VCS Methodology

VMR0016

FLARING OR USE OF LANDFILL GAS (ACM0001 REVISION)

Version 1.0

21 November 2025

Sectoral Scopes 1 and 13

Version 1.0 of this methodology revision was developed by Verra, based on *ACM0001 Flaring or Use of Landfill Gas, v19.0*. *VMR0016* must be used with the most recent version of *ACM0001* available on the CDM website.

CONTENTS

1 SUMMARY DESCRIPTION

Additionality, Crediting Method, and Mitigation Outcome	
Additionality	Project or Activity Method
Crediting Baseline	Project Method
Mitigation Outcome	Reductions

This methodology applies to project activities that involve the destruction of methane emissions and displacement of a more GHG-intensive service by capturing landfill gas and flaring the methane, using it to produce electricity or thermal energy, and/or supplying it to consumers through natural gas distribution networks, dedicated pipelines, or trucks. It is globally applicable.

VMR0016 must be used with the most recent version of *ACM0001 Flaring or Use of Landfill Gas*. The procedures and requirements of *ACM0001* must be applied unless indicated otherwise.

2 SOURCES

When applying this revision, CDM tools are replaced with the most recent version of the relevant VCS tool as shown in Table 1. These tools must be applied as indicated in this methodology revision.

Table 1. Replacement of CDM tools

CDM tool used in *ACM0001*	VCS tool used when applying *VMR016*
TOOL02 Combined tool to identify the baseline scenario and demonstrate additionality	VT0009 Combined Baseline and Additionality Assessment
TOOL05 Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation	VT0010 Emissions from Electricity Consumption and Generation (and associated tool VT0011 Electricity Systems Emission Factors)

3 DEFINITIONS

The definitions in *ACM0001* and the most recent version of the *VCS Program Definitions* apply to this methodology, with the *VCS Program Definitions* taking precedence where definitions conflict.

4 APPLICABILITY CONDITIONS

All applicability conditions of the most recent version of *ACM0001* and any tools applicable to the project activity must be met, taking into account the replacements outlined in Table 1. Applicability conditions of tools that are not relevant to the project activity do not need to be met.

5 PROJECT BOUNDARY

The project boundary must be determined following the procedure provided in the most recent version of *ACM0001*.

6 BASELINE SCENARIO

The baseline scenario must be determined following the procedure provided in the most recent version of *ACM0001,* taking into account the replacement of CDM tools outlined in Table 1.

When applying simplified procedures as per Section 5.3.1 of *ACM0001*, paragraphs 21, 23, and 24 must be read as follows:

21. For the simplified procedure to demonstrate additionality, the project proponent must refer to Section 7.1.2 in *VMR0016*.

23. If all or part of the electricity generated by the project activity is exported to the grid, the baseline scenario for all or the part of the electricity exported to the grid is assumed to be electricity generation in existing and/or new grid-connected power plants. If all or part of the electricity is supplied to off-grid application, the baseline scenario is assumed to be electricity generation equipment using a conservative default value of 0.4 t CO_2/MWh for the fossil fuel component.

24. The baseline scenario for heat is assumed to be new natural gas-fired heat generation equipment with a default baseline efficiency of 100%.

When applying the procedures in Section 5.3.2 of *ACM0001*, paragraph 25 must be read as follows:

> 25. Identify the baseline scenario and demonstrate additionality using the most recent version of *VT0009 Combined Baseline and Additionality Assessment* and additional requirements in paragraphs 26–28 of *ACM0001*.

Projects switching from *AMS-III.G.* to *VMR0016* that meet the requirements of the positive list in Section 7 of *VMR0016* may apply the simplified procedures to identify the baseline scenario, as described in Section 5.3.1 of *ACM0001*.

7 ADDITIONALITY

Project proponents must demonstrate additionality through demonstration of regulatory surplus and either confirm that the project activity is on the positive list (activity method) or conduct an investment analysis and common practice analysis (project method), as outlined in Sections 7.1 and 7.2 below.

Paragraphs 21 and 25 of *ACM0001* must be read as indicated in Section 6 in *VMR0016*.

7.1 Activity Method

7.1.1 Regulatory Surplus

The project proponent must demonstrate regulatory surplus in accordance with the rules and requirements regarding regulatory surplus set out in the most recent versions of the *VCS Standard* and *VCS Methodology Requirements*.

Where the project proponent demonstrates regulatory surplus, proceed to Section 7.1.2. Otherwise, the project activity is not additional.

7.1.2 Positive List

The project activity must meet all the following conditions to qualify for the positive list:

1) The project activity involves at least one of the following:

   a) landfill gas use for electricity generation with a total installed generation capacity that does not exceed 10 MW

   b) landfill gas use for on-site or off-site heat generation (without capacity limit)

   c) landfill gas flaring without any gainful use, where there is no source of revenue or cost savings other than the income derived from carbon credits

2) The project is not located in a high-income country, as defined by the World Bank, at the time the project is submitted for registration.

3) Before the implementation of the project activity, the landfill gas:

a) was vented and/or flared for at least three years or since the commissioning of the landfill, whichever is more recent (for brownfield projects).

b) would have been vented and/or flared and not utilized for energy generation (for greenfield projects).

4) The project does not receive any type of financial incentive (including financial revenues and savings), such as grants, tax exemptions, price subsides, or any other financial promotion mechanism from governments, multilateral funds, or other external entities, unless such incentives are explicitly contingent on the generation of carbon credits.

Where the project activity meets all of the conditions above, it is additional.

Where the project activity does not meet all of the conditions listed above, the project proponent must apply a project method (Section 7.2). Otherwise, the project activity is not additional.

7.2   Project Method

7.2.1   Regulatory Surplus

The project proponent must demonstrate regulatory surplus in accordance with the rules and requirements regarding regulatory surplus set out in the most recent versions of the *VCS Standard* and *VCS Methodology Requirements*.

Where the project proponent demonstrates regulatory surplus, proceed to Section 7.2.2 (investment analysis). Otherwise, the project activity is not additional.

7.2.2   Investment Analysis

The project proponent must follow the procedures and requirements in the most recent version of *VT0009* to conduct an investment analysis.

Where the project proponent meets the conditions of the investment analysis, proceed to Section 7.2.3. Otherwise, the project activity is not additional.

7.2.3   Common Practice Analysis

The project proponent must follow the procedures and requirements in the most recent version of *VT0009* to conduct a common practice analysis.

Where the project activity is not considered common practice, it is additional. Otherwise, the project activity is not additional.

8 QUANTIFICATION OF REDUCTIONS AND REMOVALS

8.1 Baseline Emissions

Baseline emissions must be determined following the procedures in the most recent version of *ACM0001* and paragraph 54 in Section 5.4.2 must be read as follows:

54. The baseline emissions associated with electricity generation in year *y* ($BE_{EC,y}$) must be calculated using the most recent version of *VT0010 Emissions from Electricity Consumption and Generation.* When applying the tool:

    (a) the baseline loads in *VT0010* correspond to the sources of electricity generation and exported to the grid that are identified in the selection of the most plausible baseline scenario; and

    (b) $EC_{BE,A,L}$ in *VT0010* is equivalent to the net amount of electricity generated using LFG in year *y* ($EG_{PJ,y}$).

Project activities transitioning from *AMS-III.G.* to *VMR0016*[1]

For project activities transitioning from *AMS-III.G.* to *VMR0016* that utilize the recovered methane solely for power generation, the parameter $F_{CH4,PJ,y}$ may be calculated based on monitored electricity generation. In this case, direct monitoring of methane flow and concentration is not required and $F_{CH4,PJ,y}$ must be calculated as follows:

$$F_{CH4,PJ,y} = \frac{EG_Y}{NCV_{CH4} \times EE_y} \times 3600 \times D_{CH4} \qquad (1a)$$

Where:

EG_y	=	Electricity generation in year y (MWh)
NCV_{CH4}	=	A default value of 35.9 MJ/Nm³ must be applied.
EE_y	=	Energy conversion efficiency of the project equipment (%)
3600	=	Conversion factor (1 MWh = 3600 MJ)

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[1] This is only applicable for projects previously registered under *AMS-III.G.* that transition to *VMR0016*. Projects that have been registered using *ACM0001* or *VMR0016* are not allowed to apply this simplification.

Project participants must provide evidence to the VVB that only landfill gas recovered from the project activity is used for power generation and that no other gas or fuels except a start-up fuel is used.

When transitioning from *AMS-III.G.* to *VMR0016*, projects may determine the fraction of methane in the landfill gas through periodical measurements, provided that a 90/10 confidence/precision level is maintained.

8.2   Project Emissions

Project emissions must be determined following the procedures in the most recent version of *ACM0001* and paragraph 65 in Section 5.5 must be read as follows:

65. The project emissions from consumption of electricity by the project activity ($PE_{EC,y}$) must be calculated using the most recent version of *VT0010*. When applying the tool:

    (a) $EC_{PE,A,L}$ in *VT0010* is equivalent to the amount of electricity consumed by the project activity in year y ($EC_{PJ,y}$); and

    (b) If in the baseline a proportion of LFG is destroyed ($F_{CH4,BL,y} > 0$), then the electricity consumption in *VT0010* ($EC_{PE,A,L}$) refers to the net quantity of electricity consumption (i.e., the increase due to the project activity). The determination of the amount of electricity consumed in the baseline must be transparently documented in the project description.

    (c) A value of 1.3 tCO_2/MWh may be applied as a default grid emission factor when accounting for project emissions from electricity consumption (this value must not be applied to determine emission reductions from the displacement of grid electricity).

8.3   Leakage Emissions

No leakage effects are accounted for under this methodology.

8.4   Net Reductions and Removals

Net reductions must be determined following the procedures provided in the most recent version of *ACM0001*, replacing CDM tools with VCS tools in accordance with Table 1.

Section 5.8 and 5.9 of *ACM0001* does not apply.

9 MONITORING

Project proponents must follow the monitoring procedures in the most recent version of *ACM0001*, replacing the monitoring parameters of CDM tools with the parameters from VCS tools in accordance with Table 1.

9.1 Data and Parameters Available at Validation

The GWPs must be applied as specified in the most recent version of the *VCS Standard*.

When default values are sourced from *IPCC Guidelines on National GHG Inventories*, the most recent version must be applied.

Parameter table 3 must be replaced with:

Data/Parameter	GWP_{CH4}
Data unit	tCO_2/MWh
Description	Global warming potential of methane
Equations	-
Source of data	As per most recent version of the *VCS Standard*
Value applied	As per most recent version of the *VCS Standard*
Justification of choice of data or description of measurement methods and procedures applied	-
Purpose of data	Conversion to CO_2 equivalent
Comments	-

Data/Parameter	$EE_{,y}$
Data unit	%
Description	Energy conversion efficiency of the generators
Equations	1a

Source of data	Specification provided by the equipment manufacturer. The equipment must be designed to utilize biogas as fuel, and the efficiency specification is for biogas. If the specification provides a range of efficiency values, the highest value of the range must be used for the calculation. Otherwise, a 40% default value must be applied.
Value applied	Use N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of data	N/A
Comments	Calculation of baseline emissions

9.2   Data and Parameters Monitored

Project proponents must follow the monitoring procedures of the most recent version of *ACM0001*. The parameters in Tables 17, 18, and 19 of *ACM0001* do not apply when using *VMR0016*.

The monitoring parameters of *CDM TOOL05* and *TOOL07* must be replaced with the monitoring parameters of the applied VCS tools in accordance with Table 1.

In addition, the following parameter must be monitored.

Data / Parameter:	LFG power plant installed capacity
Data unit:	MW
Description:	Total installed/rated capacity or authorized capacity (as determined in the activity approval from the project regulator, government or similar entity) of the project activity's power plant utilizing LFG
Equations	-
Source of data:	Manufacturer specifications, commissioning data or other recognized standards.
Description of measurement methods and procedures to be applied:	Determine the total installed capacity based on manufacturer's specifications or commissioning data or recognized standards
Frequency of monitoring/recording:	At least once per monitoring period, or whenever modifications to the installed capacity are implemented.

QA/QC procedures to be applied:	-
Purpose of data:	Reporting-only requirement
Calculation method:	-
Comments:	The installed capacity is a reporting-only requirement and is not used for the quantification.

9.3 Description of the Monitoring Plan

All monitoring requirements of *ACM0001* and applicable tools must be followed, noting the tool replacements indicated in Table 1.

10 REFERENCES

N/A

DOCUMENT HISTORY

Version	Date	Comment
v1.0	21 Nov 2025	Initial version The following updates to ACM0001 are included: • Adoption of *VT0009 Combined Baseline and Additionality Assessment* and *VT0010 Emissions from Electricity Consumption and Generation* (and associated tool *VT0011 Electricity Systems Emission Factors*) • Inclusion of positive list (adapted from CDM TOOL32) • Requirements for projects transitioning from *AMS-III.G.* to *VMR0016* • Inclusion of monitoring parameter for the installed capacity (reporting-only) • Other minor improvements