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.

Follow the link to find General guidance / Abbreviations

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

Technology/ Measure

1.   This category comprises of 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.

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 use of fossil fuel commonly observed with local consumers, for meeting similar thermal energy needs.

4.   Emission reductions would be calculated as:

$$ER_y = B_y \cdot NCV_{biomass} \cdot EF_{non-renewablebiomass,CO2}$$

where:

ER_y	Emission reductions during the year y in t CO_2
B_y	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.

<div align="center">OR</div>

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

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

$$EF_{non\text{-}renewablebiomass,CO2} = \frac{e_{stoves,biomass}}{e_{stoves,fossil}} \cdot EF_{CO2,fossil}$$

where:

$e_{stoves,biomass}$	Average efficiency of stoves fired with biomass, use 20% as default value or local data if available
$e_{stoves,fossil}$	Average efficiency of stoves fired with fossil fuels, use 50% as default value or local data if available
$EF_{CO_2, fossil}$	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

Leakage

5.   No leakage calculation is required.

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.