



**CDM: Recommendation Form for Small Scale Methodologies (version 01)**  
*(To be used for presenting questions/proposals/amendments to the simplified methodologies for small-scale CDM project activity categories)*

<i>Date of SSC WG meeting:</i>	15–18 June 2010, SSC WG 26
<i>Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):</i>	Applicability of AMS-III.Z or AMS-I.C to fuel switch to biomass in quicklime kilns
<i>Indicative methodology to which your submission relates (refer the items of Appendix B of the Simplified Modalities and Procedures), if applicable.</i>	AMS-I.C (Version 16) “Thermal energy production with or without electricity”;and  AMS-III.Z (Version 02) “Fuel Switch, process improvement and energy efficiency in brick manufacture”
<i>Name of the authors of the query:</i>	Martha Djourdjine / Alexander Samai Institution: OneCarbon International BV <a href="mailto:m.djourdjine@orbeo.com">m.djourdjine@orbeo.com</a>

**Summary of the query:**

Please use the space below to summarize the query related to SSC methodologies/categories SSC Modalities and Procedures provide recommendation/analysis of the SSC WG.

Original text from PP:

Herewith we are taking the opportunity to request clarification as to whether AMS-I.C. applies also to lime kilns, or whether AMS-III.Z. could be extended to cover such activities, provided the project complies with the eligibility criteria for small-scale CDM activities.

While most energy generation equipment provides heat through some medium to another part of the system where that heat is used, in lime production, for example, stones are burnt in kilns together with the fuel, without transporting the heat. This is a very energy-intensive process, and switching from fossil fuels to biomass is a way of reducing emissions significantly, which is recognized for other manufacturing processes in ACM0003 (clinker) and AM-III.Z (bricks). We have at hand a small-scale project activity (approx. 7.5MW), of switching from fossil fuels to biomass in a lime production line, which is a new and challenging way compared to a switch of fossil fuels or the increase of the efficiency. However, the relevance of our request is broader, as more than 250 million tons of lime are produced yearly worldwide, with only over a quarter of that in developed countries, and values on the rise due to the wide range of applications of lime. Most single kilns would fall under the small-scale eligibility criteria. We would further like to note that the methodology AMS-III.AD. refers to a manufacturing process subsequent to that of lime calcining, which is the stage where quicklime is produced.

**AMS-I.C.**

The methodology AMS-I.C. “Thermal energy production with or without electricity” comprises renewable energy technologies that supply users with thermal energy that displaces fossil fuel use. This, in our view, is indeed the case of the proposed project activity.

The clarification requested is as to 3 points:

- 1) Whether kilns in general and lime kilns in particular are eligible under AMS-I.C.

2) If they are, what kind of monitoring should be undertaken? Paragraph 11 of AMS-I.C. states that the simplified baseline is the “fuel consumption of the technologies that would have been used in the absence of the project activity times an emission factor for the fossil fuel displaced”. This is in line with ACM0003. Nevertheless, the monitoring requirements include metering the energy produced by the system, i.e. direct measurement of the flow and temperature is required, together with the quantity of the fuel (biomass) used. In the case of a kiln, it is impossible to measure the heat generated directly, as it is used up within the kiln itself. We would thus like to know whether it is possible to estimate the baseline emissions with the following approach:

- Measurements of the quantity of the biomass used in the project activity
- The NCV of the biomass, determined ex-ante
- Calculation of the heat produced from these values
- Calculation of the equivalent fossil fuel necessary for the same heat generation, considering its NCV from 3-year historical values
- The emission factor of the fossil fuel
- The actual production of the kiln will also be monitored and compared to the baseline production of the kiln as a means of a cross-check (having determined ex-ante the amount of fuel consumed per unit produced).

Such a calculation is in line with ACM0003 applicable to clinker production, and AMS-III.Z which refers to similar cases in the brick industry.

It is clear that evidence has to be provided about the specific energy input per unit produced is the same in the baseline and in the project scenario. As there are small differences in the specific energy input expected the conservative value (lower specific energy input per unit) has to be taken into account.

There have been similar projects registered under earlier versions of this methodology. We have noticed that the monitoring requirements were changed from Version 14 (EB 46) onwards, as to require the energy output to be measured in any case. There have been no heat only projects registered under this methodology ever since. Moreover, we have noticed that methodology AMS-III.B. “Switching Fossil Fuels” recommends that for project activities (including in industrial facilities) that replace fossil fuels with biomass, a SSC type I methodology has to be used.

3) Whether the capacity of the project-related kiln only, or of all the lime kilns in the factory have to be taken into account when assessing the size of the project activity under the eligibility criteria for type I small-scale CDM activities.

#### **AMS-III.Z.**

We have noted that the methodology AMS-III.Z, if revised editorially, may also be made suitable for the production of lime. We would like to request clarification if that is at all necessary.

We therefore kindly request your clarifications as per the applicability of AMS-I.C and AMS-III.Z. to fuel switch to biomass activities in lime kilns.

#### **Recommendation by the SSC WG:**

Please use the space below to provide amendments/change (in your expert view, if necessary).

Please refer to paragraph 14 of the meeting report of the SSC WG 26  
<[http://cdm.unfccc.int/Panels/ssc\\_wg](http://cdm.unfccc.int/Panels/ssc_wg)>.

**Answer to authors of query by the SSC WG:**

Please use the space below to provide answer to the authors of the above query.

The small-scale working group of the CDM Executive Board would like to thank the author for the submission.

The SSC WG agreed to clarify as follows:

**Query 1: Whether kilns in general and lime kilns in particular are eligible under AMS I.C**

- Kilns in general or lime kilns in particular is not eligible under AMS-I.C as this methodology is primarily constituted for energy generating applications (e.g., steam generators, hot air generators, heaters etc.) and not for process related unit operations (driers, kilns) except for household or commercial applications/systems, whose maximum output capacity is less than 45 kW thermal and where it can be demonstrated that the metering of thermal energy output is not plausible, as in the case of biomass stoves, gasifiers, driers, water heaters etc., the project output energy shall be estimated based on consumption of the biomass (in terms of energy quantity) times the efficiency of the project equipment (AMS-I.C, version 17, paragraph 31);
- The SSC WG is of the opinion that a new Type-I methodology would be required to cover fuel switch from fossil fuel to biomass for the process related unit whose thermal energy output can not be directly monitored. However, if the input energy source is utilized as both energy as well as feedstock, a Type-III methodology would be required. For example the input energy source (charcoal based on renewable source) may be utilized as both energy as well as reducing agent in an iron-ore reduction process. It may be difficult to apportion the charcoal energy input between energy and ore reduction use; as such, the specification of the installed thermal capacity limit of the project when developed under Type-I may be quite challenging. (See clarification provided by the SSC WG to SSC\_264);
- Also, please note that AMS-III.Z is intended for fuel switch from carbon intensive energy sources (i.e. mix of fossil fuels in the baseline) to low carbon intensive energy sources (i.e. mix of fossil fuels and renewable biomass in the project) in brick production facilities. Since the methodology is intended to cover specific situation of brick industries, the expansion of AMS-III.Z to cover other products such as lime would complicate the methodology. For example lime can be used for various applications such as constituent in mortar for construction activities, smelting of steel, making of pottery, for plastering (mixture of lime and gypsum) and for making distemper (lime and linseed oil). Modern uses for lime are even more extensive with over 40 differing applications from paper making to purifying cane sugar.

**Query 2: If the lime brick kilns is applicable under AMS-I.C, what kind of monitoring can be adopted**

- As it is clarified above that AMS-I.C is not eligible to the described project, the response to this query is not applicable.

**Query 3: Whether the capacity of the project-related kiln only, or of all the lime kilns in the factory have to be taken into account when assessing the size of the project activity under the eligibility criteria for Type-I small-scale CDM activities**

- The SSC limits in general for Type-I project activities are estimated based on the equipment that is part of the CDM project activity and furthermore it should also be demonstrated that CDM project activity equipment is physically distinct from the other installations.

The SSC WG is thus of the opinion that a new methodology Type-I or III shall be proposed to cover

project activities involving the use of renewable energy in form of biomass, charcoal, biofuel or biogas to displace fossil fuel in industrial processes where the chemical energy of the fuel accomplishes thermo chemical transformation of raw materials into intermediate or final products, and where the output does not consist of only heat, electricity, or mechanical energy. Examples include limestone calcination, cement kilns, ceramic ovens/kilns, iron reducing furnaces etc. The project activities where the fuel input is utilized as both energy source as well as feedstock (e.g. reducing agent), Type-III methodology would be required.

The proposal of the new category shall also cover the following conditions:

- (a) Boundary (only the units affected, if physically distinct);
- (b) Baseline emissions: based in historical data and/or measurement campaign to determine specific fuel consumption;
- (c) Project emissions: based in monitored fuel consumption and products output. The raw material and product shall have the same or similar quality/characteristic in the project as the baseline. Changes in the application device (kiln, furnace, etc) that may be able to affect energy efficiency besides the fuel input shall be addressed if eligible for further ER or not;
- (d) Addressing co-firing;
- (e) Project size based in largest thermal capacity (MWth) between input fuels in the baseline and project scenarios.

The project proponents are also requested to take into account the SSC WG response to SSC\_417 and SSC-NM\_038.

Signed by the Chair, Mr. Peer Stiansen

Date: 18/06/2010

Signed by the Vice-Chair, Mr. Hugh Sealy

Date: 18/06/2010

**Information to be completed by the secretariat**

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