



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)

Date of SSC WG meeting:	19–22 October 2010, SSC WG 28
Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):	Clarification on the calculation of the thermal output of a cook stove for applicability of small-scale limit of 45 MWth
Indicative methodology to which your submission relates (refer the items of Appendix B of the Simplified Modalities and Procedures), if applicable.	AMS-I.E “Switch from Non-Renewable Biomass for Thermal Applications by the User”
Name of the authors of the query:	Alexandre Dunod Institution: ecosur Afrique a.dunod@ecosurafrique.com

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 Stakeholder:

Context: in the project under consideration, the Project Proponent intends to distribute new efficient cook stoves and implement sustainable plantations to supply them with renewable woody biomass in substitution to charcoal in Democratic Republic of Congo, a Least Developed Country severely damaged by deforestation.

We would like you to publish a clear affirmation that the “**useful power**” approach is one of the preferred options to calculate the **installed/rated capacity** of a cook stove in order to verify compliance with small-scale limit of 45 MW of **thermal output** for the applicability of AMS-I.E. Indeed, from the available General Guidelines to SSC CDM methodologies (EB 55 Annex 35), it is not detailed how the manufacturer should determine the “installed/rated” thermal output of a cook stove.

Ideally, we would like you to publish the following:

Useful power approach: In coherence with the recently registered cook stove project in Zambia under AMS-I.E (PDD Ref 2969, registered 09 Jan 10) and expert literature (Colorado State University’s Engines and Energy Conversion Laboratory Stove Manufacturers Emissions & Performance Test Protocol¹ and Aprovecho Research Center Water Boiling Test²), the thermal output of a cook stove can be determined as the “mean effective thermal power”, i.e. the quotient of effective energy delivered for the cooking process divided by heating time.

In other words, this corresponds to the average rate of energy released from fuel combustion that is transferred to the pot over the duration of a certified water boiling test:

$$\frac{c_p * m_{w,i} * (T_f - T_i) + H_v * (m_{w,i} - m_{w,f})}{t_c}$$

Where:

c_p is the heat capacity of water (4.186 J/g°C)

$m_{w,i}$ is the mass of water prior to test

T_f is the water temperature after test
 T_i is the water temperature prior to test
 H_v is the enthalpy of vaporization of water (2260 J/g)
 $m_{w,f}$ is the mass of water after test
 t_c is the test duration

¹ see attached document. Additional online resources available at <http://www.eecl.colostate.edu/research/household.php>

² online resources available at <http://www.aprovecho.org/lab/pubs/testing>

P.S: We have encountered the following editing mistakes in General Guidelines to SSC CDM methodologies (EB 55 Annex 35) which you may consider in the next revision:

- footnote 1 of §4 a) page 2 does not seem to correspond to anything
- footnote 1 of §1 page 1 points out to a broken URL

Recommendation by the SSC WG:

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

Please refer to paragraph 26 of the meeting report of the SSC WG 28
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 that the manufacturers specifications on the installed/rated thermal output should be used as per the “General Guidelines to SSC CDM methodologies” and in their absence the installed/rated thermal output should be determined by a recognized accredited laboratory in accordance with the relevant international/ national standards. If national standards are not available then international standards shall be used.

Signed by the Chair, Mr. Peer Stiansen

Date: 22/10/2010

Signed by the Vice-Chair, Mr. Hugh Sealy

Date: 22/10/2010

Information to be completed by the secretariat

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