

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

**TYPE II - ENERGY EFFICIENCY IMPROVEMENT PROJECTS**

Follow the link for [General guidance](#) / [Abbreviations](#) / [Full version of appendix B](#)

***II.C. Demand-side energy efficiency programmes for specific technologies***

**Technology/measure**

46. This category comprises programmes that encourage the adoption of energy-efficient equipment, lamps, ballasts, refrigerators, motors, fans, air conditioners, appliances, etc. at many sites. These technologies may replace existing equipment or be installed at new sites. The aggregate energy savings by a single project may not exceed the equivalent of 15 GWh per year.

**Boundary**

47. The project boundary is the physical, geographical location of each measure (each piece of equipment) installed.

**Baseline**

48. If the energy displaced is a fossil fuel, the energy baseline is the existing fuel consumption or the amount of fuel that would be used by the technology that would have been implemented otherwise. The emissions baseline is the energy baseline multiplied by an emission coefficient for the fossil fuel displaced. IPCC default values for emission coefficients may be used.

49. If the energy displaced is electricity, the energy baseline is calculated as follows:

$$E_B = \sum_i (n_i \cdot p_i \cdot o_i) / (1 - l)$$

**Where**

$E_B$  = annual energy baseline in kWh per year

$\sum_i$  = the sum over the group of “i” devices replaced (e.g. 40 W incandescent bulb, 5hp motor), for which the replacement is operating during the year, implemented as part of the project.

$n_i$  = the number of devices of the group of “i” devices replaced (e.g. 40 W incandescent bulb, 5hp motor) for which the replacement is operating during the year.

$p_i$  = the power of the devices of the group of “i” devices replaced (e.g. 40 W, 5 hp). In the case of a retrofit programme, “power” is the weighted average of the devices replaced. In the case of new installations, “power” is the weighted average of devices on the market.

$o_i$  = the average annual operating hours of the devices of the group of “i” devices replaced.

$l$  = average technical distribution losses for the grid serving the locations where the devices are installed, expressed as a fraction.

50. The energy baseline is multiplied by an emission coefficient (measured in kg CO<sub>2</sub>equ/kWh) for the electricity displaced calculated in accordance with provisions of paragraphs 28 and 29 for category I.D projects.

**Leakage**

51. If the energy efficiency technology is equipment transferred from another activity, leakage calculation is required.

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

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#### *II.C. Demand-side energy efficiency programmes for specific technologies*

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##### **Monitoring**

52. If the devices installed replace existing devices, the number and “power” of the replaced devices shall be recorded and monitored.<sup>8</sup>

53. Monitoring shall consist of monitoring either the “power” and “operating hours” or the “energy use” of the devices installed using an appropriate methodology. Possible methodologies include:

(a) Recording the “power” of the device installed (e.g., lamp or refrigerator) using nameplate data or bench tests of a sample of the units installed and metering a sample of the units installed for their operating hours using run time meters.

OR

(b) Metering the “energy use” of an appropriate sample of the devices installed. For technologies that represent fixed loads while operating, such as lamps, the sample can be small while for technologies that involve variable loads, such as air conditioners, the sample may need to be relatively large.

54. In either case, monitoring shall include annual checks of a sample of non-metered systems to ensure that they are still operating (other evidence of continuing operation, such as on-going rental/lease payments could be a substitute).

55. Published values for technical transmission and distribution losses may be used. Alternatively, technical transmission and distribution losses for the grid that supplies energy to the equipment installed may be monitored.

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<sup>8</sup> This shall be monitored while replacement is underway to avoid, e.g., that 40W lamps are recorded as 100W lamps, greatly inflating the baseline.

## **Appendix B<sup>13</sup> of the simplified modalities and procedures for small-scale CDM project activities**

### **INDICATIVE SIMPLIFIED BASELINE AND MONITORING METHODOLOGIES FOR SELECTED SMALL-SCALE CDM PROJECT ACTIVITY CATEGORIES**

#### **B. General guidance**

91. This appendix contains indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories, including recommendations for determining the project boundary, leakage, baseline and monitoring.

92. In accordance with paragraphs 15 and 16 of the simplified modalities and procedures for small-scale CDM project activities (annex II to decision 21/CP.8 contained in document FCCC/CP/2002/7/Add.3), project participants involved in small-scale CDM project activities may propose changes to the simplified baseline and monitoring methodologies specified in this appendix or propose additional project categories for consideration by the Executive Board. Project participants willing to submit a new small-scale project activity category or revisions to a methodology shall make a request in writing to the Board providing information about the technology/activity and proposals on how a simplified baseline and monitoring methodology would be applied to this category. The Board may draw on expertise, as appropriate, in considering new project activity categories and/or revisions of and amendments to simplified methodologies. The Executive Board shall expeditiously, if possible at its next meeting, review the proposed methodology. Once approved, the Executive Board shall amend appendix B.

93. In accordance with paragraph 28 of the simplified modalities and procedures for small-scale CDM project activities, a simplified baseline and monitoring methodology listed in this appendix may be used for a small-scale CDM project activity if project participants are able to demonstrate to a designated operational entity that the project activity would otherwise not be implemented due to the existence of one or more barrier(s) listed in attachment A of this appendix.

94. The appendix reflects the following guidance regarding equipment performance, project boundary, biomass projects, leakage and use of Intergovernmental Panel on Climate Change (IPCC) default values for emission coefficients.

95. Equipment performance: To determine equipment performance, project participants shall use:

- (a) The appropriate value specified in appendix B;
- (b) If the value specified in sub-paragraph (a) is not available, the national standard for the performance of the equipment type (project participants shall identify the standard used);
- (c) If the value specified in sub-paragraph (b) is not available, an international standard for the performance of the equipment type, such as International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) standards (project participants shall identify the standard used);
- (d) If a value specified in sub-paragraph (c) is not available, the manufacturer's specifications provided that they are tested and certified by national or international certifiers.

96. Project participants have the option of using performance data from test results conducted by an independent entity for equipment installed under the project activity.

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<sup>13</sup> This appendix has been developed in accordance with the simplified modalities and procedures for small-scale CDM project activities (contained in annex II to decision 21/CP.8, see document FCCC/CP/2002/7/Add.3) and it constitutes appendix B to that document. For the full text of the annex II to decision 21/CP.8 please see reference/documents section on UNFCCC CDM web site <http://unfccc.int/cdm> ).

97. Project boundary: The project boundary shall be limited to the physical project activity. Project activities that displace energy supplied by external sources shall earn certified emission reductions (CERs) for the emission reductions associated with the reduced supply of energy by those external sources.

98. Biomass projects: In the case of project activities using biomass, leakage shall be considered.

99. In the cases where leakage is to be considered, it shall be considered only within the boundaries of non-Annex I Parties.

100. In the case of project participants using IPCC default values for emission coefficients, these shall be the most up-to-date values available in the “IPCC Good Practice and Guidance and Uncertainty Management in National Greenhouse Gas Inventories” and the “Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories”. A link providing more updated information on IPCC default values for emission coefficients is available on the page for small-scale CDM project activities on the UNFCCC CDM web site: <http://unfccc.int/cdm/ssc.htm>.

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**Attachment A to Appendix B**

1. Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:

- (a) Investment barrier: a financially more viable alternative to the project activity would have led to higher emissions;
- (b) Technological barrier: a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions;
- (c) Barrier due to prevailing practice: prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions;
- (d) Other barriers: without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher.

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

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

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#### Attachment B to Appendix B

#### ACRONYMS, ABBREVIATIONS AND UNITS OF MEASURE

<i>Acronyms and abbreviations</i>	
EB	Executive Board
EE	Energy efficiency
CER	Certified emission reduction
CO <sub>2</sub>	Carbon dioxide
BAU	Business as usual
ESCO	Energy service company
GHG	Greenhouse gas
IEC	International Electrotechnical Commission
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
PV	Photovoltaic
T&D	Transmission and distribution
<i>Units of measure</i>	
h	Hour
d	Day
y	Year
k	Kilo (10 <sup>3</sup> )
M	Mega (10 <sup>6</sup> )
G	Giga (10 <sup>9</sup> )
T	Tera (10 <sup>12</sup> )
g	Gramme
W	Watt
m	Metre
J	Joule