



**Programme design document form for
small-scale CDM programmes of activities
(Version 03.0)**

Complete this form in accordance with the Attachment "Instructions for filling out the programme design document form for small-scale CDM programmes of activities" at the end of this form.

PROGRAMME DESIGN DOCUMENT (PoA-DD)

Title of the PoA	Green Light for Africa
Version number of the PoA-DD	Version 3
Completion date of the PoA-DD	30/03/15
Coordinating/ managing entity	Standard Bank Plc
Host Party(ies)	Republic of Kenya Republic of Zimbabwe
Sectoral scope(s) and selected methodology(ies), and where applicable, selected standardized baseline(s)	Sectoral Scope 03 AMS II.J/Version 4

PART I. Programme of activities (PoA)

SECTION A. General description of PoA

A.1. Title of the PoA

Green Light for Africa

A.2. Purpose and general description of the PoA

1. General operating and implementing framework of PoA

The Coordinating/Managing Entity (Standard Bank Plc) of the Green Light for Africa Program of Activities will provide overall coordination of the Small-Scale Programme of Activities (SSC-PoA) and will facilitate and support project implementers to implement CDM Programme Activities (SSC-CPAs) in Kenya, and Zimbabwe.

The Green Light for Africa Program involves the replacement of incandescent lamps (ICLs) with self-ballasted compact fluorescent lamps (CFLs) amongst residential users in Kenya, and Zimbabwe.

The implementation of this SSC-PoA will achieve CO₂ emission reductions by reducing electricity consumption through the distribution and installation of CFLs. CFLs generally consume 80% less energy compared to similar conventional light bulbs (ICLs).

2. Policy/measure or stated goal of the PoA

The stated goal of the SSC-PoA is to replace ICLs amongst residential users in Kenya and Zimbabwe with high quality CFLs¹.

There are no mandatory policies or regulations for adoption of CFLs in households in Kenya or Zimbabwe.

Energy ministries and power companies in all countries included in the Green Light for Africa Program recognise the value of energy efficiency and have policies and/or campaigns in place to encourage consumers to use energy efficiently. The Green Light for Africa Programme of Activities is consistent with and supports host country energy efficiency policies.

3. Confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity

The Green Light for Africa Programme of Activities is a scheme developed by Standard Bank to promote energy efficient lighting in Kenya and Zimbabwe. There are no mandatory requirements for adoption of CFLs in households in these countries. All players under the Green Light for Africa Programme of Activities (Coordinating/Managing Entity, project implementers and participating households) are voluntarily taking part in the project.

¹As per AMS II.J/Version 04 CFLs used in the Green Light for Africa Program will be compliant with relevant international standards in relation to Lumen Output and rated average life.

A.3. CMEs and participants of PoA

CME: Standard Bank Plc

The SSC-CPA project implementers are identified in the respective SSC-CPA-DDs.

A.4. Party(ies)

Name of Party involved (host) indicates host Party	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Republic of Kenya	Standard Bank Plc (Coordinating/Managing Entity)	No
Republic of Zimbabwe	Standard Bank Plc (Coordinating/Managing Entity)	No

A.5. Physical/ Geographical boundary of the PoA

The geographic boundary for the PoA is the geographic boundaries of Kenya, and Zimbabwe.

Figure 1 below shows the geographical boundaries (outlined in red) of the Green Light for Africa Programme of Activities



Figure 1: Geographical boundaries of Kenya, & Zimbabwe.

Applicable national and/or sectoral policies and regulations of each host country**Kenya**

Kenya's national energy policy has a number of broad objectives including ensuring the adequate, reliable, cost effective and affordable supply of energy to meet its development needs². Promotion of energy efficiency and conservation is one of the Government's key energy policies. Kenya Vision 2030³ has also recognised the need of increasing energy efficiency in order to reduce Kenya's higher energy cost.

Zimbabwe

The Zimbabwe Ministry of Energy and Power Development has highlighted energy efficiency and Demand Side Management (DSM) as a priority⁴. A National Energy Efficiency and DSM Steering Committee has therefore been established with the mandate of saving 20% of the total national energy consumption, with efficient lighting, and specifically the use of compact fluorescent lamps, promoted by the Government as one of the means to achieve this⁵.

A.6. Technologies/measures

SSC-CPAs will replace ICLs in residential applications with self-ballasted compact fluorescent lamps (CFLs).

CFLs used in the SSC-CPAs may be supplied to the CPA project implementers via a number of manufacturers/suppliers and will:

- Have integrated ballasts as a non-removable part;
- Be new equipment and not transferred from another activity;
- Will meet light output requirements in accordance with the relevant national or international standards or values detailed in Table 1A AMS II.J/Version 4;
- Have a known *ex ante* rated average life determined in accordance with IEC 60969 or an equivalent national standard; and
- Be marked, in addition to the standard lamp specifications, for clear unique identification for the project.

A.7 Public funding of PoA

If Public Funding is accessed for any SSC-CPAs under this PoA, affirmation will be provided in the SSC-CPA DD from the CPA implementer that this funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligation of those parties.

SECTION B. Demonstration of additionality and development of eligibility criteria**B.1. Demonstration of additionality for PoA**

CPAs under this PoA are automatically additional according to paragraph 2 (c) of Annex 27 EB 68, "*Guidelines on the demonstration of additionality of small-scale project activities*", Version

²Kenya: Integrated assessment of the Energy Policy, UNEP (2006), page 16

³Kenya Vision 2030, Government of Republic of Kenya (2007), page 8

⁴Medium Term Plan 2010-2015, Zimbabwe Ministry of Energy and Power Development (2009), page 75 (point vii)

⁵http://www.energy.gov.zw/index.php?option=com_content&view=article&id=100&Itemid=174

09.0 which stipulates the positive list of technologies and project types that do not need documentation of barrier analysis as follows:

“Project activities solely composed of isolated units where the users of the technology/measure are households or communities or Small and Medium Enterprises (SMEs) and where the size of each unit is no larger than 5% of the small-scale CDM thresholds”

Justification

Under the methodology to be applied (AMS II.J/Version 4) the small-scale threshold is 60 GWh per year. 5% of this threshold is 3 GWh.

The CFL wattage equivalent to a 200W ICL is 40 W⁶. Hence the maximum annual energy saving potential from an independent subsystem taking 3.5⁷ hours usage per day is:

$$3.5 \times 365 \times (200 - 40) = 0.0002 \text{ GWh}$$

As demonstrated in the above calculation the 0.0002 GWh per CFL (independent subsystem) is much less than the requirement hence the SCC-CPA complies with EB 68, Annex 27, Version 09.0 guidelines.

(i) The proposed PoA is a voluntary coordinated action

The Green Light for Africa Programme of Activities is a scheme developed by Standard Bank to promote residential energy efficient lighting in Kenya, and Zimbabwe. In these countries there are no mandatory requirements requiring the use of energy efficient lights/CFLs in households.

All key players (CME, SSC-CPA project implementers and participating households) are voluntarily taking part under this scheme.

The Green Light for Africa PoA has been envisaged from its inception as a CDM project.

(ii) If the PoA is implementing a voluntary coordinated action, it would not be implemented in the absence of the PoA

The PoA is implementing a voluntary coordinated action that would not be implemented in the absence of the PoA.

Most of the lighting in the domestic sector in developing countries is provided by inefficient ICLs. CFLs can provide the same amount and quality of light as ICLs while using one-fifth of the electricity and can also last 5-10 times longer. CFLs offer developing nations the opportunity to reduce energy consumption in the residential sector, thereby providing a range of benefits to consumers, utilities and governments. Despite the fact that CFLs can provide benefits for a range of stakeholders, the uptake of CFLs in developing countries has been very slow with penetration of no more than 10-15 percent in most developing countries⁸. This low penetration and slow uptake of CFLs in developing countries is due to:

- Low ROI to the customer due to low tariffs in the domestic sector;

⁶PoA 3223 : CFL lighting scheme – “Bachat Lamp Yojana”, CDM-SSC-PoA-DD version 09 (2009), page 18 (6th paragraph)

⁷Default operating hours value from AMS II.J/Version 4

⁸http://www.esmap.org/esmap/sites/esmap.org/files/2162010114742_CFL_Toolkit_Report_Rev_Feb_15_2010_Final_PRINT_VERSION.pdf, The World Bank, “Large-Scale Residential Energy Efficiency Programs based on CFLs” (2009), page 4, 1st paragraph

- High first costs;
- Lack of knowledge and awareness regarding benefits of CFLs;
- Lack of understanding of quality issues;
- Limited product availability in rural areas; and
- Perceived risk that the CFL may fail soon after installation.

These above barriers inhibit consumers in developing countries from autonomously replacing ICLs with CFLs at scale. This leads to no material change in the baseline and higher emissions than would occur if CFLs were installed. There is therefore a need for CFL programs that provide high-quality CFLs at a reasonable and affordable price to achieve large-scale implementation.

Large-scale installation of CFLs in households can be accomplished in bulk procurement and distribution approaches that are generally carried out by Governments and/or electricity utilities. These approaches reduce the cost of CFLs, assure product quality and can remove consumer price barriers. These programs in developing countries are generally financed through loans or grants from multilateral development banks or self-financed by governments/utilities⁹.

(iii) If the PoA is implementing a mandatory policy/regulation, this would/is not enforced

The PoA is not implementing a mandatory policy/regulation. Currently there are no policies/regulations in place in Kenya, and Zimbabwe covering the activity in the SSC-PoA¹⁰.

(iv) If mandatory a policy/regulation is enforced, the PoA will lead to a greater level of enforcement of the existing mandatory policy/regulation

Currently there are no policies/regulations in place in Kenya and/or Zimbabwe covering the activity in the SSC-PoA.

B.2. Eligibility criteria for inclusion of a CPA in the PoA

The following eligibility criteria have been developed in-line with the provisions version 01 of “Standard for the Development of Eligibility Criteria for the Inclusion of a Project Activity as a CPA under the PoA¹¹” and must be met by a CPA applying for inclusion in this PoA:

Table 2: Eligibility Criteria

#	Eligibility criteria	Conformance with eligibility criteria
1.	The geographic boundary of the SSC CPA, including anytime induced boundary, is unambiguously identified and consistent with the geographic boundary set in the PoA.	Evidence from the CPA implementer that the CPA falls within the physical/geographical boundary of

⁹The World Bank, “Large-Scale Residential Energy Efficiency Programs based on CFLs” (2009), page ES-9, first paragraph

¹⁰Kenya Ministry of Energy (www.energy.go.ke);
Zimbabwe Ministry of Energy and Power Development (www.energy.gov.zw)

¹¹http://cdm.unfccc.int/Reference/Standards/meth/meth_stan02.pdf

		PoA.
2.	The CPA operator must demonstrate that double counting does not occur with the particular SSC CPA.	
2.a	CFLs utilized by the SSC CPA will marked for unique identification for the project.	Marking on the project lamps to be installed by the SSC CPA. The mark should at least uniquely identify the project lamp.
2.b	The SSC CPA that has not been registered (either as a CDM project activity or as a CPA of another PoA).	Confirmation from the SSC CPA implementer that the project has not yet been included in another Programme of Activities or has not yet been registered as a single CDM project activity.
3.	Each SSC CPA will involve the distribution of Compact Fluorescent lamps (CFLs) to replace Incandescent lamps (ICLs). CFLs distributed under each SSC CPA will be compliant with all specifications under EB 54 Version 04 of AMSII.J.	
3.a	The total lumen output of the CFL should be equal to or more than that of the ICL being replaced; lumen output of ICL & CFL shall be determined in accordance with relevant national or international standard/s. Values in Table 1 may be used as an alternative option to such standards. If a lamp wattage is not in Table 1, linearly interpreted value shall be used to determine the minimum light output requirements	Demonstration based on AMSII.J, certified specifications from the SSC CPA implementer or manufacturer.
3.b	The average life or the rated average life of the CFLs shall be known ex ante. IEC 60969 (Self Ballasted Lamps For General Lighting Services - Performance Requirements) or an equivalent national standard shall be used to determine the average life. The project design document shall cite the standard used. If the average life value is not available ex ante, it shall be made available for verification before or at the same time that the results of the second ex post monitoring survey, as required per paragraph 18 (b) of the methodology ¹² , are available for verification. The laboratory conducting and certifying the tests to determine CFL average life shall comply with the requirements of a relevant national or international standard, e.g., ISO/IEC 17025.	Certified specifications from the SSC CPA implementer or manufacturer if average life is known ex ante or third party laboratory certification if ex post.
4.	The start date of the SSC-CPA will not be prior to 25/10/2011 i.e. the date on which the SSC-PoA-DD was for the first time published for global	The CPA implementer will provide documents to confirm signing of

¹²If the ex post monitoring surveys indicate that the failure rate is equal to or less than the $LFR_{i,y}$ value indicated using equation (3) with ex ante or prior year, ex post monitoring values, for subsequent years $LFR_{i,y}$ shall continue to be determined using Equation (3) and the established Average Life values for L_i .

	stakeholder consultation. For CPAs applying for inclusion in the PoA, this may be the date when the first procurement contract is signed or the date when the CFL installation starts. CPA implementers must present official documentation describing above activities to serve as evidence.	procurement contract or start of CFL installation.
5.	Each proposed SSC-CPA follows EB 54 Version 04 of AMSII.J “ <i>Demand-side activities for efficient lighting technologies</i> ”	CME will confirm the applicability before submitting to the DoE. Detailed assessment that the SSC CPA meets all the applicability criteria of Version 04 AMSII.J
6.	The SSC CPA implementer will undertake local stakeholder consultation and environmental analysis ¹³ .	Where applicable, the CME will confirm the requirement and sufficiency of a local stakeholder consultation and environmental analysis ¹⁴ and documentation in section D and C respectively of the CPA DD.
7.	Where Public Funding is accessed, SSC CPA implementer will provide affirmation in the SSC-CPA DD that this funding does not result in a diversion of official development assistance.	SSC CPA implementer will provide evidence that confirms if there is use of public funding this does not result in diversion of official development assistance.
8.	CFL distribution, exchange and destruction	
8.a	Each proposed SSC-CPAs will involve the distribution of CFLs targeting grid connected residential households.	CPA implementer will provide evidence that target is grid connected residential households
8.b	Further, the CPA will ensure that replaced ICLs are exchanged and destroyed	CPA implementer will provide documentation covering the procedure for ICL destruction ¹⁵ .
8.c	CPA implementers will undertake at least one of the following actions described in paragraph 7 of version 7 of AMSII.J	CPA implementer will provide to the CME the distribution mechanism as stipulated in paragraph 7 of Version 04 of AMSII.J.
8.d	CPA implementers will define actions to be taken	CPA implementers will

¹³CPA specific local stakeholder consultation and environmental analysis will not be required for CPA that is 1) located in a country where the former has been conducted or 2) EIA license has been issued by the relevant institution to confirm that an environmental analysis has been conducted.

¹⁴This will depend on host country laws and regulations.

¹⁵Existing host country specific procedures will be followed.

	to encourage CFLs being installed in locations within the residences where the utilization hours are relatively high, for example common areas. For CFLs not directly installed these actions can include educating the CFL recipients of the best uses for CFLs.	define and provided to the CME actions to be taken to encourage CFLs being installed in locations within the residences where the utilization hours are relatively high, for example common areas. For CFLs not directly installed these actions can include educating the CFL recipients of the best uses for CFLs.
9.	The CPA shall follow the guidelines in the latest version of the <i>Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities</i> and <i>Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities</i>	The CME will confirm that the SSC CPA follows the latest guidelines which include sampling.
10.	The aggregate electricity savings by a single project activity may not exceed the equivalent of 60 GWh per year. Each CPA will demonstrate through Emission reduction calculations that single project activity doesn't exceed the equivalent 60 GWh per year.	Each CPA will demonstrate through Emission reduction calculations that single project activity doesn't exceed the equivalent 60 GWh per year.
11.	The SSC CPA is not a debundled component of a large-scale project activity in accordance with the latest approved version of the <i>Guidelines on assessment of debundling for SSC project activities</i> .	Detailed and transparent debundling check carried out in line with the latest approved version of the <i>Guidelines on assessment of debundling for SSC project activities</i> .
12.	The CME approves the participation of the CPA in the PoA.	A letter from the CME that confirms participation of the CPA in the PoA.

B.3. Application of technologies/measures and methodologies

SSC-CPAs will replace ICLs in residential applications with self-ballasted compact fluorescent lamps (CFLs). The CPAs under the PoA will utilise small scale methodology AMS II.J/Version 4.

CFLs used in the SSC-CPAs may be supplied to the CPA project implementers via a number of manufacturers/suppliers and will:

- Have integrated ballasts as a non-removable part;
- Be new equipment and not transferred from another activity;
- Will meet light output requirements in accordance with the relevant national or international standards or values detailed in Table 1A AMS II.J/Version 4;
- Have a known *ex ante* rated average life determined in accordance with IEC 60969 or an equivalent national standard; and

- Be marked, in addition to the standard lamp specifications, for clear unique identification for the project.

The sampling plan for Green Light for Africa PoA has been developed using Version 03, EB 69 Annex 4, “Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities”.

B.4. Date of completion of application of methodology and standardized baseline and contact information of responsible person(s)/ entity(ies)

Date of completion of application of methodology: 1/7/11

Contact information of Responsible Person: Bill O'Connor

Company name: Cool nrg International Pty Ltd

SECTION C. Management system

Operational and management arrangements established by the coordinating/managing entity

Standard Bank will coordinate the SSC-PoA as the CME and will support the SSC_CPA project implementers in implementing SSC-CPAs in Kenya, and Zimbabwe.

Table below shows the key accountabilities and management arrangements envisaged to carry out this role.

Key CME accountabilities and management arrangements

Accountability	Description	Management Arrangements
1.PoA DD Development	Design and development PoA Design documentation (including CPA-DDs) and manage registration process.	Compliance with CDM registration process for PoAs
2. Recruit potential CPA implementers	Invite potential CPA implementers to develop SSC-CPAs	Provision of “Green Light for Africa SSC-CPA Specification” document or appropriate documentation approved by the CME
3. Assessment of CPA proposals	Undertake due diligence and assess proposals for SSC-CPAs from potential CPA implementers.	Completion of “Green Light for Africa SSC-CPA Due Diligence Checklist and Assessment” document or other appropriate documentation as approved by the CME
4.Contract with CPA implementers	Establish contract with CPA implementers	Completion of “Green Light for Africa SSC-CPA Contract” document or other appropriate documentation approved by the CME
5.SSC-CPA inclusion	Inclusion of SSC-CPA in PoA	Compliance with CDM inclusion process for CPAs
6.CPA implementation Quality Assurance check	Check of compliance by CPA Implementer of key aspects of CPA implementation requirements.	Completion of “Green Light for Africa SSC-CPA Implementation Checklist” document or other appropriate documentation as approved by the

		CME
7. Monitoring and verification activities	Undertake monitoring and verification activities as required by the monitoring plan	Completion of "Green Light for Africa SSC-CPA Implementation Checklist" document or other appropriate documentation as approved by the CME Completion of "Green Light for Africa <i>ex post</i> Monitoring Services" document or other appropriate documentation as approved by the CME Monitoring Report to DOE
8. CPA verification and issuance	Management of SSC-CPA verification and issuances process	Compliance with CDM verification process for PoAs
9. Allocation of CERs	Allocation of CERs to parties	"Green Light for Africa SSC-CPA Contract" or other appropriate documentation as approved by the CME

(i) Record keeping system for each CPA under the PoA

Each SSC-CPA will detail a record keeping system that will be used and maintained by the SSC_CPA implementer. This record keeping system must be approved by the PoA CME (in the CME's due diligence process and managed via the Green Light for Africa SSC-CPA Due Diligence Checklist and Assessment document) and maintain appropriate records documenting the following variables *inter-alia*:

- The physical geographic location, either address or GPS location of the households that receive CFLs
- Number of pieces of equipment distributed.
- Nameplate/ rated power rating of CFLs supplied.
- Date of supply.
- The number and nameplate/ rated power (Watts) of the replaced devices.
- Unambiguous identification of the recipient of the equipment.
- Verification of destruction of ICLs.

(ii) System to avoid double accounting

The PoA CME will implement the following system to eliminate double counting from:

- The inclusion of a new CPA that has been already registered (either as a CDM project activity or as a CPA of another PoA); and
- Other parties (e.g. CFL manufacturers or wholesalers) claiming credit for Emission Reductions for the PoA CFLs.

To avoid double counting the CME will *ex ante*:

- At the time of assessment of potential new SSC-CPAs, and again in the inclusion process, check whether any other CDM project activity involving the distribution and the

installation of CFLs is already operating, is registered or is seeking registration in the same specific geographic location as the proposed SSC-CPA using UNFCCC data;

- Check the proposed SSC-CPA is not registered, or is being registered, as a standalone CDM project outside of the Green Light for Africa Lighting PoA using UNFCCC data; and
- Ensure CFL suppliers (manufacturer or wholesalers) and project households voluntarily agree to relinquish any rights over the CERs generated from the project CFLs to the SSC-CPA Implementer.

The above checks will be managed via the “Green Light for Africa SSC-CPA Due Diligence Checklist and Assessment” document and in the instance where the above conditions are not met the CME will not proceed with the inclusion of the proposed SSC-CPA.

To avoid double counting the CME will also *ex post*:

- Check to ensure the recipients of the equipment (who are unambiguously identified) have not already participated in the Green Light for Africa PoA. If recipients of the equipment have previously participated in the PoA and received the maximum number of bulbs, Emission Reductions from this activity over and above the amount generated from the maximum allowable number of bulbs per recipient will be excluded from the SSC-CPA.

(iii) The SSC-CPA included in the PoA is not a de-bundled component of another CDM programme activity (CPA) or CDM project activity

To ensure that the SSC-CPA included in the PoA is not a de-bundled component of another CDM programme activity (CPA) or CDM project activity the CME will:

- At the time of assessment of potential new SSC-CPAs, and again in the inclusion process, check whether any other CDM project activity involving the distribution and the installation of CFLs is already operating, is registered or is seeking registration in the same specific geographic location as the proposed SSC-CPA using UNFCCC data; and
- Ensure that the maximum wattage rating of an ICL that can be replaced under the Green Light for Africa PoA is 200 W.

As per Paragraph 9, EB 54, Annex 13, version 03 “*Guidelines for Assessment of De-bundling for SSC Project Activities*” if the independent subsystems/measures included in the CPA of a PoA are no greater than 1% of the small scale threshold defined by the methodology applied, then that CPA is exempted from performing a de-bundling check.

Under the methodology to be applied (AMS II.J/Version 4) the small-scale threshold is 60 GWh per year. 1% of this threshold is 0.6 GWh.

The CFL wattage equivalent to a 200W ICL is 40 W¹⁶. Hence the maximum annual energy saving potential from an independent subsystem taking 3.5¹⁷ hours usage per day is:

$$3.5 \times 365 \times (200 - 40) = 0.0002 \text{ GWh}$$

As demonstrated in the above calculation the 0.0002 GWh per CFL (independent subsystem) is much less than the de-bundling requirement hence the SCC-CPA complies with EB 54, Annex 13, version 03 guidance.

¹⁶PoA 3223 : CFL lighting scheme – “Bachat Lamp Yojana”, CDM-SSC-PoA-DD version 09 (2009), page 18 (6th paragraph)

¹⁷Default operating hours value from AMS II.J/Version 4

(iv) Provisions to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA

To ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA the CME will require all SSC-CPA Implementers to sign a contractual agreement (the Green Light for Africa SSC-CPA Contract). This agreement will, amongst other things, be explicit about and ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA.

SECTION D. Duration of PoA

D.1. Start date of PoA

25/10/2011

This is the date on which the SSC-PoA-DD is for the first time published for global stakeholder consultation.

D.2. Duration of the PoA

28 years

SECTION E. Environmental impacts

E.1. Level at which environmental analysis is undertaken

Environmental Analysis is done at SSC-CPA level

This is because different countries have different environmental management regulations e.g. handling of wastes, conditions for EIA exemption etc.

E.2. Analysis of the environmental impacts

Provided at SSC-CPA level.

At the time of PoA submission Kenya and Zimbabwe do not require an environmental impact statement for a typical CPA.

SECTION F. Local stakeholder comments

F.1. Solicitation of comments from local stakeholders

Local stakeholder consultation is done at SSC-CPA level

A single stakeholder consultation process will be undertaken for each host country involved in the PoA. The results of each process will be documented in the CPA-DD for CPAs implemented in each of the host countries.

Note: If local stakeholder comments are invited at the PoA level, include information on how comments by local stakeholders were invited, a summary of the comments received and how due account was taken of any comments received, as applicable.

F.2. Summary of comments received

Provided at SSC-CPA level

F.3. Report on consideration of comments received

Provided at SSC-CPA level

SECTION G. Approval and authorization

LoA from Republic of Zimbabwe and Republic of Kenya received.

PART II. Generic component project activity (CPA)**SECTION A. General description of a generic CPA****A.1. Purpose and general description of generic CPAs**

This SSC-CPA is developed under the Green Light for Africa SSC-POA. The Green Light for Africa Programme of Activities involves the replacement of incandescent lamps (ICLs) with self-ballasted compact fluorescent lamps (CFLs) amongst residential users in Kenya, and Zimbabwe.

Goal of the SSC-CPA

The goal of this SSC-CPA is to replace (approximately) *<insert forecast number or number range of ICLs to be exchanged>* ICLs with high quality CFLs across *<specify geographic locations>* in a manner compliant with the Green Light for Africa SSC-PoA.

Confirmation the SSC-CPA is a voluntary action and the Implementer is aware and agreed that their activity is subscribed to the Green Light for Africa SSC-PoA.

The implementer for this SSC-CPA is undertaking this activity voluntarily.

The implementer of this SCC-CPA is aware of and has agreed that their activity is being subscribed to the Green Light for Africa SSC-PoA. The CPA implementer has signed a contractual agreement to that effect with the SSC- PoA CME.

Approved SSC baseline and monitoring methodology to be applied

As per the Green Light for Africa SSC-PoA, AMS II.J/Version 4, Sectoral Scope 03, EB54, will be applied in this SSC-CPA. The Emission Factor (EF) is calculated in accordance with provisions under AMS-I.D/ Version 17, Sectoral Scope 01, EB 61, and the “*Tool to calculate the emission factor of an electricity system*”, Version 02.2.1, EB 63, Report Annex 19.

Technology to be employed

This SSC-CPA will replace ICLs in residential applications with self-ballasted CFLs.

CFLs used in this SSC-CPA have the following attributes and/or specifications:

- Have an integrated ballast as a non-removable part;
- Are new equipment and not transferred from another activity;
- *<IF TECHNICAL SPECIFICATIONS OF CFLs TO BE USED IN THE SSC-CPA ARE KNOWN specify here wattage and lumen output and detail the relevant national or international standard applicable.>*
*<IF TECHNICAL SPECIFICATIONS OF CFLs TO BE USED IN THE SSC-CPA ARE NOT KNOWN THEN INSERT THE FOLLOWING STATEMENT>*All CFLs used will meet light output requirements in accordance with the relevant national or international standards or

values detailed in Table 1A AMS II.J/Version 4. Evidence of compliance with this requirement will be provided to the verifying DOE at the first verification.

- *<IF TECHNICAL SPECIFICATIONS OF CFLs TO BE USED IN THE SSC-CPA ARE KNOWN specify here the ex ante rated average life and detail the relevant national or international standard applicable>*
*<IF TECHNICAL SPECIFICATIONS OF CFLs TO BE USED IN THE SSC-CPA ARE NOT KNOWN THEN INSERT THE FOLLOWING STATEMENT>*All CFLs used will have a known ex ante rated average life determined in accordance with IEC 60969 or an equivalent national standard. Evidence of compliance with this requirement will be provided to the verifying DOE at the first verification.
- Be marked, in addition to the standard lamp specifications, for clear unique identification for the project as follows. *<describe here the unique identification to be used>*

CFL distribution method

CFLs will be distributed by the following method(s):*<select method and/or methods from the options below to be used for distribution of CFLs and provide a brief description>*

- Directly installing the CFLs in households. <Insert detailed description here>*
- Selling CFLs at the equivalent cost of an ICL. <Insert detailed description here>*
- Free exchange of working ICLs for CFLs at designated distribution points with a maximum number of 6 CFLs per household to be distributed. <Insert detailed description here>*

Actions to encourage installation of CFLs in high use locations

<Describe here actions that will be undertaken to encourage replacement CFLs to be installed in locations in residences where utilisation hours are relatively high.>

System to avoid double counting

<Describe here in detail how the following issues regarding double counting will be managed;

- *Ensure CFL suppliers (manufacturer or wholesalers) and project households voluntarily agree to relinquish any rights over the CERs generated from the project CFLs to the SSC-CPA Implementer.*
- *Check to ensure the recipients of the CFLs (who are unambiguously identified) have not already participated in the Green Light for Africa Programme of Activities and received the maximum number of bulbs.>*

ICL destruction methods

<Describe here the destruction processes to be used for the exchanged ICLs and how third party verification procedures will be undertaken>.

Leakage associated with this SSC-CPA is thus avoided through the destruction/scraping of the replaced ICLs as described above.

Record Keeping System

<Describe here the record keeping system that will be used and maintained that will document the following variables:

- The physical geographic location, either address or GPS location of the households that receive CFLs
- *Number of pieces of equipment distributed.*
- *Nameplate/ rated power rating of CFLs supplied.*

- *Date of supply.*
- *The number and nameplate/ rated power (Watts) of the replaced devices.*
- *Unambiguous identification of the recipient of the equipment.*
- *Verification of destruction of ICLs.*

The description must also detail data control procedures to ensure integrity and accuracy of the data.

Chronology of Events

A chronology of key events for this SSC-CPA under this PoA is provided in Table 1 below. *<fill out all dates & evidence for each event. Write "N/A" if does not apply to CPA. Write "Estimated" with date if event has not yet occurred >*

Table 1 Chronology of Events

Item	Event	Date	Evidence
1	Prior Consideration submitted to UNFCCC	DD MMM YYYY	< provide document name & page no. / URL >
2	Start of Pilot program	DD MMM YYYY	< provide document name & page no. / URL >
3	Contract signed with CME	DD MMM YYYY	< provide document name & page no. / URL >
4	CFL Specifications issued	DD MMM YYYY	< provide document name & page no. / URL >
5	CFL Tender issued	DD MMM YYYY	< provide document name & page no. / URL >
6	CFL Purchase order issued	DD MMM YYYY	< provide document name & page no. / URL >
7	Start of Distribution / retrofit	DD MMM YYYY	< provide document name & page no. / URL >

SECTION B. Application of a baseline and monitoring methodology and standardized baseline

B.1. Reference of methodology(ies) and standardized baseline(s)

As per the Green Light for Africa SSC-PoA, AMS II.J/Version 4, Sectoral Scope 03, EB54, will be applied in this SSC-CPA. The Emission Factor (EF) is calculated in accordance with provisions under AMS-I.D/ Version 17, Sectoral Scope 01, EB 61, and the "Tool to calculate the emission factor of an electricity system", Version 02.2.1, EB 63, Report Annex 19.

B.2. Applicability of methodology(ies) and standardized baseline(s)

Demonstration of applicability of EB 54, Version 04 of AMS II.J

No.	AMS II.J technology/measure	SSC CPA Conformance
-----	-----------------------------	---------------------

1	SSC-CPA comprise activities that lead to efficient use of electricity through the adoption of self-ballasted compact fluorescent lamps (CFLs) to replace incandescent lamps (ICLs) in residential applications. The CFLs adopted to replace existing equipment will be new equipment and not transferred from another activity.	<ul style="list-style-type: none"> ✓ CFLs will replace ICLs ✓ Residential households only ✓ CFLs are new ✓ CFLs not transferred from another activity
2	The total lumen output of the CFLs used will be equal to or more than that of the ICL being replaced; lumen output of ICL & CFL shall be determined in accordance with relevant national or international standard/s or values in Table 1 of the methodology.	<ul style="list-style-type: none"> ✓ CFL lumens \geq ICL lumens ✓ ICL & CFL lumens are determined <i><enter method or national/international standard used></i>.
3	The aggregate electricity savings by a single project activity will not exceed the equivalent of 60 GWh per year.	<ul style="list-style-type: none"> ✓ Annual energy saving of <i><please insert annual energy savings></i>GWh.
4	The rated average life of the CFLs shall be known ex ante. IEC 60969 or an equivalent national standard shall be used to determine the average life. The project design document shall cite the standard used. If the average life value is not available ex ante, it shall be made available for verification before or at the same time that the results of the second ex post monitoring survey are available for verification. The laboratory conducting and certifying the tests to determine CFL average life shall comply with the requirements of a relevant national or international standard.	<ul style="list-style-type: none"> ✓ Rated life of CFLs is stated, or else will be available when 2nd ex-post monitoring survey is available for verification ✓ Rated life is determined using IEC 60969 or equivalent ✓ Standard used is cited ✓ Lab undertaking average life tests complies with relevant standards (please see section B.2 above)
5	CFLs utilised under the project activity will, in addition to the standard lamp specifications, be marked for clear unique identification for the project.	<ul style="list-style-type: none"> ✓ CFLs are marked for clear unique project identification (please see section A.2 above)
6	The SSC-CPA design document explains the proposed method of distribution of efficient lighting equipment and how ICL collection and destruction will be conducted and documented. The Project design document shall also explain how the proposed procedures eliminate double counting of Emission Reductions.	<ul style="list-style-type: none"> ✓ CFL distribution method is explained ✓ ICL collection & destruction method is documented ✓ How proposed procedures eliminate double counting is

		explained (please see section A.2 above)
7	<p>The project activity will ensure that replaced ICLs are exchanged and destroyed and will undertake at least one of the following actions:</p> <ul style="list-style-type: none"> • Directly installing the CFLs; • Charging at least a minimal price¹⁸ for efficient lighting equipment; • Restricting the number of lamps per household distributed through the project activity to six. 	<p>✓ ICLs are to be collected in exchange for CFLs</p> <p>✓ ICLs are to be destroyed</p> <p>✓ 1 of the following actions is to be undertaken for CFLs:</p> <ul style="list-style-type: none"> ○ Direct installation ○ Charging minimal price ○ Restricting each household to 6 <p>(please see section A.2 above)</p>
8	<p>Whether the CFLs are directly installed or not directly installed, the project design document will define actions to be taken to encourage CFLs being installed in locations within the residences where the utilisation hours are relatively high. For CFLs not directly installed these actions may include educating the CFL recipients of the best uses for CFLs.</p>	<p>✓ Actions are defined to encourage CFLs being installed in locations with high utilisation hours (may include education on best uses for CFLs)</p> <p>(please see section A.2 above)</p>

B.3. Sources and GHGs

The SSC-CPA is located *<Describe geographic location of SSC-CPA>*.

The SSC-CPA project boundary is the physical location of each CFL installed. Information identifying this boundary will be recorded in the record keeping system associated with this SSC-CPA and in the PoA CMEs project database.

The CFLs installed are energy efficient in comparison to the ICLs replaced and therefore their installation reduces the need for electricity.

The electricity supplied by the grid in *<insert country name(s) where SSC-CPA is to be implemented>* is, in part, fossil fuel based. Therefore, in-directly GHG emissions from the grid-connected power plants are reduced. Table 5 below describes gases to be included in the SSC-CPA boundary.

Table 5: Gases to be included in the SSC-CPA boundary

¹⁸For example cost equivalent of an incandescent lamp being replaced.

	Source	Gas	Included?	Justification
Baseline	Power plants servicing the grid	CO ₂	Yes	Main emission source
		CH ₄	No	Emission source small – excluded for simplification
		N ₂ O	No	Emission source small – excluded for simplification
Project Activity	Power plants servicing the grid	CO ₂	Yes	Main emission source
		CH ₄	No	Emission source small – excluded for simplification
		N ₂ O	No	Emission source small – excluded for simplification

B.4. Description of baseline scenario

In accordance with simplified baseline and monitoring methodology AMSII.J (version 04) “*Demand-side activities for efficient lighting technologies*”, the baseline scenario is defined as the scenario prior to implementation of the project activity. This is the continued use of incandescent lamps (ICLs).

The following are the alternative scenarios to the proposed project activity;

1. Mandatory phase out and replacement of ICLs with new lighting devices with greater efficiency without being registered as a CDM project activity.

This alternative is not applicable as there is no mandated legal requirement for replacing ICLs with CFLs in Kenya and Zimbabwe.

2. Voluntary replacement of ICLs with new lighting devices with greater efficiency through subsidised programs facilitated by relevant authorities (e.g. governments, energy utilities, etc) without being registered as a CDM project activity.

Under this scenario relevant authorities (e.g. governments, energy utilities, etc) would facilitate and subsidize the cost of programs that would provide more efficient lighting technologies (e.g. CFLs) to households.

Due to the barriers which limit consumers in developing countries from autonomously replacing ICLs with more efficient lighting technologies (refer Alternative 3 below) to achieve large-scale implementation of efficient lighting technology programs are required that assure high-quality CFLs at a reasonable and affordable price. These programs are generally developed and delivered by relevant authorities (e.g. governments, energy utilities, etc)¹⁹.

These program approaches reduce the cost of CFLs, assure product quality and can remove consumer price barriers. Without the use of CDM these programs in developing countries are generally financed through loans or grants from multilateral development banks or self-financed

¹⁹The World Bank, “Large-Scale Residential Energy Efficiency Programs based on CFLs” (2009), page ES-4 (last paragraph)

by governments/utilities²⁰. Investment barriers are the most significant barriers to implementation of these large-scale programs.

In 2010, KPLC, the local in Kenya installed 1,250,000 11W CFLs in Kenyan households as a pilot for this PoA. Considering the above said pilot in Kenya and that no other programs have been undertaken in Kenya or Zimbabwe at the time of preparing this PoA, this scenario is viewed as very unlikely to occur and not identified as the baseline scenario.

3. Autonomous replacement of ICLs by households with new lighting devices with greater efficiency.

Most of the lighting in the domestic sector in developing countries is provided by inefficient ICLs. CFLs offer developing country households the opportunity to reduce energy consumption. Despite the fact that CFLs can provide benefits for a range of stakeholders, the uptake of CFLs in developing countries has been very slow with penetration of no more than 10-15 percent in most countries²¹. This low penetration and slow uptake in developing countries is due to a range of barriers.

This low penetration and slow uptake of CFLs in developing countries is due to:

- Low ROI to the customer due to low tariffs in the domestic sector;
- High first costs;
- Lack of knowledge and awareness regarding benefits of CFLs;
- Lack of understanding of quality issues;
- Limited product availability in rural areas; and
- Perceived risk that the CFL may fail soon after installation.

These above barriers inhibit consumers in developing countries from autonomously replacing ICLs with CFLs at scale. This leads to no material change in the baseline and higher emissions than would occur if CFLs were installed. There is therefore a need for CFL programs that provide high-quality CFLs at a reasonable and affordable price to achieve large-scale implementation.

4. Continued use of ICLs.

Given the scenarios and barriers outlined in the above scenarios the most likely scenario, in absence of this PoA, is continued use of ICLs by households in countries included in this PoA. As such this scenario is identified as the baseline scenario.

B.5. Demonstration of eligibility for a generic CPA

As justification of why this SSC-CPA is eligible to be included in the Green Light for Africa SSC-PoA, the SSC-CPA implementer confirms compliance with the eligibility criteria to enrol a CPA under the PoA as shown in Table below:

Compliance with Eligibility Criteria

²⁰The World Bank, "Large-Scale Residential Energy Efficiency Programs based on CFLs" (2009), page ES-9 (first paragraph)

²¹The World Bank, "Large-Scale Residential Energy Efficiency Programs based on CFLs" (2009), page 4 (first paragraph)

	Eligibility criteria	SSC CPA Conformance
1.	The geographic boundary of the SSC CPA, including anytime induced boundary, is unambiguously identified and consistent with the geographic boundary set in the PoA.	Yes. The geographical boundary of <i><please enter name of SSC CPA></i> is the <i><please enter host country></i>
13.	The CPA operator must demonstrate that double counting does not occur with the particular SSC CPA.	
2.a	CFLs utilized by the SSC CPA will marked for unique identification for the project.	Yes. CFLs under this CPA will be permanently marked for clear unique identification.
2.b	The SSC CPA that has not been registered (either as a CDM project activity or as a CPA of another PoA).	Yes. Prior to including CPA, the CME has checked the CDM project database to confirm the project has not been registered as a single CDM project. <i><please describe additional evidence e.g. Letter from CPA implementer, contract with CME, etc></i>
14.	Each SSC CPA will involve the distribution of Compact Fluorescent lamps (CFLs) to replace Incandescent lamps (ICLs). CFLs distributed under each SSC CPA will be compliant with all specifications under EB 54 Version 04 of AMSII.J.	
3.a	The total lumen output of the CFL should be equal to or more than that of the ICL being replaced; lumen output of ICL & CFL shall be determined in accordance with relevant national or international standard/s. Values in Table 1 may be used as an alternative option to such standards. If a lamp wattage is not in Table 1, linearly interpreted value shall be used to determine the minimum light output requirements	Yes. <i><please provide a brief demonstration of light output for CFLs and ICLs></i> The lumen output of ICL and CFL will be measured according to <i><please insert method or relevant national or international standard></i>
3.b	The average life or the rated average life of the CFLs shall be known ex ante. IEC 60969 (Self Ballasted Lamps For General Lighting Services - Performance Requirements) or an equivalent national standard shall be used to determine the average life. The project design document shall cite the standard used. If the average life value is not available ex ante, it shall be made available for verification before or at the same time that the results of the second ex post monitoring survey, as required per paragraph 18 (b) of the methodology, are available for verification. The laboratory conducting and certifying the tests to determine CFL average life shall comply with the requirements of a relevant national or international standard, e.g., ISO/IEC 17025.	Yes. The average rated average life of the CFLs to be installed by this CPA is shall be <i><please insert the average life or the rated average life of the CFLs></i> hours. IEC 60969 "Self-ballasted lamps for general lighting services – performance requirements" shall be used to determine the average life, <i><please provide evidence></i> .
15.	The start date of the SSC-CPA will not be prior to 25/10/2011 i.e. the date on which the SSC-PoA-DD was for the first time published for global stakeholder consultation. For CPAs applying for inclusion in the	Yes. The start date of this SSC-CPA is <i><please insert start date, rationale and evidence></i>

	PoA, this may be the date when the first procurement contract is signed or the date when the CFL installation starts. CPA implementers must present official documentation describing above activities to serve as evidence.	
16.	Each proposed SSC-CPA follows EB 54 Version 04 of AMSII.J “Demand-side activities for efficient lighting technologies”	Yes. The CPA meets all the applicability criteria of version 04 of AMSII.J as stipulated in the section E.2 of the PoA DD. This is demonstrated in table 4 below.
17.	The SSC CPA implementer will undertake local stakeholder consultation and environmental analysis ²² .	Yes. <i><please provide brief description of the CME condition regarding local stakeholder consultation and environmental analysis></i>
18.	Where Public Funding is accessed, SSC CPA implementer will provide affirmation in the SSC-CPA DD that this funding does not result in a diversion of official development assistance.	Yes. No public funding will be accessed by the CPA implementer. <i><please describe source of funding></i> .
19.	CFL distribution, exchange and destruction	
8.a	Each proposed SSC-CPAs will involve the distribution of CFLs targeting grid connected residential households.	Yes. <i><please provide brief description of the CPA implementer regarding confirmation that the CPA will target only grid connected residential households></i>
8.b	Further, the CPA will ensure that replaced ICLs are exchanged and destroyed	Yes. <i><please provide brief description of the CPA implementer regarding confirmation that replaced ICLs are exchanged and destroyed></i>
8.c	CPA implementers will undertake at least one of the following actions described in paragraph 7 of version 7 of AMSII.J	Yes. <i><please provide brief description of the CPA implementer regarding confirmation that CFLs will be directly installed></i> . This is one of the actions described in paragraph 7 of version 7 of AMSII.J
8.d	CPA implementers will define actions to be taken to encourage CFLs being installed in locations within the residences where the utilization hours are relatively high, for example common areas. For CFLs	Yes. <i><please provide brief description of the CPA implementer regarding installation of CFLs in</i>

²²CPA specific local stakeholder consultation and environmental analysis will not be required for CPA that is; 1. Located in a country where the former has been conducted; 2. EIA license has been issued by the relevant institution to confirm that an environmental analysis has been conducted.

	not directly installed these actions can include educating the CFL recipients of the best uses for CFLs.	<i>locations with high utilisation hours (may include education on best uses for CFLs)></i>
20.	The CPA shall follow the guidelines in the latest version of the <i>Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities</i> and <i>Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities</i>	Yes. <i><please provide brief description of the CPA implementer regarding confirmation that the sampling plan is consistent with the latest version of the "Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities" and "Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities"></i>
21.	The aggregate electricity savings by a single project activity may not exceed the equivalent of 60 GWh per year. Each CPA will demonstrate through Emission reduction calculations that single project activity doesn't exceed the equivalent 60 GWh per year.	Yes. The CPA will result in annual energy saving of <i><please insert the GWh savings of the CPAs></i> which doesn't exceed the equivalent 60 GWh per year.
22.	The SSC CPA is not a debundled component of a large-scale project activity in accordance with the latest approved version of the <i>Guidelines on assessment of debundling for SSC project activities</i> .	Yes. <i><please provide brief description of the CPA implementer on how the debundling check has been carried out in line with the latest approved version of the "Guidelines on assessment of debundling for SSC project activities"></i>
23.	The CME approves the participation of the CPA in the PoA.	Yes. <i><please provide brief description of the CPA implementer regarding confirmation that the CME has signed an agreement with the CPA implementer to confirm participation of the CPA in the PoA></i>

B.6. Estimation of emission reductions of a generic CPA

B.6.1. Explanation of methodological choices

The approved methodology to be applied (AMS II.J/Version 4) has a number of methodical choices. Outlined below are explanations of those choices as to be applied to a typical SSC-CPA.

Methodological Choice 1 – Lumen Output Equivalence

Paragraph 2 of the approved methodology to be applied states that lumen output of ICL & CFL shall be determined in accordance with relevant national or international standard/s or values in Table 1 may be used as an alternative option to such standards.

Values in Table 1 will be used to determine lumens equivalence for a typical SSC-CPA.

Methodological Choice 2 – Rated Average Life

Paragraph 4 of the approved methodology to be applied states that the average life or the rated average life of the CFLs shall be known ex ante. IEC 60969 (Self Ballasted Lamps For General Lighting Services - Performance Requirements) or an equivalent national standard shall be used to determine the average life.

Given that at the time of preparing this PoA no national standards for CFL performance requirements exist in the countries to be included in the PoA, IEC 60969 will be used in a typical CPA. If an appropriate national standard is created it may be used as an alternative if deemed more appropriate by the CME.

Methodological Choice 3 – Limit undesirable secondary market effects

Paragraph 7 of the approved methodology to be applied states that project participants are required to undertake at least one of the following actions to limit undesirable secondary market effects:

- (i) Directly installing the CFLs;
- (ii) Charging at least a minimal price for efficient lighting equipment;
- (iii) Restricting the number of lamps per household distributed through the project activity to six.

Each SSC-CPA will clearly define and describe which of these measures it is undertaking.

Methodological Choice 4 – Determining operating hours

Paragraph 11 of the approved methodology to be applied states that operating hours of the project (and baseline) lamps will be determined by using one of the following two options:

- Option 1: A default value of 3.5 hours per 24 hrs period for daily operating hours;
- Option 2: Instead of using a default value of 3.5 hours for O_i , a measured value can be used for the ex ante estimate using the sampling requirements indicated in the definition of O_i for equation (2).

The default value of 3.5 hours per 24 hrs period for daily operating hours will be used for a typical SSC-CPA.

Methodological Choice 5 – Technical grid losses

Paragraph 12 of the approved methodology to be applied states that the average annual technical grid losses shall be determined using recent, accurate and reliable data available for the host country. This value can be determined from recent data published either by a national utility or an official governmental body. Reliability of the data used (e.g., appropriateness, accuracy/uncertainty, especially exclusion of non technical grid losses) shall be established and documented by the project participant. A default value of 10% shall be used for average annual technical grid losses, if no recent data is available or the data cannot be regarded accurate and reliable.

If, as determined by the CME, recent, accurate and reliable data available for the host country is available this will be used to determine technical grid losses for a typical SSC-CPA. If however the CME determines that such data is not available the default value of 10% will be used.

Methodological Choice 6 – Net-to-gross adjustment factor

Paragraph 12 of the approved methodology to be applied states that the net-to-gross adjustment factor default value of 0.95 is to be used unless a more appropriate value based on a lighting use survey from the same region and not older than 2 years is available.

Unless, as determined by the CME, a more appropriate value based on a lighting use survey from the same region and not older than 2 years is available, a typical SSC_CPA will use the default net-to-gross value of 0.95.

Methodological Choice 7 – Ex post monitoring

Paragraph 17 of the approved methodology to be applied states that subsequent (to the first survey) *ex post* monitoring surveys are carried out at one of the following intervals that define the minimum requirements for the frequency of the survey:

- Option 1: Once every 3 years;
- Option 2: Once for every 30% of the elapsed Rated Average Life or Average Life of the lamp.

Option 1 (minimum requirement of once every 3 years) will be used for a typical SSC-CPA. The SSC-CPA is free however to choose a monitoring period more frequent than the selected option.

B.6.2. Data and parameters fixed ex-ante

Data / Parameter:	NES_y																						
Data unit:	kWh																						
Description:	Net electricity saved in Year y																						
Source of data:	Result of calculation using equation (1) in approved methodology (AMS II.J./Version 4)																						
Value(s) applied:	<p><Insert value of NES from Table 13 Annex 5>.</p> <table> <tr> <th>Year</th><th>NES</th></tr> <tr><td>1</td><td><Insert value of NES_1></td></tr> <tr><td>2</td><td><Insert value of NES_2></td></tr> <tr><td>3</td><td><Insert value of NES_3></td></tr> <tr><td>4</td><td><Insert value of NES_4></td></tr> <tr><td>5</td><td><Insert value of NES_5></td></tr> <tr><td>6</td><td><Insert value of NES_6></td></tr> <tr><td>7</td><td><Insert value of NES_7></td></tr> <tr><td>8</td><td><Insert value of NES_8></td></tr> <tr><td>9</td><td><Insert value of NES_9></td></tr> <tr><td>10</td><td><Insert value of NES_{10}></td></tr> </table>	Year	NES	1	<Insert value of NES_1 >	2	<Insert value of NES_2 >	3	<Insert value of NES_3 >	4	<Insert value of NES_4 >	5	<Insert value of NES_5 >	6	<Insert value of NES_6 >	7	<Insert value of NES_7 >	8	<Insert value of NES_8 >	9	<Insert value of NES_9 >	10	<Insert value of NES_{10} >
Year	NES																						
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2	<Insert value of NES_2 >																						
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7	<Insert value of NES_7 >																						
8	<Insert value of NES_8 >																						
9	<Insert value of NES_9 >																						
10	<Insert value of NES_{10} >																						
Choice of data or Measurement methods and procedures:	Compliant with the approved methodology to be applied (AMS II.J./Version 4).																						

Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	$Q_{PJ,i}$
Data unit:	Number
Description:	Number of CFLs distributed under the project activity
Source of data:	<i>Ex ante</i> forecast from CPA implementer <i>Ex post</i> from SSC-CPA record keeping system
Value(s) applied:	<insert forecast value>
Choice of data or Measurement methods and procedures:	SSC-CPA Implementer has planned the project and forecast the number of CFLs to be distributed. <i>Ex post</i> the actual number of CFLs distributed will be recorded in the SSC- CPA record keeping system (which is approved by the PoA CME).
Purpose of data	Calculation of project emissions
Additional comment:	This value shall be equal to or less than the documented number of all baseline ICLs destroyed.

Data / Parameter:	$LFR_{i,y}$																						
Data unit:	Number (fraction)																						
Description:	% of lamps that have failed during a year																						
Source of data:	<i>Ex ante</i> calculated using equation 3, paragraph 14 of the approved methodology (AMS.II.J/Version 4) <i>Ex post</i> source of data will be the <i>ex post</i> monitoring survey																						
Value(s) applied:	<p><Insert value of LFR from table 13 Annex 5>.</p> <table border="1"> <thead> <tr> <th>Year</th><th>LFR</th></tr> </thead> <tbody> <tr><td><20XX></td><td><Insert value of LFR₁></td></tr> <tr><td><20XX></td><td><Insert value of LFR₂></td></tr> <tr><td><20XX></td><td><Insert value of LFR₃></td></tr> <tr><td><20XX></td><td><Insert value of LFR₄></td></tr> <tr><td><20XX></td><td><Insert value of LFR₅></td></tr> <tr><td><20XX></td><td><Insert value of LFR₆></td></tr> <tr><td><20XX></td><td><Insert value of LFR₇></td></tr> <tr><td><20XX></td><td><Insert value of LFR₈></td></tr> <tr><td><20XX></td><td><Insert value of LFR₉></td></tr> <tr><td><20XX></td><td><Insert value of LFR₁₀></td></tr> </tbody> </table>	Year	LFR	<20XX>	<Insert value of LFR ₁ >	<20XX>	<Insert value of LFR ₂ >	<20XX>	<Insert value of LFR ₃ >	<20XX>	<Insert value of LFR ₄ >	<20XX>	<Insert value of LFR ₅ >	<20XX>	<Insert value of LFR ₆ >	<20XX>	<Insert value of LFR ₇ >	<20XX>	<Insert value of LFR ₈ >	<20XX>	<Insert value of LFR ₉ >	<20XX>	<Insert value of LFR ₁₀ >
Year	LFR																						
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<20XX>	<Insert value of LFR ₈ >																						
<20XX>	<Insert value of LFR ₉ >																						
<20XX>	<Insert value of LFR ₁₀ >																						
Choice of data or Measurement methods and procedures:	Choice of data is as specified in paragraph 14 of the approved applied methodology to be applied (AMS II.J/Version 4).																						
Purpose of data	Calculation of project emissions																						
Additional comment:	As per paragraph 18 of the approved methodology to be applied (AMS II.J/Version 4): If the <i>ex post</i> monitoring surveys indicate that the failure rate is <u>equal to or less</u>																						

	<p>than the $LFR_{i,y}$ value for subsequent years $LFR_{i,y}$ shall continue to be determined using Equation (3).</p> <p>If the <i>ex post</i> monitoring surveys indicate that the failure rate is <u>greater than</u> the value indicated using equation (3) a new value for L_i shall be determined using equation (3) and new values of $LFR_{i,y}$ shall be used beginning from the first calculation year after completion of the <i>ex post</i> survey.</p>
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Data / Parameter:	ES_i																						
Data unit:	kWh																						
Description:	Estimated annual electricity savings for equipment type i , for the relevant technology																						
Source of data:	Result of calculation using equation (2) in approved methodology (AMS II.J./Version 4)																						
Value(s) applied:	<p><Insert value of ES from table 13 Annex 5 >.</p> <table> <tr> <th>Year</th><th>ES</th></tr> <tr><td>1</td><td><Insert value of ES_1></td></tr> <tr><td>2</td><td><Insert value of ES_2></td></tr> <tr><td>3</td><td><Insert value of ES_3></td></tr> <tr><td>4</td><td><Insert value of ES_4></td></tr> <tr><td>5</td><td><Insert value of ES_5></td></tr> <tr><td>6</td><td><Insert value of ES_6></td></tr> <tr><td>7</td><td><Insert value of ES_7></td></tr> <tr><td>8</td><td><Insert value of ES_8></td></tr> <tr><td>9</td><td><Insert value of ES_9></td></tr> <tr><td>10</td><td><Insert value of ES_{10}></td></tr> </table>	Year	ES	1	<Insert value of ES_1 >	2	<Insert value of ES_2 >	3	<Insert value of ES_3 >	4	<Insert value of ES_4 >	5	<Insert value of ES_5 >	6	<Insert value of ES_6 >	7	<Insert value of ES_7 >	8	<Insert value of ES_8 >	9	<Insert value of ES_9 >	10	<Insert value of ES_{10} >
Year	ES																						
1	<Insert value of ES_1 >																						
2	<Insert value of ES_2 >																						
3	<Insert value of ES_3 >																						
4	<Insert value of ES_4 >																						
5	<Insert value of ES_5 >																						
6	<Insert value of ES_6 >																						
7	<Insert value of ES_7 >																						
8	<Insert value of ES_8 >																						
9	<Insert value of ES_9 >																						
10	<Insert value of ES_{10} >																						
Choice of data or Measurement methods and procedures:	Compliant with the approved methodology to be applied (AMS II.J./Version 4).																						
Purpose of data	Calculation of project emissions																						
Additional comment:																							

Data / Parameter:	$P_{i, BL}$
Data unit:	Watts
Description:	Rated power of the baseline ICLs
Source of data:	<i>Ex ante</i> forecast from CPA implementer <i>Ex post</i> from SSC-CPA record keeping system
Value(s) applied:	<insert forecast value>
Choice of data or Measurement methods and procedures:	<p>SSC-CPA Implementer has planned the project and forecast the wattage of ICLs to be replaced.</p> <p><i>Ex post</i> the actual wattage of ICLs replaced will be recorded in the SSC- CPA record keeping system (which is approved by the PoA CME).</p>
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	$P_{i, PJ}$
Data unit:	Watts
Description:	Rated power of the project CFLs
Source of data:	<i>Ex ante</i> forecast from CPA implementer <i>Ex post</i> from SSC-CPA record keeping system
Value(s) applied:	<insert forecast value>
Choice of data or Measurement methods and procedures:	SSC-CPA Implementer has planned the project and forecast the wattage of CFLs to be distributed. <i>Ex post</i> the actual wattage of CFLs distributed will be recorded in the SSC- CPA record keeping system (which is approved by the PoA CME).
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	O_i
Data unit:	Hours
Description:	Average daily operating hours of the lighting devices replaced
Source of data:	Methodology default value
Value(s) applied:	3.5 hours per 24 hours period
Choice of data or Measurement methods and procedures:	Option 1 selected to use the default value as per paragraph 11 (ii) of the applied methodology AMS-II.J/Version 4.
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	TD_y
Data unit:	Number (fraction)
Description:	Average annual technical grid losses (transmission and distribution) for the grid serving the locations where the CFLs are installed
Source of data:	<site source of data - should be recent data published either by a national utility or an official governmental body for the host country. A default value of 10% shall be used if no recent data are available or the data cannot be regarded as accurate and reliable.>
Value(s) applied:	<insert forecast value>
Choice of data or Measurement methods and procedures:	Stipulated by the applied methodology <Reliability of the data used (e.g., appropriateness, accuracy/uncertainty, especially exclusion of non technical grid losses) must be established and documented by the CPA Implementer>.
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	<i>NTG</i>
Data unit:	Number (fraction)
Description:	Net-to-gross adjustment factor
Source of data:	Methodology default value
Value(s) applied:	0.95
Choice of data or Measurement methods and procedures:	Stipulated by the applied methodology
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	<i>y</i>
Data unit:	Number
Description:	Counter for year
Source of data:	To be determined from data from CME project database
Value(s) applied:	Year number from CME project database
Choice of data or Measurement methods and procedures:	The CME will maintain a project database. The system must maintain appropriate records documenting, amongst other variables: <ul style="list-style-type: none"> – Start date of SSC-CPA – Year counter
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	<i>X_i</i>
Data unit:	Hours
Description:	Number of operating hours per year of equipment
Source of data:	Number days per year multiplied by default average daily operating hours (3.5 hours per 24 hours)
Value(s) applied:	1,277.50
Choice of data or Measurement methods and procedures:	Stipulated by the applied methodology
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	<i>R_i</i>
Data unit:	Number
Description:	% of lamps of type operating at the end of rated average life
Source of data:	Methodology default value

Value(s) applied:	Default value of 50
Choice of data or Measurement methods and procedures:	Stipulated by the applied methodology
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	L_i
Data unit:	Hours
Description:	Rated Average Life for CFLs
Source of data:	<i><Insert here source of evidence of rated average life from CFL manufacturer/supplier demonstrating compliance with IEC 60969 and/or laboratory test results for CFL average life compliant with relevant national or international standard></i>
Value(s) applied:	<i><Insert Rated Average Life as per provided by CFL manufacturer/supplier>.</i>
Choice of data or Measurement methods and procedures:	Stipulated by the applied methodology
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	ER_y																						
Data unit:	tCO ₂ e																						
Description:	Emission reductions in year y																						
Source of data:	Result of calculation using equation (4) in approved methodology (AMS II.J./Version 4)																						
Value(s) applied:	<i><Insert value of ER from table 13 Annex 5 >.</i> <table border="1"> <thead> <tr> <th>Year</th><th>ES</th></tr> </thead> <tbody> <tr><td>1</td><td><i><Insert value of ER₁></i></td></tr> <tr><td>2</td><td><i><Insert value of ER₂></i></td></tr> <tr><td>3</td><td><i><Insert value of ER₃></i></td></tr> <tr><td>4</td><td><i><Insert value of ER₄></i></td></tr> <tr><td>5</td><td><i><Insert value of ER₅></i></td></tr> <tr><td>6</td><td><i><Insert value of ER₆></i></td></tr> <tr><td>7</td><td><i><Insert value of ER₇></i></td></tr> <tr><td>8</td><td><i><Insert value of ER₈></i></td></tr> <tr><td>9</td><td><i><Insert value of ER₉></i></td></tr> <tr><td>10</td><td><i><Insert value of ER₁₀></i></td></tr> </tbody> </table>	Year	ES	1	<i><Insert value of ER₁></i>	2	<i><Insert value of ER₂></i>	3	<i><Insert value of ER₃></i>	4	<i><Insert value of ER₄></i>	5	<i><Insert value of ER₅></i>	6	<i><Insert value of ER₆></i>	7	<i><Insert value of ER₇></i>	8	<i><Insert value of ER₈></i>	9	<i><Insert value of ER₉></i>	10	<i><Insert value of ER₁₀></i>
Year	ES																						
1	<i><Insert value of ER₁></i>																						
2	<i><Insert value of ER₂></i>																						
3	<i><Insert value of ER₃></i>																						
4	<i><Insert value of ER₄></i>																						
5	<i><Insert value of ER₅></i>																						
6	<i><Insert value of ER₆></i>																						
7	<i><Insert value of ER₇></i>																						
8	<i><Insert value of ER₈></i>																						
9	<i><Insert value of ER₉></i>																						
10	<i><Insert value of ER₁₀></i>																						
Choice of data or Measurement methods and procedures:	Compliant with the approved methodology to be applied (AMS II.J./Version 4).																						
Purpose of data	Calculation of project emissions																						
Additional comment:																							

Data / Parameter:	$EF_{CO_2,ELEC,y}$
Data unit:	tCO ₂ /MWh
Description:	Emission Factor for displacement of electricity in the grid serving the households that participate in the SSC-CPA calculated in accordance with the latest version of AMS-I.D
Source of data:	<Insert here source of data for calculation of EF - calculations shall be based on data from an official source (where available) and made publicly available>.
Value(s) applied:	<Insert value calculated>.
Choice of data or Measurement methods and procedures:	Stipulated in accordance with the provisions in the latest version of AMS-I.D. Refer Annex 2 'Calculation of Baseline Electricity Emissions from Grid'
Purpose of data	Calculation of project emissions
Additional comment:	

B.6.3. Ex-ante calculations of emission reductions

As per the Green Light for Africa PoA, and according to the methodology to be applied (AMS.II.J/Version 4), *ex ante* calculations are done as per the following steps, with Option 1 selected to use the default value for 'daily operating hours' as per paragraph 11 (ii) of methodology AMS-II.J/Version 4:

- (i) Estimate the nameplate/rated power (Watts) of the baseline ICLs to be replaced;
- (ii) Operating hours of project (and baseline) lamps is determined by using default value of 3.5 hours per 24 hrs period;
- (iii) Calculate the annual gross electricity savings by comparing the nameplate/rated power rating of the CFL with that of the baseline ICL and multiplying by annual hours of operation and the estimated number of CFLs that are part of the project;
- (iv) Calculate the annual net electricity saving (NES), for each year of the assumed crediting period, by correcting the gross electricity savings for leakage, a net-to-gross adjustment (NTG) factor, transmission & distribution losses, and Lamp Failure Rate.

The electricity saved by the project activity in year y is calculated as indicated in equations (1) and (2) below:

$$NES_y = \sum_{i=1}^n Q_{PJ,i} \times (1 - LFR_{i,y}) \times ES_i \times \frac{1}{(1 - TD_y)} \times NTG \quad (1)$$

Where:

$$ES_i = (P_{i,BL} - P_{i,PJ}) \times O_i \times 365 / 1000 \quad (2)$$

Where:

NES_y Net electricity saved in year y (kWh)

$Q_{PJ,i}$ <Insert number of CFLs to be distributed under the CPA>

$LFR_{i,y}$	Lamp Failure Rate for equipment type i in year y (fraction) from equation (3)
ES_i	Estimated annual electricity savings from equation (2)
TD_y	<Insert TD losses>
NTG	0.95
$P_{i,BL}$	<Insert forecast rated power of ICLs to be replaced> (Watts)
$P_{i,PJ}$	<Insert forecast rated power of CPA CFLs> (Watts)
O_i	3.5 hours per 24 hour period

The Lamp Failure Rate ($LFR_{i,y}$) is the % of lamps that have failed during a year. The average life or the rated average life is used to calculate the Lamp Failure Rate as follows:

$$\text{If } y * X_i < L_i, LFR_{i,y} = y * X_i * (100 - R_i) / (100 * L_i) \quad (3)$$

$$\text{If } y * X_i \geq L_i, LFR_{i,y} = 1$$

Where:

$LFR_{i,y}$	Lamp Failure Rate for equipment type i in year y (fraction)
L_i	<Insert Rated Average Life CFLs> (hours)
R_i	.50
X_i	1,227.50
y	Counter for year

Emissions reduction is net electricity savings (NES) times an Emission Factor (EF) calculated in accordance with provisions under AMS-I.D.

$$ER_y = NES_y * EF_{CO_2,ELEC,y} \quad (4)$$

Where:

$EF_{CO_2,ELEC,y}$	<Insert Emission Factor in year y > (tCO ₂ /MWh)
ER_y	Emission Reductions in year y (tCO ₂ e)

Table below details *ex ante* calculations of LFR, ES, NES and ER values based on equations 1-4 above.

Estimated emission reductions over the crediting period

YEAR	LFR	ES (kW h)	NES (kW h)	ER (tCO ₂ /MW h)
1	<insert figure>	<insert figure>	<insert figure>	<insert figure>

2	<insert figure>	<insert figure>	<insert figure>	<insert figure>
3	<insert figure>	<insert figure>	<insert figure>	<insert figure>
4	<insert figure>	<insert figure>	<insert figure>	<insert figure>
5	<insert figure>	<insert figure>	<insert figure>	<insert figure>
6	<insert figure>	<insert figure>	<insert figure>	<insert figure>
7	<insert figure>	<insert figure>	<insert figure>	<insert figure>
8	<insert figure>	<insert figure>	<insert figure>	<insert figure>
9	<insert figure>	<insert figure>	<insert figure>	<insert figure>
10	<insert figure>	<insert figure>	<insert figure>	<insert figure>
Total:			<insert figure>	<insert figure>

<CPA implementers are to use “Green Light for Africa SSC-CPA ex ante ER calculations.xls” to calculate value for Table 6.>

Ex post monitoring surveys

The first *ex post* monitoring survey will be carried out within the first year after installation of all efficient lighting and will provide a value for the number of CFLs operating under the project activity. The results of this survey will be used to determine the quantity of CFLs ($Q_{PJ,i}$) installed/operating under the project activity and determine the *ex post* Lamp Failure Rate ($LFR_{i,y}$) for use in *ex post* Emission Reduction calculations.

Subsequent *ex post* monitoring surveys will be carried out once every 3 years (at a minimum) to determine the *ex post* Lamp Failure Rate ($LFR_{i,y}$) for use in *ex post* Emission Reduction calculations.

Changes to Lamp Failure Rate

The Net Electricity Savings shall be modified for changes to the Lamp Failure Rate as may be indicated by *ex post* monitoring survey results. The modifications shall be made using the following methods:

- If Rated Average Life values were used initially for calculating LFR_y , per equation (3), as soon as Average Life values are available they shall be used for calculation of subsequent year $LFR_{i,y}$ values.
- If the *ex post* monitoring surveys indicate that the failure rate is equal to or less than the $LFR_{i,y}$ value indicated using equation (3) with *ex ante* or prior year, *ex post* monitoring

values, for subsequent years $LFR_{i,y}$ shall continue to be determined using Equation (3) and the established Average Life values for L_i .

- However, for subsequent years, L_i values in $LFR_{i,y}$ equation (3) shall be adjusted if the *ex post* monitoring surveys indicate that the failure rate ($LFR_{i,y}$) is greater than the value indicated using equation (3) with Average Life or prior year, *ex post* monitoring values. In this situation, a new value for L_i shall be determined using equation (3) and new values of $LFR_{i,y}$ shall be used beginning from the first calculation year after completion of the *ex post* survey.

B.7. Application of the monitoring methodology and description of the monitoring plan

B.7.1. Data and parameters to be monitored by each generic CPA

Data / Parameter:	Start date of monitoring period
Data unit:	Date
Description:	Start date of monitoring period
Source of data:	SSC-CPA record keeping system
Value(s) applied	dd/mm/yyyy recorded by SSC-CPA Implementer
Measurement methods and procedures:	Data recorded in SSC-CPA record keeping system
Monitoring frequency:	Each Monitoring Period
QA/QC procedures:	SSC-CPA record keeping system approved by CME CPA implementation Quality Assurance Check undertaken by CME Data documented and stored so as to be verifiable by DOE
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	End date of monitoring period
Data unit:	Date
Description:	End date of monitoring period
Source of data:	CME program database
Value(s) applied	dd/mm/yyyy recorded by CME
Measurement methods and procedures:	Data recorded in CME program database
Monitoring frequency:	Each monitoring period
QA/QC procedures:	Data documented and stored so as to be verifiable by DOE
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	Physical geographic location of each measure (each CFL) installed
Data unit:	Text or Number
Description:	Address or GPS Coordinates of houses where CFL have been installed
Source of data:	SSC-CPA record keeping system
Value(s) applied	NA
Measurement methods and procedures:	Data recorded in SSC-CPA record keeping system
Monitoring frequency:	Every time CFLs are distributed to the beneficiaries
QA/QC procedures:	SSC-CPA record keeping system approved by CME CPA implementation Quality Assurance Check undertaken by CME Data documented and stored so as to be verifiable by DOE
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	Q_{PJ}
Data unit:	Number
Description:	Number of CFLs distributed
Source of data:	SSC-CPA record keeping system
Value(s) applied	Number recorded for each SSC-CPA and used in calculating Net Electricity Saved (NES)
Measurement methods and procedures:	Data recorded in SSC-CPA record keeping system
Monitoring frequency:	Every time CFLs are distributed
QA/QC procedures:	SSC-CPA record keeping system approved by CME CPA implementation Quality Assurance Check undertaken by CME Data documented and stored so as to be verifiable by DOE
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	$P_{i, PJ}$
Data unit:	Watts
Description:	Nameplate/ rated power rating of CFLs supplied
Source of data:	SSC-CPA record keeping system
Value(s) applied	Wattages recorded for each SSC-CPA and used in calculating Net Electricity Saved (NES)
Measurement methods and procedures:	Data recorded in SSC-CPA record keeping system
Monitoring frequency:	Every time CFLs are supplied/distributed

QA/QC procedures:	SSC-CPA record keeping system approved by CME CPA implementation Quality Assurance Check undertaken by CME Data documented and stored so as to be verifiable by DOE
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	Date of supply
Data unit:	Date
Description:	Date of supply/distribution of CFLs supplied
Source of data:	SSC-CPA record keeping system
Value(s) applied	NA
Measurement methods and procedures:	Data recorded in SSC-CPA record keeping system
Monitoring frequency:	Every time CFLs are distributed/supplied to the households
QA/QC procedures:	SSC-CPA record keeping system approved by CME CPA implementation Quality Assurance Check undertaken by CME Data documented and stored so as to be verifiable by DOE
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	$P_{i, BL}$
Data unit:	Watts
Description:	Nameplate/ rated power rating of ICLs replaced
Source of data:	SSC-CPA record keeping system
Value(s) applied	Wattages recorded for each SSC-CPA and used in calculating Net Electricity Saved (NES)
Measurement methods and procedures:	Data recorded in SSC-CPA record keeping system
Monitoring frequency:	Every time ICLs are replaced
QA/QC procedures:	SSC-CPA record keeping system approved by CME CPA implementation Quality Assurance Check undertaken by CME Data documented and stored so as to be verifiable by DOE
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	Identification of the recipient of the equipment
Data unit:	Text/number
Description:	Unambiguous identification of the recipient of the CFLs
Source of data:	SSC-CPA record keeping system
Value(s) applied	Double counting control measure
Measurement methods and procedures:	Data recorded in SSC-CPA record keeping system
Monitoring frequency:	Every time CFLs are distributed to the households
QA/QC procedures:	SSC-CPA record keeping system approved by CME CPA implementation Quality Assurance Check undertaken by CME Data documented and stored so as to be verifiable by DOE
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	LFR
Data unit:	Number (fraction)
Description:	% of lamps that have failed during a year
Source of data:	<i>Ex post</i> monitoring survey
Value(s) applied	Results from periodic surveys used in calculating Net Electricity Saved (NES)
Measurement methods and procedures:	Refer Annex 4 for detail of <i>Ex post</i> survey design
Monitoring frequency:	The first survey will be conducted within the first year after installation of project CFLs. Subsequent surveys will be carried out a minimum of once every 3 years. As such the first survey will be conducted in Year 1 and the subsequent surveys will take place in Years 4, Years 7 and Year 10 (depending on the length of the crediting period). Subsequent surveys may be undertaken more frequently than once every 3 years.
QA/QC procedures:	CME will outsource surveying to credible 3 rd party specialist provider CME will randomly check household surveyed by third party provider Data documented and stored so as to be verifiable by DOE
Purpose of data	Calculation of project emissions
Additional comment:	

Data / Parameter:	Emission reductions attributable for each monitoring period
Data unit:	tCO ₂ e
Description:	Emission reductions attributable for each monitoring period
Source of data:	CME program database
Value(s) applied	NA

Measurement methods and procedures:	Application of AMSII.J/Version 4
Monitoring frequency:	Every monitoring period
QA/QC procedures:	Data documented and stored so as to be verifiable by DOE
Purpose of data	Calculation of project emissions
Additional comment:	

B.7.2. Description of the monitoring plan for a generic CPA

The monitoring includes (i) recording of lamp distribution data, and (ii) *ex post* monitoring surveys, these including:

- (i) During SSC-CPA implementation, the following data is to be recorded:
 - Number of pieces of equipment distributed under the project activity, identified by the type of equipment and the date of supply;
 - The number and power of the replaced devices;
 - Data to unambiguously identify the recipient of the equipment distributed under the project activity;
- (ii) The Emission Reductions are calculated *ex ante* and adjusted *ex post* following the monitoring surveys.

This section describes the monitoring plan for this SSC- CPA and also the management arrangements under the PoA for implementation of the monitoring plan.

In relation to point (i) – *<insert here a detailed description of SSC-CPA record keeping system, the data it will capture, how it will be operationalised and the quality assurance processes to ensure data quality and integrity. Each SSC-CPA implementer will use and maintain a record keeping system to capture and document the required data. This record keeping system must be approved by the PoA and maintain appropriate records documenting the following variables inter-alia:*

- *The physical geographic location of each measure (each CFL) installed, either address or GPS Coordinates of houses where CFL have been installed*
- *Number of pieces of equipment distributed.*
- *Nameplate/ rated power rating of CFLs supplied.*
- *Date of supply.*
- *The number and nameplate/ rated power (Watts) of the replaced devices.*
- *Unambiguous identification of the recipient of the equipment.*
- *Verification of destruction of ICLs.*

Information from the SSC-CPA record keeping system will be consolidated and stored in the CME project database.

In relation to point (ii) – it is the responsibility of the CME to undertake periodic *ex post* monitoring surveys. These surveys will be undertaken in accordance with the survey design detailed in Annex 5.

Appendix 1. Contact information of coordinating/managing entity and responsible person(s)/ entity(ies)

CME and/or responsible person/ entity	<input checked="" type="checkbox"/> CME <input type="checkbox"/> Responsible person/ entity for application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the PoA
Organization	Standard Bank Plc
Street/P.O. Box	20 Gresham Street
Building	
City	London
State/Region	
Postcode	EC2V 7JE
Country	United Kingdom
Telephone	+44 20 3145 5000
Fax	+44 20 3189 6930
E-mail	co2@standardbank.com
Website	www.standardbank.com
Contact person	Geoff Sinclair
Title	Head of Carbon Sales and Trading
Salutation	Mr
Last name	Sinclair
Middle name	

CME and/or responsible person/ entity	<input type="checkbox"/> CME <input checked="" type="checkbox"/> Responsible person/ entity for application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the PoA
Organization	Cool nrg International
Street/P.O. Box	269 Stewart Street,
Building	
City	Melbourne
State/Region	Victoria
Postcode	3057
Country	Australia
Telephone	+61393872964

CME and/or responsible person/ entity	<input type="checkbox"/> CME <input checked="" type="checkbox"/> Responsible person/ entity for application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the PoA
Fax	
E-mail	bill@coolnrg.com
Website	www.coolnrg.com
Contact person	Bill O'Connor
Title	Consultant
Salutation	Mr
Last name	O'Connor
Middle name	

Appendix 2. Affirmation regarding public funding

If Public Funding is accessed for any SSC-CPAs under this PoA, affirmation will be provided in the SSC-CPA DD from the CPA implementer that this funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligation of those parties.

Appendix 3. Applicability of methodology(ies) and standardized baseline(s)

The section is left blank intentionally.

Appendix 4. Further background information on ex ante calculation of emission reductions

Baseline Scenario

The baseline scenario is identified for the PoA *ext ante* as the most likely scenario to eventuate for residential lighting in target countries (as described and identified in section B.4) and *ex post* in each SSC-CPA as the actual nameplate/rated power (Watts) of the ICLs replaced.

Grid Emission Factor Calculation

Each SSC-CPA will apply the latest version of AMS I.D. to calculate the baseline Grid Emission Factor (GEF) calculating a combined margin, consisting of the combination of operating margin and build margin.

Calculations shall be based on data from an official source (where available) and made publicly available.

The SSC-CPA-DD shall indicate the key steps(with equations) in calculating the GEF according to the procedures prescribed in the latest *“Tool to calculate the Emission Factor for an electricity system”*

Appendix 5. Further background information on the monitoring plan

As described in Paragraph 19 of the applied approved methodology (AMS II.J/Version4) monitoring includes (i) recording of lamp distribution data, and (ii) *ex post* monitoring surveys, these including:

- (i) During SSC-CPA implementation, the following data is to be recorded:
 - Number of pieces of equipment distributed under the project activity, identified by the type of equipment and the date of supply;
 - The number and power of the replaced devices;
 - Data to unambiguously identify the recipient of the equipment distributed under the project activity;
- (ii) The Emission Reductions are calculated *ex ante* and adjusted *ex post* following the monitoring surveys.

Section B.7.1 details data and parameters to be monitored in each SSC-CPA.

Ex post monitoring survey

Paragraph 20 of the approved methodology to be applied (AMS II.J/Version 4) details the survey principles that shall be followed for the *ex post* monitoring survey related to determining number of CFLs placed in service and operating under the project activity, these being:

- The sampling size is determined by minimum 90% confidence interval and the 10% maximum error margin; the size of the sample shall be no less than 100;
- Sampling must be statistically robust and relevant i.e., the survey has a random distribution and is representative of target population (size, location);
- The method to select respondents for interviews is random;
- The survey is conducted by site visits;
- Only persons over age 12 are interviewed;
- The project document must contain the design details of the survey.

The sampling plan for Green Light for Africa PoA described below has been developed using Version 03, EB 69 Annex 4, “*Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities*”.

(a) Sampling Design:

(i) Objectives and Reliability Requirements:

The sampling objective is to obtain a statistically robust estimate of key variables used in calculation of Emission Reductions, specifically, the Lamp Failure Rate ($LFR_{i,y}$).

The objective is to determine parameter $LFR_{i,y}$ for the monitoring period with a 90/10 confidence/precision. The sampling is conducted at the CPA-level. This means that each CPA under the PoA will be sampled individually in order to obtain the lamp failure rate. The data to be collected will consist of identifying and recording the number of CFLs, marked with clear unique identification as part of the Green Light for Africa PoA, that are installed and operating in households participating in the SSC-CPA. Only CFLs with original markings will be counted.

(ii) Target population

The target population is those households that have participated in the SSC-CPA(s).

(iii) Sampling Method

A "Simple Random Sample" will be taken from the sampling frame (households that have participated in the SSC-CPA). The random sample will be undertaken by the outsourced third party expert provider of market research services (refer implementation section) using an industry best practice approach. The approach to sampling will be transparently documented in their report.

(iv) Sample Size

As per the applied methodology, the desired precision is a minimum 90% confidence interval and the 10% maximum error margin.

To determine the sample size (n), the approximate equation on paragraph 54, EB 69 Annex 5, "*Guidelines for Sampling for CDM Project Activities and Programme of Activities*" is applied as below:

$$n = \frac{1.645^2(1 - p)}{0.1^2 \times p}$$

Where:

n = Sample size
 p = Expected proportion
 1.645 = Required 90% confidence
 0.1 = 10% relative precision

As per paragraph 11 (a) of the '*Standard for sampling and surveys for CDM project activities and programme of activities*' Version 3, the project proponent may use the larger of the two proportions in the sample size calculation. Therefore in year 1 where a Lamp Failure Rate of 4.26% has been used, a proportion of 95.74% may be applied to the sample size equation.

Therefore the sample size will be given by:

$$n = \frac{1.645^2 \times (1 - 0.9574)}{0.1^2 \times 0.9574}$$

n = 13 (rounded up from 12.04)

Please note that as per paragraph 20 of AMS-II.J Version 4, a minimum sample size of 100 is required to determine the number of CFLs placed in service and operating under the project activity. As the calculated sample size is less than 100, as per paragraph 20 of AMS-II.J Version 4, a minimum sample size of 100 will be surveyed for the first monitoring period. Therefore:

n = 100 (minimum)

Surveys will be conducted through site visits to a random sample of households that have participated in the SSC-CPA(s). Only persons over age 12 will be interviewed as part of the survey. The first survey will be conducted within the first year after installation of project CFLs. The project activity has chosen option 1 of paragraph 17 (b) of the applied methodology i.e. subsequent surveys will be carried out a minimum of once every 3 years. As such the first survey will be conducted in Year 1 and the subsequent surveys will take place in Years 4, Years 7 and Year 10 (depending on the length of the crediting period). Subsequent surveys may be undertaken more

frequently than once every 3 years.

Table 7: Sample size for ex-post monitoring surveys for the first CPA²³:

Year	1	4	7	10
Lamp Failure Rate, LFR (%)	4.26	17.03	29.81	42.58
Proportion of Operational Lamps (%)	95.74	82.97	70.19	57.42
Calculated sample size, <i>n</i> (households)	12.04	55.56	114.92	200.69
Required sample size, <i>n</i> (households)	100	100	115	201

(v) Sampling frame

A sampling frame is a list of all members of a population used as a basis for sampling. The sampling frame to be used here is all households that have participated in the SSC-CPA(s).

(b) Data

(i) Field measurements

The variables to be measured under each CPA are as follows:

- Lamp Failure Rate ($LFR_{i,y}$) for CFLs distributed under the CPA

The first survey will be conducted within the first year after installation of project CFLs. Subsequent surveys will be carried out a minimum of once every 3 years. As such the first survey will be conducted in Year 1 and the subsequent surveys will take place in Years 4, Years 7 and Year 10 (depending on the length of the crediting period). Subsequent surveys may be undertaken more frequently than once every 3 years.

(ii) Quality Assurance/Quality Control

The data collection will be undertaken by an expert third party service provider (e.g. market research company). In contracting an expert third party service provider, the CME will conduct a "Request for Tender" process that will specify and assess providers experience, capacity and skills in designing and delivering similar surveys.

The CME will select and establish a contract with the preferred expert third party service provider. In broad terms they will be required to:

- Randomly select households from CME Project Database related to the SSC-CPA to be surveyed
- Visit identified households and assess:
 - Number of CFLs installed
 - Type of CFL installed (if more than one type of CFL was distributed under the SSC-CPA)
 - If installed CFLs carry the clear unique identification of the Green Light for Africa PoA
 - If installed CFLs carrying unique identification operating
- Provide robust and transparent collection and collation of data
- Provide written report(s)

(iii) Analysis

Lamp Failure Rate ($LFR_{i,y}$) data will be collected, and will be used to calculate emission reductions

²³ Source: CPA 0001 ex ante emission reduction calculations

for relevant monitoring period (s). The first survey will be conducted within the first year after installation of project CFLs. Subsequent surveys will be carried out a minimum of once every 3 years. As such the first survey will be conducted in Year 1 and the subsequent surveys will take place in Years 4, Years 7 and Year 10

(iv) Implementation:

The first survey will be conducted within the first year after installation of project CFLs. Subsequent surveys will be carried out a minimum of once every 3 years. As such the first survey will be conducted in Year 1 and the subsequent surveys will take place in Years 4, Years 7 and Year 10 (depending on the length of the crediting period). Subsequent surveys may be undertaken more frequently than once every 3 years. The CME will outsource the Lamp Failure Rate survey to an experienced and qualified third party firm.

Appendix 6. Summary of post registration changes

The CPA implementer (i.e. KPLC) realised that all households that will receive CFLs do not have street addresses or house number within the geographical boundary of Kenya. The CPA implementer hence decided to use GPS coordinates so that the households that will receive CFLs can be accurately recorded and located. Thus, the project participant is requesting to revise the registered monitoring plan. The proposal is to include the GPS coordinates of the households that will receive CFLs as the registered monitoring plan has only provision to capture the address of the households.

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	25 June 2014	<p>Revisions to:</p> <ul style="list-style-type: none"> • Include the Attachment: Instructions for filling out the programme design document form for small-scale CDM programme of activities (these instructions supersede the "Guideline: Completing the programme design document form for small-scale CDM programme of activities" (Version 03.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the PoA in B.4 and Appendix 1; • Add general instructions on post-registration changes in paragraphs 2 and 3 of general instructions and Error! Reference source not found.; • Change the reference number from <i>F-CDM-SSC-PoA-DD</i> to <i>CDM-SSC-PoA-DD-FORM</i>; • Editorial improvement.
02.0	13 March 2012	<p>EB 66, Annex 13</p> <p>Revision required to ensure consistency with the "Guidelines for completing the programme design document form for small-scale CDM programmes of activities".</p>
01.0	27 July 2007	<p>EB33, Annex43</p> <p>Initial adoption.</p>
<p>Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: programme of activities, project design document, SSC project activities</p>		