



**Approved baseline and monitoring methodology /  
methodological tool clarification response form  
(Version 03.0)**

**INFORMATION TO BE COMPLETED BY THE SECRETARIAT OR PANEL / WG**

<b>Date and number of Panel / WG meeting:</b>	26 Feb – 1 Mar 2019 / MP 78
<b>Title/Subject of the request for clarification:</b>	Applicability of AMS-I.F for an isolated electricity network system with limited import from a grid of neighbouring country
<b>Reference number of the request for clarification:</b>	SSC_748
<b>Exact reference (number, title and version) of the methodology or methodological tool to which the request for clarification applies:</b>	AMS-I.F. Renewable electricity generation for captive use and mini-grid --- version 2.0
<b>Fast track or Regular track:</b>	<input type="checkbox"/> Fast track <input checked="" type="checkbox"/> Regular track

**Summary of the request for clarification**

**Original text from the PP:**

**Background:**

The Tanzania Renewable Energy Program (reference no. 9904) is registered under CDM program of activities (PoA) on 08 May 2014. So far, nine (9) component of project activities (CPAs) have been included under the PoA. The Coordinating and/or Managing Entity (CME) is planning to include a new CPA, Sumbawanga solar photovoltaic power plant.

Sumbawanga town and its surrounding villages are supplied power through the existing mini-grid of Tanzania Electricity Supply Company (TANESCO). There is only one diesel power plant of 5 MW capacity existing in this mini-grid. This mini-grid is not connected to the national grid of Tanzania. However, the mini-grid imports the electricity from the national grid of Zambia which is limited to 5.5 MW.

If the consumer loads during the day time exceeds the threshold capacity of 5.5 MW (imported from Zambia), then TANESCO operates the 5 MW diesel power plant to manage the power supply. The proposed 1 MW Solar PV power plant (CDM project) will (i) displace the fossil fuel based electricity from the diesel power plant during the peak demand and (ii) reduce import from the national grid of Zambia, during the day time in the Sumbawanga mini-grid network.

**Clarification needed:**

**1. On Methodology**

Project proponent intends to apply AMS-I.F for this CPA. As per the definition of the mini grid given in the paragraph 2 of the AMS-I.F, version 02, "a mini-grid is defined as small-scale power system with a total capacity not exceeding 15 MW (i.e. the sum of installed capacities of all generators connected to the mini-grid is equal to or less than 15 MW) which is not connected to a national or a regional grid".

Can the project feeding network still be considered as a mini-grid under AMS I.F, version 02, based on facts that:

- i) it is an isolated network in the country and not connected to the national grid of Tanzania,
- ii) the import from neighbor country national grid is limited to 5.5 MW and
- iii) the total power supply sources in the network is not more than 15 MW (Zambia grid – 5.5 MW & diesel generator - 5 MW; total 10.5 MW)?

**2. On emission factor to be considered**

- a) If AMS-I.F can be applied, then can we consider the default emission factor value for diesel generators of

TANESCO (0.8 tCO<sub>2</sub>/MWh) as a conservative value of the two electricity sources?

(as per approved standardized baseline "ASB0040-2018: Grid emission factor for the Southern African power pool (version 01.0)"<sup>1</sup>, the grid emission factor for national grid of Zambia is 0.9481 tCO<sub>2</sub>/MWh)

b) If AMS-I.F can be applied and the emission factor for the electricity network system must be estimated using the weighted average emission factor method provided in paragraph 15 of AMS-I.F, version 02, then grid emission factor of Zambia must be taken into account. However, the project is located in the geographic boundary of Tanzania and Tanzania is not a member of this power pool list given in paragraph 3 (a) of the standardized baseline.

Can the emission factor value from standardized baseline of Southern African power pool still be used in finding the weighted average emission factor of the isolated grid network system of the proposed CPA?

**Attachments:**

Detailed information on the PoA and the CPA is contained in the document "[Details of Tanzania REP PoA and proposed CPA 23Jan2019](#)".

**Clarification by the secretariat or Panel / WG**

The Methodologies Panel thanks the author of the submission for the clarification request and agrees to clarify as follows:

**Query 1 on Methodology:**

The MP noted that the power supply sources in the project power system in aggregate is not more than 15 MW (grid import – 5.5 MW & diesel generator - 5 MW). The MP agreed to clarify that, the project power system (distribution network) can be considered to be a mini grid covered by the scope of AMS-I.F. As the host country grid is not connected to the neighbouring country grid in question which supplies only to the project power system (mini- grid), the neighbouring country grid may be considered as a point power supply source connected to the said mini-grid.

**Query 2a on default diesel generation emission factor:**

The MP noted that the described mini-grid is connected to the neighbouring country grid and hence not exclusively supplied by diesel generator. Thus, the MP is of the opinion that default emission factor value for diesel generators provided in AMS-I.F alone may not be used. See also response under query 2b below.

**Query 2b on weighted average emission factor:**

The MP took into account the following provisions of AMS-I.F ver 02:

- **As per Para 14 of [AMS-I.F ver. 02](#)**, if a mini-grid system does not use exclusively diesel generator, the baseline emission factor shall be determined as per the weighted average emissions for the current generation mix following the procedure provided in AMS-I.D. According to AMS-I. D, the weighted average emissions of the current generation mix is estimated based on the data of the year in which project generation occurs (ex post).
- **As per Para 15 of [AMS-I.F ver. 02](#)**, for project activities that displace grid electricity and fossil fuel fired **on-site captive electricity**, the baseline emission factor should reflect the emissions intensity of the grid and the captive power plant in the baseline scenario i.e. the weighted average emission factor for the displaced electricity is calculated using values based on the historical, prior three year ratios of electricity from captive plants and the grid. For new facilities, the most conservative (lowest) of the emission factor for the two power sources should be used.

Based on the above, the MP noted that the proposed project will potentially displace electricity from diesel generator (i.e. on site captive electricity) as well as supply from the grid (electricity import). The MP agreed to clarify that the following options may be considered by the submission author to estimate baseline emission:

- **Option 1:** Determine the baseline emission factor based on the weighted average emission factor of diesel electricity generation and electricity import. This can be estimated ex ante using three

<sup>1</sup> <[https://cdm.unfccc.int/methodologies/standard\\_base/2015/sb131.html](https://cdm.unfccc.int/methodologies/standard_base/2015/sb131.html)>.

years' historical information (one year data can be used if sufficient three years' operational data is not available) based on share of import and diesel generation in total energy supply in the network<sup>2</sup>. Emission factor value 0.8 tCO<sub>2</sub>/MWh may be used for the portion of diesel generation. Further, based on a technical perspective, the MP is of the opinion that the SAPP grid emission factor ([ASB0040-2018](#)) may be applied for the portion of the electricity generated by solar plant that displaces the electricity import. However, as the approved [SAPP SB grid emission factor](#) indicates applicability to project activities implemented in one of SAPP member countries and project in question is not in one of the SAPP member countries, the application of SAPP SB grid factor to the project is subject to the approval by the Board (also see paragraph 42 of MP 78 report<sup>3</sup>). Alternatively, emission factor of grid import may be considered zero (consistent with grid tool, para 25 ver 7.0).

- **Option 2:** Estimate baseline emissions based on ex post data using the weighted average emissions of the current generation mix. The data of the year in which project generation occurs must be used. The weighted average emission factor is determined as indicated under option 1 above.
- **Option 3:** Seek a deviation to the methodology by proposing an alternative conservative method through the procedure for a request for post-registration changes.

**Final Response:** The Board at its 102<sup>nd</sup> meeting clarified that the baseline emission factor of 0.87 tCO<sub>2</sub>/MWh may be applied for the electricity generated by the project solar photovoltaic electricity system in question (see paragraph 48 of EB 102 report<sup>4</sup>).

**Version(s) of the approved methodology / methodological tool to which the clarification is applicable:**

AMS-I.F.: Renewable electricity generation for captive use and mini-grid --- Version 2.0

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### Document information

Version	Date	Description
03.0	13 May 2016	Revised to include the row "Version(s) of the approved methodology / methodological tool to which the clarification is applicable"
02.0	18 July 2013	Revised to remove the row "Date and signature of the chair and vice chair of Panel/WG (in case of clarification by Panel/WG)"
01.0	4 July 2013	Initial publication. This document supersedes and replaces the following documents: <ul style="list-style-type: none"> <li>• Recommendation Form for Small Scale Methodologies (F-CDM-SSCwg) (Version 01.1)</li> <li>• Recommendation Form for Small Scale A/R Methodologies and Procedures (F-CDM-SSC-AR) (Version 01.1)</li> </ul>
Decision Class: Regulatory Document Type: Form, Clarification Business Function: Methodology Keywords: applying methodologies and tools		

<sup>2</sup> For example, if in the baseline 50 per cent of annual electricity requirement was met by grid import and the remaining by diesel generation, the weighted average emission factor would be:

$$0.5 \times EF_{\text{grid-import}} + 0.5 \times EF_{\text{diesel}}$$

<sup>3</sup> <<https://cdm.unfccc.int/Panels/meth/index.html>>.

<sup>4</sup> <<http://cdm.unfccc.int/EB/index.html>>.