

**CDM-MP63-A09**

## Concept note

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# Negative leakage due to upstream emissions

Version 01.0



**United Nations**  
Framework Convention on  
Climate Change

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## 1. Procedural background

1. The Methodologies Panel (Meth Panel), while considering the new consolidated methodology “ACM0024: Natural gas substitution by biogenic methane produced from the anaerobic digestion of organic waste” at its 62<sup>nd</sup> meeting, identified that the application of this methodology may result in negative upstream leakage emissions from the production of natural gas in the baseline. The Meth Panel, in line with other similar approved methodologies, considered that in cases where, in a year, the leakage emissions are negative (less than zero), they should be considered as zero. The Meth Panel requested the Board to take note that it will work on a concept note on negative leakage and consistency among methodologies on this issue and report back to the Board at a future meeting.
2. Paragraph 51 of the CDM modalities and procedures states that “Leakage is defined as the net change of anthropogenic emissions by sources of greenhouse gases which occurs outside the project boundary, and which is measurable and attributable to the CDM project activity.”

## 2. Purpose

3. The purpose of this note is to:
  - (a) Assess consistency among all approved large-scale methodologies on how negative upstream leakage emissions are considered in the emission reduction calculation;
  - (b) Propose an approach for the consideration of negative upstream leakage emissions in approved methodologies, which should be consistently applied.

## 3. Key issues and proposed solutions

### 3.1. Definitions

4. **Net leakage** - is the sum total of increase in emissions outside the project boundary (positive leakage) adjusted for any decrease in emissions outside the project boundary (negative leakage).
5. **Net negative leakage** - net decrease in emissions (as a result of implementing the CDM project activity) outside the project boundary, i.e. negative leakage is higher than positive leakage.
6. **Upstream emissions** - the greenhouse gas (GHG) emissions associated with the production, processing, transmission, storage and distribution of a fossil fuel, beginning with the extraction of raw materials from the fossil fuel origin and ending with the delivery of the fossil fuel to the site of use.

### 3.2. Analysis of approved methodologies and tools

7. The leakage section of all large-scale methodologies have been assessed, with the following findings:

- (a) Five methodologies that don't explicitly state that net negative leakage is not allowed. i.e. in principle net negative leakage is allowed:
  - (i) "AM0076: Methodology for implementation of fossil fuel trigeneration systems in existing industrial facilities", although net negative leakage is allowed, it is unlikely that they will occur as the project activity would be using more fuel than the baseline – No projects registered;
  - (ii) "AM0089: Production of diesel using a mixed feedstock of gasoil and vegetable oil" – No projects registered;
  - (iii) "AM0091: Energy efficiency technologies and fuel switching in new and existing buildings" – No projects registered;
  - (iv) "ACM0009: Consolidated baseline and monitoring methodology for fuel switching from coal or petroleum fuel to natural gas" – Five projects registered, net leakage is positive in all projects;
  - (v) "ACM0011: Consolidated baseline methodology for fuel switching from coal and/or petroleum fuels to natural gas in existing power plants for electricity generation" - Three projects registered, net leakage is positive in all projects;
- (b) Most fuel switch methodologies assume net leakage as zero when leakage effects are negative (e.g. AM0029, AM0056, AM0058, AM0087, AM0099, AM0107, etc.);
- (c) Many fuel switch methodologies estimate upstream emissions using a similar procedure as described in approved methodology AM0029 (e.g. AM0056, AM0058, AM0084, etc.);
- (d) Many fuel switch methodologies have a statement saying that the Executive Board (hereinafter referred to as the Board) of the clean development mechanism (CDM) or the Meth Panel is undertaking further work on the estimation of leakage emission sources in case of fuel switch project activities and that the approach may be revised based on outcome of this work (e.g. AM0029, AM0050, AM0087, AM0102, ACM0009 and ACM0011);
- (e) The methodological tool "Upstream leakage emissions associated with fossil fuel use" is referred in two methodologies (ACM0003 and ACM0024).

### **3.3. Methodological tool "Upstream leakage emissions associated with fossil fuel use"**

- 8. The "Upstream leakage emissions associated with fossil fuel use" (upstream tool) provides a procedure to calculate leakage upstream emissions associated with the use of fossil fuels and is applicable to fossil fuel use in either or both the baseline scenario and project activity as well as fossil fuel consumption for leakage emission sources.
- 9. The upstream tool states that methodologies which refer to the tool should state: "If leakage upstream emissions values of less than 0 are acceptable, such as for project activities in which a fossil fuel in the baseline situation is displaced with a renewable fuel

in the project situation. Otherwise, if negative values are calculated using this tool, then they are assumed to equal 0.”

### 3.4. Way forward

10. Leakage emissions as per the definition, are emissions which occurs outside the project boundary, and hence not under the control of the project participants. Taking that into account, it can be concluded that the uncertainty related with leakage emission estimation is higher (or even much higher) than for the estimation of baseline and project emissions. For the specific case of fossil fuels, the upstream tool states that “A global fossil fuel origin represents the situation that it is not possible to confirm the exact source of the fossil fuel that would be replaced or used as a result of a CDM project activity, given that oil and its products are globally traded commodity. In which exact location oil production is increased or decreased as a result of a CDM project activity may depend on many factors, such as the marginal production costs, the location of the host country, the current prices for raw oil, or geopolitical factors. For example, a project activity located in an oil producing country may not necessarily impact the oil production in that country but could instead increase or decrease the export or import of oil”. Therefore, the view of the Meth Panel is that net negative leakage should not be accounted due to the fact that the estimation of such emissions is highly uncertain.
11. If the recommendation by the Meth Panel in paragraph 11 is accepted by the Board, then the secretariat together with the Meth Panel will:
  - (a) Revise all approved large-scale methodologies involving fuel switch and provide a **consistent** approach for the estimation of upstream leakage emissions, using the approved tool “Upstream leakage emissions associated with fossil fuel use”. Net leakage should always be considered as zero when leakage effects are negative, i.e. there is net negative leakage. Priority for these revisions should be given to: AM0076, AM0089, AM0091, ACM0009 and ACM0011, as they are allowing for net negative leakage. In addition to these priority cases, as per the mandate from the Board at its seventy-eighth meeting (EB 78, annex 8), other fuel switch methodologies: AM0029, AM0087, AM0102 and AM0107 will be revised to include a "reference to the upstream emission tool" and thus will follow the same consistent approach for the estimation of upstream leakage emissions;
  - (b) Revise the upstream tool, to clarify that net leakage should always be considered as zero when net leakage effects are negative.

## 4. Impacts

12. The revision of approved large-scale methodologies involving fuel switch will provide consistency among these methodologies and further referencing the upstream tool will simplify them.

## 5. Subsequent work and timelines

13. The work will be done in batches, prioritizing the five large-scale methodologies mentioned above. The work will start at the 64<sup>th</sup> meeting of the Meth Panel.

## 6. Budget and costs

14. The work will be included under MAP project 223 “Simplification and streamlining of methodologies tools, and standards”.

## 7. Recommendations to the Board

15. The Meth Panel recommends that the Board agree to the further work on the revision of large-scale methodologies involving fuel switch as well as the upstream tool.

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### Document information

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