



**Approved baseline and monitoring methodology/  
methodological tool revision recommendation form  
(Version 02.0)**

**INFORMATION TO BE COMPLETED BY PANEL/ WG**

<b>Date and number of Panel/ WG meeting:</b>	15–17 and 25–26 June 2020 / MP82
<b>Title/Subject of the request for revision:</b>	Revision to include an option for project lamps that have multiple charging methods under AMS-III.AR.
<b>Reference number of the request for revision:</b>	SSC_783
<b>Exact reference (number, title and version) of the methodology or methodological tool to which the request for revision applies:</b>	AMS-III.AR.: Substituting fossil fuel based lighting with LED/CFL lighting systems --- Version 6.0

**Summary of the request for revision:**

**Original text from PP:**

Context

The project proponent is seeking the certification of a carbon project activity that involves the replacement of fossil fuel based lamps through the distribution of renewable energy based LED lighting systems (Project Lamps) to end users in rural communities in sub-Saharan Africa.

The request for revision refers to the CDM small-scale baseline and monitoring methodology AMS-III.AR. v6: Substituting fossil fuel based lighting with LED/CFL lighting systems --- Version 6.0

The project proponent requests a revision on the eligibility criteria of the methodology, in particular regarding the limitation of allowing CFL/LED lamps that can use only one source for charging.

In the paragraph 3 of the applicability section of the methodology, it states that:

*“This methodology is applicable only to project lamps whose batteries are charged using one of the following options:*

- (a) Charged by a renewable energy system included as part of the project lamp (e.g. a photovoltaic system or mechanical system such as a hand crank charger);*
- (b) Charged by a standalone distributed generation system (e.g. a diesel generator set) or a mini-grid, i.e. that is not connected to a national or regional grid;*
- (c) Charged by a grid that is connected to regional/national grid.”*

Furthermore, on the footnotes, it specifies that:

*“Project lamps may be charged by any of the listed options, however each individual project lamp shall be charged by only one of the charging options (for example 10,000 project lamps may be charged by photovoltaic (PV) systems and 10,000 may be charged by a grid, but none of the individual project lamps may be charged by both a grid and a PV system).”*

The project proponent seeks to introduce a PV solar LED lamp as part of the carbon project designed to be charged by two different methods:

- The PV solar panel integrated into the lamp (the default charging mode), or
- An external source of charging, via a DC connector and/or cable (which may include USB or any other power ‘jack’). This external source for charging could be another solar panel, a rechargeable battery or a local generation source.

Such a product would give the users greater flexibility and usability of the lamp, in order to be able to charge the lamp indoors or during cloudy, rainy days. For users upgrading their solar home energy supply in the future, as they climb the energy ladder, the lamp could be powered by their chosen system. Additionally, it would give users the capability to do a fast-charge or back-up to their lamp when needed, such as before

travelling with their product.

Under the current version of the methodology in the eligibility criteria the option of including project lamps that have multiple charging sources is not included. Therefore, it is unclear if this project lamp would be eligible to be included in a CDM project.

#### Request for revision

The Project Proponent proposes a revision to the methodology in order to include an option that clearly specifies that project lamps that have multiple charging methods are eligible under this methodology and that the implications of multiple charging methods are taken into account for calculating the project emissions and emission reductions.

#### Rationale

The proposed revision to the methodology involves including an additional option in the eligibility criteria for project lamps using multiple charging methods and include additional provisions to ensure there is no risk of over claiming emission reductions. This revision includes a proposed approach to calculate project emissions in a conservative yet practical way for project implementation.

This option in the methodology, if chosen by the Project Proponent, would assume that all project lamps would be recharged based on a diesel generator in a mini-grid, assuming a conservative factor of 1.3 tCO<sub>2</sub>/MWh based on paragraph 28(a) of the "TOOL05 : Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation").

In order to provide some context and example of the impact of this proposed change, from all the CDM registered projects or PoAs, none of them use the charging option from the grid or mini-grid with a diesel genset. However, it can be inferred from these registered CDM projects and CPAs that project emissions from electricity consumption represent on an average less than 1% of baseline emissions from kerosene lamps even if a diesel genset was used for charging. This would be the case since the electricity consumed by LED lamps is small and lighting efficacy of LEDs (lumens per Watt) are far superior to kerosene lamps.

In the table below, project emissions from LED lamps are determined based on the electricity that would have been consumed by the lamp (as the product between the lamp's wattage and an average usage of 3.5 hours/day) and the emission factor of a diesel generator (1.3 tCO<sub>2</sub>/MWh, conservative emission factor sourced from Table 2 of AMS-I.F. version 3.0).

PA/CPA	A	B	C = A x B	D	E = A x D x 3.5 x 365 x 10 <sup>-6</sup>	F	G = E x F	H = G / C
	Number of Lamps	EF_BE (tCO <sub>2</sub> /lamp)	BE (tCO <sub>2</sub> )	W_avg (W)	EC (MWh)	EF_diesel (tCO <sub>2</sub> /MWh)	PE (tCO <sub>2</sub> )	PE / BE
PA	140,000	0.113	15,820	0.61	109.10	1.3	109.10	<b>0.90%</b>
PA	36,000	0.11	3,960	0.22	10.12	1.3	10.12	<b>0.33%</b>
CPA	500,000	0.092	46,000	0.22	140.53	1.3	140.53	<b>0.40%</b>
CPA	25,000	0.092	2,300	0.61	19.48	1.3	19.48	<b>1.10%</b>
CPA	300,000	0.092	27,600	0.6	229.95	1.3	229.95	<b>1.08%</b>
CPA	24,000	0.092	2,208	0.25	7.67	1.3	7.67	<b>0.45%</b>
CPA	103,000	0.092	9,476	1	131.58	1.3	131.58	<b>1.81%</b>
CPA	650,000	0.092	59,800	1.1	913.41	1.3	913.41	<b>1.99%</b>
CPA	50,000	0.092	4,600	0.24	15.33	1.3	15.33	<b>0.43%</b>
CPA	450,000	0.092	41,400	0.61	350.67	1.3	350.67	<b>1.10%</b>
CPA	302,800	0.092	27,858	0.4	154.73	1.3	154.73	<b>0.72%</b>

This means that if a Project Proponent, if they wish to use the proposed option of multiple charging methods, it would apply a conservative assumption that all project lamps would be recharged from a diesel-powered source. It is most likely that in reality project lamps will be mainly charged by solar power and only occasionally from electricity coming from a diesel mini-grid. Therefore, the project emissions calculated using this option would consider worst-case scenario in terms of factoring all the potential emissions resulting from this charging method in the project activity.

The benefit of incorporating this revision to the methodology is to allow Project Proponents to distribute solar lamps that are more versatile, practical and with an option for modularity for the project beneficiaries.

<b>Recommended decision to the Board on the request for revision</b>
<input checked="" type="checkbox"/> Approve the proposed revised methodology or methodological tool ("A case") <input type="checkbox"/> Reject the proposed revised methodology or methodological tool ("C case")
<b>Type of the revision if the recommendation is A case</b>
<input checked="" type="checkbox"/> The revision is a major revision <input type="checkbox"/> The revision is a minor revision
<b>Reasons for rejection if the recommendation is C case</b>
<b>Any other issues arising from the request for revision</b>

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### Document information

Version	Date	Description
02.0	18 July 2013	Revised to remove the row "Date and signature of the chair and vice chair of 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>

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