

Indicative simplified baseline and monitoring methodologies
for selected small-scale CDM project activity categories

TYPE I - RENEWABLE ENERGY PROJECTS

Note: Categories I.A, I.B and I.C involve renewable energy technologies that supply electricity, mechanical and thermal energy, respectively, to the user directly. Renewable energy technologies that supply electricity to a grid fall into category I.D.

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>.

I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User

Technology/measure

1. This category comprises small appliances involving the switch from non-renewable biomass to renewable sources of energy. These technologies include biogas stoves, use of solar cookers and measures that involve the switch to renewable biomass.
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 shall show that there was no switch to non-renewable biomass during a period of time (e.g. 3 years) prior to the start of the proposed project activity.

Boundary

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

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:

$$ER_y = B_y \cdot NCV_{\text{biomass}} \cdot EF_{\text{projected_fossilfuel}}$$

where:

ER_y	Emission reductions during the year y in tCO ₂ e
B_y	Quantity of non-renewable biomass that is substituted or displaced in tonnes
NCV_{biomass}	Net calorific value of the non-renewable biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne)
$EF_{\text{projected_fossilfuel}}$	Emission factor for the projected fossil fuel consumption in the baseline. The fossil fuel likely to be used by similar consumers is

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taken: 71.5 tCO₂/TJ for Kerosene, 63.0 tCO₂/TJ for Liquefied Petroleum Gas (LPG) or the IPCC default value of other relevant fossil fuel.

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 non-renewable biomass per appliance (tonnes/year). This can be derived from historical data or estimated using survey methods, OR

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

$$B_y = HG_{p,y} / (NCV_{\text{biomass}} \cdot \eta_{\text{old}})$$

where:

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

η_{old} Efficiency of the system being replaced, use 0.10 (i.e. 10%) as default value or local data if available

Differentiation between Non-renewable and Renewable biomass

7. Project proponents shall demonstrate that the biomass¹ used in the baseline is not renewable as detailed below².

Step 1: Verify that the biomass is not “renewable”.

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

I. The biomass is originating from land areas that are forests³ where:

(a) The land area remains a 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

¹ Biomass means non-fossilized and biodegradable organic material originating from plants, animals and micro-organisms. This shall also include products, by-products, residues and waste from agriculture, forestry and related industries as well as the non-fossilized and biodegradable organic fractions of industrial and municipal wastes. Biomass also includes gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material. Biomass residues means biomass by-products, residues and waste streams from agriculture, forestry and related industries (annex 8, EB 20)

² ‘Definition of Renewable biomass’ in this document is based on annex 18 of EB 23

³ The forest definitions as established by the country in accordance with the decisions 11/CP.7 and 19/CP.9 should apply.

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- (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.

If the biomass used by the project activity in the baseline meets any of the above criteria then the biomass is renewable and this methodology is not applicable to the project activity. Otherwise proceed to step 2.

Step 2: If the biomass cannot be classified as renewable, the following guidance shall be used to confirm that it is non-renewable.

National or local statistics, or other sources of information such as remote sensing data can be used for this purpose as applicable. Maps can be used to illustrate the biomass supply area, where necessary. Alternatively the following indicators from the local areas derived from historical data or estimated using survey methods may be used:

- Increasing trend of time spent or distance travelled by users for gathering fuel wood;
- Increasing trend in fuel wood price indicating scarcity;
- Trends in the type of biomass collected by users e.g. a switch from wood to small branches and twigs, or to non-woody biomass, 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.

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Leakage

8. If the project activity includes substitution of non-renewable biomass by renewable biomass, leakage in the production of renewable biomass must be considered using the general guidance on leakage in biomass project activities (attachment C of appendix B).
9. 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, however the applicability conditions of the methodology ensure that the possibility of this leakage is avoided.
 - 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, however the applicability conditions of the methodology ensure that the possibility of this leakage is avoided.
10. If the equipment is transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered.

Monitoring

11. 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 equivalent in service appliance.
12. In order to assess the leakage specified under 9 (a), 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.
13. Monitoring should confirm the displacement or substitution of the non-renewable biomass at each location. In the case of appliances switching to renewable biomass the quantity of renewable biomass used shall be monitored.
14. 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.