass saved under the project activity by non-project households/users who 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 B_y is adjusted to account for the quantified leakage.

(b) Use of non-renewable biomass saved under the project activity to justify the baseline of other CDM project activities can also be potential source of leakage. If this leakage assessment quantifies a portion of non-renewable biomass saved under the project activity that is used as the baseline of other CDM project activity then B_y is adjusted to account for the quantified leakage.

(c) Increase in the use of non-renewable biomass outside the project boundary to create non-renewable biomass baselines can also be potential source of leakage. If this leakage assessment quantifies an increase in use of non-renewable biomass outside the project boundary then B_y is adjusted to account for the quantified leakage.

9. If the equipment is transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered.

Monitoring

10. Monitoring shall consist of an annual check of efficiency of all appliances or a representative sample thereof to ensure that they are still operating at the specified efficiency (η_{new}) or replaced by an equivalent in service appliance. Where replacements are made, monitoring shall also ensure that the efficiency of the new appliances is similar to the appliances being replaced.

11. In order to assess the leakages specified above monitoring shall include data on the amount of biomass saved under the project activity that is used by non-project households/users (who previously used renewable energy sources). Other data on non-renewable biomass use required for leakage assessment shall also be collected.

12. Monitoring shall ensure that the replaced low efficiency appliances are disposed off and not used within the boundary or within the region.

13. In case option (b) in paragraph 6 is chosen for baseline calculations, monitoring shall include the amount of thermal energy generated by the new renewable energy technology in the project in year y, where applicable.

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II.G. Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass (cont)

History of the document

Version	Date	Nature of revision
01	EB 37, Annex 7, 1 February 2008	Initial adoption