



CDM: Recommendation form for Small Scale Methodologies (Version 01.1)

(To be used for presenting questions/proposals/amendments to the simplified methodologies for small-scale CDM project activity categories)

Date of SSC WG meeting:	20–23 August 2012, SSC WG 38
Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):	Clarification on application of AMS-II.E to multiple technologies under a PoA
Indicative methodology to which your submission relates <i>(refer the items of Appendix B of the Simplified Modalities and Procedures), if applicable:</i>	AMS-II.E “Energy efficiency and fuel switching measures for buildings”
Name of the authors of the query:	Kyle Silon Institution: DNV kyle.silon@dnv.com
<u>Summary of the query:</u>	
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.	
<p>Original text from DOE:</p> <p>A client is developing a PoA with the objective of reducing emissions associated with meeting residential heating and cooking needs in Mongolia. Mongolian households typically meet these needs through the use of a single stove that combusts coal and wood. The PoA will reduce stove fuel consumption by disseminating clean energy products, including improved stoves and household insulation. Emission reductions created by both technologies will be quantified using AMS-II.E (version 10).</p> <p>The PoA-DD currently specifies two possible approaches to determine baseline and project emissions (described below), and the purpose of this clarification request is to determine whether the proposed approaches meet the applicability criteria in the methodology.</p> <p>AMS-II.E contains two applicability criteria:</p> <ol style="list-style-type: none"> 1. The first states that the impact of the measures on energy use be clearly distinguished from changes in energy use due to other variables. DNV is confident that the proposed approaches meet this requirement. 2. The second applicability condition states that the methodology is applicable to “project activities where it is possible to directly measure and record the energy use within the project boundary (e.g., electricity and/or fossil fuel consumption).” However, within AMS-II.E, the monitoring specification does not require direct measurement. Indeed, the clear requirement in the monitoring section is to calculate the energy savings due to the measures installed, and to document the specification of the equipment replaced. <p>The PoA-DD currently specifies two possible approaches to determine baseline and project emissions. DNV requests clarification from the EB as to whether both of these proposed approaches meet this requirement, such that either approach may be selected at the time of inclusion for each new CPA-DD. The approaches are as follows:</p> <p><u>Approach 1 – Kitchen Performance Test</u></p> <p>Total fuel consumption (for both cooking and heating combined) will be determined through a kitchen performance test (KPT)¹ conducted at a sample of households (the sample size will be calculated according</p>	

¹ “The Kitchen Performance Test (KPT) is a field test used to evaluate stove performance in real-world settings. It is designed to assess actual impacts on household fuel consumption. KPTs are typically conducted in the course of an

to the requirements of the Standard for sampling and surveys for CDM project activities and programme of activities, EB 65, annex 2). The KPT will be conducted by an independent expert, according to the requirements of an internationally accepted standard.

While only fossil fuel consumption is eligible to generate emission reductions under this methodology, all primary heating and cooking fuel types used by the household will be measured during the KPT, and will be separated into fossil fuel and non-fossil fuel consumption. Non-fossil fuel use (such as wood) in the baseline and project scenario shall be compared to determine whether there is a statistically significant change due to the project. In the (unforeseen) event that there is a statistically significant increase in NRB consumption following implementation of the project, fossil fuel use will be reduced by an energy equivalent to the increase in non-fossil fuel use. This will ensure that decrease in fossil fuel is not offset by shifting to other fuel types.

In accordance with AMS-II.E, baseline emissions will be calculated as annual fossil fuel use multiplied by the appropriate fossil fuel emissions factor. Project emissions will be calculated as annual fossil fuel use multiplied by the appropriate fossil fuel emissions factor.

The baseline consumption values will be determined prior to validation and will be fixed for the crediting period, while project values will be determined annually.

Approach 2 - Performance metric

The performance metric approach deals with insulation and stoves separately.

INSULATION:

Baseline emissions will be calculated as annual heating demand multiplied by the appropriate fossil fuel emissions factor. Baseline fuel consumption is established ex-ante by a 2011 study conducted by the Millennium Challenge Account (MCA).

Project emissions will be calculated as annual fuel consumption multiplied by the appropriate fossil fuel emissions factor. Project fuel consumption will be established based on the results of an Insulation Performance Study. For a given size of house (ger) the study will show the reduction in annual fuel consumption resulting from replacement insulation. To calculate Project fuel consumption, the baseline fuel consumption which is established at validation (using the MCA study), is multiplied by the appropriate percent reduction in annual fuel consumption established by the Insulation Performance Study.

Note, although the insulation performance study may include a nominal baseline annual fuel consumption value as part of its analysis, the PDD proposes to use a value established at validation (the MCA study noted above) because its methodology is more robust for that parameter.

This approach allows the PP to calculate fuel savings using a performance metric that captures efficiency improvements between baseline and project scenarios, taking into account the physical size and insulation modifications for each household. The inclusion criteria will specify technical requirements for project insulation that are equal to, or greater than, the technical specifications of the insulation included in the Insulation Performance Study.

COOKING AND HEATING STOVES

Baseline emissions will be calculated as annual heating demand multiplied by the appropriate fossil fuel emissions factor. Baseline fuel consumption is established ex-ante by a 2011 study conducted by the Millennium Challenge Account (MCA).

Project emissions will be calculated as annual fuel consumption multiplied by the appropriate fossil fuel emissions factor. Project fuel consumption will be calculated as baseline coal consumption multiplied by the Project Stove Efficiency Improvement. Project Stove Efficiency Improvement will be established based on the results of a Stove Performance Study. The Stove Performance Study shall follow the requirements for the determination of stove/heater efficiency under Option A of AM0094. Specifically, the efficiencies of both the baseline and the project stoves shall be determined by an independent expert in a controlled environment, in accordance with AM0094. The Project Stove Efficiency Improvement shall be established by comparing the baseline stove efficiency to the project stove efficiency.

Alternatively, the Project Stove Efficiency Improvement may be determined using manufacturer specification for both baseline and project activity stoves.

Recommendation by the SSC WG:

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

Please refer to paragraph 19 of the meeting report of the SSC WG 38
<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 would first like to refer to SSC_495 which involved suggestions for substantial modifications to AMS-II.E for a project (similar to the proposed PoA in this request for clarification) involving private rural houses with improved stoves (presumed to be used for cooking and space heating) and/or the insulation of houses (floors, walls, ceilings) in order to reduce the consumption of non-renewable biomass and fossil fuels. The SSC WG also wishes to reference to the SSC_418 and SSC_370 clarifications on the applicability of AMS-II.E to a group of similar residential houses. In the responses from the SSC WG to these requests for clarification and modification there is a common theme of the difficulty of applying AMS-II.E to retrofits of multiple residential buildings involving multiple fuels and multiple efficiency measures.

With respect to this specific request for clarification, the SSC WG wishes to indicate that the kitchen performance test (KPT) is only applicable to projects involving retrofits of existing stoves or new stoves that are used only for cooking (not cooking and space heating). As noted in the KPT documents, "...the KPT has two main goals: 1) the quantitative measurement of daily cooking fuel consumption; and 2) qualitative assessment of field performance and acceptability of the stove to the households using it." The KPT is not applicable to stoves (heaters) used for space heating or space heating and cooking. This is because there are no provisions in the KPT for determining space heating requirement and thus fuel use consumption, which varies as a function of variables such as outdoor temperature.

With respect to the use of performance metrics to determine baseline emissions, such approaches can be applicable to the subject project and PoA if all the provisions of AMS-II.E are complied with, if emissions reductions are only claimed for fossil fuel (e.g. coal) reductions (as indicated by the author of the query), and calculation of emission reductions takes into consideration baseline and project fuel consumption of not only fossil fuels but also of non-renewable biomass.

Two possible performance metric approaches that are considered by the SSC WG to be applicable to the specific PoA defined in the submission, and other similar rural, residential efficiency retrofit projects and PoAs, are:

1. Use of a "Baseline Measurement Campaign" carried out prior to or in parallel with the implementation of the project activity. As per paragraph 2 of AMS-II.E, the campaign must include direct measurements and recording of the energy use within the project boundary. In addition, as per paragraph 3 of AMS-II.E, the baseline measurement campaign must provide sufficient information, such that the impact of the measures implemented by the project activity can be clearly distinguished from changes in energy use, due to other variables not influenced by the project activity (signal to noise ratio). Thus, a baseline measurement campaign should consist of:

Measuring energy use of the baseline stoves (fossil fuel and biomass, renewable and non-renewable);

Measuring independent variables that determine energy use, such as ambient temperatures and occupancy;

Measuring the energy use and independent variables: (a) for a period of time sufficient to capture the range of independent variables expected to be encountered during the crediting period, which may require measurement during multiple seasons; and (b) for a census or randomly selected sample of representative residences (either participating in the program or eligible for participating in the program) in compliance with the Standard For Sampling And Surveys For CDM Project Activities And Programme Of Activities.

The baseline measurement campaign energy use data and the independent variable data are used to define a relationship between baseline energy use/emissions and the independent variables, e.g. regression analysis to determine an equation. During the crediting period, the same independent

variables are monitored and used for calculating the baseline energy use/emissions for the values of the independent variables experienced during the crediting period. If, during the crediting period, conditions are such that the value(s) of the independent variables fall outside of the range of value(s) encountered during the baseline campaign, then either: (a) additional analysis is required to conservatively demonstrate that the relationship between baseline energy use/emissions and the independent variables (as defined using data collected during the baseline campaign) is still valid; or (b) a new baseline measurement campaign must be conducted; or (c) emissions reductions cannot be claimed during periods of time when the value(s) of the independent variables fall outside of the range of value(s) encountered during the baseline campaign. The project proponent may also wish to refer to the "Tool to determine the baseline efficiency of thermal or electric energy generation systems" for further guidance.

2. Use of a Treatment Group versus Control Group Study. Throughout the crediting period, energy used (for each fuel type) for the subject appliances (stoves/heaters) is measured for a census or representative sample (in compliance with the Standard For Sampling And Surveys For CDM Project Activities And Programme Of Activities) of the residences participating in the project (treatment group) and compared with energy use (for each fuel type) of a control group of non-participating residences (control group). The difference in energy use between the participating residences and the control group residences is used to determine energy savings and emission reductions. Appropriate statistical analysis will be conducted on the obtained data, based on the study design chosen, in order to achieve unbiased, reliable and conservative estimates of energy savings and emission reductions.

The SSC WG would welcome specific recommendations for future modifications to AMS-II.E or proposals for new methodologies that may better address residential housing efficiency projects with multiple measures and/or multiple fuels, as well as provide further guidance on the two performance metric approaches defined above.

Signature of SSC WG Chair: Mr. Peer Stiansen

Date: 23/08/2012

Signature of SSC WG Vice-Chair: Ms. Fatou Gaye

Date: 23/08/2012

SECTION TO BE FILLED IN BY THE UNFCCC SECRETARIAT

SSC-Submission number:	SSC_646
Date when the form was received at UNFCCC secretariat:	23 August 2012
Date of transmission to the EB:	23 August 2012
Date of posting in the UNFCCC CDM web site:	23 August 2012

History of the document

Version	Date	Nature of revision(s)
01.1	12 April 2012	Editorial changes to include new logo and other improvements.
01.0	2005	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Methodology		