CLEAN DEVELOPMENT MECHANISM

CDM-SSCWG47-A05

Draft Small-scale Methodology

AMS-III.AH: Shift from high carbon intensive fuel mix ratio to low carbon intensive fuel mix ratio

Version 02.0 - Draft

Sectoral scope(s): 01

United Nations
Framework Convention on
Climate Change

COVER NOTE

1. Procedural background

1. The Conference of Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP) in decision 3/CMP.9 in paragraph 11 of further guidance to clean development mechanism (CDM) has reiterated its encouragement to the Executive Board (hereinafter referred to as the Board), as contained in decision 5/CMP.8, to continue its work on the simplification and streamlining of methodologies, with the aim of reducing transaction costs for all project activities and programmes of activities, especially those in regions underrepresented in the clean development mechanism.

2. The Board, at its seventy-eighth meeting, considered a concept note on further work on methodologies, tools and standards and agreed on the methodological products for further work in 2014 and 2015 (See EB 78 meeting report, annex 8). The EB 82, Annex 8 provided further guidance on timelines requesting call for public inputs to be initiated by EB 83 and final revised AMS-III.AH to be recommended for consideration by EB 85.

3. Issues related to small-scale methodological products for simplification and streamlining under MAP project 223 are targeted to include consistent and comparable methods distinguished by project size across small-scale methodologies for fuel switch (e.g. emission reduction calculations, applicability, definition of existing facility, simplification for microscale projects) taking into account the methods in the approved large-scale methodologies.

4. The Small-Scale Working Group (SSC WG) at its 45th meeting initiated a discussion on the potential elements for revision of small-scale fuel switch methodologies and agreed on elements for revisions of small-scale fuel switch methodologies as per the agreements reflected in the information note contained in annex 1 to SSC WG 45th meeting internal report.

5. The SSC WG at its 47th meeting agreed to recommend the draft revised methodology “AMS-III.AH: Shift from high carbon intensive fuel mix ratio to low carbon intensive fuel mix ratio” for call for public input.

2. Purpose

6. The purpose is to revise “AMS-III.AH: Shift from high carbon intensive fuel mix ratio to low carbon intensive fuel mix ratio in order to

   (a) Simplify and streamline as per the objective MAP project 223 for 2015 ;

   (b) Further improve consistency amongst small and large scale fuel switch methodologies; and

   (c) Provide options with distinguishing methods by project size (e.g., microscale) with an aim to further simplify emission reduction calculations.

3. Key issues and proposed solutions

7. Issue N1: "AMS-III.AH: Shift from high carbon intensive fuel mix ratio to low carbon intensive fuel mix ratio" is only applicable to processes where energy output can be directly measured.

8. AMS-III.B makes an exception from direct energy output measurement for project activities where the estimated annual emission reductions of each of the element processes are equal to or less than 600 t CO_2e per year per element process an alternative approach may be used to calculate baseline emissions using as a proxy project fuel consumption and baseline fuel emission factor.

9. **Proposal to Issue N1:** To include under AMS-III.AH the simplified approach for project activities where the estimated annual emission reductions of each of the element processes are equal to or less than 600 t CO_2e per year per based on project fuel consumption where the most conservative baseline emission factor from the mix of baseline fossil fuels as a conservative option.

10. **Proposal to Issue N1:** To include ACM0009 approach under AMS-III.AH for deriving baseline emissions based on the combustion of the quantity of fuel that would in the absence of the project activity be used in element processes i. Baseline emissions are calculated based on the quantity of fuel that would be combusted in each element processes *i* in the absence of the project activity and respective net calorific values and CO_2 emission factors. The quantity of fuel that would be used in the absence of the project activity in an element process *i* (FFbaseline,i,y) is calculated based on the actual monitored quantity of project fuel in this element process (FFproject,i,y) and the relation of the energy efficiencies and the net calorific values between the project scenario and the baseline scenario. Currently Option D of ACM0009 allows as a simplification to assume that project and baseline efficiencies are equal if it is demonstrated that project efficiency does not change significantly or is higher than baseline efficiency and can be fixed for the crediting period which leads to monitoring simplification.

4. Impacts

11. The revision will:

    (a) Result in simplified monitoring requirements where the estimated annual emission reductions of each of the element processes are equal to or less than 600 t CO_2e per year per element process and potentially in reduced transaction costs;

    (b) Expand the applicability the methodology and simplifying monitoring in cases where the energy output cannot be directly measured;

    (c) Facilitate the implementation of CDM project activities and component project activities (CPAs) involving switching fossil fuels and may potentially contribute to increased number of fossil fuel switch projects in LDCs and underrepresented countries.

5. Subsequent work and timelines

12. After receiving public inputs on the document, the SSC WG will continue working on the methodology, at its 48th meeting, for recommendation to the Board at a future meeting of the Board.

6. Recommendations to the Board

13. Not applicable (call for public inputs).

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1. Introduction

1. The following table describes the key elements of the methodology:

Table 1. Methodology key elements

Typical project(s)	Replacement or retrofit in order to increase the share of less-carbon-intensive fossil fuels in an element process of industrial, residential or commercial applications
Type of GHG emissions mitigation action	Fuel switch. Switch to less-carbon-intensive fuel in energy conversion processes

2. Scope, applicability, and entry into force

2.1. Scope

2. This methodology comprises activities that result in increased share of low GHG intensive fossil fuel in an element process[1] of an industrial, residential, commercial, and institutional or electricity generation application[2] that uses a mix of fossil fuel. For example, shift from high carbon intensive fuel mix ratio to low carbon intensive fuel mix ratio on an annual basis in power generation[3].

2.2. Applicability

3. This methodology is applicable to retrofit or replacement of existing installations. Cases involving Greenfield projects and capacity additions[4] are not eligible under this methodology.

4. Switching of fuel mix ratio may also result in energy efficiency improvements of the facility, thus both the project activities with or without energy efficiency improvements are eligible under this category. Project activities for implementation of energy efficiency measures not-related to the switch of energy sources shall apply Type II SSC methodologies.

5. The requirements for demonstration of the remaining lifetime of the equipment replaced shall be met as described in the "Tool to determine the remaining lifetime of equipment" ~~general guidance~~. If the remaining lifetime of the plant increases due to the project

[1] ~~An "*element process*" is defined as fuel combustion, energy conversion or energy use in a single equipment. Each element process generates a single output (such as electricity, steam, hot air) by using a single or combinations of fossil fuels. This methodology covers fuel switch in several element processes, i.e. project participants may submit one CDM-PDD for fuel switch in several element processes within a facility.~~

[2] Fuel switch in transportation technologies is not eligible under this methodology.

[3] Substitution of heavy fuel oil (HFO) engine with a Natural Gas (NG) engine to shift to a low GHG intensive fuel mix ratio of 25:74:1 (HFO: NG: Diesel) from a baseline fuel mix ratio of 69:30:1 (HFO: NG: Diesel) on an annual basis.

[4] I.e. the project capacity is within +10 % and -10% of the baseline installed capacity.

activity, the crediting period shall be limited to the estimated remaining lifetime, i.e. the time when the existing equipment of the element process would have been replaced in the absence of the project activity.

6. This methodology is not applicable to project activities that propose switch from fossil fuel use in the baseline to renewable biomass, biofuel or renewable energy in the project scenario. This methodology is not applicable to project activities utilising waste gas or energy; these project activities may consider applying AMS-III.Q.

7. This category is applicable to project activities where it is possible to directly measure and record the energy use (e.g. electricity or heat) and consumption (e.g. fossil fuel) within the project boundary, except for cases under paragraph 23 and 27 where the quantity of project fuel consumed, that is used as a proxy, shall be monitored.

8. Heat or electricity produced under the project activity shall be for on-site captive use and/or export to other facilities included in the project boundary. In case energy produced by the project activity is delivered to another facility or facilities, to displace more carbon intensive energy source than the project fuel mix, within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered into specifying that only the facility generating the energy can claim emission reductions from the fuel switch.

9. Export of electricity to a grid is not eligible under this category. That is, the project activity may physically connect to a grid but emission reduction cannot be claimed by exporting electricity to the grid.

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

11. Regulations do not constrain the facility from using the energy sources cited in paragraph 1 before the fuel switch. Regulations do not require the use of low carbon energy source (e.g. natural gas or any other fuel) in the element processes.

12. The project activity does not result in integrated process change. The purpose is to exclude measures that affect other characteristics of the process besides switch of energy sources e.g. operational conditions, type of raw material processed, use of non-energy additives, change in type or quality of products manufactured etc.

2.3. Entry into force

13. Not applicable (call for public input).

3. Normative references

14. Project participants shall apply the “General guidelines for SSC CDM methodologies” and the “Guidelines on the demonstration of additionality of small-scale project activities” (previously known as attachment A to appendix B) provided at: <http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html> mutatis mutandis.

15. This methodology also refers to the latest approved versions of the following tools and methodologies:

(a) "ACM0009: Fuel switching from coal or petroleum fuel to natural gas";

(b) "AMS-III.Q: Waste energy recovery (gas/heat/pressure) projects".

4. Definitions

16. The definitions contained in the Glossary of CDM terms shall apply.

17. An "element process" is defined as fuel combustion, energy conversion or energy use in a single equipment. Each element process generates a single output (such as electricity, steam, hot air) by using a single or combinations of fossil fuels. This methodology covers fuel switch in several element processes, i.e. project participants may submit one CDM-PDD for fuel switch in several element processes within a facility.

5. Baseline methodology

5.1. Boundary

18. The project boundary is the physical, geographical site where the switching of energy source takes place. It includes all installations, processes or equipment affected by the switching. The boundary also extends to the industrial, commercial or residential facilities consuming energy generated by the system.

5.2. Baseline

19. Historical information (detailed records) on the use of fossil fuels and the element process output (e.g. heat or electricity) from at least three years prior to project implementation shall be used in the baseline calculations, e.g. information on coal use and heat output by a district heating plant, liquid fuel oil use and electricity generated by a generating unit (records of fuel used and output can be used in lieu of actual collecting baseline validation data). For facilities that are less than three years old, all historical data shall be available (a minimum of one year data would be required). In case of project activity exporting to other facilities included in the project boundary, the above historical information from the recipient plants are required.

20. During the crediting period, if there is a restricted availability of a particular baseline fuel on account of local regulations this has to be considered by adjusting the baseline emissions ex post for the period where the baseline fuel is not available. The adjustment is done in a conservative manner i.e. if the restriction results in downward adjustment of baseline emissions it shall be taken into account[5] and on the other hand upward adjustment of baseline emissions are not eligible.

[5] With reference to footnote 3, if the regulations result in for example HFO:NG ratio of 60:39 it shall be used for baseline calculations.

21. The baseline emissions can be determined as follows:

$$BE_y = \sum_{i,j} (FC_{BL,i,j,y} \times NCV_j \times EF_{CO2,j} \times a_{i,j,BL}) \quad \text{Equation (1)}$$

Where:

BE_y	=	Baseline emissions during year *y* (tCO_2e)
$FC_{BL,i,j,y}$	=	Amount of fuel *j* consumed by the element process *i* during the year *y* operating at the baseline energy scenario (liters, tons, etc.)
NCV_j	=	Net calorific value of the fuel type *j* (kJ/unit)
$EF_{CO2,j}$	=	CO_2 emission factor of the fuel type *j* (tCO_2/kJ)
$a_{i,j,BL}$	=	Share of fuel j in the total input energy of the element process *i* for the identified baseline scenario (ratio)

22. The amount of each fuel type *j* consumed is calculated ex-post using the total monitored energy output of the element process *i* during year *y* and the share of each energy source in the identified baseline scenario:

~~$FC_{BL,i,j,y} = \frac{EG_{i,PJ,y} \times a_{i,j,BL}}{NCV_{BL,j} \times Eff_{i,BL,j}}$~~

$$FC_{BL,i,j,y} = \frac{EG_{i,PJ,y}}{NCV_{BL,j} \times Eff_{i,BL,j}} \quad \text{Equation (2)}$$

Where:

$EG_{i,PJ,y}$	=	Total monitored output (heat, electricity, etc.) of the element process *i* during year *y* (kJ)
~~$a_{i,j,BL}$~~	=	~~Share of fuel *j* in the total input energy of the element process *i* for the identified baseline scenario (ratio)~~
$Eff_{i,BL,j}$	=	Conversion efficiency of the element process *i* when operating with fuel type *j* in the baseline scenario, see below
$NCV_{BL,j}$	=	Net calorific value of the baseline fuel type *j* (kJ/unit)

23. Alternatively for cases where the energy source cannot be measured the amount of each baseline fossil fuel type *j* $FC_{BL,i,j,y}$ can be established on the actual monitored

quantity of project fossil fuel in the element process ($FC_{PJ,i,j,y}$) and the energy efficiency[6] and the net calorific values between the project scenario and the baseline scenario.

$$FC_{BL,i,j,y} = FC_{PJ,i,j,y} \times \left(NCV_{FF,PJ,i,j,y} \times Eff_{PJ,i,y,j}\right)/\left(NCV_{BL,j} \times Eff_{BL,i,j}\right) \quad \text{Equation (3)}$$

Where:

$FC_{PJ.i.j.y}$	=	Amount of project fossil fuel j consumed by the element process *i* during the year y (liters, tons, etc.)
$NCV_{FF,PJ,y,j,y}$	=	Net calorific value of the project fuel type j (kJ/unit)
$Eff_{PJ,i,j,y}$	=	Conversion efficiency of the element process *i* when operating with fuel type j in the project scenario in year y(%)

24. Efficiency of the baseline units shall be determined by adopting one of the following criteria (in a preferential order):

(a) Highest measured operational efficiency over the full range of operating conditions of a unit with similar specifications, using baseline fuel. The efficiency tests shall be conducted following the guidance provided in relevant national / international standards;

(b) Highest of the efficiency values provided by two or more manufacturers for units with similar specifications, using the baseline fuel;

(c) Default efficiency of 100%;

(d) If the amount of the baseline fuel consumption is determined as per the paragraph 22 and where project participants can reasonably demonstrate that the efficiency of the element process does not change due to the fuel switch or that any changes are negligible (e.g., less than 1%)(or that project efficiency can be expected to be higher than the baseline efficiency, project participants can assume that the $Eff_{PJ,i} = Eff_{BL,y}$ as a simplification, provided that baseline and project efficiency can be established ex-ante. The same can be applied in cases where the project efficiency is to be established ex-post using one year of monitored data and fixed for the rest of crediting period;

(e) Use default baseline efficiency as per Option F, Table 1 of the "Tool to determine the baseline efficiency of thermal or electric energy generation systems".

25. The values for baseline efficiency should be documented in the PDD and shall remain fixed throughout the crediting period.

26. The ex ante calculation of the baseline emissions shall be presented in the PDD based on the estimated production of the element process *i* during the crediting period. The ex post calculations are done based on measured output of the element process.

[6] In case of multiple fuels used weighted average efficiency should be used both for baseline and project.

27. In case of project activities where the energy output cannot be directly measured and the estimated annual emission reductions of each of the element processes are equal to or less than 600 t CO_2e per year per project element process and where the energy output cannot be directly measured the baseline emissions can be estimated using as a proxy the amount of fossil fuel consumed in the project activity in year *y* ($FC_{y,PJ,i}$) following the equation below:

$$BE_y = \sum_{i,j} FC_{PJ,i,j,y} \times NCV_{PJ,y,i} \times EF_{FF,BL} \times a_{j,i,BL}$$ Equation (4)

5.3. Project Activity Emissions

28. Project activity emissions consist of those related to use of fossil fuel in element processes *i* during the crediting period.

$$PE_y = \sum_{i,j} FC_{PJ,i,j,y} \times NCV_{PJ,j} \times EF_{PJ,CO2,j}$$ Equation (5)

Where:

PE_y = Project emissions during the year *y* (t CO_2e)

$FC_{PJ,i,j,y}$ = Quantity of fuel type *j* combusted in element process *i* during the year *y* (mass or volume unit)

$NCV_{PJ,j}$ = Net calorific value of the fuel type *j* (kJ/unit)

$EF_{PJ,CO2,j}$ = CO_2 emission factor of the fuel type *j* (tCO_2/kJ)

5.4. Leakage

29. No leakage calculation is required.

5.5. Emission Reductions

30. The emission reduction achieved by the project activity will be calculated as the difference between the baseline emissions and the project emissions.

$$ER_y = BE_y - PE_y$$ Equation (6)

Where:

ER_y = Emission reductions in the year *y* (tCO_2e)

31. For the determination of the emission factor and the net calorific value for the fossil fuels used guidance by the 2006 IPCC Guidelines for National Greenhouse Gas Inventories shall be followed where appropriate. Project participants may either conduct measurements or they may use accurate and reliable local or national data where

available. In the case of coal, the data shall be based on test results for periodic samples of the coal purchased if such tests are part of the normal practice for coal purchases. Where such data is not available, IPCC default emission factors (country-specific, if available) may be used if they are deemed to reasonably represent local circumstances. All values shall be chosen in a conservative manner (i.e. lower values for the baseline and higher values for the project should be chosen within a plausible range) and the choice shall be justified and documented in the SSC-CDM-PDD. Where measurements are undertaken, project participants shall document the measurement results and the calculated average values of the emission factor or net calorific value for the ex post determination of the baseline and project emissions.

6. Monitoring methodology

~~32. Monitoring shall include the energy source input ($FC_{PJ,i,j,y}$, NCV_i), and output of the element process *i* after the project activity has been implemented e.g. gas use and heat output by a district heating plant, gas use and electricity generated by a generating unit.~~

~~33. For electricity or steam energy exported to other facilities, monitoring of the use of electricity and thermal energy shall be undertaken in the recipient end.~~

~~34. In the case of steam energy, direct measurement of flow, temperature, pressure is required to determine enthalpy of the steam.~~

~~35. The availability of all baseline fuels shall be monitored, periods of non-availability or restricted availability shall be recorded for the baseline adjustment in accordance with paragraph 19.~~

36. Relevant parameters shall be monitored and recorded during the crediting period as indicated in the section below. The applicable requirements specified in the "General guidelines for SSC CDM methodologies" are also an integral part of the monitoring guidelines specified below and therefore shall be followed by the project participants.

Data / Parameter table 1.

Data / Parameter:	$FC_{PJ,i,j,y}$
Data unit:	m³ or kg
Description:	Quantity of fossil fuel j combusted in the element process *i* during the year y
Source of data:	On-site measurements
Measurement procedures (if any):	Use volume/mass meters
Monitoring frequency:	Continuously
QA/QC procedures:	The consistency of metered fuel consumption quantities should be crosschecked by an annual energy balance that is based on purchased quantities and stock changes. Where the purchased fuel invoices can be identified specifically for the CDM project, the metered fuel consumption quantities should also be cross-checked with available purchase invoices from the financial records
Any comment:	-

Data / Parameter table 2.

Data / Parameter:	**$EG_{PJ,electrical,y,i}$**
Data unit:	MWh
Description:	Total monitored output (electricity) of the element process *i* during year y
Source of data:	On-site measurements
Measurement procedures (if any):	Use energy meters
Monitoring frequency:	Continuously, aggregated at least annually
QA/QC procedures:	Cross check measurement results with invoices for purchased electricity if relevant
Any comment:	

Data / Parameter table 3.

Data / Parameter:	**$EG_{PJ,hermal,y,i}$**
Data unit:	TJ
Description:	Total monitored output (thermal energy) of the element process *i* during year y
Source of data:	Plant records
Measurement procedures (if any):	Heat generation is determined as the difference of the enthalpy of the steam or hot fluid and/or gases generated by the heat generation equipment and the sum of the enthalpies of the feed-fluid and/or gases blow-down and if applicable any condensate returns. The respective enthalpies should be determined based on the mass (or volume) flows, the temperatures and, in case of superheated steam, the pressure. Steam tables or appropriate thermodynamic equations may be used to calculate the enthalpy as a function of temperature and pressure. In case of equipment that produces hot water/oil this is expressed as the difference in the enthalpy between the hot water/oil supplied to and returned by the plant. In case of equipment that produces hot gases or combustion gases, this is expressed as the difference in the enthalpy between the hot gas produced and all streams supplied to the plant. The enthalpy of all relevant streams shall be determined based on the monitored mass flow, temperature, pressure, density and specific heat of the gas. In case the project activity is exporting heat to other facilities, the metering shall be carried out at the recipient's end
Monitoring frequency:	Continuous monitoring, aggregated annually
QA/QC procedures:	Measurement results shall be cross checked with records for sold/purchased thermal energy (e.g. invoices/receipts)
Any comment:	Metering the energy produced by a sample of the systems where the simplified baseline is based on the energy produced multiplied by an emission coefficient

Data / Parameter table 4.

Data / Parameter:	**$Eff_{PJ,i,j,y}$**
Data unit:	(%)
Description:	Conversion efficiency of the element process *i* when operating with fuel type j in the project scenario in year y
Source of data:	
Measurement procedures (if any):	The efficiencies should be determined by undertaking measurements at the element process firing the relevant fuels. All measurements should be conducted at a representative load factor (or operation mode), based on national or international standards. Where a representative load factor (or operation mode) cannot be determined, measurements should be conducted for different load factors (or operation modes) and be weighted by the time these load factors (or operation modes) are typically operated. For project activities with estimated annual emission reductions of each of the element processes equal to or less than 3000 t CO_2e per year the efficiencies may be determined using sampling in accordance with the standard "Sampling and surveys for CDM project activities and programme of activities". Estimates at upper limit of the uncertainty at 95 per cent confidence interval should be used
Monitoring frequency:	Monthly or fixed for the crediting period if Option D of the methodology is applied
QA/QC procedures:	
Any comment:	

Data / Parameter table 5.

Data / Parameter:	**$EF_{CO2,y,i}$ $EF_{PJ,y,j,i}$**
Data unit:	t CO_2/GJ
Description:	CO_2 emission factor of the fossil fuel j combusted in element process *i* in the year *y*

<table>
<tr><td>Source of data:</td><td>The following data sources may be used if the relevant conditions apply:

<table>
<tr><th>Data source</th><th>Conditions for using the data source</th></tr>
<tr><td>(a) Values provided by the fuel supplier in invoices</td><td>This is the preferred source</td></tr>
<tr><td>(b) Measurements by the project participants</td><td>If (a) is not available</td></tr>
<tr><td>(c) Regional or national default values</td><td>If (a) is not available

These sources can only be used for liquid fuels and should be based on well documented, reliable sources (such as national energy balances)</td></tr>
<tr><td>(d) IPCC default values at the upper limit of the uncertainty at a 95 per cent confidence interval as provided in table 1.4 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories</td><td>If (a) is not available</td></tr>
</table>
</td></tr>
<tr><td>Measurement procedures (if any):</td><td>For (a) and (b): Measurements should be undertaken in line with national or international fuel standards.

For (a): if the fuel supplier does provide the NCV value and the CO_2 emission factor on the invoice and these two values are based on measurements for this specific fuel, this CO_2 factor should be used. If another source for the CO_2 emission factor is used or no CO_2 emission factor is provided, Options (b), (c) or (d) should be used</td></tr>
<tr><td>Monitoring frequency:</td><td>Annual</td></tr>
<tr><td>QA/QC procedures:</td><td>-</td></tr>
<tr><td>Any comment:</td><td>-</td></tr>
</table>

Data / Parameter table 6.

Data / Parameter:	**$NCV_{PJ,y,j,i}$**
Data unit:	GJ/m³
Description:	Average net calorific value of the fossil fuel j combusted in element process *i* during the year *y*

<table>
<tr><td>Source of data:</td><td>The following data sources may be used if the relevant conditions apply:

<table>
<tr><th>Data source</th><th>Conditions for using the data source</th></tr>
<tr><td>(a) Values provided by the fuel supplier in invoices</td><td>This is the preferred source</td></tr>
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<tr><td>(c) Regional or national default values</td><td>If (a) is not available

These sources can only be used for liquid fuels and should be based on well documented, reliable sources (such as national energy balances)</td></tr>
<tr><td>(d) IPCC default values at the upper or lower limit - whatever is more conservative[7] - of the uncertainty at a 95 per cent confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories</td><td>If (a) is not available</td></tr>
</table>
</td></tr>
<tr><td>Measurement procedures (if any):</td><td>For (a) and (b): Measurements should be undertaken in line with national or international fuel standards</td></tr>
<tr><td>Monitoring frequency:</td><td>For (a) and (b): the NCV should be obtained for each fuel delivery, from which weighted average annual values should be calculated.

For (c): review appropriateness of the values annually.

For (d): any future revision of the IPCC Guidelines should be taken into account</td></tr>
<tr><td>QA/QC procedures:</td><td>Verify if the values under (a), (b) and (c) are within the uncertainty range of the IPCC default values as provided in Table 1.2, Vol. 2 of the 2006 IPCC Guidelines. If the values fall below this range collect additional information from the testing laboratory to justify the outcome or conduct additional measurements. The laboratories in (a), (b) or (c) should have ISO17025 accreditation or justify that they can comply with similar quality standards</td></tr>
<tr><td>Any comment:</td><td>Note that for the NCV the same basis (pressure and temperature) should be used as for the fuel consumption</td></tr>
</table>

[7] The more conservative value is the value that results in the lower overall emission reductions of the project activity. This may imply using the higher or the lower value, depending on the specific configuration of the project activity.

37. Parameters not monitored:

Data / Parameter table 7.

Data / Parameter:	$a_{i,j,BL}$
Data unit:	(-)
Description:	Share of fuel j in the total input energy of the element process i for the identified baseline scenario (ratio
Source of data:	Historic data based on records.

Data / Parameter table 8.

Data / Parameter:	**NCV_j; $NCV_{BL,j}$**
Data unit:	(TJ/mass or volume unit)
Description:	Net calorific value of fuel type i
Source of data:	National values or the latest version IPCC

Data / Parameter table 9.

Data / Parameter:	**$EF_{CO2,j}$ EF_{BL}**
Data unit:	gCO2/MJ
Description:	CO_2 emission factor of fuel type i
Source of data:	National values or the latest version IPCC

6.1. Project activity under a programme of activities

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

(a) Leakage emissions resulting from fuel extraction, processing, liquefaction, transportation, re-gasification and distribution of fossil fuels outside of the project boundary shall be considered, as per the guidance provided in the leakage section of ACM0009. In case leakage emissions in the baseline situation are higher than leakage emissions in the project situation, leakage emissions will be set to zero.

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Document information

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