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.B. Mechanical energy for the user with or without electrical energy

Technology/measure

1. This category comprises renewable energy generation units that supply individual households or users or groups of households or users with ~~a small amount of~~ mechanical energy who otherwise would have been supplied with fossil fuel based energy. These units include technologies such as hydropower, wind power, and other technologies that provide mechanical energy, all of which is used on-site by the individual household(s) or user(s), such as wind-powered pumps, solar water pumps, water mills and wind mills.

2. Where generation capacity is specified, it shall be less than 15MW. If the generation capacity is not specified, the estimated diesel-based electricity generating capacity that would be required to provide the same service or mechanical energy shall be less than 15 MW. In the case of irrigation where diesel-fuelled pumps are used directly, the cumulative rating of diesel-fuelled pumps shall not exceed 15 MW. The size of a diesel-based generator or a diesel pump that would be required shall be justified.

3. For irrigation applications involving replacement of the pump in addition to renewable energy use, the operating characteristics (head v/s discharge and efficiency) of the new pump should be similar to or better than the system being replaced or would have been replaced. In irrigation applications where the water distribution system is replaced or modified, the new system should have distribution efficiency similar to or better than the replaced system.

4. 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.

5. Project activities adding renewable energy capacity should consider the following cases:

   Case 1) Adding new units;

   Case 2) Replacing old units for more efficient units.

To qualify as a small scale CDM project activity, the aggregate installed capacity after adding the new units (case 1) or installed capacity of the more efficient units (case 2) should be lower than 15 MW[1].

[1] Ex: 5 MW of new capacity is added to existing 9 MW to make the aggregate capacity of 14 MW which is within the allowed limits 15 MW capacity.

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I.B. Mechanical Energy for the User (cont)

Boundary

6. The physical, geographical site of the renewable energy technology and the equipment that uses the mechanical energy produced delineates the project boundary.

Baseline

7. The simplified baseline is the estimated emissions due to serving the same load with a diesel generator consumption saved times the emission coefficient for diesel. The diesel emissions displaced annually are calculated either as:

(a) The power requirements times hours of operation per year times the emission factor for diesel generator systems in Table I.D.I under category I.D.

OR

(b) The diesel fuel consumption per hour times hours of operation per year times the default value for the emission coefficient for diesel fuel (3.2 kg CO_2 per kg of diesel fuel).

8. If the application involves generation of electricity in addition to mechanical energy, one of the following options shall be used to calculate the baseline emissions for the electricity generated:

(i) Where electricity production is on an off-grid/stand-alone mode or an isolated[2] mini-grid, the baseline emissions for the electricity use will be determined according to procedures specified in AMS I.A;

(ii) Where electricity production is on a grid connected mode, the baseline emissions for the electricity use will be determined according to procedures specified in AMS I.D.

9. In the case of project activities adding renewable energy capacity, if the availability of renewable resources is limited, the impact of a decrease in energy production from the units installed before the project implementation must be considered.

For the specific case of hydropower plants this effect could be considered calculating the production of energy that must be used for emission reduction calculation with the following procedure:

1) To estimate every year during the crediting period, the energy that would have been produced in the same hydrological conditions by the units installed before the project;

2) The energy production EGy (MWh/ year) that must be considered to calculate emission reductions is calculated with the following formula:

$$\mathbf{EGy = TEy - WTEy}$$

[2] Not connected to the regional or national grids and not exporting and/or importing power from the national/regional grids.

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I.B. Mechanical Energy for the User (cont)

Where:

TEy actual energy produced in the year y in the plant (all units)

WTEy energy that would have been produced by the units installed before the project under the hydrological conditions of the year y

Leakage

10. If the energy generating 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:

(a) Recording annually the number of systems operating (evidence of continuing operation, such as on-going rental/lease payments could be a substitute); and

(b) Estimating the annual hours of operation for the equipment that uses the mechanical energy produced, if necessary using sampling methods. Annual hours of operation can be estimated from total output (tonnes of grain milled) and output per hour if an accurate value of output per hour is available.

12. In the case of applications involving mechanical and electrical energy, the electrical energy generation should be metered.

13. For projects where only biomass or biomass and fossil fuel are used the amount of biomass and fossil fuel input shall be monitored.

14. For projects consuming biomass a specific fuel consumption[3] of each type of fuel (biomass or fossil) to be used should be specified ex-ante. The consumption of each type of fuel shall be monitored.

15. If fossil fuel is used the energy produced metered should be adjusted to deduct production from fossil fuels using the specific fuel consumption and the quantity of fossil fuel consumed.

16. If more than one type of biomass fuel is consumed each shall be monitored separately.

17. The amount of energy produced using biomass fuels calculated as per paragraphs above shall be compared with the amount of energy calculated using specific fuel consumption and amount of each type of biomass fuel used. The lower of the two values should be used to calculate emission reductions.

[3] Specific fuel consumption is the fuel consumption per unit of electricity generated (e.g. tonnes of bagasse per MWh).