Switch from Non-Renewable Biomass to Renewable Energy for Thermal Applications by the User

Technology/ Measure

1. This category comprises small appliances involving the switch from non-renewable biomass ((such as fuelwood or charcoal) to renewable sources of energy. These technologies include biogas stoves, use of solar cookers and measures that involve the switch to renewable biomass.

Boundary

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

Baseline

3. It is assumed that in the absence of the project activity, the baseline scenario would be the mix of non-renewable biomass and fossil fuel use expected to be used in the baseline, within the project duration, by the local consumers, for meeting similar thermal energy needs. Project proponents must demonstrate that the biomass use claimed to be non-renewable is indeed non-renewable, following the EB 23 Annex 18 definition of "renewable biomass" (by inversion).

In order to avoid incentives for to enhance deforestation and forest degradation in order to meet the conditions of "non-renewable biomass", project proponents must, in addition, demonstrate that the biomass used by the project participants was non-renewable at the time of, or before, the adoption of this methodology (September 2006).

4. Emission reductions would be calculated as:

$$ER_y = B_y \cdot NCV_{biomass} \cdot EF_{non-renewable\ biomass,CO2} \cdot 10^{-3}$$

Note: 10^{-3} added

where:

ERy	Emission reductions during the year y in t CO_2
By	Quantity of non-renewable biomass that is substituted or displaced in tonnes, calculated as:

(i) 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 a survey of local usage.

OR

(ii) The quantity of renewable biomass used in the project activity corrected for differences in calorific values.

In the case of charcoal the quantity of non-renewable biomass going into the charcoal making process should be used (IPCC default: 6 kg wood per kg charcoal, reference manual of 1996 Guidelines page 1.45)

NCVbiomass	Net calorific value of the non-renewable biomass that is substituted (IPCC default for wood fuel, 15 MJ/Kg).
EFnon-renewable biomass,CO_2	Emission factor for the substitution of non-renewable biomass by similar consumers locally, in t CO_2 / TJ biomass.

$$EF_{non\text{-}renewable\ biomas,\ CO2} = \frac{1}{2} \cdot (EF_{CO2,\ start} + EF_{CO2,\ end})$$

$$EF_{CO2,\,start} = EF_{CO2,\,biomass}$$

$$EF_{CO2,\,end} = X * \left(\frac{\varepsilon_{stoves,\,biomass}}{\varepsilon_{stoves,\ fossil}} \cdot EF_{CO2,\,fossil}\right) + (1 - X) * EF_{CO2,biomass}$$

where:

$EFCO_2$, start	CO_2 emission factor of the baseline at the start of the project
$EFCO_2$, end	CO_2 emission factor of the baseline at the end of the project
$EFCO_2$, fossil	CO_2 emission factor for the fossil fuel; 71.5 tCO_2/TJ for Kerosene, 63.0 tCO_2/TJ for LPG or the IPCC default value of the fossil fuel commonly observed with local consumers
$EFCO_2$, biomass	CO_2 emission factor for the biomass fuel; 109.6 tCO_2/TJ (default for biomass from IPCC 1996 GL).
X	Share of fossil fuel used, in the baseline, by the "in-project" consumers at the time when the project ends, according to historical and/or current trends. X is to be determined as part of the PDD. By definition, at the beginning of the project all "in-project" consumers use non-renewable biomass.
εstoves,biomass	Average efficiency of stoves fired with biomass, use 20% as default value or local data if available
εstoves,fossil	Average efficiency of stoves fired with fossil fuels, use 50% as default value or local data if available

Leakage

5. If there is a possibility that the savings of non-renewable biomass due to the project activity lead to greater use of non-renewable biomass outside the project boundary, then a leakage deduction of 15% shall be applied.

Monitoring

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

7. Monitoring should confirm the complete 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.

8. If the leakage deduction of 15% is not applied, monitoring shall demonstrate that greater use of non-renewable biomass outside the project boundary does not occur.