 <p align="center">CDM: Form for Submissions on Small Scale Methodologies and Procedures (version 03) <i>(To be used for presenting questions/proposals/amendments related to the simplified methodologies for small-scale CDM project activity categories)</i></p>	
Name:	Luca Morganti Institution: First Climate Group
Affiliation ¹ :	<input type="checkbox"/> DNA <input type="checkbox"/> DOE <input checked="" type="checkbox"/> PP <input type="checkbox"/> Stakeholder
Title/Subject (max. 200 characters):	Request for revision of AMS.III.Q to include multiple fuels in the baseline electricity source and multiple waste heat sources
Purpose of the submission:	<input type="checkbox"/> Query on an approved SSC methodology or small scale procedures ² (Fill in field 1. below) <input checked="" type="checkbox"/> Request for Revision of an approved SSC methodology (Fill in fields 2. and 3. below) <input type="checkbox"/> Proposal for a new SSC methodology (Fill in fields 4. and 5. below)
Approved SSC methodologies ² to which your submission relates to, if applicable.	AMS.III.Q Waste energy recovery (gas/heat/pressure) projects
Contact Information (e-mail addresses to which the answers are to be delivered and phone contacts for possible dialogue on the submission).	Mischa.Classen@firstclimate.com ; Luca.morganti@firstclimate.com Tel: +41 44 298 2882
Information for completing the form Describe the questions related to the SSC Methodologies, Modalities and Procedures below. If the questions are related to a project under development or implementation, you may describe the context in which they arose.	
Query on an approved SSC methodology or SSC procedures	
1. If you have questions relating to the application of an approved small-scale methodology (AMS) please specify and provide reference to the exact technology/measure below. If you have questions related to procedures for SSC project activities please clarify below:	
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Request for revision of an approved SSC methodology	
2. If you are proposing an amendment/revision to an approved small-scale methodology (AMS), please provide justifications below:	

¹ Designated National Authority (DNA); Designated Operational Entity (DOE); Project Participant (PP), and Stakeholder.

² The list of all approved small-scale methodologies (AMS) can be found at <http://cdm.unfccc.int> and go to CDM: small scale CDM methodologies.

>> This request for revision aims at extending AMS-III.Q to project activities that

- (i) use multiple fuels in the baseline situation and
- (ii) use multiple heat sources for electricity generation

The request relates to earlier requests to accommodate project activities with a multiple fuel baseline under AM0024 (AM_REV_0141), AM0014 (AM_REV_0125) and AMS-III.B (SSC_250). Whereas the requested revisions to the large scale methodologies could not be resolved by the panel, SSC_250 led to the new methodology AMS-III.AH “AMS III.AH Shift from high carbon intensive fuel mix ratio to low carbon intensive fuel mix ratio”.

(i) Multiple fuel use in the baseline

This part of the request proposes two changes:

- a. to eliminate the index j (denoting the recipient) in the emission factor calculation of the sources
- b. to propose a calculation able to calculate the emission factor of multiple fuel sources.

a. Eliminate index j in equation 2, related editorial changes

In the current version of AMS-III.Q equation 2 at page 4 calculates $EF_{Elec,i,j,y}$ as the CO₂ emission factor for an identified existing plant.

$$EF_{Elec,i,j,y} = \frac{EF_{CO2,i,j}}{\eta_{Plant,j}} \times 3.6 \times 10^{-3} \quad (\text{eq.2})$$

However, the $EF_{Elec,i,j,y}$ is in no way related to the recipient of the electricity generated. $EF_{Elec,i,j,y}$ of a specific source i would be identical for every recipient j. It is also not dependent on the monitoring year y as it refers to the baseline situation that is set ex-ante.

As there is no meaning to calculate $EF_{Elec,i,j,y}$ per recipient and to avoid unnecessary calculations and inconsistencies, we propose to (1) eliminate the index j from equation 2, to (2) eliminate index y from $EF_{Elec,i,j,y}$ and (3) attach index i to the eta (plant efficiency) instead of “Plant”:

$$EF_{Elec,i} = \frac{EF_{CO2,i}}{\eta_i} \times 3.6 \times 10^{-3}$$

As equation 1 is referencing $EF_{Elec,i}$ the proposed change of the indices has to be reflected there (editorial change).

b. Emission Factor for multiple fuel sources

In some countries temporary supply restrictions of specific fuels requires plants to use multiple fuels. Equation 2, however, is designed for single fuel use only.

If the existing plant has been using more than one fossil fuel, the calculation becomes ambiguous with respect to which value $EF_{CO2,i,j}$ is to be used in equation 2. This is confirmed by the description of this parameter which refers to 1 fossil fuel:

$EF_{CO2,i,j}$ is the CO₂ emission factor per unit of energy of **the fossil fuel** used in the baseline generation source i in t_{CO2}/TJ, obtained from reliable local or national data, if available, otherwise, taken from the country specific IPCC default emission factors”.

It is requested to revise the methodology by adopting also the following option for existing plants with sufficient historical data:

$$\eta_{i,k} = \frac{EG_{i,k}}{FC_{i,k} \cdot NCV_k} \cdot 3.6 \cdot 10^{-3} \quad (\text{eq.2 revised 1})$$

$$EF_{Elec,i} = \sum_k \frac{EF_{CO2,k}}{\eta_{i,k}} \cdot \left(\frac{EG_{i,k}}{EG_i} \right) \cdot 3.6 \cdot 10^{-3} \quad (\text{eq.2 revised 2})$$

Where:

- $FC_{i,k}$ is the fossil fuel consumption of fuel k used by source i in the historical period (in appropriate unit, e.g. tons or m3)
- NCV_k is the net calorific value of the fossil fuel k (according to reputable sources, analysis or IPCC values) (in TJ per mass/volume unit, consistently with $FC_{i,k}$)
- EG_i is the power generation by source i in the historical period (consistently with the period available for $FC_{i,k}$) (in MWh)
- $\eta_{j,k}$ is the partial plant efficiency related to the use of fuel k by source i in the historical period.
- $EF_{CO_2,k}$ is the CO2 emission factor of fuel k in t_{CO_2}/TJ .

In summary, the proposed eq. 2 revised 1 and 2 allows to calculate $EF_{elec,i,j,y}$ as the weighted average emission factor for all the fossil fuels used in the baseline generation source i .

The quantity of fuels and of energy produced should be available from at least 3 years of historical records.

(i) Multiple heat sources

It is also requested to clarify the methodology applicability condition 6.c at page 2, which excludes cases where “the waste gas/heat recovery project is implemented in a single-cycle power plant where heat on site is not utilisable for any other purpose on-site except to generate power”.

In a case of a cement factory waste heat is collected from the kiln AND from an internal combustion engine. Although steam is generated in separate waste heat recovery boilers, it is fed to the same steam turbine to produce electricity.

Whereas the waste heat from the kiln is heat from an elemental process and it is eligible under the methodology, the heat from the internal combustion engine is not. Using the waste heat from the internal combustion engine would constitute a combined cycle as electricity is generated in a second step, after the primary fuel has already been used to generate electricity in the internal combustion engine.

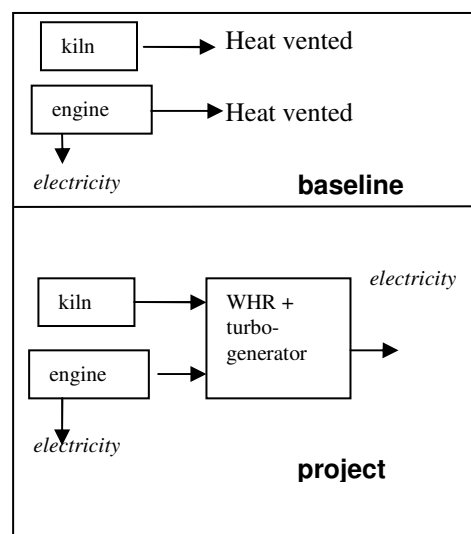
The project activity is therefore a mix of a single-cycle (heat from elemental process, i.e. kiln) and a combined-cycle (heat from engine). Furthermore, the heat from the engine has no other useful application on site (would be vented) and is only utilisable to produce power. This case seems to be excluded by clause 6.c cited above.

However, clause 6.c seems to be geared towards single-cycle power plants (and not captive power units) where waste heat cannot be used for anything else than further power generation in a combined cycle. Footnote number 10 in ACM0012 refers to the identical clause. There it is stated that ACM007 is to be applied in such cases. Both, ACM0012 and ACM007 relate to power plants and are not intended to be applied to industrial on-site electricity production.

It is here requested to amend the methodology to distinguish between power plants and industrial captive power units. We propose to change clause 6.c in order to be applicable to full scale power plants with the main purpose to provide electricity to the grid (as intended by ACM0007) but excluding single power generation units within a captive power plant serving a manufacturing plant:

“The projects recovering waste energy from such power plants for the purpose of generation of heat only can apply this methodology, as well as do single-cycle captive power units (e.g. serving manufacturing plants) where waste heat cannot be used for anything else than further power generation”

In that way the CDM could provide incentive to make best use of all of the potentially available heat sources in a plant. In the current form, however, the methodology is excluding even the application to the elemental process (e.g. the kiln) as it is not foreseen in the methodology to exclude part of the heat (e.g. from the internal combustion engine) from the project boundary.



3. If you are proposing an amendment/revision to an approved small-scale methodology (AMS) please provide the draft methodology with changes highlighted.

The following documents have been attached to this form:

- ☒ Draft methodology with changes highlighted in Word and PDF formats
- ☐ PDD in PDF format (optional)
- ☐ Additional information (please specify if you are providing any information note, published paper or a report in support of the request for revision of the SSC methodology)

Proposal for a new SSC methodology

4. If you are proposing a new small scale methodology, please provide justifications below:

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5. For submitting a new small scale methodology a filled in form "CDM: form for proposed new small scale methodologies (F-CDM-SSC-NM)" is required.

The following documents have been attached to this form:

- ☐ Completely filled in form "CDM: form for proposed new small scale methodologies (F-CDM-SSC-NM)" in Word and PDF formats³
- ☐ A draft PDD (with sections A to C completed):
 - ☐ Relevant annexes to the PDD are provided
 - ☐ Additional information (please specify if you are providing any information note, published paper or a report in support of the new SSC methodology)

Date you are delivering the contribution:

10/12/2010

Information to be completed by the secretariat

SSC-Submission number

³ The current version of the form (F-CDM-SSC-NM) is available on the UNFCCC CDM website (<http://cdm.unfccc.int>).