

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.

Follow the link for [Full version of appendix B \(http://cdm.unfccc.int/Projects/pac/ssclistmeth.pdf\)](http://cdm.unfccc.int/Projects/pac/ssclistmeth.pdf) to find [General guidance](#) / [Abbreviations](#)

I.D. Renewable electricity generation for a grid

Technology/measure

1. This category comprises renewables, such as photovoltaics, hydro, tidal/wave, wind, geothermal, and biomass, that supply electricity to an electricity distribution system that is or would have been supplied by at least one fossil fuel or non-renewable biomass fired generating unit.
2. If the unit added has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires [non-]renewable biomass and fossil fuel, the capacity of the entire unit shall not exceed the limit of 15MW.
3. Biomass combined heat and power (co-generation) systems that supply electricity to a grid are included in this category. To qualify under this category, the sum of all forms of energy output shall not exceed 45 MW_{thermal}. E.g., for a biomass based co-generating system the rating for the primary boiler shall not exceed 45 MW_{thermal}.

Boundary

4. The project boundary encompasses the physical, geographical site of the renewable generation source.

Baseline

5. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under category III.D. If the recovered methane is used for electricity generation the baseline shall be calculated in accordance with paragraph 28 or 29 below. If the recovered methane is used for heat generation it is eligible under category I.C.
6. For a system where all fossil fuel fired generating units use fuel oil or diesel fuel, the baseline is the annual kWh generated by the renewable unit times an emission coefficient for a modern diesel generating unit of the relevant capacity operating at optimal load as given in Table I.D.1.

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I.D. Renewable electricity generation for a grid (Cont.)

Table I.D.1
Emission factors for diesel generator systems (in kg CO₂equ/kWh*) for three different levels of load factor**

Cases:	Mini-grid with 24 hour service	i) Mini-grid with temporary service (4-6 hr/day) ii) Productive applications iii) Water pumps	Mini-grid with storage
Load factors [%]	25%	50%	100%
<15 kW	2.4	1.4	1.2
>=15 <35 kW	1.9	1.3	1.1
>=35 <135 kW	1.3	1.0	1.0
>=135 <200 kW	0.9	0.8	0.8
> 200 kW***	0.8	0.8	0.8

*) A conversion factor of 3.2 kg CO₂ per kg of diesel has been used (following revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories)

**) Figures are derived from fuel curves in the online manual of RETScreen International's PV 2000 model, downloadable from <http://retscreen.net/>

***) default values

7. For all other systems, the baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO₂equ/kWh) calculated in a transparent and conservative manner as:

- (a) The average of the “approximate operating margin” and the “build margin”, where:
- (i) The “approximate operating margin” is the weighted average emissions (in kg CO₂equ/kWh) of all generating sources serving the system, excluding hydro, geothermal, wind, low-cost biomass, nuclear and solar generation;
 - (ii) The “build margin” is the weighted average emissions (in kg CO₂equ/kWh) of recent capacity additions to the system, which capacity additions are defined as the greater (in MWh) of most recent⁴ 20%⁵ of existing plants or the 5 most recent plants.”;

OR,

⁴ Generation data available for the most recent year.

⁵ If 20% falls on part capacity of a plant that plant is included in the calculation.

Appendix B of the simplified modalities and procedures for small-scale CDM project activities

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I.D. Renewable electricity generation for a grid (Cont.)

- (b) The weighted average emissions (in kg CO₂equ/kWh) of the current generation mix.

Leakage

8. If the energy efficiency technology is equipment transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered.

Monitoring

9. Monitoring shall consist of metering the electricity generated by the renewable technology. In the case of co-fired plants, the amount of biomass input and its energy content shall be monitored.