Annex 3

GUIDELINES FOR THE CONSIDERATION OF INTERACTIVE EFFECTS FOR THE APPLICATION OF MULTIPLE CDM METHODOLOGIES FOR A PROGRAMME OF ACTIVITIES

(Version 01.0)

I. Background

1. In decision 3/CMP.6 paragraph 4, Parties requested the Executive Board (hereinafter referred to as the Board) of the clean development mechanism (CDM) to reassess its existing regulations related to programmes of activities (PoAs) in order to "simplify the application of programmes of activities to activities applying multiple methods and technologies, including for possible city-wide programmes, while ensuring environmental integrity to the extent required by the Kyoto Protocol and decisions of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol".

2. The Board at its sixty-third meeting requested the secretariat, in collaboration with a task force composed of members from the Methodologies Panel (Meth Panel) and Small-Scale Working Group (SSC WG), to develop further guidance regarding cross effects[1] in the context of the application of combinations of technologies/measures and methodologies for the consideration of the Board at a future meeting.

3. The Board adopted the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities" at its 65th meeting.

4. At its sixty-seventh meeting, taking into account a concept note prepared by the secretariat in consultation with the Meth Panel, the Board requested the secretariat to develop guidelines on cross effects for its future consideration, taking into account the following inputs provided by the Board:

(a) Confine to potential cross effects impacting baselines when combinations of small-scale methodologies are applied in the context of a PoA;

(b) Any potential cross effects owing to a combination of technologies under a single methodology shall be addressed during the methodology approval process. It is appropriate that project proponents seek clarification from the Meth Panel with regard to any identified cross effects in the context of application of combination of large-scale methodologies or combination of large- and small-scale methodologies. The Board also noted that cross effects on account of a price effect of a CDM measure (e.g. modal shift in public transportation) may have to be addressed during the methodology approval process when considering a combination of technologies that are eligible under a single methodology;

(c) A sequential determination of a baseline for the methodologies applied may be appropriate for some cases but will not be a solution for all cases; other measures would be required;

[1] Cross effects and interactive measures are, in this context, synonymous. The term "interactive measures" was chosen for clarity.

(d) Consider addressing both the negative and positive impacts of cross effects;

(e) Explore an alternative terminology for cross effects, e.g. cross measure double counting.

II. Scope and applicability

5. This document provides guidance on consideration of interactive effects when applying different technologies/measures pertaining to the same methodology and/or combinations of approved CDM methodologies within the component project activities (CPAs) of a PoA.

6. These guidelines are applicable to the coordinating or managing entity (CME) of a PoA seeking to apply multiple technologies/measures and/or approved methodologies.

III. Definitions

7. For the purpose of this document, all definitions contained in the "Standard for application of multiple CDM methodologies for a programme of activities" apply:

(a) Interactive effects refers to the changes impacting estimation of emission reductions on account of exchanges between the technology(ies)/measures of a CPA. Estimating emission reductions from each single technology/measure in an isolated manner ignoring interactive effects may potentially result in over-estimation of the emission reductions from the PoA;[2]

(b) Interactive effects are equivalent to double counting occurring between two measures, whereas leakage refers to effects upstream/downstream/outside of the project boundary associated with a single measure.

IV. Examples of interactive effects

8. Interactive effects may occur when multiple technologies/measures are implemented under one CPA, applying either one methodology or multiple methodologies. See appendix I for some examples of interactive effects.

V. Guidelines

9. The following situations for applying combinations of technologies/measures and/or methodologies are conceivable:

(a) The same combination of technologies/measures under the same combination of methodologies applied consistently in each and every CPA of a PoA. For example, methane recovered from an anaerobic digester to treat animal manure under AMS-III.D "Methane recovery in animal manure management systems" is used for heat generation applying AMS-I.C "Thermal energy production with or without electricity";

(b) A single methodology is consistently applied in each CPA of a PoA, but using multiple technologies/measures. For example, different waste water treatment technologies can be

[2] Interactive effects may also potentially result in under-estimation of the emission reductions under certain situations leading to errors on the conservative side of estimation of emission reductions. Submissions may be made including examples and methods to estimate emission reductions more accurately under such situations.

applied across CPAs of one PoA, using AMS-III.H "Methane recovery in wastewater treatment";

(c) A technology/measure is applied consistently in each CPA using multiple combinations of baseline scenarios and/or different methodologies. For example, waste water treatment projects with different ways of utilizing recovered methane (AMS-I.C for heat, AMS-I.D "Grid connected renewable electricity generation" and AMS-I.F "Renewable electricity generation for captive use and mini-grid" for electricity, or both), biomass/biogas projects with different fuel displacement (AMS-I.C and AMS-I.I "Biogas/biomass thermal applications for households/small users" for fossil fuel, AMS-I.E "Switch from Non-Renewable Biomass for Thermal Applications by the User" for non-renewable biomass, or both);

(d) Combinations of technologies/measures and methodologies vary across CPAs of a PoA, i.e. the goal can only be realized using multiple methodologies. Therefore, in such situations the CME should demonstrate that the implementation of the activities is integrated through the design of the programme. This may include, for example, a range of activities within different sectors such as energy generation (e.g. wind electricity using AMS-I.D), solar water heaters using AMS-I.J "Solar water heating systems (SWH)", energy efficiency (e.g. efficient lighting using AMS-II.J "Demand-side activities for efficient lighting technologies"), building energy efficiency using AMS-III.AE "Energy efficiency and renewable energy measures in new residential buildings", efficient street lighting using AMS-II.L "Demand-side activities for efficient outdoor and street lighting technologies", water management (e.g. efficient irrigation), waste management (e.g. landfill gas recovery using AMS-III.G "Landfill methane recovery"), composting using AMS-III.F "Avoidance of methane emissions through composting", recycling using AMS-III.AJ "Recovery and recycling of materials from solid wastes", transport (e.g. using AMS-III.C "Emission reductions by electric and hybrid vehicles"), and agriculture (using AMS-III.D "Methane recovery in animal manure management systems" for manure management).

10. The situation described in paragraph 9(b) above may potentially lead to overestimation of emission reductions in the case of application of methodologies that may potentially involve several technologies/measures interacting with each other (e.g. ACM0012). The interactive effects in such situations shall be addressed through additional guidance related to the application of the methodology in a PoA in the pertinent large-scale methodologies.

11. The application of large-scale CDM methodology combinations and the application of combinations of large and small-scale CDM methodologies are eligible without pre-approval, as per the above-cited PoA standard, only when the combinations are explicitly permitted in the methodologies. In other cases, the CME is required to seek a clarification by following the "Procedure for the submission and consideration of queries regarding the application of approved methodologies and methodological tools by designated operational entities to the Meth Panel" (EB 42, annex 9) for the eligibility of the proposed combination. Therefore, interactive effects in the context of a combination of a large-scale methodology with other large-scale and/or small-scale methodologies shall be addressed on a case-by-case basis by the Meth Panel when assessing those requests for a recommendation to the Board.

12. Analysis of the interactive effects and accounting for them by the CME is limited to cases where only small-scale methodology(ies) are applied in a CPA. Further, only the types of situations described in

paragraph 9(a), (c) and (d) above, involving the application of a combination of methodologies, are considered and it is assumed in all other cases that the issue is addressed in the respective methodologies.

13. The CME should consider the following general principles to identify interactive effects. These are neither exhaustive nor mutually exclusive and are intended to serve as examples:

(a) Type I: interactive effects could occur when there is an exchange of energy (thermal, mechanical or electrical) or mass transfer between different measures of the CPA, the transfer occurring from a primary, independent measure to a dependent measure;

(b) Type II: interactive effects could also occur when several measures rely on the same information when estimating emission reductions. For example, several measures refer to historical fuel/electricity/heat consumption. They may also occur when combining methodologies relying solely on default factors for setting the baseline.

14. The CME should consider the following when accounting for interactive effects:

(a) When combining measures of different types, e.g., energy efficiency and fuel switch, the baselines for different measures should be determined sequentially and not simultaneously. The baseline of the second technology/measure is set after considering the effects of the implementation of the first technology/measure. For instance, the effect of a fuel switch project is considered before the energy efficiency project or vice versa:

(i) For Type I interactive effects, the energy/mass stream of the dependent measure should be determined conservatively, taking into account the output of the primary measure;

(ii) For Type II interactive effects, once a baseline is estimated/determined, the secondary (tertiary, etc.) measure should not use the historical/default values, but an adjusted value taking into account a scenario in which the primary measure is implemented;

(b) When deciding the sequence of baseline determination, both realistic restrictions (i.e. practical considerations) and a conservative approach have to be considered;

(c) The boundary of the CPA should be set to include in it all energy/mass streams affected by the implementation of project measures.

Appendix I

Examples of interactive effects

Example 1: AMS-II.N "Demand-side energy efficiency activities for installation of energy efficient lighting and/or controls in buildings" (version 01.0) includes consideration of interactive effects due to lighting and heating. It is stated: "Lighting efficiency projects may have the added advantage of saving energy by reducing loads associated with space-conditioning (cooling) systems. However, the reduction in lighting load may also increase space-heating requirements." The methodology further details considerations for determining energy savings or losses associated with the interactive effects of lighting efficiency projects.

Example 2: Considering a CPA for implementing energy efficiency measures in a building including two measures:

- Measure A: lighting energy efficiency is achieved under one component by replacing the inefficient bulb with an efficient technology applying a relevant methodology;
- Measure B: lighting control efficiency is also implemented as a separate component applying a different methodology in the same building.

If historic energy consumption for lighting is used by both components then it is likely that the emission reductions are overestimated due to interactive effects. Similarly if measure B precedes measure A in terms of timelines for implementation and measure B uses historic information for the baseline and measure A uses default factors (e.g., 3.5 hours of usage per day and a difference in wattages of the incandescent lamps and compact fluorescent lamps as in AMS-II.J), potentially there can be overestimation due to interactive effects.

Reduced energy consumption of the lights should be taken into account when determining savings from the light controls project and vice versa.

Example 3: In the pulp and paper industry, an energy efficiency measure is implemented, reducing the steam consumption in the pulping process by changing from a single stage evaporator to a multiple effect evaporator. As a result of this energy efficiency measure, the solids content in the strong black liquor (SBL) increases, resulting in an increased steam production in the evaporator and thus higher electricity output, which is a second measure. Furthermore, higher recovery of caustic soda is expected, which is a third measure. The installation of a multiple effect evaporator influences the potential emission reductions of the other two measures.

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History of the document

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01.0	20 July 2012	EB 68, Annex 3 Initial adoption.
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