

**SMALL-SCALE CDM PROGRAMME ACTIVITY DESIGN DOCUMENT FORM
(CDM-SSC-CPA-DD) - Version 01**



NAME /TITLE OF THE PoA: Energy Efficiency of Nigeria's Residential Lighting Stock by Distributing up to 40 Million Compact Fluorescent Lamps (CFLs) to Residential Households Connected to the National Grid.



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**CLEAN DEVELOPMENT MECHANISM
SMALL-SCALE PROGRAM ACTIVITY DESIGN DOCUMENT FORM (CDM-SSC-CPA-DD)
Version 01**

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NOTE:

- (i) This form is for submission of CPAs that apply a small scale approved methodology using the provision of the proposed small scale CDM PoA.
- (ii) The coordinating/managing entity shall prepare a CDM Small Scale Programme Activity Design Document (CDM-SSC-CPA-DD)^{1,2} that is specified to the proposed PoA by using the provisions stated in the SSC PoA DD. At the time of requesting registration the SSC PoA DD must be accompanied by a CDM-SSC CPA-DD form that has been specified for the proposed SSC PoA, as well as by one completed CDM-SSC CPA-DD (using a real case). After the first CPA, every CPA that is added over time to the SSC PoA must submit a completed CDM-SSC CPA-DD.

¹ The latest version of the template form CDM-CPA-DD is available on the UNFCCC CDM web site in the reference/document section.

² At the time of requesting validation/registration, the coordinating managing entity is required to submit a completed CDM-POA-DD, the PoA specific CDM-CPA-DD, as well as one of such CDM-CPA-DD completed (using a real case).

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SECTION A. General description of small scale CDM programme activity (CPA)

A.1. Title of the small-scale CPA:

SSC-CPA Title: Nigeria Energy Efficiency CFL Lighting Scheme [insert SSC-CPA Name]

Version: [insert version number]

Date: [insert dd/mm/yyyy]

A.2. Description of the small-scale CPA:

The project is developed under the Small-scale CDM Programme of Activities (SSC-PoA) titled: Energy Efficiency of Nigeria's Residential Lighting Stock by Distributing up to 40 Million Compact Fluorescent Lamps to Residential Households Connected to the National Grid.

The SSC-CPA subscribes to the formalities described in SSC-PoA titled: Energy Efficiency of Nigeria's Residential Lighting Stock by Distributing up to 40 Million Compact Fluorescent Lamps to Residential Households Connected to the National Grid.

Goal of the SSC-CPA

The goal of the SSC-CPA is to replace incandescent light bulbs (ICLs) with quality long life compact fluorescent lamps, henceforth referred to as CFLs, by distributing/installing approximately [insert the number of CFLs to be distributed/installed] CFLs at grid connected residential households at [insert location of SSC-CPA], [insert town /city/State where SSC-CPA is located], Nigeria.

Methodologies used for the SSC-CPA

- The project uses approved small-scale baseline and monitoring methodology: AMS-II.J, Demand-side activities for efficient lighting technologies, version 4
- Emission factor is based on the provisions in AMS-I.D Version 17 and "Tool to calculate emission factor for an electricity system" version 2.2.1.

Technology and measures to be employed

- The SSC-CPA will employ self-ballasted (integrated) compact fluorescent lamps (CFLs) as replacement for incandescent light bulbs used in residential households connected to the national grid;
- Each CFL will be a new equipment and will not be transferred from another activity;
- Each CFL will meet light output requirements in accordance with the relevant national or international standards/values as detailed in Table 1, AMS II.J, Version 4;
- The SSC-CPA will utilize [insert wattage of CFL to be distributed/installed] power output with an average rated life of [insert average rated life of CFL to be distributed/installed] hours or more as follow;

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CFL (wattage) that will be distributed in lieu of
ICL (wattage)

ILB	CFL
[insert ILB wattage]	[insert CFL wattage]
[insert ILB wattage]	[insert CFL wattage]
[insert ILB wattage]	[insert CFL wattage]
[insert ILB wattage]	[insert CFL wattage]

- The total lumen output of the CFL will be equal to or more than that of the incandescent light bulbs being replaced;
- CFLs average rated life shall be known ex ante and shall meet the requirements of [insert international standard or an equivalent national standard].
- In addition to the standard manufacturer's lamp specifications, CFLs used in the SSC-CPA will be legibly and permanently marked with the following information:
 - Manufacturer's name or Logo
 - Unique serial number pertaining to the particular SSC-CPA
 - Iclimi Ltd name or logo and 'Not for Sale or Resale' sign.
 - The applicable Standard.
- Each CFL pack will include informative and instructive leaflet;
- SSC-CPA will carry out an education campaign through one or more mediums in order to educate households and communities on the project activities.

SSC-CPA Implementation Schedule

<u>Activities</u>	<u>Scheduled Dates</u>
CFL supplier agreement with CFL manufacturer	[mm/yyyy]
CFL Delivery	[mm/yyyy]
CFL Distribution Start-date	[mm/yyyy]
CFL Distribution End-date	[mm/yyyy]
Ex post monitoring	[mm/yyyy-mm/yyyy]

CFL Distribution Methodology

The distribution of CFLs and the replacement of previously used incandescent light bulbs in participating households in the SSC-CPA shall be implemented as follow:

- CFL distribution/installation:
 1. SSC-CPA will directly install CFLs at grid-connected residential households in exchange for equivalent number of used incandescent light bulbs. Used incandescent light bulbs will be collected during CFL installation; and/or

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2. SSC-CPA will distribute CFLs door-to-door at grid-connected residential households (when direct installation is not possible) and collect equivalent number of used incandescent light bulbs; and/ or
 3. CFL distribution and incandescent light bulb collection take place via dedicated distribution point(s)/centre(s) advertised in advance in the local media by SSC-CPA implementer.
- CFL shall be distributed free or sold at an equivalent cost of an incandescent light bulb. Base on the average price of ICL on the Nigeria market in the CPA location, the SSC-CPA estimate the price of a CFL at [enter estimated price of ICL]
 - The maximum number of CFLs that will be distributed/installed per household under the SSC-CPA is [enter maximum number of CFLs to be installed under the SSC-CPA].
 - CFL distributors and installers shall wear identifiable uniform and carry identification at all time during CFL installation/distribution.
 - Participating households that received CFLs from the SSC-CPA can exchange faulty CFLs for new ones - free of charge - within one month of CFL installation/distribution, upon production of residential proof.
 - When CFLs are distributed via dedicated centres/points, in order to prevent abuse, participating households in the SSC-CPA will be required to present their latest Nigeria Electric Power Authority (NEPA)/ Power Holding Company of Nigeria (PHCN) electricity bill/folio or voter registration card before they are given CFLs. The address on the electricity bill/folio or voter registration card will be checked to ensure that households are within the SSC-CPA location. The electricity bills/folio of participating households who are subsequently given CFLs will be stamped or voter registration number collected, in order to reduce free rider effect and prevent abuse.

Recording of Lamp distribution Data, ICL and CFL wattage

- SSC-CPA implementer may use one or more of the followings to record lamp distribution data:
 1. A manual ledger entry form; or/and
 2. Biometric Mobile Terminal with Satellite IP or similar scanner software; or/and
 3. Specially designed database software package programme.

Action to encourage ongoing participation and involvement of communities and stakeholders

- A Local Liaison Officer will be appointed for the duration of CFL distribution/ installation.

Action to encourage installation of CFLs in high use are

- CFL installer will receive adequate training including specific guideline and education that CFLs should be installed in high usage areas such as communal areas in the home;

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- Where direct installation is not possible, SSC-CPA implementer shall verbally educate the recipient to install CFLs in high usage areas.

Confirmation that the project activity is a voluntarily coordinated action

- SSC-CPA implementer, CFL suppliers and participating households shall be made aware that their activities are being subscribed to the PoA;
- SSC-CPA implementer, CFL suppliers and participating households shall be made aware from the start and agree that their participation in the SSC-CPA is voluntary and CER revenue from the SSC-CPA belongs to the coordinating and managing entity, Icimi Ltd.

Storage - ICL and CFL

Replaced ICLs and spent/faulty CFLs will be collected and stored in appropriate boxes indicating their wattages. Each box will state the number of ICLs/CFLs stored in it. The boxes will be stored at dedicated centre/warehouse/storage facilities.

ICL Destruction and Verification

SSC-CPA implementer will arrange for destruction of replaced ICLs and for the following activities to be carried out:

- Collect used incandescent light bulbs at the time of CFL installation, during door-to-door distribution or at distribution point advertised in the local media by SSC-CPA implementer;
- Record details including nameplate/wattage of collected incandescent light bulbs;
- Assemble replaced incandescent light bulbs collected during CFL installation/distribution at a central point/warehouse/storage;
- Determine the number and nameplate/wattage of incandescent light bulbs collected. Although, due to the large number of incandescent light bulbs, individual counting may be impossible;
- Deliver collected incandescent light bulbs to waste disposal agency(s) where they will be destroyed (by scrapping), according to applicable environmental norms and as stipulated in the AMS-II.J, version 4 methodology;
- Qualified third party(s) such as a local environmental official to pay random visit(s) to the central point/warehouse/storage where incandescent light bulbs are assembled prior to delivery to waste disposal agency(s), to ensure that storage of incandescent bulbs is consistent with applicable environmental norms, or SSC-CPA implementer shall verify storage of ICL by time stamped video records. Although, due to the large number of incandescent light bulbs, individual counting may be impossible;
- Qualified third party(s) pay random visit(s) to waste disposal facility to witness the destruction of incandescent light bulbs, or time stamped video record may be used to witness ICL destruction;

Qualified third party(s) record/report on the storage and destruction of ICLs or time stamped video records of the storage and destruction of ICLs will be available to DOE to verify.

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CFL Recycling

SSC-CPA will make arrangement for the following:

- Establishment of a dedicated local centre/point where participating households can drop-off used/broken/fused/faulty CFLs;
- Recycle used/fused/faulty and broken CFLs. If recycling centre/service is not available in SSC-CPA location, spent CFLs should be disposed in hazardous waste management facility.
- Where required by regulation, appoint qualified third party or use a time stamped video record to witness/verify recycle of used/fused/faulty or broken CFLs and make third party report/ video record of recycling available to DOE.

Record Keeping

SSC-CPA will formulate a standardized data format that will be used to record CFL distribution. The data format will be approved by the CME. SSC-CPA implementer will establish a secure, well-defined database for the SSC-CPA according to the guideline in the CME monitoring plan. The SSC-CPA database will include the following information:

- The physical geographic location of each CFL distributed and installed;
- The specifications i.e. nameplate/ rated power of incandescent light bulbs exchanged and CFLs distributed/installed in households participating in the SSC-CPA;
- Number of pieces of CFL distributed/installed and date of distribution/installation;
- Number of pieces of incandescent light bulbs replaced and date replacement took place;
- The name, address and if applicable, NEPA/PHCN/Official electricity bill folio number or voter registration number of CFL recipient;
- Signature of CFL recipients that they relinquish any rights over the CERs generated from the project CFLs to the coordinating/managing entity, Icimi Ltd;
- Record of destruction of incandescent light bulbs;
- If applicable, record of recycle of fuse/faulty and broken CFLs.

Procedures to avoid double-counting

- Checking of UNFCCC CDM database to ensure that no other CDM project activity or a SSC-CPA of another PoA that utilises energy efficient lighting technology has already been registered in the same geographical area;
- Where a SSC-CPA of another PoA or CDM project activity utilising energy efficient lighting technology is already registered in the same geographic area as a proposed SSC-CPA, the SSC-CPA location will be regarded as out of scope;
- SSC-CPA has unique geographical boundary which is determined by the location of households where CFLs are installed;
- SSC-CPA will record distribution and installation of CFLs in the SSC-CPA database;
- Ownership of CERs from the SSC-CPA belongs to the coordinating/managing entity, Icimi Ltd;
- SSC-CPA implementer and households participating in the SSC-CPA will sign paperwork voluntarily agreeing that CERs generated from the SSC-CPA belongs to the coordinating/managing entity, Icimi Ltd, and relinquishing any rights over the CERs generated from the SSC-CPA;

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- CFL supplier will sign a contractual agreement that will unequivocally states that the ownership of all carbon rights and CERs generated from the SSC-CPA belong to the managing and coordinating entity, Icmi Ltd;
- Before CFLs are installed, participating households will be asked whether they have received CFLs as part of another CDM project; any household that had previously received CFLs as part of CDM project will be excluded from the SSC-CPA and will not receive project CFLs.

A.3. Entity/individual responsible for the small-scale CPA:.

[insert name of SSC-CPA implementer]

A.4. Technical description of the small-scale CPA:

A.4.1. Identification of the small-scale CPA:

Nigeria Energy Efficiency CFL Lighting Scheme [insert name of SSC-CPA]

A.4.1.1. Host Party:

Federal Republic of Nigeria

A.4.1.2. Geographic reference or other means of identification allowing the unique identification of the small-scale CPA (maximum one page):

The SSC-CPA location is grid connected residential households at [insert town, city or location of SSC-CPA], [insert State], Nigeria. The spatial boundary of the SSC-CPA is defined by the physical location of each household that received CFL.

GPS Coordinate

[insert town, city or location of SSC-CPA]: [insert GPS Coordinate of SSC-CPA location]

[insert town, city or location of SSC-CPA]	
Ward/Zone	Area
[insert ward or zone]	[insert area]
[insert ward or zone]	[insert area]
[insert ward or zone]	[insert area]
[insert ward or zone]	[insert area]
[insert ward or zone]	[insert area]
[insert ward or zone]	[insert area]
[insert ward or zone]	[insert area]

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Figure 1: Map of Nigeria



Figure 2: [insert map of the location of SSC-CPA]

A.4.2. Duration of the small-scale CPA:

A.4.2.1. Starting date of the small-scale CPA:

[insert start date of the SSC-CPA using the following format: dd/mm/yyyy]

A.4.2.2. Expected operational lifetime of the small-scale CPA:

[insert crediting period]

A.4.3. Choice of the crediting period and related information:

Fixed Crediting Period [insert years or related information]

A.4.3.1. Starting date of the crediting period:

[insert the start date of the SSC-CPA crediting period using the following format: dd/mm/yyyy]

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The specified date is the date at which the CFL distribution for the SSC-CPA shall be completed and monitoring shall commence. Given that the crediting period cannot commence before the registration of the PoA, the above date may change if the PoA registration is not concluded before the date.

A.4.3.2. Length of the crediting period, first crediting period if the choice is renewable CP:

Not Applicable

NOTE: Please note that the duration of crediting period of any CPA shall be limited to the end date of the PoA regardless of when the CPA was added.

A.4.4. Estimated amount of emission reductions over the chosen crediting period:

Year	Estimation of emission reductions in (tonnes of CO ₂ e)
1	[insert value]
2	[insert value]
3	[insert value]
4	[insert value]
5	[insert value]
6	[insert value]
7	[insert value]
8	[insert value]
9	[insert value]
10	[insert value]
Total Emission Reduction (tonnes of CO₂ e)	[insert value]
Years	[insert year]
Average annual emission reduction (tonnes of Co2 e)	[insert value]

A.4.5. Public funding of the CPA:

Select one of the two following options:

No public funding is used for the SSC-CPA	<input type="checkbox"/>
Public funding is used for the SSC-CPA. The SSC-CPA affirms that public funding received for the SSC-CPA does not result in diversion of ODA and is separate from and is not counted towards the financial obligations of those parties]	<input type="checkbox"/>

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A.4.6. Information to confirm that the proposed small-scale CPA is not a de-bundled component

As confirmed by section A.4.4.1 (iii) of the corresponding SSC-PoA, the maximum wattage of incandescent light bulbs that will be replaced under this SSC-CPA is 200W. Therefore the maximum annual energy saving potential from an independent subsystem is less than 1% of the small-scale threshold and as a result, the SSC-CPA is exempt from performing a de-bundling check.

A.4.7. Confirmation that small-scale CPA is neither registered as an individual CDM project activity or is part of another Registered PoA:

It is confirmed that the SSC-CPA is neither registered as an individual CDM project activity or as part of another registered PoA.

SECTION B. Eligibility of small-scale CPA and Estimation of emissions reductions

B.1. Title and reference of the Registered PoA to which small-scale CPA is added:

PoA Title: Energy Efficiency of Nigeria's Residential Lighting Stock by Distributing up to 40 Million Compact Fluorescent Lamps (CFLs) to Residential Households Connected to the National Grid.

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B.2. Justification of the why the small-scale CPA is eligible to be included in the Registered PoA :

SSC-CPA satisfied each of the Inclusion criteria given in section A.4.2.2. of PoA-DD, outlined below:

Sl. No.	Eligibility criteria	Check	Status
1	CFLs distributed/installed by the SSC-CPA are to grid-connected residential households within the geographical boundary of Nigeria.	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No
2	Procedures to avoid double counting are clearly defined in accordance with AMS ILJ version 4: <ul style="list-style-type: none"> There is no other registered and operating SSC-CPA or CDM project concern with the distribution of energy efficient lighting bulbs within the specified geographical location/area. SSC-CPA implementer cedes all rights over the CERs generated by the SSC-CPA to the CME, Icimi Ltd, under a contractual agreement. 	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No
	Each CFL met lumen output requirements in accordance with the relevant national or international standards/values or as detailed in Table 1 AMS II.J, Version 4, and rated average life of CFL meet the requirements of IEC 60969 or an equivalent national standard.	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No
4	SSC-CPA confirmed that the start date of the SSC-CPA is not prior to the commencement of validation of the programme of activities, i.e. the date on which the CDM-PoA-DD is first published for global stakeholder consultation.	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No
5	SSC-CPA conformed to the PoA and followed the baseline and monitoring methodology AMS-II.J version 4	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No
6	SSC-CPA complied with the additionality test described in Section E.5 PoA-DD.	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No
7	SSC-CPA has declared in writing that no public funding (ODA) from Annex I parties is used in the SSC-CPA, if public funding is received by SSC-CPA under the PoA, SSC-CPA affirmed that such funding does not result in diversion of ODA and is separate from and is not counted towards the financial obligations of those parties.	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No
8	CFLs are distributed/installed via one or more of the following methods: direct installation at participating households, door-to-door distribution at participating households, CFL collection from distribution points/centres advertised in the local media by SSC-CPA implementer.	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No
9	100% of the SSC-CPA monitoring plan setup is according to the procedures in A.4.4.2 and sampling methodology followed the procedure in Annex 4 of the POA-DD.	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No
10	CPA in aggregate meets the small-scale threshold and does not exceed those thresholds throughout the crediting period of the CPA.	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No

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11	SME and SSC-CPA implementer confirmed to follow the de-bundling rules set out in EB 54, Annex 13, Guidelines for Assessment of De-bundling for SSC Project Activities (Version 3).	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No
12	SSC-CPA is not registered, or is being registered, as a stand-alone CDM project or as part of another PoA other than the proposed project.	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No
13	Contractual agreement signed between Icimi Ltd and SSC-CPA implementer.	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No
14	CPA confirmed to meet all requirements set out in the Gold Standard passport and Gold Standard stakeholder consultation report.	[insert comment]	<input type="checkbox"/> Yes / <input type="checkbox"/> No

B.3. Assessment and demonstration of additionality of the small-scale CPA , as per eligibility criteria listed in the Registered PoA:

Additionality of SSC-CPA shall be demonstrated using one or more of the additionality criteria below.

Guidelines on the demonstration of additionality of small-scale project activities

A CPA can demonstrate additionality as per the latest “Guidelines on the demonstration of additionality of small-scale project activities” for the positive list of technologies and project activity types that are defined as automatically additional for project sizes up to and including the small-scale CDM thresholds (e.g. installed capacity up to 15 MW):

- 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.

CFL to be distributed by the CPA is an isolated unit; the users of the technology/measures are residential households. The size of each unit (CFL) is less than 5% of the small-scale CDM thresholds stated in condition C paragraph 2, EB 68 Annex 27, and is described below:

Under AMS-II.J version 4, the maximum wattage rating of an incandescent light bulb which can be replaced under the program is 200 W and the wattage of an equivalent CFL is similar to 40W. Assuming ex-ante hour of 3.5 per day,

The annual saving in energy = $((200-40)*3.5*365)/1000 = 204 \text{ Kwh}$

Each unit's % of CDM threshold is $(204/60*1000*1000)*100 = 0.00034\%$

0.00034% is less than the 5% stated in Condition C paragraph 2, EB 68 Annex 27, therefore the CPA is additional.

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Under the guideline, “documentation of barriers is not required for the positive list of technologies and project activity types that are defined as automatically additional for project sizes up to and including the small-scale CDM thresholds (e.g. installed capacity up to 15 MW).

From above it is evident that CPAs of the PoA will be auto-additional, however a simple cost analysis method will be used to determine Net Present Value (NPV) of the CPAs of the PoA. The investment analysis spread-sheet shall show the NPV of a typical SSC-CPA with and without CDM consideration. SSC-CPA may adapt the PoA investment analysis template to SSC-CPA to demonstrate investment barrier if applicable. PoA investment analysis spread-sheet shall be provided to DOE.

If investment analysis is performed by SSC-CPA, SSC-CPA, shall determine that the proposed CPA is either: “not the most economically or financially attractive, or not economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs)” The latest available version of the “Guidelines on the assessment of investment analysis” at the time of the CPA inclusion shall be taken into account when applying this step.

B.4. Description of the sources and gases included in the project boundary and proof that the small-scale CPA is located within the geographical boundary of the registered PoA.

The PoA covers the geographical boundary of Nigeria. [insert location of SSC-CPA], the location of the proposed SSC-CPA is within the geographical boundary of Nigeria. Therefore the proposed SSC-CPA is within the geographical scope of the PoA.

The SSC-CPA will replace incandescent light bulbs with CFLs in residential households that are connected to the national grid. The Nigerian grid is powered by hydropower and thermal, and is primarily fossil fuel based.

Compared to incandescent light bulbs, CFLs increase the energy efficiency of lighting, resulting in less fossil fuel being used to produce electricity for a given quantity of lighting. Therefore the proposed SSC-CPA will reduce CO₂, emissions by decreasing the consumption of power generated from fossil fuels in the Nigerian grid.

	Source	Gas	Included	Justification
Baseline	Power plants serving the electricity grid	CO ₂	Yes	Main Emission source.
		CH ₄	No	Minor source, deemed negligible.
		N ₂ O	No	Minor source, deemed negligible.
Project Activity	Power plants serving the electricity grid	CO ₂	Yes	Main Emission source.
		CH ₄	No	Minor source, deemed negligible.
		N ₂ O	No	Minor source, deemed negligible.

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B.5. Emission reductions:

B.5.1. Data and parameters that are available at validation:

Data / Parameter:	EF_{CO2,ELEC,y}
Data unit:	tCO2/MWh
Description:	Emission factor for the electricity displaced from the grid calculated in accordance with AMS-I.D version 17
Source of data used:	Power Holding Company of Nigeria (PHCN) Annual Technical Report 2004-2008, National Control Centre Osogbo.
Value applied:	0.63
Justification of the choice of data or description of measurement methods and procedures actually applied :	Value derived from emission factor calculated in section E.6.2 of the PoA-DD. The value is fixed ex ante
Any comment:	EF is determined at PoA level and fixed throughout the crediting period

Data / Parameter:	O_i
Data unit:	Hours per day
Description:	Average daily operating hours of incandescent light bulbs replaced
Source of data used:	A default value prescribed by methodology AMS-II.J version 4
Value applied:	3.5 hours per 24 hrs period
Justification of the choice of data or description of measurement methods and procedures actually applied :	A default Value in accordance with AMS-II.J version 4 methodology
Any comment:	-

Data / Parameter:	TD_y
Data unit:	Number
Description:	Average annual technical grid losses.
Source of data used:	AMS-II-J version 4 guideline
Value applied:	10%
Justification of the choice of data or description of measurement methods	The transmission and distribution losses data from host country cannot be ascertained with accuracy, thus the default value of 0.1, is used as the grid losses, in accordance with the AMS-II.J version 4 methodology.

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and procedures actually applied :	
Any comment:	If Technical Grid Losses data from the host country becomes available and such data is ascertained to be accurate and reliable, the project may adopt the use of the TD data from the host country.

Data / Parameter:	NTG
Data unit:	Number
Description:	Net-to-gross adjustment factor
Source of data used:	Methodology AMS-II.J version 4
Value applied:	0.95
Justification of the choice of data or description of measurement methods and procedures actually applied :	A default Value in accordance with AMS-II.J version 4
Any comment:	-

Data / Parameter:	Li
Data unit:	Hours
Description:	Rated average life for equipment type i (hours)
Source of data used:	[insert the source of data on rated average life of CFLs ensuring the source's compliance with IEC 60969 or the laboratory conducting and certifying the tests to determine CFL average life shall comply with the requirements of a relevant national or international standard]
Value applied:	[insert rated average life of CFL]
Justification of the choice of data or description of measurement methods and procedures actually applied :	In accordance with AMS-II.J version 4 methodology
Any comment:	CFL life specification may vary due to availability. CFLs with a minimum rated average life of [insert minimum rated average life of CFL to be used in the project] will be used in the project.

Data / Parameter:	Xi
Data unit:	Hours
Description:	Number of operating hours per year for equipment type i
Source of data used:	Derived from calculation: 3.5hrs (default value) * 365days (366 days for leap yr)

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Value applied:	1277.5
Justification of the choice of data or description of measurement methods and procedures actually applied :	Default value of 3.5 hours of CFL daily operating hours, based on option 1 of paragraph 11, AMS-II.J version 4 methodology.
Any comment:	-

Data / Parameter:	R_i
Data unit:	Number
Description:	% of lamps of type i operating at the end of rated average life (of CFL)
Source of data used:	AMS-II.J version 4
Value applied:	50%
Justification of the choice of data or description of measurement methods and procedures actually applied :	Default value is consistent with AMS-II.J version 4 Methodology
Any comment:	-

B.5.2. Ex-ante calculation of emission reductions:

Emission Reduction

Under AMS-II.J version 4, ex ante calculations are done as per the following steps:

- (i) Estimate the nameplate/rated power (Watts) of the baseline incandescent lamps to be replaced.
- (ii) Operating hours of project (and baseline) lamps is determined using Option 1: A default value of 3.5 hours per 24 hrs period for 'daily operating hours', i.e., factor O_i in equation 2, is chosen ex ante and is used ex post throughout the crediting period. In this case no surveying to determine O_i is required.
- (iii) Calculate the annual gross electricity savings by comparing the nameplate/rated power rating of the CFL with that of the baseline incandescent lamp and multiplying by (i) annual hours of operation and (ii) the estimated number of CFLs that are part of the project. If more than one type (wattage) of CFL is to be used, repeat calculation for each type;
- (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

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

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

Where:

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

ES

Year	year 1	year 2	year 3	year 4	year 5	year 6	year 7	year 8	year 9	year 10
ES	[value]	[value]	[value]	[value]	[value]	[value]	[value]	[value]	[value]	[value]

Parameter	Details
NES_y	Net electricity saved in year y (kWh)
$Q_{PJ,i}$	[insert the number of CFLs distributed/installed under the SSC-CPA]
ES_i	Estimated annual electricity savings for equipment of type i, for the relevant technology (kWh) (Result of equation 2)
$LFR_{i,y}$	Lamp Failure Rate for equipment type i in year y (fraction) (Result of equation 3)
TD_y	0.1
NTG	0.95
$P_{i,BL}$	[insert estimated rated power (watts) of incandescent light bulbs to be replaced]
$P_{i,PJ}$	[insert estimated rated power (watts) of CFLs to be distributed/installed]
O_i	3.5 hours per 24 hour period

NES

Year	year 1	year 2	year 3	year 4	year 5	year 6	year 7	year 8	year 9	year 10
Lamp Failure Rate LFR	[Insert value]	[Insert value]	[Insert value]	[Insert value]	[Insert value]	[Insert value]	[Insert value]	[Insert value]	[Insert value]	[Insert value]
NES	[insert value]	[insert value]	[insert value]	[insert value]	[insert value]	[insert value]	[insert value]	[insert value]	[insert value]	[insert value]

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:

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

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

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Where

Parameter	Details
$LFR_{i,y}$	Lamp Failure Rate for equipment type i in year y (fraction)
L_i	[insert rated average life of CFLs] hours
R_i	0.5
X_i	1,227.50 hours
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.

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

Where

Parameter	Details
ER_y	Emission Reductions in year y (tCO ₂ e)
$EF_{CO_2,ELEC,y}$	0.63 (tCO ₂ e) Calculated in accordance with the provisions in AMS-I.D Version 17

Year	1	2	3	4	5	6	7	8	9	10
ER (tCO ₂ e)	[insert value]	[insert value]	[insert value]	[insert value]	[insert value]	[insert value]	[insert value]	[insert value]	[insert value]	[insert value]

B.5.3. Summary of the ex-ante estimation of emission reductions:

Year	Estimation of project activity emissions (tonnes of CO ₂ e)	Estimation of baseline emissions (tonnes of CO ₂ e)	Estimation of leakage (tonnes of CO ₂ e)	Estimation of overall emission reductions (tonnes of CO ₂ e)
2012	N/A	N/A	N/A	[insert value]
2013	N/A	N/A	N/A	[insert value]
2014	N/A	N/A	N/A	[insert value]
2015	N/A	N/A	N/A	[insert value]
2016	N/A	N/A	N/A	[insert value]
2017	N/A	N/A	N/A	[insert value]
2018	N/A	N/A	N/A	[insert value]
2019	N/A	N/A	N/A	[insert value]

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2020	N/A	N/A	N/A	[insert value]
2021	N/A	N/A	N/A	[insert value]
Total (tonnes of CO ₂ e)	N/A	N/A	N/A	[insert value]

B.6. Application of the monitoring methodology and description of the monitoring plan:

B.6.1. Description of the monitoring plan:

The project activity abides by the monitoring guidelines stipulated in AMS-ILJ version 4 and will monitor the following parameters according to the monitoring plan described in sections E.7.1 and E.7.2 of the related SSC-PoA-DD document and CME monitoring guidelines.

SSC-CPA will monitor the following parameters which are described in section E.7.2 of the SSC-PoA-DD as follows:

Data / Parameter:	<i>Lamp Distribution Data</i>				
Data unit:	-				
Description:	<p><u>Data to be monitored</u></p> <ul style="list-style-type: none"> • The start and completion date of CFL distribution, • Number of CFL distributed and their wattages • Number of ICL exchanged and their wattages • The physical geographic location of each CFL distributed and installed • Name, address and unique identification such as NEPA/PCHN/Official electricity folio number or voter registration number of CFL recipient. 				
Source of data to be used:	SSC-CPA database				
Value of data applied for the purpose of calculating expected emission reductions in section B.5	<table border="1"> <tr> <td>Start date of CFL distribution/installation</td><td>[dd/mm/yyyy]</td></tr> <tr> <td>End-date of CFL distribution/installation</td><td>[dd/mm/yyyy]</td></tr> </table>	Start date of CFL distribution/installation	[dd/mm/yyyy]	End-date of CFL distribution/installation	[dd/mm/yyyy]
Start date of CFL distribution/installation	[dd/mm/yyyy]				
End-date of CFL distribution/installation	[dd/mm/yyyy]				
Description of measurement methods and procedures to be applied:	<ul style="list-style-type: none"> • SSC-CPA Implementer will formulate and use a standardized data format approved by the managing entity to record lamp distribution data for the SSC-CPA. • SSC-CPA Implementer will collect lamp distribution data - dates, physical location, name and address of recipient, electricity folio number or voter registration number (if applicable) during CFL 				

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	<p>distribution/installation</p> <ul style="list-style-type: none"> SSC-CPA implementer will record and store lamp distribution data in the SSC-CPA database. SSC-CPA implementer will carry out regular Quality Assurance Check on SSC-CPA database.
QA/QC procedures to be applied:	<ul style="list-style-type: none"> SSC-CPA Implementer will send monitoring data to CME CME will store monitoring data in the PoA database PoA database will be fully backed and managed by CME Lamp distribution data will be verified by DOE at random.
Any comment:	-

Parameter	n																																																						
Unit	-																																																						
Description	Sample size of Monitoring Survey																																																						
Source of data to be used:	Calculated value as per statistical analysis provided in PoA-DD Annex 4																																																						
Value of data applied for the purpose of calculating expected emission reductions in section B.5	<table><tr><td></td><td colspan="10">Ex post monitoring Survey for Crediting period</td></tr><tr><td>year</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>n</td><td>value</td><td>value</td><td>value</td><td>value</td><td>value</td><td>value</td><td>value</td><td>value</td><td>value</td><td>value</td></tr><tr><td>Sample household</td><td>value</td><td>value</td><td>value</td><td>value</td><td>value</td><td>value</td><td>value</td><td>value</td><td>value</td><td>value</td></tr></table>												Ex post monitoring Survey for Crediting period										year	1	2	3	4	5	6	7	8	9	10	n	value	value	value	value	value	value	value	value	value	value	Sample household	value	value	value	value	value	value	value	value	value	value
	Ex post monitoring Survey for Crediting period																																																						
year	1	2	3	4	5	6	7	8	9	10																																													
n	value	value	value	value	value	value	value	value	value	value																																													
Sample household	value	value	value	value	value	value	value	value	value	value																																													
Measurement methods and procedures	Sampling shall be statistically sound and random. Calculations should be per PoA-DD Annex 4																																																						
Description of measurement methods and procedures to be applied:	The first survey will be conducted within the first year after CFL installation. Subsequent surveys will take place in year 4, 7 and 10 (depending on the length of the crediting period). Subsequent surveys may be undertaken more frequently than once every 3 years																																																						
QA/QC procedures to be applied:	SSC-CPA shall determine the representative sample size with minimum 90% confidence interval and 10% maximum error margin. The minimum number of households surveyed shall be 100. The SSC-CPA implementer(s) may choose a sample size higher than 100																																																						
Any comment:																																																							

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Data / Parameter:	P_{i, BL}
Data unit:	Watts
Description:	Rated power of the baseline ICLs of the group of “i”.
Source of data to be used:	Weighted average calculated using rated power of the baseline ICLs as recorded in SSC-CPA database
Value of data applied for the purpose of calculating expected emission reductions in section B.5	[insert value]
Description of measurement methods and procedures to be applied:	<ul style="list-style-type: none"> SSC_CPA implementer will formulate and use a standardized data format and SSC-CPA database approved by the managing entity to record the nameplates and wattage of incandescent light bulbs replaced. SSC_CPA implementer will collect nameplate and wattage data on incandescent light bulbs replaced during CFL distribution/installation SSC_CPA implementer will record and store ICL nameplate and wattage data in the SSC-CPA database SSC-CPA implementer will carry out regular Quality Assurance Check on SSC-CPA database
QA/QC procedures to be applied:	<ul style="list-style-type: none"> SSC-CPA Implementer will send monitoring data to CME CME will store monitoring data in the PoA database PoA database will be fully backed and managed by CME P_{i, BL} data will be verified by DOE
Any comment:	-

Data / Parameter:	P_{i, PJ}
Data unit:	Watts
Description:	Rated power of the project CFLs of the group of “i”
Source of data to be used:	Weighted average calculated using rated power of the CFLs as recorded in SSC-CPA database
Value of data applied for the purpose of calculating expected emission reductions in section B.5	[insert value]
Description of measurement methods and procedures to be applied:	<ul style="list-style-type: none"> SSC-CPA implementer will formulate and use a standardized data format and SSC-CPA database approved by the managing entity to record the nameplates and wattage of CFLs distributed/installed from project households SSC_CPA implementer will collect nameplate and wattage data on CFL distributed/installed from households during CFL

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	<p>distribution/installation</p> <ul style="list-style-type: none"> SSC_CPA Implementer will record CFL nameplate and wattage data in the SSC-CPA database SSC-CPA implementer will carry out regular Quality Assurance Check on SSC-CPA database.
QA/QC procedures to be applied:	<ul style="list-style-type: none"> SSC-CPA Implementer will send monitoring data to CME CME will store monitoring data in the PoA database PoA database will be fully backed and managed by CME P_i, P_J data will be verified by DOE
Any comment:	

Data / Parameter:	TD_y
Data unit:	Number
Description:	Average annual technical grid losses.
Source of data used:	AMS-II-J version 4 guideline
Value of data applied for the purpose of calculating expected emission reductions in section B.5	[insert value]
Description of measurement methods and procedures to be applied:	The transmission and distribution losses data from host country cannot be ascertained with accuracy, thus the default value of 0.1, should be used by SSC-CPA, in accordance with the AMS-II.J version 4.
Any comment:	SSC-CPA shall apply the default value of 0.1 However, if Technical Grid Losses data from the host country is available and such data is ascertained to be accurate and reliable, the project may adopt the use of the TD data from the host country.

Data / Parameter:	Q_{PJ}
Data unit:	Number
Description:	Number of CFLs of the group of “i” CFLs in operation during the first 12 months of distribution
Source of data to be used:	SSC-CPA database
Value of data applied for the purpose of calculating expected emission reductions in section B.5	[insert value]
Description of measurement methods	<ul style="list-style-type: none"> SSC-CPA implementer will formulate and use a standardized data format and SSC-CPA approved by the managing entity to record the

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and procedures to be applied:	<p>number of CFLs in operation during the first 12 months of distribution/installation</p> <ul style="list-style-type: none"> • The value will be stored in the SSC-CPA database • SSC-CPA implementer will carry out regular Quality Assurance Check on SSC-CPA database.
QA/QC procedures to be applied:	<ul style="list-style-type: none"> • SSC-CPA Implementer will send monitoring data to CME • CME will store monitoring data in the PoA database • PoA database will be fully backed and managed by CME • Qpj data to be available for random verification by DOE
Any comment:	

Data / Parameter:	LFR_{i,y}																						
Data unit:	%																						
Description:	Lamp Failure Rate for CFL type <i>i</i> in year <i>y</i>																						
Source of data to be used:	Ex-post Monitoring survey conducted by SSC-CPA																						
Value of data applied for the purpose of calculating expected emission reductions in section B.5	<p>Linear Failure</p> <table border="1"> <thead> <tr> <th>Yr</th><th>LFR</th></tr> </thead> <tbody> <tr><td>1</td><td>[insert value]</td></tr> <tr><td>2</td><td>[insert value]</td></tr> <tr><td>3</td><td>[insert value]</td></tr> <tr><td>4</td><td>[insert value]</td></tr> <tr><td>5</td><td>[insert value]</td></tr> <tr><td>6</td><td>[insert value]</td></tr> <tr><td>7</td><td>[insert value]</td></tr> <tr><td>8</td><td>[insert value]</td></tr> <tr><td>9</td><td>[insert value]</td></tr> <tr><td>10</td><td>[insert value]</td></tr> </tbody> </table>	Yr	LFR	1	[insert value]	2	[insert value]	3	[insert value]	4	[insert value]	5	[insert value]	6	[insert value]	7	[insert value]	8	[insert value]	9	[insert value]	10	[insert value]
Yr	LFR																						
1	[insert value]																						
2	[insert value]																						
3	[insert value]																						
4	[insert value]																						
5	[insert value]																						
6	[insert value]																						
7	[insert value]																						
8	[insert value]																						
9	[insert value]																						
10	[insert value]																						
Description of measurement methods and procedures to be applied:	Determined as per monitoring surveys of the installed CFLs.																						
QA/QC procedures to be applied:	The survey will identify CFLs, with unique SSC-CPA markings that are installed and operating. Under the survey, only CFLs with an original marking can be counted as installed. While CFLs replaced as part of a regular maintenance or warranty program can be counted as operating, CFLs cannot be replaced as part of the survey process and counted as operating.																						
Any comment:	-																						

Data / Parameter:	N_{Destroyed}
Data unit:	Number
Description:	Number of ICLs collected and destroyed

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Source of data to be used:	SSC-CPA database
Value of data applied for the purpose of calculating expected emission reductions in section B.5	[insert value]
Description of measurement methods and procedures to be applied:	ICL collection and destruction data is entered into the SSC-CPA database
QA/QC procedures to be applied:	The destruction of baseline ICLs should be documented and verifiable by DOE at random.
Any comment:	

C.1. Please indicate the level at which environmental analysis as per requirements of the CDM modalities and procedures is undertaken. Justify the choice of level at which the environmental analysis is undertaken:

☒ **X** Please tick if this information is provided at the PoA level. In this case sections C.2. and C.3. need not be completed in this form.

C.2. Documentation on the analysis of the environmental impacts, including transboundary impacts:

Not Applicable

C.3. Please state whether an environmental impact assessment is required for a typical CPA, included in the programme of activities (PoA), in accordance with the host Party laws/regulations:

Not Applicable

SECTION D. Stakeholders' comments

D.1. Please indicate the level at which local stakeholder comments are invited. Justify the choice:

☐ **X** Please tick if this information is provided at the PoA level. In this case sections D.2. to D.4. need not be completed in this form.

D.2. Brief description how comments by local stakeholders have been invited and compiled:

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Not Applicable, Stakeholder consultation is done at PoA level.

D.3. Summary of the comments received:

Not Applicable, Stakeholder consultation is done at PoA level.

D.4. Report on how due account was taken of any comments received:

Not Applicable, Stakeholder consultation is done at PoA level.

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Annex 1

CONTACT INFORMATION ON ENTITY/INDIVIDUAL RESPONSIBLE FOR THE SMALL-SCALE CPA

Organization:	[insert company name]
Street/P.O.Box:	[insert address]
Building:	[insert address]
City:	[insert address]
State/Region:	[insert address]
Postfix/ZIP:	[insert address]
Country:	[insert address]
Telephone:	[insert contact details]
FAX:	[insert contact details]
E-Mail:	[insert contact details]
URL:	[insert contact details]
Represented by:	[insert name or company details]
Title:	[insert contact details]
Salutation:	[insert contact details]
Last Name:	[insert name]
Middle Name:	[insert name]
First Name:	[insert name]
Department:	[insert contact details]
Mobile:	[insert contact details]
Direct FAX:	[insert contact details]
Direct tel:	[insert contact details]
Personal E-Mail:	[insert contact details]

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Annex 2

INFORMATION REGARDING PUBLIC FUNDING

Not applicable

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NAME /TITLE OF THE PoA: Energy Efficiency of Nigeria's Residential Lighting Stock by Distributing up to 40 Million Compact Fluorescent Lamps (CFLs) to Residential Households Connected to the National Grid.



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Annex 3

BASELINE INFORMATION

Emission Factor Calculation

The SSC-CPA shall apply the baseline emission factor calculated in section E.6.2 of the PoA-DD. The emission factor shall be applied ex ante and fixed throughout the crediting period.

As stipulated in paragraph 15 of AMS-II.J version 4, the emission Factor (EF) was calculated in accordance with provisions under of AMS-I.D. “The tool to calculate the emission factor for an electricity system” version 2.2.1 (hereforth “Tools”) was used to calculate the baseline emission factor

Emission Factor

Operating Margin EF	tCO2/MWh	0.67
Build Margin EF	tCO2/MWh	0.58
Weightage for OM (W1)	%	50%
Weightage for BM (W2)	%	50%
Combined Margin EF (EF CM)	tCO2/MWh	0.63

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Annex 4

MONITORING INFORMATION

Monitoring includes recording of lamp distribution data, and ex post monitoring surveys of Lamp Failure Rate (LFR_{i,y})

Paragraph 19 of AMS-II.J version 4 states:

During project activity implementation, the following data are 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;

The project activity shall abide by the above monitoring guidelines defined in AMS-II.J version 4 as follows. (For further details, refer to Section D.7.1 for the details of the parameters to be monitored and the measures that will be taken to monitor each of the parameter).

Recording of Lamp distribution data

SSC-CPA implementer will formulate and maintain a standardized data recording formats and SSC-CPA database approved by the coordinating/managing entity, for each SSC-CPA in order to maintain appropriate records documenting the following variables inter-alia:

- The physical geographic location of each CFL distributed and installed;
- Number of pieces of CFL distributed/installed and date of distribution/installation;
- Number of pieces of incandescent light bulbs replaced and date replacement took place;
- The specifications i.e. nameplate and rated power of incandescent light bulbs exchanged and CFLs distributed and installed at households participating in the SSC-CPA;
- Unambiguous identification including name, address and if applicable, NEPA/PHCN/Official electricity bill folio number or voter registration number of CFL recipient;
- Signature of CFL recipients that they relinquish any rights over the CERs generated from the project CFLs to the coordinating/managing entity, Icimi Ltd.

Ex post monitoring survey

According to paragraph 20 of AMS-II.J version 4, the following survey principles shall be followed for activities related to determining number of CFLs placed in service and operating under the project activity and, if required, determining the number of operating hours of baseline and project lamps:

- The sampling size shall be determined by minimum 90% confidence interval and the 10% maximum error margin; the size of the sample shall be no less than 100;
- Sampling will be statistically robust and relevant i.e., the survey has a random distribution and is representative of target population (size, location);

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- The method to select respondents for interviews shall be random;
- The survey shall be conducted by site visits;
- Only persons over age 12 shall be interviewed during survey;
- The project document shall contain the design details of the survey.

Outline of Sampling Methodology

Areas covered	Description
Sampling objectives	<p>The objective of sampling for the purpose of the project activity is to ascertain a statistically sound estimate of key variables that are used to calculate the emission reduction from the project activities based on a 90% confidence interval and 10% minimum error margin.</p> <p>The two variable are:</p> <ul style="list-style-type: none"> • The number of CFLs placed in service and operating under the project activities (Q_{PJ,i}) • Lamp failure rate (L_{FR,y})
Survey Personnel and Procedures	<ul style="list-style-type: none"> • Monitoring survey will be carried out by trained in-house (SSC-CPA Staff) personnel or by a professional survey firm appointed by SSC-CPA implementing entity. • If monitoring survey is out-sourced to a third party, experienced field inspectors/researchers/environmental auditors shall carry out monitoring survey • Where applicable, SSC-CPA implementing entity will grant access to the SSC-CPA database or supply external survey personnel with the information from the SSC-CPA database needed to carry out the monitoring survey • Participating households that received CFLs will agree to being surveyed as a condition of the project participation
Data To Be collected	<p><u>The number of CFLs placed in service and operating under the project activities (Q_{PJ,i})</u></p> <ul style="list-style-type: none"> • Survey will be carried out through site visits to project households that have been randomly selected from the SSC-CPA database. • Sample data will be collected on only installed CFLs with an original marking (coordinating/managing entity's logo/name or unique identification details). Only those CFLs can be counted as installed; • SSC-CPA plan to replace faulty or defective CFLs that occur within one month of installation/distribution. Such CFLs will be replaced as part of a regular maintenance or warranty program and will be counted as operating for the purpose of determining Q_{PJ,i}; • CFLs cannot be replaced as part of this monitoring survey process and counted as operating for the purposes of determining Q_{PJ,i}. • Only persons over age 12 shall be interviewed for the survey

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	<p><u>Lamp fail rate (LFR,y)</u></p> <ul style="list-style-type: none"> • Survey will be carried out through site visits to project households that have been randomly selected from the SSC-CPA database. • Sample data will be collected on only installed CFLs with an original marking (coordinating/managing entity's logo/name or unique identification details). Only those CFLs can be counted as installed; • SSC CPA plan to replace faulty or defective CFLs that occur within one month of installation/distribution. Such CFLs will be replaced as part of a regular maintenance or warranty program and will be counted as operating for the purposes of determining QPJ,i; • CFLs cannot be replaced as part of this monitoring survey process and counted as operating for the purposes of determining QPJ,i. • Only persons over age 12 shall be interviewed for the survey <p><u>Survey Frequency</u></p> <p>The first <i>ex post</i> monitoring survey will be carried out within 12 months of CFL installation/distribution. Subsequent <i>ex post</i> monitoring surveys will take place in Years 4, Years 7 and Year 10 (depending on the length of the crediting period). However, SSC-CPA may choose to undertake subsequent ex post monitoring surveys more frequently than once every 3 years.</p> <p><u>Data collection</u></p> <ul style="list-style-type: none"> • SSC-CPA implementing entity will collect monitoring survey data under each survey component i.e. (QPJ,i) and (LFR,y), which will be coded into an electronic database and reviewed for accuracy; • SSC-CPA implementing entity shall send monitoring data/report to CME. • CME shall review and approve monitoring data/report received from SSC-CPA implementer • CME will produce monitoring report or document from monitoring data sent by project implementer. • Monitoring report/document shall correspond to the monitoring period under consideration for the DOE to verify. • Monitoring report will unambiguously set-out the data relating to the emission reductions generated by specific SSC-CPA during the monitoring period. • CME shall appoint a DOE to carry out verification
Target Population	The target population will be every household that received CFLs and whose details are recorded and stored in the SSC-CPA database.
Sample Method	The simple random sampling method will be used. Under this method, each project household that received CFLs from the SSC-CPA, and whose details are recorded and stored in the SSC-CPA database is chosen entirely by chance. Hence each project household has equal chance of being included in the sample.
Sample	The sample frame is the list of households that received CFLs and whose details are

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Frame	<p>recorded in the SSC-CPA database.</p> <p>Where information mis-match is observed, conservative assumptions would be made and applied.</p>
<p>Sample Size</p> <p>Desired Precision /Expected Variance.</p>	<p>Desired precision/expected variance and sample size are determined as follows: As per AMS-II.J version 4, the sample size will utilise minimum 90% confidence interval and 10% maximum error margin.</p> <p>Equation to determine sample size (n):</p> $\frac{Z^2 \times N \times p(1-p)}{(N-1) \times r^2 \times p^2 + Z^2 \times p(1-p)}$ <p>Where: n = Sample size z^2 = confidence interval r^2 = margin of error p= proportion of CFLs placed in service and operating under the project activity N = Quantity /Number of CFL distributed by SSC-CPA</p> <p>1. <u>1st ex-post monitoring survey to determine the quantity of CFLs (QPJ,i)</u></p> <p>n=</p> $\frac{1.645^2 \times N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 \times p(1-p)}$ <p>According to AMS III version 4, the minimum sample size of CFLs to be taken is 100.</p> <p>2. <u>Ex-post CFL Monitoring Survey to assess failure rate (LFR,y)</u></p> <p>n=</p> $\frac{1.645^2 \times N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 \times p(1-p)}$ <p>As per AMS-II.J, version 4, the LFR can be determined ex-ante and the sample size must be at least 100.</p>
