

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

**TYPE II - ENERGY EFFICIENCY IMPROVEMENT PROJECTS**

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](#)

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

**Technology/measure**

1. 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**

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

**Baseline**

3. 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.

4. 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.

5. 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 6 or 7 for category I.D projects.

**Leakage**

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

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6. 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**

7. If the devices installed replace existing devices, the number and “power” of the replaced devices shall be recorded and monitored.<sup>9</sup>

8. 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.

9. 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).

10. 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>9</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.