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

TYPE III - OTHER PROJECT ACTIVITIES

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.

III.W. Methane capture and destruction in non-hydrocarbon mining activities

Technology/measure

1. This methodology comprises activities that capture and **utilise, to produce electricity, motive power and/or thermal energy, and/or destroy through flaring** ~~destroy~~ methane released directly from holes bored to geological formations specifically for mineral exploration and prospecting.

2. Following conditions are applicable:

   (a) Abandoned or decommissioned mines, as well as open cast mines are excluded. Coal extraction mines or oil shale, as well as boreholes or wells opened for gas/oil exploration or extraction do not qualify under this methodology.

   (b) Project participants are able to demonstrate that the methane captured would have been emitted to the atmosphere in the absence of the project activity using historic mine records and safety procedures. The exploration plans shall be available as required evidence.

   (c) Only methane emitted from structures (adits, boreholes, etc.) designed and installed solely for prospecting of minerals[1] qualify; pre mining drainage related to minerals for which the mine was developed and is being operated does not qualify. Dedicated methane or natural gas extraction is excluded.

   (d) This methodology is applicable to the following cases:

      (i) Structures installed, or boreholes drilled before end of 2001; or

      (ii) Structures installed, or boreholes drilled after 2001 ~~but a minimum of 5 years prior to the submission of the project activity for validation~~, where it can be demonstrated that the structures or the boreholes were part of an exploration plan. **The assessment of the reserve mapping programme must be conducted by independent competent external reserve mapping experts.**

   (e) This methodology is applicable if baseline scenario is a total atmospheric release of methane. That is, the methodology is not applicable to project activities where part of the methane released is already combusted or used for an application before the implementation of the project activity

   (f) The methodology requires that baseline scenario is compliant with national or local safety requirement or local regulations.

[1] Reference to 'mineral' in this methodology is to be considered as 'non hydrocarbon mineral'.

~~3. The methodology is applicable to project activities that capture and destroy methane within the project boundary. That means, there will be no transportation, distribution or selling of methane or natural gas to users outside the mining site.~~

3. This methodology excludes measures that would increase the amount of methane emissions from the boreholes beyond the natural release as would occur in the baseline. This means forced extraction by pumping; the use of CO_2 or any other fluid/gas to enhance methane drainage is excluded. If a **fan or compressor for a** flare **or methane utilisation equipment** is used, the lowest possible fan/**compressor** capacity should be established under which flare **/ compressor** can properly operate.

~~5. This methodology is not applicable if a combustion facility is used for heat and/or electricity generation. Should there be a case for generation of electricity or thermal energy from the methane, a request for revision of this methodology may be submitted in accordance with the procedures.~~

4. Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO_2 equivalent annually.

Boundary

5. ~~The project boundary~~**The spatial extent of the project boundary comprises of:** ~~is the actual area of the borehole or venting shaft and the infrastructure under the project activity (e.g. pipes, flares, fans, fire breaks, fences and s~~
• All equipment installed and used as part of the project activity for the extraction, compression, and storage of methane at the project site, its transportation to off-site users and the off-site users;
• Flaring, captive power and heat generation facilities installed and used as part of the project activity;
• Power plants connected to the electricity grid, where the project activity exports or imports power from the grid, as per the definition of an electricity system in the latest approved version of the "Tool to calculate the emission factor for an electricity system".~~ecurity)~~.

Baseline

<u>Baseline emissions for methane capture and utilization or destruction</u>

$$BE_y = BE_{MR,y} + BE_{Use,y} \quad \textbf{(1)}$$

Where:

BEy	**Baseline emissions in year y (tCO_2e/yr)**
BEMR,y	**Baseline emissions from the release of methane into the atmosphere in year y that is avoided by the project activity (tCO_2e/yr)**
BEUse,y	**Baseline emissions from the production of power or heat or vehicle fuel displaced by the project activity in year y (tCO_2e/yr)**

In the baseline scenarioBaseline emissions from methane is emitted to atmosphere.

6. **The baseline emissions are calculated *ex post* as the methane in the residual gas multiplied with the global warming potential for methane. The baseline emissions are calculated in accordance with the procedures of "Tool to determine project emission from flaring gases containing methane":**

$$BE_{MR,y} = \sum_{h=1}^{8760} TM_{RG,h} * \frac{GWP_{CH4}}{1000} \qquad (12)$$

Where:

BEMR,y	**Baseline emissions from the release of methane into the atmosphere in year y that is avoided by the project activity (tCO_2e/yr)**
$BE_{MR,y}$	**Baseline emissions in year *y* (tCO_2e)**
$TM_{RG,h}$	**Mass flow rate of methane in the residual gas (in the Tool it is defined as the gas stream flowing to the flare) in the hour *h* (kg/h)**
GWP_{CH4}	**Global warming potential for methane as per the latest IPCC values approved by the COP/MOP (value of 21)**
1/1000	**Factor to convert kg/y to tonne/y**

The *ex ante* baseline emissions is calculated based on measured data prior to the project activity. This requires sampling to assess the expected flow and composition of the residual gas. Such sampling should cover a sufficiently long period of at least one year. If the measurements detect any long time trend of decreasing flow or concentration, this should be taken into account for conservative estimations for the crediting period.

Baseline emissions from power/heat generation and vehicle fuel replaced by project activity

$$BE_{Use,y} = GEN_y * EF_{ELEC,y} + HEAT_y * EF_{HEAT,y} + VFUEL_y * EF_{V,y} + ABS_y * \frac{COP_{ABS}}{COP_{ELEC}} * EF_{ELEC,y} \qquad (3)$$

Where:

$BE_{Use,y}$	=	**Baseline emissions from the production of power or heat or vehicle fuel use replaced by the project activity in year *y* (tCO_2e/yr)**
GEN_y	=	**Electricity generated by the project activity in year *y* (MWh)**
$EF_{ELEC,y}$	=	**Emission factor for electricity generation (grid, captive or a combination) replaced by project activity (tCO_2/MWh)**
$HEAT_y$	=	**Heat generation by project activity in year *y* (GJ)**

$EF_{HEAT,y}$	=	**Emission factor for heat generation replaced by the project activity (tCO_2/GJ)**
$VFUEL_y$	=	**Vehicle fuel provided by the project activity in year *y* (GJ),**
$EF_{V,y}$	=	**Emission factor for vehicle operation replaced by project activity (tCO_2/GJ)**
ABS_y	=	**Chilling produced in project activity by absorption chillers in year *y* (MWh)**
COP_{ABS}	=	**Coefficient of performance of the absorption chillers (MW thermal input/MW thermal output)**
COP_{ELEC}	=	**Coefficient of performance of the electrical chillers used in the baseline chillers (MW electrical input/MW thermal output)**

Grid emission factor

If the baseline scenario includes power supply from the grid that would be replaced by the project activity, the emission factor for displaced electricity $EF_{ELEC,y} = EF_{grid,y}$ is calculated as per the latest approved version of the "Tool to calculate the emission factor for an electricity system".

Captive power generation emission factor

If the baseline scenario includes captive power generation (either existing or new) that would be replaced by the project activity, the emission factor for displaced electricity $EF_{ELEC,y} = EF_{captive}$ is calculated as follows:

$$EF_{captive,y} = \frac{EF_{CO2,i,y}}{Eff_{captive}} \times \frac{44}{12} \times \frac{3.6}{1000} \tag{4}$$

Where:

$EF_{captive,y}$	=	**Emission factor for captive power generation (tCO_2/MWh)**
$EF_{CO2,i,y}$	=	**CO_2 emissions factor of fuel *i*[2] used in captive power generation during the year *y* (tC/TJ)**
$Eff_{captive}$	=	**Efficiency of the captive power generation (%)**
44/12	=	**Carbon to carbon dioxide conversion factor**
3.6/1000	=	**TJ to MWh conversion factor**

Combination of grid power and captive power emissions factor

If the baseline scenario selection determines that both captive and grid power would have been used in the baseline, then the emissions factor is the weighted average of the emission factor for the grid and for the captive power generation:

$$EF_{ELEC,y} = s_{grid} \cdot EF_{grid,y} + s_{captive} \cdot EF_{captive,y} \tag{5}$$

Where:

$EF_{ELEC,y}$	=	**CO_2 baseline emission factor for the electricity displaced due to the project activity during the year *y* (tCO_2/MWh).**
$EF_{grid,y}$	=	**CO_2 baseline emission factor for the grid electricity displaced due to the project activity during the year *y* (tCO_2/MWh).**
$EF_{captive,y}$	=	**CO_2 baseline emission factor for the captive electricity displaced due to the project activity during the year *y* (tCO_2/MWh)**
s_{grid}	=	**Share of the electricity demand supplied by the grid imports over the last 3 years (%)**
$s_{captive}$	=	**Share of facility electricity demand supplied by captive power over the last 3 years (%)**

[2] **In the case where several fossil fuels are used for power generation, the fuel with the lowest emission factor should be used for the calculations of the baseline emissions.**

Heat generation emission factor

If the baseline scenario includes heat generation (either existing or new) that is replaced by the project activity, the emission factor for displaced heat generation is calculated as follows:

$$EF_{heat,y} = \frac{EF_{CO2,i,y}}{Eff_{heat}} \times \frac{44}{12} \times \frac{1}{1000} \quad (6)$$

Where:

$EF_{heat,y}$	=	**Emission factor for heat generation (tCO_2/GJ)**
$EF_{CO2,i,y}$	=	**CO_2 emissions factor of fuel[3] used in heat generation during year *y* (tC/TJ)**
Eff_{heat}	=	**Efficiency of a boiler used for the heat generation (%)**
44/12	=	**Carbon to carbon dioxide conversion factor**
1/1000	=	**TJ to GJ conversion factor**

To estimate boiler efficiency, project participants may choose between the following two options:

Option A:

Use the highest value among the following three values as a conservative approach:

- **Measured efficiency prior to the project activity start;**
- **Measured efficiency during monitoring;**
- **Manufacturer nameplate data for efficiency of the existing boilers.**

Option B:

Assume a boiler efficiency of 100% as a conservative approach.

Vehicle fuel use emissions factor

If the project activity includes supply of methane for the use as vehicle fuel, the emissions factor for displaced vehicle fuel use in the baseline is calculated as follows:

$$EF_{V,y} = \frac{EF_{CO2,i,y}}{Eff_{V}} \times \frac{44}{12} \times \frac{1}{1000} \quad (7)$$

[3] **In the case where several fossil fuels are used for heat generation, the fuel with the lowest emission factor should be used for the calculations of the baseline emissions.**

Where:

$EF_{V,y}$	=	Emissions factor for vehicle operation replaced by project activity (tCO2/GJ)
$EF_{CO2,i,y}$	=	CO_2 emissions factor of fuel used for vehicle operation during year y (tC/TJ)
Eff_V	=	Vehicle engine efficiency (%)
44/12	=	Carbon to Carbon Dioxide conversion factor
1/1000	=	TJ to GJ conversion factor

To estimate vehicle engine efficiency, project participants should select the highest value among the following three values as a conservative approach:

- Measured fuel efficiency prior to the start of the project activity;
- Measured fuel efficiency during monitoring;
- Manufacturer's specifications for efficiency of vehicle.

Leakage

7. If the methane recovery and combustion technology is equipment transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered.

Project activity emissions

8. Project activity emissions consist of:

(a) Any grid electricity or fossil fuel used in the project equipment. The emissions associated with grid electricity consumption should be calculated in accordance to AMS-I.D.

(b) The CO_2 emissions from the combusted methane are calculated and included as project emissions because the methane is from fossil origin.

(c) Emissions from un-combusted methane is calculated in accordance with the "Tool to determine project emission from flaring gases containing methane."

Project emissions can be determined as follows:

$$PE_y = PE_{ME,y} + PE_{MD,y} + PE_{UM,y} \quad (28)$$

Where:

PE_y	Project emissions in year y (tCO_2e)
$PE_{ME,y}$	Project emissions from energy use to capture and use methane in year y (tCO_2e)
$PE_{MD,y}$	Project emissions from methane destroyed in year y (tCO_2e)
$PE_{UM,y}$	Project emissions from un-combusted methane in year y (tCO_2e)

9. Project emissions from energy use ($PE_{ME,y}$) ~~to~~ for capture, transportation, compression and utilisation or destruction of ~~and destroy~~ methane in year *y* shall be determined as follows:

$$PE_{ME,y} = PE_{ELEC,y} + PE_{FF,y} \quad (39)$$

Where:

$PE_{ELEC,y}$	Project emissions from the use of electricity for the capture, transportation, compression and utilisation or destruction of borehole methane ~~operation of the facilities installed~~ in the project activity in year *y* calculated in accordance to AMS-I.D (tCO_2)
$PE_{FF,y}$	Project emissions from the combustion of fossil fuels for the capture, transportation, compression and utilisation or destruction of borehole methane ~~operation of the facilities installed~~ in the project activity in year y calculated in accordance with the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" (tCO_2e)

10. Project emissions from methane ~~destroyed~~ combustion in year *y* ($PE_{MD,y}$) shall be determined as follows:

~~$$PE_{MD,y} = \sum_{h=1}^{8760} TM_{RG,h} * (\eta_{flare,h}) * \frac{CEF_{CH4}}{1000} \quad (4)$$~~

$$PE_{MD,y} = (MD_{FL,y} + MD_{ELEC,y} + MD_{HEAT,y} + MD_{GAS,y}) * (CEF_{CH4} + r * CEF_{NMHC}) \quad (10)$$

Where:

$PE_{MD,y}$	=	Project emissions from methane destroyed in year *y* (tCO_2e/yr)
$MD_{FL,y}$	=	Amount of methane destroyed through flaring in year *y* (tCH_4)
$MD_{ELEC,y}$	=	Amount of methane destroyed through power generation in year *y* (tCH_4)
$MD_{HEAT,y}$	=	Amount of methane destroyed through heat generation in year *y* (tCH_4)
$MD_{GAS,y}$	=	Amount of methane destroyed after being supplied to gas grid or for vehicle use in year *y* (tCH_4)
CEF_{CH4}	=	Carbon emission factor for combusted methane (2.75 tCO_2/tCH_4)
CEF_{NMHC}	=	Carbon emission factor for combusted non methane hydrocarbons (the concentration varies and, therefore, to be obtained through periodical analysis of captured methane) ($tCO_2/tNMHC$)
r	=	Relative proportion of NMHC compared to methane, $r = PC_{NMHC} / PC_{CH4}$
PC_{CH4}	=	Concentration (in mass) of methane in extracted gas (%), measured on wet basis
PC_{NMHC}	=	NMHC concentration (in mass) in extracted gas (%)

In each end-use, the amount of gas destroyed depends on the efficiency of combustion:

$$MD_{FL,y} = MMES_{FL,y} - (PE_{flare,y} / GWP_{CH4}) \quad (11)$$

Where:

$MD_{FL,y}$ = **Amount of methane destroyed through flaring in year *y* (tCH_4)**

$MMES_{FL,y}$ = **Amount of methane sent to flare in year *y* (tCH_4)**

$PE_{flare,y}$ = **Project emissions of non-combusted CH_4, expressed in terms of tCO_2e, from flaring of the residual gas stream in year *y* (tCO_2e)**

GWP_{CH4} = **Global warming potential of methane (21 tCO_2e/tCH_4)**

The project emissions of non-combusted CH_4 expressed in terms of CO_2e from flaring of the residual gas stream ($PE_{flare,y}$) shall be calculated following the procedures described in the "Tool to determine project emissions from flaring gases containing methane".

$$MD_{ELECy} = MMES_{ELEC,y} * Eff_{ELEC} \quad (12)$$

Where:

$MMES_{ELEC,y}$ = **Amount of methane sent to power plant in year *y* (tCH_4)**

Eff_{ELEC} = **Efficiency of methane destruction/oxidation in power plant (taken as 99.5% from IPCC)**

$$MD_{HEAT,y} = MMES_{HEAT,y} * Eff_{HEAT} \quad (13)$$

Where:

$MMES_{HEAT,y}$ = **Amount of methane sent to heat plant in year *y* (tCH_4)**

Eff_{HEAT} = **Efficiency of methane destruction/oxidation in heat plant (taken as 99.5% from IPCC)**

$$MD_{GAS,y} = MMES_{GAS,y} * Eff_{GAS} \quad (14)$$

Where:

$MMES_{GAS,y}$ = **Amount of methane supplied to gas grid for vehicle use or heat/power generation off-site in year y(tCH_4)**

Eff_{GAS} = **Overall efficiency of methane destruction/oxidation through gas grid to various combustion end uses, combining fugitive emissions from the gas grid and combustion efficiency at end user (taken as 98.5% from IPCC)[4]**

[4]The Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories give a standard value for the fraction of carbon oxidised for gas combustion of 99.5% (Reference Manual, Table 1.6, page 1.29). It also gives a value for emissions from processing, transmission and distribution of gas which would be a very conservative estimate for losses in the grid and for leakage at the end user (Reference Manual, Table 1.58, page 1.121). These emissions are given as 118,000kgCH4/PJ on the basis of gas consumption, which is 0.6%. Leakage in the residential and commercial sectors is given as 0 to 87,000kgCH4/PJ, which is 0.4%, or in industrial plants and power station the losses are 0 to 175,000kg/CH4/PJ, which is 0.8%. These leakage estimates are additive. Eff_{GAS} can now be calculated as the product of these three efficiency factors, giving a total efficiency of (99.5% * 99.4%

*** 99.6%) 98.5% for residential and commercial sector users, and (99.5% * 99.4% * 99.2%) 98.1% for industrial plants and power stations.**

Project emissions from un-combusted methane

Not all of the methane sent to the flare or used to generate power and heat will be combusted, so a small amount will escape to the atmosphere. These emissions are calculated using the following:

$$PE_{UM,y} = [GWP_{CH4} \times \sum_i MMES_{i,y} \times (1 - Eff_i)] + PE_{flare,y} \qquad \textbf{(15)}$$

Where:

$PE_{UM,y}$	=	**Project emissions from un-combusted methane in year *y* (tCO_2e)**
GWP_{CH4}	=	**Global warming potential of methane (21 tCO_2e/tCH_4)**
i	=	**Use of methane (power generation, heat generation, supply to gas grid to various combustion end uses)**
$MMES_{i,y}$	=	**Methane sent to use *i* in year *y* (tCH_4)**
Eff_i	=	**Efficiency of methane destruction in use *i* (%)**
$PE_{flare,y}$	=	**Project emissions of non-combusted CH_4 expressed in terms of CO_2e from flaring of the residual gas stream (tCO_2e)**

The project emissions from flaring of the residual gas stream ($PE_{flare,y}$) shall be calculated following the procedures described in the "Tool to determine project emissions from flaring gases containing methane". $PE_{flare,y}$ can be calculated on an annual basis or for the required period of time using this tool.

~~Where:~~

~~CEF_{CH4} Carbon emission factor for combusted methane (2.75 tCO_2/tCH_4)~~

~~$\eta_{flare,h}$ Flare efficiency in hour *h*, according to the "Tool to determine project emission from flaring gases containing methane"~~

~~1/1000 Factor to convert kg/y to tonne/y~~

~~12. Project emissions from un-combusted methane in year *y* shall be determined as follows:~~

$$PE_{UM,y} = \sum_{h=1}^{8760} TM_{RG,h} * (1 - \eta_{flare,h}) * \frac{GWP_{CH4}}{1000} \qquad (5)$$

Monitoring

11. The emission reduction achieved by the project activity will be measured as the difference between the baseline emissions and the project emissions and leakage.

$$ER_y = BE_y - PE_y - LE_y \quad (~~6~~16)$$

Where:

ER_y Emission reductions in year *y* (tCO_2e)

LE_y Leakage emissions in year *y* (tCO_2e)

12. The amount of methane actually flared should be monitored in accordance with the "Tool to determine project emission from flaring gases containing methane".

13. This methodology requires monitoring of the consumption of grid electricity and/or fossil fuel by the project.

14. The following parameters shall be monitored and recorded during the crediting period.

No.	Parameter	Description	Unit	Monitoring/recording Frequency	Measurement Methods and Procedures
1	$TM_{RG,h}$	Mass flow rate of methane in the residual gas	kg/h	As per the "Tool to determine project emissions from flaring gases containing methane".	As per the "Tool to determine project emissions from flaring gases containing methane".
2	$EF_{CO2,i,y}$	CO_2 emissions factor of fuel *i* used in captive power generation or heat generation or vehicle operation during the year *y*	tC/TJ	Annually	Use latest IPCC default values.
3	$Eff_{captive}$	Efficiency of the captive power generation	%	xx[MC1]	
4	$EF_{grid,y}$	CO_2 baseline emission factor for the grid electricity displaced due to the project activity during the year *y*	tCO_2/MWh	As per the "Tool to calculate emission factor for an electricity system".	As per the "Tool to calculate emission factor for an electricity system".
5	Eff_y	Vehicle engine efficiency	%	Annually	A statistical sample will be taken of the engines of the fleet supplied. The manufacturer's specification will be used for the engines identified.
6	GEN_y	Electricity generated by the project activity in year *y*	MWh	Measured continuously and logged hourly.	Measurements are undertaken using calibrated meters.
7	$HEAT_y$	Heat generation by project activity in year *y*	GJ	Measured continuously and logged hourly.	Measurements are undertaken using calibrated meters.

No.	Parameter	Description	Unit	Monitoring/recording Frequency	Measurement Methods and Procedures
8	$VFUEL_y$	Vehicle fuel provided by the project activity in year *y*	GJ	The mass of methane provided as vehicle fuel will be monitored on a daily basis.	Measurements are undertaken using calibrated meters. The energy content of the methane is then determined using the IPCC calorific value for methane of 48MJ/kg.
9	ABS_y	Chilling produced in project activity by absorption chillers in year *y*	MWh	Measured continuously and logged hourly.	Measurements are undertaken using calibrated meters.
10	COP_{ABS}	Coefficient of performance of the absorption chillers	MW thermal input/MW thermal output	xx[MC2]	
11	COP_{ELEC}	Coefficient of performance of the electrical chillers used in the baseline chillers	MW electrical input/MW thermal output	xx[MC3]	
12	$PE_{ELEC,y}$	Project emissions from the use of electricity for the capture, transportation, compression and utilisation or destruction of borehole methane in the project activity in year *y*	tCO_2	As per the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”.	As per the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”.

No.	Parameter	Description	Unit	Monitoring/recording Frequency	Measurement Methods and Procedures
13	$PE_{FF,y}$	Project emissions from the combustion of fossil fuels for the capture, transportation, compression and utilisation or destruction of borehole methane in the project activity in year y	tCO_2	Calculated in accordance with the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion".	Calculated in accordance with the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion".
14	$MMES_{FL,y}$	Amount of methane sent to flare in year y	tCH_4	Measured continuously and logged hourly.	Measurements are undertaken using calibrated meters.
15	$PE_{flare,y}$	Project emissions of non-combusted CH_4, expressed in terms of tCO_2e, from flaring of the residual gas stream in year *y*	tCO_2e	As per the "Tool to determine project emissions from flaring gases containing methane".	As per the "Tool to determine project emissions from flaring gases containing methane".
16	$MMES_{ELEC,y}$	Amount of methane sent to power plant in year *y*	tCH_4	Measured continuously and logged hourly.	Measurements are undertaken using calibrated meters.
17	$MMES_{HEAT,y}$	Amount of methane sent to heat plant in year *y*	tCH_4	Measured continuously and logged hourly.	Measurements are undertaken using calibrated meters.
18	$MMES_{GAS,y}$	Amount of methane supplied to gas grid for vehicle use or heat/power generation off-site in year y	tCH_4	Measured continuously and logged hourly.	Measurements are undertaken using calibrated meters.
19	CEF_{NMHC}	Carbon emission factor for combusted non methane hydrocarbons	$tCO_2/tNMHC$	Annually.	As the concentration varies this must be obtained through periodical analysis of captured methane.

No.	Parameter	Description	Unit	Monitoring/recording Frequency	Measurement Methods and Procedures
20	PC_{CH4}	Concentration (in mass) of methane in extracted gas, measured on wet basis	%	The concentration will be monitored continuously and integrated hourly.	The concentration will be monitored on a wet basis and this value will be reported on a wet basis. The concentration is metered by a gas analysis device. The methane concentration can be measured in volume percent. Using the flowrate of the gas, the volumetric concentrations of the components in the gas and molar masses; the volume percent can be converted into a mass percent.
21	PC_{NMHC}	NMHC concentration (in mass) in extracted gas	%	The gas must be sampled every 3 months in the first year. The frequency of this can be reduced to twice a year thereafter.	The methane concentration will be monitored continuously. If the methane concentration falls below the 75% indicated by the analysis taken prior to the project activity or the average concentration in that year then the gas will be sampled again and the new NMHC concentration will be used. The gas is sampled and the samples are sent to a laboratory for testing.

Project activity under a programme of activities

This methodology is not applicable to project activities under a programme of activities.

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History of the document

Version	Date	Nature of revision
01	EB 42, Annex 15 26 September 2008	Initial adoption.