



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

TYPE I - RENEWABLE ENERGY PROJECTS

Project participants shall apply the general guidelines to SSC CDM methodologies, information on additionality (attachment A to Appendix B) and general guidance on leakage in biomass project activities (attachment C to Appendix B) provided at <http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html> *mutatis mutandis*. Project participants shall apply the general guidance to the small-scale CDM methodologies, information on additionality (attachment A to appendix B) and general guidance on leakage in biomass project activities (attachment C to appendix B) provided at <http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html> *mutatis mutandis*.

I.D. Grid connected renewable electricity generation

Technology/measure

1. This methodology category comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass:
 - (a) Supplying that supply electricity to a national or a regional grid; Project activities that displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit shall apply AMS-I.F or
 - (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.
2. Illustration of respective situations under which each of the methodology (i.e. AMS-I.D, AMS-I.F and AMS-I.A²) applies is included in Table 2.
3. This methodology is applicable to project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the

¹ Refer to EB 23, annex 18 or the definition of renewable biomass.

² AMS-I.D “Grid connected renewable electricity generation”, AMS-I.F “Renewable electricity generation for captive use and mini-grid” and AMS-I.A “Electricity generation by the user”



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I.D. Grid connected renewable electricity generation (cont)

project activity (Greenfield plant); (b) Involve a capacity addition;³ (c) Involve a retrofit⁴ of (an) existing plant(s); or (d) Involve a replacement⁵ of (an) existing plant(s).

4. Hydro power plants with reservoirs⁶ that satisfy at least one of the following conditions are eligible to apply this methodology:

- The project activity is implemented in an existing reservoir with no change in the volume of reservoir;
- The project activity is implemented in an existing reservoir,⁷ where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m²;
- The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m².

~~5. In the case of biomass power plants, no other biomass types than renewable biomass⁸ are to be used in the project plant.~~

5. If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel,⁹ the capacity of the entire unit shall not exceed the limit of 15 MW.

6. Combined heat and power (co-generation) systems are not eligible under this category.

³ A capacity addition is an increase in the installed power generation capacity of an existing power plant through: (i) The installation of a new power plant besides the existing power plant/units; or (ii) The installation of new power units, additional to the existing power plant/units. The existing power plant/units continue to operate after the implementation of the project activity.

⁴ Retrofit (or rehabilitation or refurbishment). It involves an investment to repair or modify an existing power plant/unit, with the purpose to increase the efficiency, performance or power generation capacity of the plant, without adding new power plants or units, or to resume the operation of closed (mothballed) power plants. A retrofit restores the installed power generation capacity to or above its original level. Retrofits shall only include measures that involve capital investments and not regular maintenance or housekeeping measures.

⁵ Replacement. It involves investment in a new power plant or unit that replaces one or several existing unit(s) at the existing power plant. The installed capacity of the new plant or unit is equal to or higher than the plant or unit that was replaced.

⁶ A reservoir is a water body created in valleys to store water generally made by the construction of a dam.

⁷ A reservoir is to be considered as an “existing reservoir” if it has been in operation for at least three years before the implementation of the project activity.

⁸ Refer to EB 23, annex 18 for the definition of renewable biomass.

⁹ A co-fired system uses both fossil and renewable fuels, for example the simultaneous combustion of both biomass residues and fossil fuels in a single boiler. Fossil may be used during a period of time when the biomass is not available and due justifications are provided.



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I.D. Grid connected renewable electricity generation (cont)

7. In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct¹⁰ from the existing units.

8. In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.

Boundary

9. The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system¹¹ that the CDM project power plant is connected to. The physical, geographical site of the renewable generation source delineates the project boundary.

Baseline

10. If the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is that the electricity delivered to the grid by the project activity that otherwise would have been otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.

11. The baseline emissions are the product of electrical energy baseline $EG_{BL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor.

$$BE_y = EG_{BL,y} * EF_{CO_2,grid,y} \quad (1)$$

Where:

BE_y Baseline Emissions in year y (t CO₂)

$EG_{BL,y}$ Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)

$EF_{CO_2,grid,y}$ CO₂ emission factor of the grid in year y (t CO₂/MWh)

12. The emission factor can be calculated in a transparent and conservative manner as follows:

- (a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the “Tool to calculate the Emission Factor for an electricity system”;

¹⁰ Physically distinct units are those that are capable of generating electricity without the operation of existing units, and that do not directly affect the mechanical, thermal, or electrical characteristics of the existing facility. For example, the addition of a steam turbine to an existing combustion turbine to create a combined cycle unit would not be considered “physically distinct”.

¹¹ Refer to the latest approved version of the “Tool to calculate the emission factor for an electricity system” for definition of an electricity system.



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I.D. Grid connected renewable electricity generation (cont)

OR

- (b) The weighted average emissions (in t CO₂/MWh) of the current generation mix. The data of the year in which project generation occurs must be used.

Calculations shall be based on data from an official source (where available)¹² and made publicly available.

13. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline shall be calculated in accordance with paragraphs below else use other applicable type I methodologies such as AMS-I.A or AMS-I.F. If the recovered methane is used for heat generation or cogeneration it is eligible under category I.C.

14. For project activities that involve retrofits or replacements of an existing facility ~~for renewable energy generation~~ the baseline scenario is the continuing operation of the existing plant. The methodology uses historical electricity generation data to determine the electricity generation of the existing plant in the baseline scenario, assuming that the historical situation observed prior to the implementation of the project activity would continue. In the absence of the CDM project activity, the existing facility would continue to provide electricity to the grid $EG_{BL,retrofit,y}$ at historical average levels $EG_{historical,y}$ $EG_{historical}$ until the time at which the electrical generation facility would be likely to be replaced or retrofitted in the absence of the CDM project activity ($DATE_{BaselineRetrofit}$). From that point of time onwards, the baseline scenario is assumed to correspond to the project activity, and baseline electricity ~~supply production~~ is assumed to equal the project's net electricity ~~supply production~~ and no emission reductions are assumed to occur.

¹² Plant emission factors used for the calculation of emission factors should be obtained in the following priority:

1. *Acquired directly* from the dispatch center or power producers, if available; or
2. *Calculated*, if data on fuel type, fuel Emission Factor, fuel input and power output can be obtained for each plant;
If confidential data available from the relevant host Party authority are used, the calculation carried out by the project participants shall be verified by the DOE and the CDM-PDD may only show the resultant carbon emission factor and the corresponding list of plants;
3. *Calculated*, as above, but using estimates such as: default IPCC values from the 2006 IPCC Guidelines for *National GHG Inventories* for net calorific values and carbon emission factors for fuels instead of plant-specific values technology provider's name plate power plant efficiency or the anticipated energy efficiency documented in official sources (instead of calculating it from fuel consumption and power output). This is likely to be a conservative estimate, because under actual operating conditions plants usually have lower efficiencies and higher emissions than name plate performance would imply; conservative estimates of power plant efficiencies, based on expert judgments on the basis of the plant's technology, size and commissioning date; or
4. *Calculated*, for the simple OM and the average OM, using aggregated generation and fuel consumption data, in cases where more disaggregated data is not available.



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I.D. Grid connected renewable electricity generation (cont)

15. **Retrofit/capacity addition of hydro, solar, wind, geothermal, wave and tidal plants:** In the specific case of retrofit/capacity addition in hydro, solar, wind, geothermal, wave and tidal plants where power generation can vary significantly from year to year, due to natural variations in the availability of the renewable source (e.g. varying rainfall, wind speed or solar radiation), the use of few historical years to establish the baseline electricity generation can therefore involve a significant uncertainty. The methodology addresses this uncertainty by adjusting the historical electricity generation by its standard deviation. This ensures that the baseline electricity generation is established in a conservative manner and that the calculated emission reductions are attributable to the project activity. Without this adjustment, the calculated emission reductions could mainly depend on the natural variability observed during the historical period rather than the effects of the project activity. The baseline emissions ($BE_{retrofit,CO_2,y}$) are thus calculated as follows:

$$BE_{retrofit,CO_2,y} = [EG_{BL,retrofit,y}] * EF_{CO_2} \quad (2)$$

Where:

$$EG_{BL,retrofit,y} = EG_{PJ, facility,y} - (EG_{historical} + \sigma_{historical}) \quad (3)$$

$$EG_{BL,retrofit,y} = 0 \text{ on / after } DATE_{BaselineRetrofit} \quad (4)$$

Where:

$EG_{BL,retrofit,y}$ Quantity of net electricity **generation that is** supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)

$EG_{PJ, facility,y}$ Quantity of net electricity **generation** supplied to the grid by the project plant/unit in year y (MWh)



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I.D. Grid connected renewable electricity generation (cont)

$EG_{\text{historical}}$

Annual average historical net electricity generation by the existing renewable energy plant that was operated at the project site prior to the implementation of the project activity (MWh)

To determine $EG_{\text{historical}}$, project participants may choose between two historical periods. This allows some flexibility: the use of the longer time period may result in a lower standard deviation and the use of the shorter period may allow a better reflection of the (technical) circumstances observed during the more recent years.

Average of historical net electrical energy levels delivered by the existing facility, spanning all data from the most recent available year (or month, week or other time period) to the time at which the facility was constructed, retrofit, or modified in a manner that significantly affected output (i.e. by 5% or more) (MWh).

A minimum of 5 years (60 months) (excluding abnormal years) of historical generation data is required in the case of hydro facilities and for other facilities a minimum of 3 years (36 months) data is required.

In the case that 5 years of historical data are not available – e.g., due to recent retrofits or exceptional circumstances¹³ – a new methodology or methodology revision shall be proposed.

Project participants may choose among the following two time spans of historical data to determine $EG_{\text{historical}}$:

- (a) The three last calendar years (five calendar years for hydro project) prior to the implementation of the project activity; or
- (b) The time period from the calendar year following $DATE_{\text{hist}}$, up to the last calendar year prior to the implementation of the project, as long as this time span includes at least three calendar years (five calendar years for hydro project), where $DATE_{\text{hist}}$ is latest point in time between:
 - (i) The commercial commissioning of the plant/unit;
 - (ii) If applicable: the last capacity addition to the plant/unit; or
 - (iii) If applicable: the last retrofit of the plant/unit

¹³ Data for periods affected by unusual circumstances such as natural disasters, conflicts, and transmission constraints shall be excluded.



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I.D. Grid connected renewable electricity generation (cont)

$\sigma_{\text{historical}}$	Standard deviation of the annual average historical net electricity-generation supplied to the grid by the existing renewable energy plant that was operated at the project site prior to the implementation of the project activity (MWh)
$DATE_{\text{BaselineRetrofit}}$	Point in time when the existing equipment would need to be replaced in the absence of the project activity (date)

In the case of wind, solar, wave or tidal power plants, it is assumed that the addition of new capacity or retrofitting of existing unit to increase capacity does not significantly affect the electricity generated by existing plant(s) or unit(s). In this case, the electricity produced by the added power plant(s) or unit(s) could be directly metered and used to determine $EG_{BL,y}$, provided that the electricity produced by the added power plant(s) or unit(s) addition is separately metered. Project activities for capacity addition in hydro or geothermal shall use equation (3) replacing subscript ‘retrofit’ with ‘capacity addition’.

16. Retrofit of renewable energy units not covered in paragraph 15 i.e. units other than hydro, solar, wind, geothermal, wave and tidal plants:

Baseline emissions are calculated as:

$$BE_{\text{retrofit},CO_2,y} = (EG_{PJ,\text{retrofit},y} - EG_{BL,\text{retrofit},y}) * EF_{CO_2} \quad (5)$$

Where:

$$EG_{BL,\text{retrofit},y} = \text{MAX}(EG_{\text{historical},y}, EG_{\text{estimated},y}) \text{ until } DATE_{\text{BaselineRetrofit}}$$

$$EG_{BL,\text{retrofit},y} = \text{MAX}(EG_{\text{historical},y}, EG_{\text{estimated},y}) \text{ until } DATE_{\text{BaselineRetrofit}} \quad (6)$$

$$EG_{BL,\text{retrofit},y} = 0 \text{ on / after } DATE_{\text{BaselineRetrofit}} \quad (7)$$

Where:

$BE_{\text{retrofit},CO_2,y}$ The baseline emissions in year y (t CO₂)

$EG_{PJ,\text{retrofit},y}$ Net electricity supplied by the plant/unit to the grid in year y (MWh)

$EG_{BL,\text{retrofit},y}$ Electricity that would have been supplied by the plant/unit to the grid in the absence of the project activity in year y (MWh)



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I.D. Grid connected renewable electricity generation (cont)

~~$EG_{historical,y}$~~

$EG_{historical}$

Annual average historical net electricity-generation delivered supplied to the grid by the existing renewable energy plant that was operated at the project site prior to the implementation of the project activity (MWh)

Average of historical net electrical energy levels delivered by the existing facility, spanning all data from the most recent available year (or month, week or other time period) to the time at which the facility was constructed, retrofit, or modified in a manner that significantly affected output (i.e. by 5% or more) (MWh).

A minimum of three years of data is required. In the case that three years of historical data are not available¹⁴- e.g. due to recent retrofits or exceptional circumstances - a new methodology or methodology revision shall be proposed

$EG_{estimated,y}$

Estimated net electrical energy that would have been produced by the existing units under the observed availability of the renewable resource in year y (MWh)

$DATE_{BaselineRetrofit}$

Point in time when the existing equipment would need to be replaced in the absence of the project activity (date)

17. The requirements concerning demonstration of the remaining lifetime of the replaced equipment shall be met as described in the general guidelines to SSC CDM methodologies.¹⁵ If the remaining lifetime of the affected systems increases due to the project activity, the crediting period shall be limited to the estimated remaining lifetime, i.e. the time when the affected systems would have been replaced in the absence of the project activity.

18. **Capacity addition with renewable energy units not covered in paragraph 15 i.e. units other than solar, wind, geothermal, wave and tidal plants:** For project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, where the existing and new units share the use of common and limited renewable resources (e.g. biomass residues), the potential for the project activity to reduce the amount of renewable resource available to, and thus electricity generation by, existing units must be considered in the determination of baseline emissions, project emissions, and/or leakage, as relevant.

The baseline scenario is the existing facility that would continue to supply electricity to the grid at historical levels, until the time at which the generation facility would likely be replaced or retrofitted ($DATE_{BaselineRetrofit}$). From that point of time onwards, the baseline scenario is assumed to correspond to the project activity, and no emission reductions are assumed to occur. The energy

¹⁴ Data for periods affected by unusual circumstances such as natural disasters, conflicts, and transmission constraints shall be excluded.

¹⁵ Refer to the most recent version of general guidelines to SSC CDM methodologies <http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid06.pdf>.

: “General guidance to Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories” <http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid06_v12.pdf>.



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I.D. Grid connected renewable electricity generation (cont)

baseline corresponds to the net increase in electricity production associated with the project should be calculated as follows:

The baseline emissions ($BE_{add,CO_2,y}$) are calculated as:

$$BE_{add,CO_2,y} = (EG_{PJ,add,y} - EG_{BL,existing,y}) * EF_{CO_2} \quad (8)$$

Where:

$EG_{PJ,add,y}$ The total net electrical energy supplied to a grid in year y by all units, existing and new project units; (MWh)

$EG_{BL,existing,y}$ The estimated net electrical energy that would have been produced and supplied to a grid by existing units (installed before the project activity) in year y in the absence of the project activity; (MWh)

Where:

$$EG_{BL,existing,y} = MAX(EG_{actual,y}, EG_{estimated,y}) \text{ until } DATE_{BaselineRetrofit} \quad (9)$$

and

$$EG_{BL,existing,y} = 0 ; \text{ on/after } DATE_{BaselineRetrofit}$$

Where:

$EG_{actual,y}$ The actual, measured net electrical energy produced and supplied to the grid by the existing units in year y (MWh)

If the existing units shut down, are derated, or otherwise become limited in production, the project activity should not get credit for generating electricity from the same renewable resources that would have otherwise been used by the existing units (or their replacements). Therefore, the equation for $EG_{BL,existing,y}$ still holds, and the value for $EG_{estimated,y}$ should continue to be estimated assuming the capacity and operating parameters are the same as that at the time of the start of the project activity.

19. The quantities and types of biomass and the biomass to fossil fuel ratio (in case of co-fired system) to be used during the crediting period should be explained and documented transparently in the CDM-PDD. For the selection of the baseline scenario, an *ex ante* estimation of these quantities should be provided.



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I.D. Grid connected renewable electricity generation (cont)

Project emissions

20. For most renewable energy project activities, $PE_y = 0$. However, for the following categories of project activities, project emissions have to be considered following the procedure described in the most recent version of ACM0002.¹⁶

- Emissions related to the operation of geothermal power plants (e.g. non-condensable gases, electricity/fossil fuel consumption);
- Emissions from water reservoirs of hydro power plants.

21. CO₂ emissions from on-site consumption of fossil fuels due to the project activity shall be calculated using the latest version of the “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion”.

Leakage

22. If the energy generating equipment is transferred from another activity, leakage is to be considered.

Emission reductions

23. Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \quad (10)$$

Where:

ER_y Emission reductions in year y (t CO₂/y)

BE_y Baseline Emissions in year y (t CO₂/y)

PE_y Project emissions in year y (t CO₂/y)

LE_y Leakage emissions in year y (t CO₂/y)

¹⁶ ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”



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I.D. Grid connected renewable electricity generation (cont)

Monitoring

24. Relevant parameters shall be monitored as indicated in the table below.

Table 1: Parameters for monitoring during the crediting period.

No	Parameter	Description	Unit	Monitoring/recording frequency	Measurement methods and procedures
1	$EF_{CO_2,y}$	CO ₂ emission factor of the grid electricity in year y	t CO ₂ e/kWh		As described in paragraph 12 of this methodology
2		CO ₂ emission factor of fossil fuel type i	t CO ₂ e/MJ	As per the “Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion”	As per the “Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion”
3		Net calorific value of fossil fuel type i	MJ per unit volume or mass unit	As per the “Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion”	As per the “Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion”
4		Quantity of fossil fuel consumed in year y	Mass or volume unit/y	As per the “Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion”	As per the “Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion”



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I.D. Grid connected renewable electricity generation (cont)

No	Parameter	Description	Unit	Monitoring/recording frequency	Measurement methods and procedures
5	$EG_{facility,y}$, $EG_{actual,y}$ $EG_{add,y}$	Quantity of net electricity supplied to the grid in year y	MWh/y	Continuous monitoring, hourly measurement and at least monthly recording	<p>Measurements are undertaken using energy meters. Calibration should be undertaken as prescribed in the relevant paragraph of “General Guidelines to SSC CDM Methodologies”.</p> <p>If applicable, measurement results shall be cross checked with records for sold/purchased electricity (e.g. invoices/receipts).</p> <p>The net electricity export/supplied to a grid is the difference between the measured quantities of the grid electricity export and the import. If applicable, cross check net electricity supplied to a grid as gross energy generation in the project activity power plant minus the auxiliary/station electricity consumption, technical losses and electricity import from the grid to the project power plant measured at the grid interface/connection used for billing purposes</p>

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I.D. Grid connected renewable electricity generation (cont)

No	Parameter	Description	Unit	Monitoring/recording frequency	Measurement methods and procedures
6		Quantity of biomass consumed in year y	Ton/y	Continuously and or estimate using annual energy/mass balance	<p>Use mass or volume based measurements. Adjust for the moisture content in order to determine the quantity of dry biomass. And/or perform an annual energy/mass balance that is based on purchased quantities and stock.</p> <p>The quantity of biomass shall be measured continuously or in batches.</p> <p>If more than one type of biomass fuel is consumed, each shall be monitored separately.</p> <p>Cross-check: Cross-check the measurements with an annual energy balance that is based on purchased quantities (e.g. with sales/receipts) and stock changes. Check the consistency of measurements ex post with annual data on energy generation, fossil fuels and biomass used and the efficiency of energy generation as determined <i>ex ante</i>.</p> <p>For projects consuming biomass and fossil fuel to produce electricity, a specific energy consumption¹⁷ of each type of fuel (biomass or fossil) to be used</p>

¹⁷ Specific energy consumption is the fuel consumption (in energy basis) per unit of electricity generated (e.g. TJ of bagasse energy per MWh output).

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I.D. Grid connected renewable electricity generation (cont)

No	Parameter	Description	Unit	Monitoring/recording frequency	Measurement methods and procedures
					<p>should be specified <i>ex ante</i>.</p> <p>If fossil fuel is used, the electricity generation metered should be adjusted by deducting the electricity generation from fossil fuels using the specific energy consumption and the quantity of fossil fuel consumed</p> <p>The amount of electricity generated using biomass fuels calculated then shall be compared with the amount of electricity generated calculated using specific energy consumption and amount of each type of biomass fuel used. The lower of the two values should be used to calculate emission reductions</p>
7		Moisture content of the biomass residues (wet basis)	%	<p>The moisture content of biomass of homogeneous quality shall be monitored for each batch of biomass at least on a monthly basis.</p> <p>The weighted average should be calculated for each monitoring period and used in the calculations</p>	<p>On-site measurements</p> <p><i>Ex ante</i> estimates should be provided in the PDD and use during the crediting period.</p> <p>In case of dry biomass, monitoring of this parameter is not necessary</p>



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I.D. Grid connected renewable electricity generation (cont)

No	Parameter	Description	Unit	Monitoring/recording frequency	Measurement methods and procedures
8		Net calorific value of biomass residue type k	GJ/mass or volume unit	Annually Determine once in the first year of the crediting period	Measurement in laboratories according to relevant national/international standards. Measure quarterly, taking at least three samples for each measurement. The average value can be used for the rest of the crediting period. Measure the NCV based on dry biomass. Check the consistency of the measurements by comparing the measurement results with measurements from previous years with relevant data sources (e.g. values in the literature, values used in the national GHG inventory) and default values by the IPCC. If the measurement results differ significantly from previous measurements or other relevant data sources, conduct additional measurements
9	$\sigma_{\text{historical}}$	Standard deviation of the annual average historical net electricity generation delivered to the grid by the existing renewable energy plant that was operated at the project site prior to the implementation of the project activity	MWh/yr		Calculated from data used to establish $EG_{\text{historical}}$. Parameter to be calculated as the standard deviation of the annual generation data used to calculate $EG_{\text{historical}}$ for retrofit or replacement project activities
10	Parameters relevant to reservoir based hydro and geothermal plants not included in this table shall be monitored following the most recent version of ACM0002				



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I.D. Grid connected renewable electricity generation (cont)

Project activity under a Programme of Activities

The following conditions apply for use of this methodology in a project activity under a programme of activities:

25. In the specific case of biomass project activities the applicability of the methodology is limited to either project activities that use biomass residues only or biomass from dedicated plantations complying with the applicability conditions of AM0042.¹⁸

26. In the specific case of biomass project activities the determination of leakage shall be done following the general guidance for leakage in small-scale biomass project activities (attachment C of Appendix B¹⁹ of simplified modalities and procedures for small-scale clean development mechanism project activities; decision 4/CMP.1) or following the procedures included in the leakage section of AM0042.

27. In case the project activity involves the replacement of equipment, and the leakage from the use of the replaced equipment in another activity is neglected because the replaced equipment is scrapped, an independent monitoring of scrapping of replaced equipment needs to be implemented. The monitoring should include a check if the number of project activity equipment distributed by the project and the number of scrapped equipment correspond with each other. For this purpose scrapped equipment should be stored until such correspondence has been checked. The scrapping of replaced equipment should be documented and independently verified.

¹⁸ AM0042 “Grid-connected electricity generation using biomass from newly developed dedicated plantations”

¹⁹ Available on <<http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html>>.



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I.C. Thermal energy production with or without electricity (cont)

Table 2: Applicability of AMS-I.D, AMS-I.F and AMS-I.A based on project types

	Project type	AMS-I.A	AMS-I.D	AMS-I.F
1	Project supplies electricity to a national/regional grid		√	
2	Project displaces grid electricity consumption (e.g. grid import) and/or captive fossil fuel electricity generation at the user end (excess electricity may be supplied to a grid).			√
3	Project supplies electricity to an identified consumer facility via national/regional grid (through a contractual arrangement such as wheeling)		√	
4	Project supplies electricity to a mini grid ²⁰ system where in the baseline all generators use exclusively fuel oil and/or diesel fuel			√
5	Project supplies electricity to household users (included in the project boundary) located in off grid areas.	√		

History of the document*

Version	Date	Nature of revision(s)
17	EB 61, Annex # 03 July 2011	<ul style="list-style-type: none"> To simplify the monitoring requirements for quantity, net calorific value and moisture content of biomass; Clarify the applicability conditions.
16	EB 54, Annex 7 28 May 2010	To distinguish the project activities solely supplying renewable electricity to a grid from activities displacing electricity from a grid. The parameters to be monitored including the frequency and QA/QC procedures are also included.
15	EB 50, Annex 29 16 October 2009	To include the procedures to calculate project emissions for hydropower with reservoirs as specified in Annex 5 of EB 23.
14	EB 48, Annex 23 17 July 2009	To include more guidance on: the monitoring of electricity generated; calculation of project emissions for geothermal project activities; and editorial changes.
13	EB 36, Annex 26 14 December 2007	To refer directly to the "Tool to calculate the emission factor for an electricity system" for reasons of clarity.
12	EB 33, Annex 23 27 July 2007	To allow for their application under a programme of activities (PoA), where the limit of the entire PoA exceeds the limit for small-scale CDM project activities.

²⁰ The sum of installed capacities of all generators connected to the mini-grid is equal to or less than 15 MW.



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

I.C. Thermal energy production with or without electricity (cont)

11	EB 31, Annex 21 04 May 2007	To include guidance on monitoring of biomass project activities. All small-scale biomass project activities applying AMS-I.D. (firing only biomass or firing biomass and fossil fuel) are required to monitor the biomass and any fossil fuel used.
10	EB 28, Annex 22 23 December 2006	The proposed revision includes guidance on consideration of capacity limit and on estimation of baseline/project/leakage emissions in the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility.
09	EB 25, Annex 29 28 July 2006	An amendment to the procedure for estimating the combined margin emission factor of AMS-I.D, making it thereby consistent with ACM0002.
08	EB 23, Annex 32 24 February 2006	To: (i) include provisions for retrofit and renewable energy capacity additions as eligible activities; (ii) Provide clarification for baseline calculations under Category I.D; and (iii) Provide clarification on the applicability of Category I.A as against Category I.D.
Decision Class: Regulatory Document Type: Standard Business Function: Methodology		

* This document, together with the 'General Guidance' and all other approved SSC methodologies, was part of a single document entitled: Appendix B of the Simplified Modalities and Procedures for Small-Scale CDM project activities until version 07.

Appendix B of the Simplified Modalities and Procedures for Small-Scale CDM project activities contained both the General Guidance and Approved Methodologies until version 07. After version 07 the document was divided into separate documents: 'General Guidance' and separate approved small-scale methodologies (AMS).

Version	Date	Nature of revision
07	EB 22, Para. 59 25 November 2005	References to "non-renewable biomass" in Appendix B deleted.
06	EB 21, Annex 22 20 September 2005	Guidance on consideration of non-renewable biomass in Type I methodologies, thermal equivalence of Type II GWhe limits included.
05	EB 18, Annex 6 25 February 2005	Guidance on 'capacity addition' and 'cofiring' in Type I methodologies and monitoring of methane in AMS-III.D included.
04	EB 16, Annex 2 22 October 2004	AMS-II.F was adopted, leakage due to equipment transfer was included in all Type I and Type II methodologies.
03	EB 14, Annex 2 30 June 2004	New methodology AMS-III.E was adopted.
02	EB 12, Annex 2 28 November 2003	Definition of build margin included in AMS-I.D, minor revisions to AMS-I.A, AMS-III.D, AMS-II.E.
01	EB 7, Annex 6 21 January 2003	Initial adoption. The Board at its seventh meeting noted the adoption by the Conference of the Parties (COP), by its decision 21/CP.8, of simplified modalities and procedures for small-scale CDM project activities (SSC M&P).
Decision Class: Regulatory Document Type: Standard Business Function: Methodology		