CLEAN DEVELOPMENT MECHANISM
SMALL-SCALE PROGRAMME OF ACTIVITIES DESIGN DOCUMENT FORM
(CDM-SSC-PoA-DD) Version 01

CONTENTS

Annexes

NOTE:

(i) This form is for the submission of a CDM PoA whose CPAs apply a small scale approved methodology.

(ii) At the time of requesting registration this form must be accompanied by a CDM-SSC-CPA-DD form that has been specified for the proposed PoA, as well as by one completed CDM-SSC-CPA-DD (using a real case).

SECTION A. General description of small-scale programme of activities (PoA)

A.1 Title of the small-scale programme of activities (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

Version: 14

Date: 28/12/2012

A.2. Description of the small-scale programme of activities (PoA)

Introduction

Nigeria, with a population of more than 150 million people, is the most populous country in Africa. Like most developing countries in Sub-Saharan Africa, Nigeria has considerable, sup-pressed and unmet electricity demand such that most of the country's inhabitants endure chronic power shortage. The major power gaps seriously impede the growth of the non-oil sector and, as a result, job creation and poverty reduction. About 45% of the population has access to electricity, with only about 30% of their demand for power being met. To cope with the unreliable power supply, almost all private industries and a majority of small businesses as well as commercial entities and households have resorted to using off-grid diesel and petrol powered generators at a high cost to individuals, businesses and the Nigerian economy. The high greenhouse gas-emitting off-grid power generators cost about 35 Naira ($0.23) a kWh compare to the grid based tariff of 6 Naira ($0.04) per kWh[1]. The total capacity of power self-generation units in Nigeria is estimated at about 2,500MW[2].

Rural electricity access in Nigeria is minimal at 20%[3]. Most of the rural population are almost wholly reliant on wood fuel and kerosene lantern for light. The household sector accounts for 45% of the energy generated from the national grid with lighting accounting for approximately 43% of household energy consumption[4]. The Federal Government heavily subsidises household electricity. According to the Nigeria Energy Commission, the Federal Government will incur N177 billion ($1.2 Billion) in electricity subsidy to poor household consumers over a three years period[5]. Moreover, the introduction of the Multi-

[1] http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/Nigeria_CTF_IP_-REVISED_Nov%2010%202010.pdf

[2] Africa Development Bank Group, Nigeria Economic and Power Sector Reform Program (EPSERP) Appraisal Report, Page 6. http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Nigeria%20Energy%20sector%20Reform%20Program.pdf

[3] Office to the Secretary of the Government of the Federation: Renewable Electricity Policy Guideline, http://www.osgf.gov.ng/Index.php?p=PowerPolicy

[4] Nigeria's Experience on the Application of IAEA's Energy Models (MAED & WASP) for National Planning by A.S samboo et el: Page 11(iii) and Page 7, Table 1: Summary of Computations for the Household Sector, http://www.energy.gov.ng/index.php?option=com_docman&task=doc_view&gid=4

[5] Energy Commission of Nigeria. Article: FGC to Incur N177 Billon in Energy Subsidy - NERC http://www.energy.gov.ng/index.php?option=com_content&task=view&id=54&Itemid=58

Year Tariffs Order (MYTO) means that from 2008, individual household will experience substantial increase in electricity tariffs and bills[6].

Energy efficient light such as compact fluorescent lamps, henceforth referred to as CFLs, can suppress the chronic power shortage in Nigeria, and promote clean energy usage in the region. This is because household lighting in domestic sector is mainly provided by energy intensive incandescent light bulbs (ICLs). CFLs are energy saving lights with many times the efficiency of incandescent light bulbs and can last up to ten times longer. Furthermore, CFLs can provide the same amount and quality of light as incandescent light bulbs whilst using less than one–fifth of the electricity consumed by ICLs.

Lighting contributes significantly to energy as well as peak demand, and is therefore a good target for demand-side energy efficiency initiatives because of the prevalent use of inefficient lighting technologies, especially in the residential sector. Therefore, energy efficiency programme targeting nationwide implementation of efficient lighting technologies can effect transformational change. From a national perspective, such programme may enhance energy security by freeing up extra generation capacity and reducing the need for fuel, which is vulnerable to price variations and availability constraints. At the same time, the programme may help offset the impact of higher tariffs. Thus, energy efficiency programmes can offer substantial benefits to consumers, utilities, and governments whilst lessening the impact of energy consumption on local and global environment.

In recent years, many developed countries including United Kingdom and United States have been quick to access the benefits of CFLs by implementing gradual phase-out of incandescent light bulbs. Australia is one of the developed countries that have outlawed the use of incandescent light bulbs in residential households. Ghana, a developing country in Sub-Saharan Africa has been able to curtail power shortage by introducing energy efficient CFLs across the country.

The proposed Programme of Activities (PoA) seeks to promote energy efficiency in Nigeria by replacing incandescent light bulbs used in most grid-connected residential households in the country to energy efficient alternative, CFLs. These energy saving CFLs will benefit communities and the nation as a whole, result in energy conservation that will reduce households and Federal Government electricity spending, and abate greenhouse gas (ghg) emission.

1. **General operating and implementing framework of PoA**.
   - The PoA will distribute/install approximately 40 million quality long life CFLs to residential households that are connected to the national grid across Nigeria in exchange for equivalent number of used incandescent light bulbs;
   - The target groups of the PoA are residential households that are connected to the Nigeria national electricity grid;
   - The PoA will be carried out as a series of Small-scale CDM programme of activities (SSC-CPA). Each SSC-CPA will replace incandescent light bulbs at grid-connected residential households with energy saving CFLs. Exchanged incandescent light bulbs will be collected and destroyed;
   - The maximum number of CFLs per household shall be six;

[6] MYTO: New, higher electricity tariffs regime that set tariff for electricity customers for a five-year period at a time. Under the regime, average household electricity tariff will increase from N6 (6 Naira) to N10 (10 Naira) per kwh. Source: http://www.tcnng.org/AppropriatePricing.aspx Under the multiyear tariff order, the market is to determine electricity tariff pricing

- CFLs shall be distributed free-of-charge under a give-away scheme or CFL shall be provided at a minimal price under a discounted scheme, a SSC-CPA can choose to implement one or both of the schemes;
- Under a discounted scheme, the cost of CFL shall be determined by each SSC-CPA and shall not exceed the equivalent cost of incandescent light bulb on the Nigeria market in CPA region;
- CFL distribution mode shall include one or more of the followings:

    1. Directly install CFLs at grid-connected residential households; and/or
    2. Distribution of CFLs door-to-door to grid-connected residential households (when direct installation is not possible); and/ or
    3. CFL distribution take place via dedicated distribution point(s)/centre(s) advertised in advance in the local media.

- ICLs collected from participating households shall be destroyed by scrapping;
- Spent CFLs resulting from the project shall be recycled. Where recycling is not applicable, spent CFLs shall be disposed in hazardous waste facility.

Icimi Ltd is the coordinating/managing entity (CME) for the PoA and will act as the focal point for the Executive Board of the CDM in all aspects relating to validation, verification, registration and issuance of carbon credits generated by the programme.

SSC-CPA project implementer(s) is identified in the respective SSC-CPA-DDs.

2. Policy/measure or stated goal of the PoA

There are no mandatory policies or regulations for the adoption of energy saving lights such as CFLs by households in Nigeria. The goal of the PoA is to achieve nationwide transformation of households lighting through the adoption and utilization of energy efficient light (CFLs) in residential households throughout Nigeria. To achieve the stated goal, the PoA will replace used ICLs with approximately 40 million CFLs at residential households that are connected to the national grid across the nation.

The PoA seeks to accomplish the following:

- Effect a nationwide change to a more energy efficient lighting stock
- Reduce environmental pollution and greenhouse gas emissions through avoided electricity usage
- Contribute to sustainable development of the region whilst alleviating poverty
- Significantly reduce household electricity expenses thus representing huge saving to individual household
- Improve living standard and reduce poverty especially in rural area where approximately 80% of people live below the poverty line[7], and where only 20% of all households are electrified[8]
- Reduce governmental expenditures in form of electricity subsidies and fiscal deficits
- Ease the chronic shortage of electricity supply by promoting energy conservation and improving energy security
- Change mind-set and raise awareness of the benefits of efficient energy

[7] http://www.ruralpovertyportal.org/web/guest/country/home/tags/nigeria
[8] Office to the Secretary of the Government of the Federation: Renewable Electricity Policy Guideline, http://www.osgf.gov.ng/Index.php?p=PowerPolicy

The proposed SSC-PoA will contribute to sustainable development through environmental, economical, technological and social well-being identified below:

Environmental well being

This PoA will achieve efficient utilisation of energy at the household level in Nigeria, which can lead to adaptation and investment in clean and efficient energy technologies in future. For the population especially rural communities and households that are connected to the national grid, there will be less reliance on traditional and conventional sources such as generators, candles and kerosene lanterns due to poor electricity supply and lack of disposable income to buy conventional light bulbs or pay electricity bills. Traditional and conventional alternatives are not only expensive and non-sustainable, but they can also be hazardous and can damage the environment and its people. Thus the PoA may help to curtail the chronic aftermath of using inefficient lighting sources, such as diseases linked to environmental pollution.

Economic Sustainability

According to the World Bank, electricity crisis is a crucial infrastructure bottleneck and the most important constrain to doing business in Nigeria[9]. The country has 5700MW of grid-based generating capacity. As at August 2010, the peak generation supplied by the national grid was 3804MW for a population of more than 150 million[10].

CFLs can increase electricity access whilst reducing energy consumption at the household level because the energy efficient bulbs that will be introduced will generate more electricity with less energy leading to more energy being saved. This ensures that more energy is available to power economic development, and extends electricity supply to other parts of the country such as rural areas where many people endure chronic shortage of power supply. A typical CFL bulb of 15 watts which has an equivalent lumen output to a 60 watt incandescent bulb can save up to 75% energy compared to a 60 watt incandescent bulb.

In view of the above, the SSC-PoA will contribute significantly to Nigeria's economic sustainability in the following ways:

1. Increase Disposable Income and alleviate poverty

   The use of CFLs will reduce energy consumption and electricity bills, which in turn will increase the amount of disposable income per household and reduce the level of poverty. Despite Nigeria being a major oil producing nation, the average per capital income is $1,180[11] and 84% of the population lives on less than $2 per day[12]. A quality CFL can provide more than 10,000 hours of lighting for eight to ten years without the need for a replacement while an equivalent incandescent light bulb provides about 1,000 hours or less of lighting and last less than a year.

[9] The World Bank in Nigeria 1998-2007, Nigeria Country Assistance Evaluation, Page 55 http://lnweb90.worldbank.org/oed/oeddoclib.nsf/DocUNIDViewForJavaSearch/37AFE7820EF3645685257768006840 67/$file/nigeria_cae.pdf

[10] Roadmap for power sector Reform: A Customer-Driven Sector-Wide plan To Achieve Stable Power Supply, Page 16 (Graph) http://www.esmap.org/esmap/sites/esmap.org/files/Roadmap%20for%20Power%20Sector%20Reform%20Full%20Version[1].pdf www.nigeriapowerreform.org

[11] World Bank GNIPC Statistics http://siteresources.worldbank.org/DATASTATISTICS/Resources/GNIPC.pdf

[12] Source: Trading Economics.com - World Bank Indicator – Nigeria Poverty Rate: http://www.tradingeconomics.com/nigeria/poverty-headcount-ratio-at-dollar2-a-day-ppp-percent-of-population-wb-data.html

Therefore, the use of CFLs can boost household income and reduce poverty because compared to incandescent light bulbs; CFLs provide significant money saving opportunities to the user.

2. Reduce cost of governmental electricity subsidies

The Federal Government of Nigeria provides subsidies to ensure adequate funding of a lifeline tariffs for the urban poor and the rural population in the country through the Power Consumer Assistant Fund[13]. In 2008, the Federal Government commissioned a 2008 – 2013 regime of Multi Year Tariff Order (MYTO) to provide a subsidy of N177.95 billion ($1.2 billion) to support shortfall in tariff.[14]. Therefore the PoA may significantly reduce the cost incurred by the Federal Governmental from electricity price tariff.

3. Create new revenue source for the Country

The programme may reduce the building of new power stations and thus free-up much needed revenue for the government. In 2005, the World Bank estimated that to increase electricity access in Nigeria from 45% to 75% would require over $10 billion in investments[15]. To redress chronic power shortage in Nigeria, the Federal Government of Nigeria enacted the Electric Power Sector Reform Act (EPSRA) in May 2005 and launched the National Integrated Power Projects (NIPP) initiative in 2006 with the goal of bridging the immediate supply-demand gap and reducing the bottlenecks in electricity delivery system[16]. Under the initiative, the Federal Government agreed to inject US$5.34 billion between 2009 and 2013 for new electricity generating infrastructure[17]. Thus the PoA may avoid the need for a large scale thermal power plant which will not only reduce governmental expenditure but also significantly reduce greenhouse gas (ghg) emission.

Technological and social Sustainability

The SSC-PoA will create jobs, provide better living conditions and sources of livelihood for communities especially people in rural areas where there is high level of unemployment. The programme will engage local labour force to carry out the project activities. Thus, the PoA will transfer technological know-how in energy efficiency, installation, management and procurement to Nigeria as well as deliver social benefits that include poverty alleviation, climate change awareness, improved living condition, community engagement, capacity building, energy efficiency education amongst others.

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

There is no law, policy or mandatory requirements in Nigeria requiring the use of energy efficient CFL at the household level. The CME will voluntarily undertake the PoA. All key players including partner organisations and households shall participate in the proposed PoA voluntarily.

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[13] http://www.vanguardngr.com/2010/12/power-fg-to-review-current-multi-year-tariff-order/

[14] http://www.vanguardngr.com/2011/07/electricity-tariff-goes-up-18/

[15] IFI Policy Influence in Nigeria's Energy Sector: http://www.brettonwoodsproject.org/update/60/bwupdt60_ai.pdf

[16] Africa Development Bank Group -Nigeria Economics and Power Sector Reform Appraisal Report, page 7 http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Nigeria%20Energy%20sector%20Reform%20Program.pdf

[17] http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Nigeria%20Energy%20sector%20Reform%20Program.pdf (Page 8)

A.3. Coordinating/managing entity and participants of SSC-POA:

1. Coordinating/managing entity of the SSC-PoA is the entity which communicates with the Board.
   The coordinating / managing entity of the SSC-PoA is Icimi Ltd.
2. Project participants being registered in relation to the PoA: Project participants may or may not be involved in one of the CPAs related to the PoA.
   The SSC-CPA project implementing entities are identified in the respective SSC-CPA-DDs.

Name of Party Involved(*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
Federal Republic of Nigeria (Host)	Icimi Ltd	No
United Kingdom (Annex 1)	Icimi Ltd	No
(*) In accordance with the CDM modalities and procedures, at the time of making the CDM-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.		

A.4. Technical description of the small-scale programme of activities:

A.4.1. Location of the programme of activities:

Federal Republic of Nigeria

A.4.1.1. Host Party(ies):

Federal Republic of Nigeria

A.4.1.2. Physical/ Geographical boundary:

The geographical area within which all SSC-CPAs in the programme will be implemented is the Federal Republic of Nigeria. Geo Coordinates: **7.6219° N, 6.9743°**

Geographical Map of Nigeria

A.4.2. Description of a typical small-scale CDM programme activity (CPA):

- Icimi Limited, as the PoA's CME, will coordinate the PoA and will support the SSC-CPA implementer(s) in implementing the SSC-CPAs under the PoA;

- The latest version of CDM small scale methodology AMS-II.J shall be applied;

- CFLs distributed within a single SSC-CPA small scale CDM, shall not exceed the equivalent of 60 GWh per year;

- The CFL distribution under a SSC-CPA is restricted to the project boundary which will be identified by the CPA implement(s) in CPA-DD;

- The distribution of CFLs and replacement of previously used ICLs at residential households in the SSC-CPA location can take place using one or more of the following methods:
    - Direct installation at each household; and/or
    - Door to door distribution at each household (if direct installation is not possible); and/or
    - ICL collection and CFL distribution through dedicated distribution points e.g. retail outlets, resident association offices, schools etc.

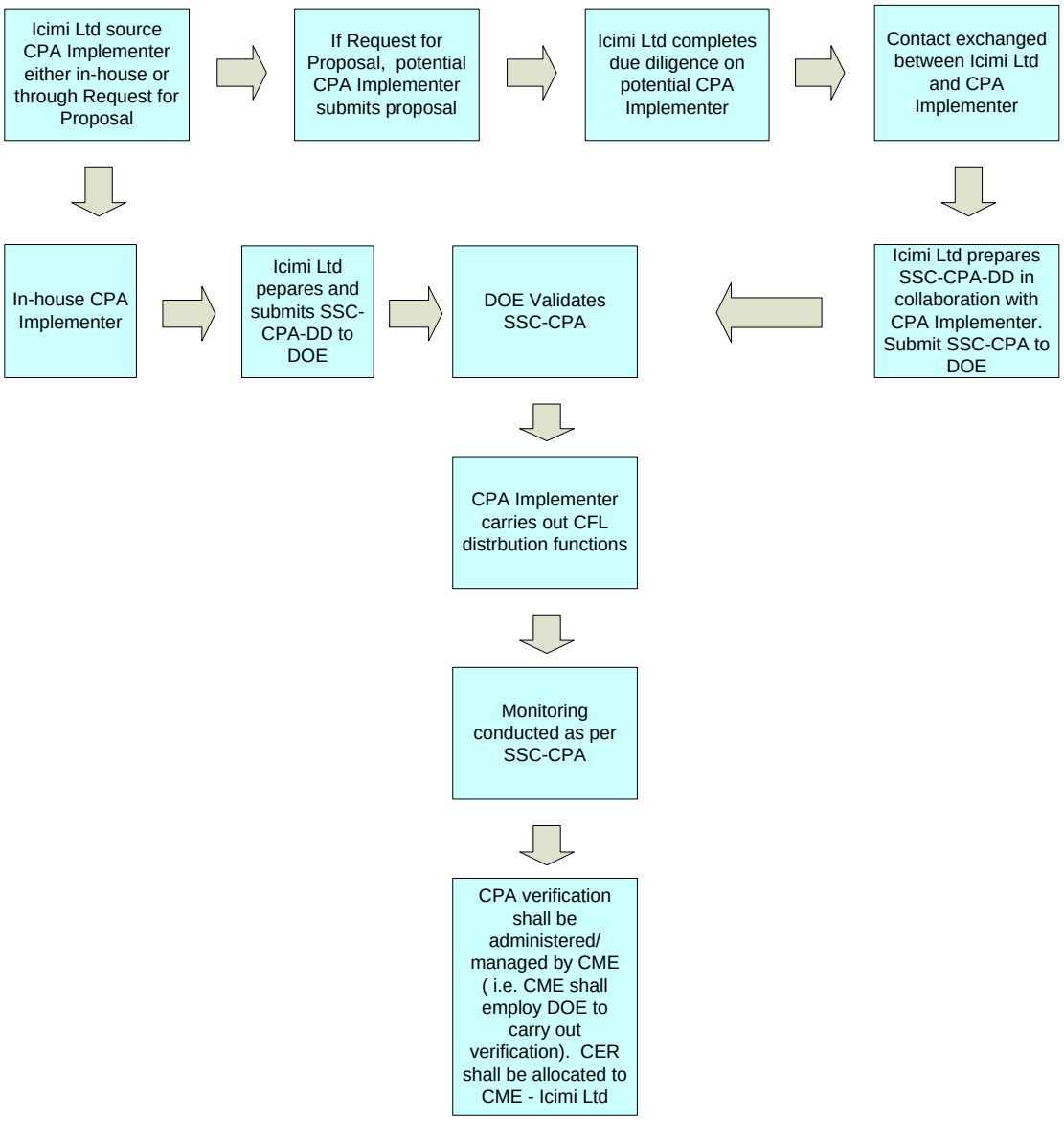
- Where direct installation is not possible, SSC-CPA shall educate CFL recipient to install CFLs in high usage areas. The methods of education may include but not limited to verbal explanation by SSC-CPA representatives, posters, leaflets etc;

- Replaced ICLs will be collected directly from households or from the dedicated distribution /collection points and stored at a centralized or multiple storage sites. SSC-CPA implementer will ensure that returned ICLs are recorded and destroyed in a manner which allows for verification;

- SSC-CPA shall apply a fixed value of 3.5 hours to estimate the CO_2 emission reductions under the CDM project;

- SSC-CPA implementer(s) will arrange for the collection and recycle of spent CFLs arising from SSC-CPA. If recycle facility is not available in SSC-CPA location, SSC-CPA implementer(s) shall arrange for disposal of CFLs at hazardous waste facility. SSC-CPA implementer will ensure that spent CFLs are recorded and recycled/disposed in a manner which allows for verification.

A typical Project Implementation Process Sequence



A.4.2.1. Technology or measures to be employed by the SSC-CPA:

- The SSC-CPA will employ quality long life self-ballasted (integrated) compact fluorescent lamps (CFLs) as replacement for incandescent lamps in residential households. A self-ballasted CFL is an integrated lamp-ballast combination consisting of a gas-filled tube, and electronic ballast;
- Each CFL employed in the SSC-CPA will be a new equipment and will not be transferred from another activity;
- The rated or average rated life of each CFL employed in the SSC-CPA will range from 10,000 hours upward. The exact rated or average rated life will be determined by each SSC-CPA;
- The total lumen output of the CFL employed in the SSC-CPA shall be equal to or more than that of the incandescent light bulbs being replaced;
- Each CFL will meet lumen output requirements in accordance with the relevant national or international standards/values or as detailed in Table 1 AMS II.J, Version 4, below;

Table 1 AMS-II.J version 4 Light Output Requirements

Baseline Technology – Incandescent Lamp (Watt)	Minimum Light Output (Lumen)	Compact Fluorescent Lamps (*Watts)
25	230	5-7
40	415	9-11
50	570	11-12
60	715	13-15
75	940	17-18
90	1,227	18-19
100	1,350	20-23
150	2,180	37-39
200	3,090	50-55
* This range is for indicative purposes only. The actual installed CFL wattage may be outside of this range		

- CFLs will have a known ex ante rated average life that meets the requirements of IEC 60969 or an equivalent national standard. The average life value shall be made available to verifying DOE at first verification or at the time of second monitoring survey, when this information is required to determine and adjust the ex-post CFL failure rate against the laboratory tests;
- CFLs used in the SSC-CPAs may be sourced from a number of manufacturers/suppliers;
- 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
    - Icimi Ltd name or Logo and where applicable, a 'Not For Sale or Resale' sign
    - The applicable Standard

A.4.2.2. Eligibility criteria for inclusion of a SSC-CPA in the PoA:

Each SSC-CPA must satisfy the following eligibility criteria in order to be incorporated into the PoA:

Serial No.	Eligibility criteria	Information/Documentation Requirement
1	CFLs distributed/installed by SSC-CPA will be to grid-connected residential households within the geographical boundary of Nigeria	The following documents shall be provided: GPS co-ordinates of project activity within CPA
2	Procedures to avoid double counting shall be clearly defined in accordance with AMS ILJ version 4: • SSC-CPA will ensure that 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 shall cedes all rights over the CERs generated by the SSC-CPA to the CME, Icimi Ltd, under a contractual agreement	The following shall be done: • Check UNFCCC database to ascertain that no other project distributing energy efficient CFLs is being implemented in the specified geographical location/area • There will be a unique numbering system for each CPA • SSC-CPA location shall be unambiguously defined e.g. by zones/wards/voting district • Written confirmation/declaration by SSC-CPA implementer to cede all rights over the CERs generated by the CPA to the CME, Icimi Ltd, under a contractual agreement.
3	Each CFL will meet 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 shall meet the requirements of IEC 60969 or an equivalent national standard	Each CPA will make the certificate available for verification before or at the same time as the result of second ex post monitoring survey. Documents shall include: • Certificates from Manufacturer or; Certificates from 3rd Party accredited laboratory
4	SSC-CPA shall confirm 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	Each CPA will provide documentary proof such as memorandum of understanding, invoices, receipts or warranty cards for the order/supply of project CFLs. CME will record the start date of the CPA and confirm that a document check has been done.
5	SSC-CPA will conform to the PoA and follows the baseline and monitoring methodology AMS-II.J version 4	SSC-CPA to provide confirmation in this regard
6	SSC- CPA shall comply with the additionality test described in Section E.5. of this report	The following shall be provided: • Each CPA shall provide confirmation or give declaration to meet requirements of section E.5 of PoA • Declaration from CME that CPA meets the applicability criteria
7	SSC-CPA shall declare in writing that no public funding (ODA) from Annex I parties will be used in the SSC-CPA, if public funding is received by SSC-CPA under the PoA, the SSC-CPA will affirm 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	The following documents shall be provided: • Declaration on non-involvement of ODA in PoA by CME • Declaration on non-involvement of ODA in CPA by CPA implementer
8	SSC-CPA shall distribute/install CFLs 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	Each CPA will submit an implementation/project plan on how the lamps will be distributed in the boundary of CPA and how it will be communicated to the residents.

9	SSC-CPA shall confirm that 100% of the SSC-CPA will be monitored according to the procedures in A.4.4.2 and sampling methodology shall follow the procedure in Annex 4 of the POA-DD	A written confirmation or plan by CPA will be obtained that monitoring will be carried out as per CME Manual & Monitoring Manual
10	SSC-CPA shall confirm CPA in aggregate meets the small-scale threshold and will not exceed those thresholds throughout the crediting period of the CPA	The following documents shall be provided: • Emission reduction sheet
11	SSC-CPA will meet the de-bundling rules set out in EB 54, Annex 13, Guidelines for Assessment of De-bundling for SSC Project Activities (Version 3)	• Declaration from CME • Declaration from the CPA implementer • A detailed description of de-bundling check in section A.4.6 of CPA-D • Emission reduction sheet with calculations
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	CPA implementer will give confirmation to the CME in this regard
13	If SSC-CPA implementer is outsourced, contractual agreement signed between Icimi Ltd and CPA implementer	CPA implementer will submit a copy of agreement
14	SSC-CPA shall meet the requirements set out in the Gold Standard passport and Gold Standard stakeholder consultation report	CPA implementer will confirm to follow and abide by the requirements set out in the Gold Standard passport and the Gold Standard Stakeholder consultation report

A.4.3. Description of how the anthropogenic emissions of GHG by sources are reduced by a SSC-CPA below those that would have occurred in the absence of the registered PoA (assessment and demonstration of additionality):

The information presented here constitutes the demonstration of additionality of the PoA.

The propose PoA is a Voluntary Coordinated Action

The proposed PoA is a voluntary coordinated action. There are no national law, policy or mandatory requirements in Nigeria requiring the use of energy efficient light such as CFLs. The programme requires voluntary participation by all key players including individual household.

The proposed voluntary coordinated action would not be implemented in the absence of the PoA

The voluntary coordinated action would not be implemented in the absence of the PoA.

Additionality Tool

EB 68 Annex 27 version 09.0, "Guidelines on the demonstration of additionality of small-scale project activities"

Additionality of the Programme of Activity is explained below using barriers to demonstrate that the PoA would not have occurred anyway due to at least one of the barriers identified below:

Barrier Analysis

Investment Barrier

CFL shall be distributed free or at an equivalent price of ICL . Therefore there is no financial reward other than CDM related income when CFLs are distributed free-of-charge. Also, the provision of CFLs at

an equivalent price of incandescent light bulbs will only generate very little or non-material revenue and negative NPV/return in the absence of CDM due to the upfront costs of purchasing CFLs.

A simple cost analysis method will be used to determine Net Present Value (NPV) 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 has been 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.

Barrier due to Prevailing Practice

The prevailing practice of using inefficient lighting sources such as ICLs and off-grid petrol/diesel generators is a barrier to the PoA. Despite the long-run financial savings, energy conservation and the convenience of CFLs, many people are resistant to change old ways, in part, due to the initial high cost of switching. Also, old habit and energy intensive behaviour of leaving lights on during the day, and lack of awareness of energy efficiency technologies such as CFLs occur partly because household electricity bills are mostly based on estimates and are heavily subsidised. Many people are not aware of the true cost of energy they consume. Hence, the habit of leaving lights on throughout the day is widespread.

The relatively low national grid-based electricity generating capacity of approximately 5700MW creates a huge demand – supply gap in electricity for the 150 million people in Nigeria. This leads to excessive reliance on off-grid generators. The government is responding to the low grid capacity through initiatives including the Electric Power Sector Reform Act (EPSRA) and National Integrated Power Projects (NIPP) to bridge supply-demand gap and reduce bottlenecks in electricity delivery system[18]. Under the initiatives, the government agreed to inject US$5.34 billion by 2012 for new electricity generating infrastructure that include new thermal power plants[19]. Thus, the prevailing practises represent a barrier to the PoA.

Other Barriers

Income Barrier

Perhaps the most crucial factor impeding the adoption of energy efficient lights in developing countries like Nigeria is the lack of sufficient capital at the household level. The retail price of a 15 watt CFL is approximately $4 upwards while the price range of a standard incandescent light bulb is $0.50 to $1.00 depending on quality. In many developing countries, particularly in Sub-Saharan Africa, insufficient disposable income makes the purchase of CFLs a major capital expenditure. The gross national per capita income in Nigeria is $1180[20] and 84%of the population (126 million people) live on less than $2 a day[21].

[18] Africa Development Bank Group -Nigeria Economics and Power Sector Reform Appraisal Report, page 7 http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Nigeria%20Energy%20sector%20Reform%20Program.pdf

[19] http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Nigeria%20Energy%20sector%20Reform%20Program.pdf (Page 8)

[20] World Bank GNIPC Statistics http://siteresources.worldbank.org/DATASTATISTICS/Resources/GNIPC.pdf

The population, particularly those that live below the poverty line, may not have the means or disposable income to bear the initial capital outlay for CFLs after accounting for food, shelter and clothing.

Identification of alternatives to the project activity consistent with current laws and regulations

Define alternatives to the project activity
In the absence of the PoA, three alternatives that are consistent with Nigeria's laws and regulations are:

Alternative Scenario 1
The PoA could be implemented as non-CDM through a government initiative where the government purchase and distribute free CFLs or sell CFLs at a discount to grid electrified homes across the country.

This scenario is not applicable as there is no policy or mandated legal requirement in Nigeria for the replacement of ICL with energy saving light such as CFL.

This alternative is not a credible alternative and therefore it is not applicable to the PoA.

Alternative Scenario 2
The activity could occur without a PoA through autonomous replacement of ICLs with CFLs by individual households across Nigeria. However, the scenario is unlikely to achieve the goal of the PoA, nationwide adoption and use of CFL at the household level, due to the socio-economic condition in Nigeria. The average retail price of a CFL (at $4 upwards) is very high when compared to the average annual per capita income of $1180[22] in Nigeria. Significantly, the cost of a single CFL can represent unfathomable expenditure for the 84% of the population that lives on less than $2 a day[23].

This alternative is not credible due to the barrier, and therefore it is not applicable to the PoA.

Alternative scenario 3:
This alternative is the continuation of the current practise of using ICL in most homes across the nation. **The alternative is credible, it is the as-is scenario in most Nigeria households and reflects the baseline.**

Outcome of Alternative Scenario Analysis
Out of the three alternative scenarios above, the only realistic and baseline scenario to the PoA is Alternative 3, the continuation of the current practise of using inefficient ICLs.

Consistency with mandatory laws and regulations
The three alternative scenarios discussed above are consistent with mandatory laws and regulations in Nigeria. The programme is not the only alternative which is consistent with mandatory laws and regulations, and the programme is therefore additional.

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[21] Source: TradingEconomics.com - World Bank Indicator – Nigeria Poverty Rate: http://www.tradingeconomics.com/nigeria/poverty-headcount-ratio-at-dollar2-a-day-ppp-percent-of-population-wb-data.html

[22] World Bank GNIPC Statistics http://siteresources.worldbank.org/DATASTATISTICS/Resources/GNIPC.pdf

[23] Source: TradingEconomics.com - World Bank Indicator – Nigeria Poverty Rate: http://www.tradingeconomics.com/nigeria/poverty-headcount-ratio-at-dollar2-a-day-ppp-percent-of-population-wb-data.html

Show that the identified barriers would not prevent the implementation of at least one of the alternatives

The barriers identified above will not affect the baseline scenario – alternative 3 – the continuation of the current practise of using conversional and energy intensive incandescent light bulbs in the home.

Conclusion: Since the PoA faces above barriers it can be concluded that the voluntary coordinated action would not be implemented in the absence of the PoA, which is in line with the requirement of paragraph 6 of EB 55, annex 38.

A.4.4. Operational, management and monitoring plan for the programme of activities (PoA):

A.4.4.1. Operational and management plan:

The following operational and management arrangements shall be established by the CME for inclusion of SSC-CPA in the PoA:

A. Clear definition of roles and responsibilities of personnel involved in the process of CPA inclusion

Roles and responsibilities of CME

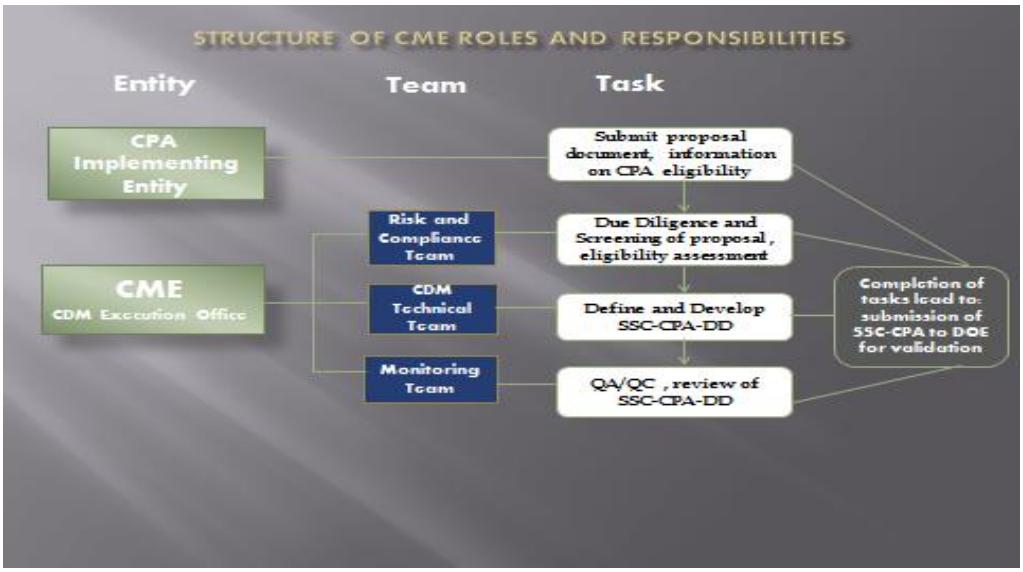
- Coordinate and manage the PoA;
- Design and develop Small-scale PoA document (SSC-PoA-DD) which SSC-CPA shall follow;
- Submit SSC-PoA–DD to DOE for validation;
- Perform eligibility assessment, quality control and quality assurance for inclusion of CPA
- Develop SSC-CPA design document (SSC-CPA-DD) in accordance with criteria stipulated in the SSC-PoA-DD, in collaboration with CPA implementing entity;
- Include SSC-CPA to the PoA upon satisfaction of the eligibility criteria specified in PoA-DD;
- Submit SSC-CPA–DD to DOE for validation.

Roles and responsibilities of CPA Implementation Entity

The primary role and responsibilities of the CPA implementing entity in CPA inclusion is to provide supportive role to the CME to facilitate the assessment and design of the SSC-CPA-DD, as follows:

- SSC-CPA implementing entity shall define geographic boundary of the SSC-CPA;
- SSC-CPA implementer shall determine grid-connected residential households in the SSC-CPA;
- SSC-CPA implementer shall provide all required project information and document to the CME to enable accurate assessment of CPA's eligibility and the inclusion of CPA-DD in the PoA.

A review/profile of the competencies required of each functional team has been submitted to the DOE.



B. Records of arrangements for training and capacity development for personnel made available to the DOE at the time of validation of the PoA

Project implementing entity and personnel in each functional team (risk & compliance, technical and monitoring team) will receive regular and relevant training and capacity development. Training will be provided to new employees at the start of employment and as needed, determined by CPA implementing entity and the CME. Training may include monitoring techniques, technologies and best practises in energy efficiency, the Clean Development Mechanism and latest developments including latest EB decisions and changing monitoring requirement. Training may take the form of class-base presentation, workshop or project. Training record, manual and attendance sheet shall be available to DOE on request.

Record of arrangements for training and capacity development for personnel has been submitted to the DOE for validation.

C. Procedures for technical review of inclusion of CPAs made available to the DOE at the time of validation of the PoA

Full procedures for technical review of inclusion of CPAs have been submitted to the DOE for validation.

D. SSC-CPA Record keeping

SSC-CPA implementer will formulate and maintain standardized data recording format and SSC-CPA database approved by the CME in order to maintain appropriate records documenting the following variables inter-alia:

- The physical geographic location of SSC-CPA;
- 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;
- Number of pieces of CFL distributed/installed and date of distribution/installation;

- Number of pieces of incandescent light bulbs replaced and date of replacement;
- The name, address and if applicable Nigeria Electric Power Authority (NEPA)/ Power Holding Company of Nigeria (PHCN) official electricity bill folio number or voter registration number of CFL recipient;
- Signature of CFL recipient 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 and recycle/disposal of CFLs.

E. Procedure to avoid double Counting

In order to ensure that the SSC-CPA registered under the PoA does not overlap with another CDM project activity or a SSC-CPA of another PoA, the following checks will be carried out by the CME:

- Check the 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 coordinating entity will not proceed with the registration of the SSC-CPA;
- Each SSC-CPA has unique geographical boundary which is determined by the location of households where CFLs are installed;
- Each SSC-CPA within the proposed PoA will keep record of door-to-door distribution /installation of CFLs to households in the SSC-CPA location;
- Ownership of CERs from the PoA shall belong to the coordinating/managing entity.
- Households participating in the SSC-CPA are made aware and voluntarily agree that CERs generated from the SSC-CPA belong to the coordinating/managing entity;
- CFL supplier and CPA implementer will sign 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.

F. Records and documentation control process for each CPA under the PoA, made available to the DOE at the time of request for inclusion of the CPA

The DOE has been provided with records and documentation of control process for each of the CPA under the PoA.

G. Measures for continual improvements of the PoA management made available to the DOE at the time of validation of the PoA

The DOE has been provided with documentation of the measures for continual improvements of the PoA management.

De-bundling

The CDM EB 47 meeting report Annex 32, version 03 "Guidance for determining the occurrence of de-bundling under a PoA". Para 9 stipulate the following:

'If each of the independent subsystems/measures included in the SSC-CPA of a PoA is no greater than 1% of the small scale thresholds defined by the methodology applied, then that SSC-CPA of PoA is exempted from performing de-bundling check i.e. considered as being not a de-bundled component of a large scale activity'.

According to the requirement of 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 40 W. Hence the maximum annual energy saving potential from a measure taking 3.5 hours usage per day is = 3.5 * 365 *(200-40) = 0.0002 GWhr.

As per de-bundling criteria, 1% of the small scale threshold is 0.6 GWh per annum for a single measure. As is demonstrated above 0.0002 GWhr per CFL is much less than the de-bundling requirement. Hence the SSC-CPA is not a de-bundled component of a large scale activity and therefore the SCC-CPA complies with EB 47, Annex 32, version 03 guidance.

Before inclusion of a SSC-CPA, SSC-CPA shall 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.

Subscription to PoA

A legally bidding agreement among the coordinating/managing entity, the SSC-CPA implementers, suppliers, distribution and monitoring partners means that all parties involved in implementing the SSC-CPAs are aware and agree that the SSC-CPAs are subscribed to the PoA.

Project households are made aware of their participation in a climate change initiative that abate ghg emission, and by receiving CFLs, they are agreeing that their activity is being subscribed to the PoA.

A.4.4.2. Monitoring plan:

The simple random sampling method shall 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 will be chosen entirely by chance. Hence each project household has equal chance of being included in the sample.

The SSC-CPA implementer will monitor all relevant parameters for the SSC-CPA as defined in section E.7.1 and E.7.2. Monitoring data shall be recorded in the SSC-CPA database in a standardised format formulated by SSC-CPA implementer and approved by the CME. SSC-CPA implementer shall refer to the guidelines established in Annex 4 of this PoA for the monitoring process. In summary, SSC-CPA implementer shall:

- Appoint and where necessary train in-house (SSC-CPA staff) personnel or commission a survey firm such as experienced field inspectors/researchers/environmental auditors to carry out monitoring;
- SSC-CPA implementer shall establish procedures to conduct data collection, provide maximum response rates to survey, document out-of-population cases and other issues such as non-response to survey;
- SSC-CPA implementer will send monitoring survey data/report to CME.

Recording of Lamp distribution data

The project (SSC-CPA) database shall be developed, managed and maintained by the SSC-CPA implementer and shared with CME. SSC-CPA implementer shall refer to the guidelines in the CME monitoring plan for development, management and maintenance of the SSC-CPA database. The SSC-CPA database will record the start and end dates of each monitoring period and the emission reduction attributable to the monitoring period. The SSC-CPA database shall include the following data-set that can unambiguously determine the emission reductions attributable to the SSC- CPA:

- The physical geographic location of 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 specifications i.e. nameplate and rated power of incandescent light bulbs exchanged and CFLs distributed or 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.
- Record of destruction of replaced incandescent light bulbs, to prevent leakage;
- CFL purchase and dispatch records, to prevent double counting;
- Lamp failure rates**,** as determined by the ex post monitoring survey.

Ex post monitoring surveys

Ex post monitoring surveys shall follow the guideline described in Annex 4. The first ex post monitoring survey shall occur within 12 months of CFL installation. A single *ex post* monitoring survey may be conducted across a group/cluster of SSC-CPAs. A cluster of SSC-CPAs may benefit from one representative *ex post* monitoring survey where SSC-CPA's population can be demonstrated to be homogenous e.g. share demography criteria such as geographical location or socio-economic population.

PoA Programme Database

The CME managed PoA database will include the following data-set for each SSC-CPA:

- The physical geographic location each SSC-CPA in the PoA;
- 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 in 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 CFLs 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 replaced incandescent light bulbs, to prevent leakage;
- CFL purchase and dispatch records, to prevent double counting;
- Lamp failure rates**,** as determined by the ex post monitoring survey.

Verification

- Verification is expected to occur once annually under normal circumstances;
- Verifications will be administered and managed by the CME;

- CME will appoint DOE to carry out verification of each SSC-CPA/group of SSC-CPA;
- Verification by DOE will occur separately for each SSC-CPA or cluster SSC-CPAs at the end of each monitoring period;
- SSC-CPA implementer will send monitoring data/report to the CME in a standardised format in order to comply with the verification procedure;
- CME will review and approve monitoring data/report received from SSC-CPA implementer;
- CME will produce monitoring report or monitoring document from monitoring data/report sent by SSC-CPA implementer;
- Monitoring report/document produced by CME shall correspond to the monitoring period under consideration for the DOE to verify. The monitoring report/document will unambiguously set-out the data relating to the emission reductions generated by that specific SSC-CPA during the monitoring period;
- All data will be physically and electronically stored for at least 2 years after the last crediting period expires, by both SSC-CPA implementer and CME;
- The verification status of each SSC-CPA must be registered by the CME in the PoA database.

A.4.5. Public funding of the programme of activities (PoA):

No public funding (ODA) is used to develop this PoA.

SECTION B. Duration of the programme of activities (PoA)

B.1. Starting date of the programme of activities (PoA):

1/03/ 2013

The start date has been chosen as it is estimated that at this time registration by the CDM Executive Board (EB) will be completed. Given that CPA implementation shall occur only after registration, the start date of the POA may change to reflect the date of registration of the PoA by the CDM EB.

B.2. Length of the programme of activities (PoA):

28 year

SECTION C. Environmental Analysis

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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:

Environmental Analysis is done at PoA level x☐
Environmental Analysis is done at SSC-CPA level ☐

The technologies (CFLs) to be distributed by each SSC-CPA are the same or similar and present similar positive environmental impacts wherever they are applied and no major anticipated negative impacts. Therefore environmental analysis is done at PoA level as CFLs do not have any major detrimental environmental impact that would justify an individual assessment of each SSC-CPA.

Furthermore, according to Nigeria Environmental Impact Assessment (EIA) Decree 1992, the proposed project falls outside the project category that environmental impact assessment is mandatory[24] hence environmental analysis is done at the PoA level.

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

The principal environmental impact of the PoA is possible leakage from incandescent light bulbs collected from participating households during the project activities and the mercury contained in CFLs.

To prevent leakage, SSC-CPA implementer will make arrangement for the collection and destruction of replaced incandescent light bulbs. Replaced incandescent light bulbs will be collected, assembled at a collection point/warehouse/storage and delivered to a waste disposal agency where they will be destroyed by scrapping, in accordance with applicable environmental norms and as stipulated in the AMS-II.J v4.

Mercury is a constituent of CFLs and is thus an environmental issue to the PoA. CFLs that are used in the project activity will contain a very small quantity of mercury, not more than 5 milligrams per CFL. Mercury is an important component of CFLs and plays a key role in their efficiency, longevity and warm-up times. Mercury is not emitted from CFL when in use, which is why they are safe, both in regard to human health and the environment. However, mercury from used, faulty or broken CFLs can be emitted into the environment and become hazardous if they are not properly collected, destroyed and disposed.

To address the above issues, SSC-CPA implementer will make arrangement for the following activities:

- Collect and record details including nameplate and wattage of replaced incandescent light bulbs during CFLs distribution/installation,
- Assemble collected incandescent light bulbs at a collection point/warehouse/storage,

[24] http://www.nigeria-law.org/Environmental%20Impact%20Assessment%20Decree%20No.%2086%201992.htm

- Deliver collected incandescent light bulbs to waste disposal agency where they will be destroyed by scrapping in accordance with applicable environmental norms in Nigeria and as stipulated in the AMS-II.J, version 4 methodology,
- SSC-CPA implementer shall produce documented record of CFL destruction via witnessing by local environmental officials appointed by SSC-CPA implementer or via time stamped video records,
- Record of destruction of ICL shall be made available for verification by the DOE,
- Establish dedicated centre(s)/point(s) where households taking part in the SSC-CPA can drop-off used/broken CFLs, or exchange faulty CFL for new one. Participating households can exchange faulty CFLs for new ones within one month of CFL installation/distribution upon production of a valid identification document and residential proof. The identification and residential proof should correspond to details on the SSC-CPA database to avoid double counting and abuse,

- Inform and educate households in the SSC-CPA through one or more of the following methods: educational and awareness campaign, verbal conversation with participating households, flyers, instruction leaflets/manuals contained in each CFL, of environmental friendly manners of collecting and disposing used, faulty or broken CFLs,
- Recycle used, broken, faulty or fused CFLs. If recycle facility is not available in SSC-CPA location, CFLs should be disposed in hazardous waste facility. Where required by regulation, CFL recycle/disposal record/report by appointed third party or via time stamped video recording to be made available for verification by the DOE.

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

According to Nigeria Environmental Impact Assessment Decree 1992, (19, 64) the SSC-CPA project type/category is not included in the 'mandatory study list' for which EIA is required[25]
Furthermore, the SSC-CPA will utilise CFL, a technology that is already available to consumer in the host country, has been proven to have no major negative environmental impact and has passed relevant quality standard.

SECTION D. Stakeholders' comments

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

1. Local stakeholder consultation is done at PoA level x ☐
2. Local stakeholder consultation is done at SSC-CPA level ☐

The PoA covers the geographical boundaries of the Federal Republic of Nigeria where the socio-economic and target population of recipients' of CFLs are homogenous. Hence the project proponent carried out multiple stakeholders consultations in cities, towns and villages across Nigeria at the PoA level from January to March 2012. Furthermore, the technology to be deployed, CFLs, by each CPA

[25] http://www.nigeria-law.org/Environmental%20Impact%20Assessment%20Decree%20No.%2086%201992.htm

under the PoA is already available and use in the country, and pilot schemes introducing the technology to the wider population in Nigeria had been carried out by international organisations such as UNDP.

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

The local stakeholder consultation (LSC) occurred on 5th January 2012 and was attended by stakeholders from different walks of life, representing different groups of people including:

- The common man
- Community Leaders
- Women and Children
- Students
- Religious Leaders
- Youth Leaders and NGOs
- Consumer Groups
- Officers of the Law
- Think Tanks and academics from the energy and ecology sectors
- Landfill and Pollution Control Officials – waste disposal and recycling
- Electricity Distribution Companies and Retailers

The Initial Stakeholder Consultation followed the stages below:

- Stakeholders including government agencies, private citizens, community leaders, Think Tanks and NGOs were invited to the consultation via email, phone call and letter.
- The meeting was advertised on 30th December 2011 in a national newspaper - PM News - that distributes locally and nationally.
- Community announcement in schools, local churches and mosques. This method was employed to facilitate the attendance of marginalised group such as local women and youths who may not have access to newspapers, internet or phone.
- Posters inviting people to the local stakeholder meeting appeared throughout communities – Post Office, Town Hall, Schools, Bus Garage.
- Non-technical Summary document (in English and local dialect) of the proposed project was distributed to stakeholders well in advance of meetings.
- Local stakeholder consultation was conducted at public meeting held in Ikorodu, Lagos State, Nigeria on 5th January 2012.
- The minutes of the meeting including the report summarising how due account was taken of stakeholders and how comments (where applicable) had been incorporated into the project design, were mailed to stakeholders and hard copies made available at local libraries and town hall.
- In addition to local stakeholder consultation conducted on 5th January 2012, additional stakeholder and community meetings were held in cities, towns and villages across Nigeria from January 2012 till March 2012. In total, 27 meetings of stakeholders, representatives and communities were held in 19 States.
- Stakeholder Consultation Feedback Round began on 26th June 2012, ending on 25th August 2012
- During the Feedback Round, the project proponents used various methods including but not limited to emails, telephone calls and letters to solicit feedbacks, comments and opinions of stakeholders before finalising the project design documents.
- All feedbacks, opinions and comments received from stakeholders, where relevant, were incorporated to the Project Design Documents.

Community awareness campaign poster

Community engagement during stakeholder consultation at Ikorodu Local Government Council

D.3. Summary of the comments received:

A summary of comments received during the stakeholder consultation is provided in the Gold Standard stakeholder report, which is available in Annexes 5.

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

All comments received during stakeholder consultation were duly noted and recorded. Issues raised by stakeholders were fully addressed and where relevant incorporated into the PoA. A summary of how due account was taken of stakeholder's comment is provided in the Gold Standard stakeholder report, which has been submitted to DOE for validation.

SECTION E. Application of a baseline and monitoring methodology

This section shall demonstrate the application of the baseline and monitoring methodology to a typical SSC-CPA. The information defines the PoA specific elements that shall be included in preparing the PoA specific form used to define and include a SSC-CPA in this PoA (PoA specific CDM-SSC-CPA-DD).

E.1. Title and reference of the approved SSC baseline and monitoring methodology applied to a SSC-CPA included in the PoA:

AMS-II.J, Demand-side activities for efficient lighting technologies, version 4, Sectorial Scope 03, EB 54 is the approved SSC baseline and monitoring methodology applied to a SSC-CPA included in the PoA**.**

E.2. Justification of the choice of the methodology and why it is applicable to a SSC-CPA:

The SSC-CPA meets the requirements of AMS-II.J, version 4 methodology as follows:

AMS-II.J Requirements	SSC-CPA Qualification Justification
AMS-II.J version 4 methodology promotes the adoption of self-ballasted compact fluorescent lamps (CFLs) to replace incandescent lamps (ICLs)	The SSC-CPA will replace energy intensive incandescent light bulbs with energy saving CFLs in residential households connected to the national grid. This will result in substantial demand-side energy savings and carbon dioxide (CO_2) emission reduction.
Under AMS-II.J, the aggregate energy savings by a single project may not exceed the equivalent of 60 GWh per year	The aggregate energy savings from a SSC-CPA will not exceed the equivalent of 60 GWh. This is demonstrated in SSC-CPA-DD.
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	The lumen output of the project CFLs will be equal or more than the lumen output of incandescent light bulbs being replaced. The lumen output of the project CFLs would be defined according to national or international

	standard (s) or values in Table 1 of AMS-II.J version 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.	For the SSC-CPA, 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.
Unique identification of CFLs	In addition to the standard manufacturer's lamp specifications, CFLs lamps distributed and installed under the SSC-CPA will be legibly and permanently marked with unique identification (such as the name or logo of the coordinating/managing entity)
The project activity will ensure that replaced incandescent light bulbs are exchanged and destroyed and will undertake at least one of the following actions: • Directly installing the CFLs; • Charging at least a minimal price for efficient lighting equipment; • Restricting the number of lamps per household distributed through the project activity to six.	SSC-CPA implementer will exchange incandescent light bulbs for CFLs. SSC-CPA implementer will arrange for destruction of replaced incandescent light bulbs. SSC-CPA implementer will undertake at least one of the following actions: • Directly installing CFLs at each household • Charging at least a minimal price for efficient lighting equipment (i.e. provide CFL at an equivalent price of an incandescent light bulb; • Restricting the number of (CFLs) lamps per household distributed through the project activity to six. Where direct installation of CFLs is not possible, SSC-CPA implementer shall educate CFL recipients to install CFLs in high usage areas. The methods of education may include verbal education, flyers, leaflets contained in CFL packs, campaign.
Proposed procedures eliminate double counting of emission reductions, for example due to CFL manufacturers, wholesale providers or others possibly claiming credit for Emission Reductions for the project CFLs.	CFL supplier i.e. manufacturer or wholesale providers, SSC-CPA implementer and participating households shall voluntarily enter into an agreement to relinquish their rights over the CERs generated from the project CFLs to the managing/coordinating entity, Icimi Ltd.
The project design document shall explain the proposed method of distribution of efficient lighting equipment and how incandescent light bulbs collection and destruction will be conducted and documented.	The project design document explains the proposed method of distribution as follows: • Direct installation at each household; and/or • Door-to-door distribution to each household (where direct installation is not possible) • CFL distribution via a dedicated distribution points. SSC-CPA implementer(s) shall implement procedures

	for the storage and destruction of incandescent light bulbs. (refer to section E.7.2)
The CFLs adopted to replace existing equipment must be new equipment and not transferred from another activity	The SSC-CPA will employ self-ballasted (integrated) compact fluorescent lamps (CFLs) to replace incandescent light bulbs in residential households. Project CFLs will be new equipment and will not be transferred from another activity.

E.3. Description of the sources and gases included in the SSC-CPA boundary

The project boundary is the physical, geographical location of each CFL installed in households participating in the SSC-CPA, and the electricity grid to which the participating households are connected

Summary description of the sources and gases included in the SSC-CPA boundary.

	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_2O	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_2O	No	Minor source, deemed negligible.

E.4. Description of how the baseline scenario is identified and description of the identified baseline scenario:

The PoA will cover the geographical boundary of Nigeria. As discussed in section A.4.3, in the absence of the PoA, three alternative baseline scenarios were identified. The three baseline scenarios also apply to the SSC-CPA and are re-introduced below:

- **Scenario 1**

The PoA could be implemented as non-CDM scheme through a government-sponsored programme. Under such initiative, the government will purchase and distribute CFL free or at minimal price to grid connected residential households throughout Nigeria. This scenario is not applicable as there is no policy or mandated legal requirement for the replacement of incandescent light bulbs with CFLs in Nigeria.

- **Scenario 2**

The second alternative is autonomous replacement of incandescent light bulbs with CFLs by individual households. To achieve the stated goal of the PoA which is a nationwide adoption of energy efficiency lighting (CFLs) at the household level will require a large percentage of the population to individually replace incandescent light bulbs with CFLs by paying the full retail price of $4 or more for a CFL. This

scenario is not credible due to the prevailing socio-economic condition in Nigeria where 84% of the population lives on less than $2 a day[26] and 70% of the population lives below the national poverty line[27].

- **Scenario 3**

This alternative is the continuation of the current practise of using ICLs in most homes in Nigeria. The alternative is credible and reflects the baseline scenario.

E.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the SSC-CPA being included as registered PoA (assessment and demonstration of additionality of SSC-CPA):

E.5.1. Assessment and demonstration of additionality for a typical SSC-CPA:

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 40 W. Assuming ex-ante hour of 3.5 per day,

The annual saving in energy = ((200-40)*3.5*365)/1000 = 204 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.

[26] Source: TradingEconomics.com - World Bank Indicator – Nigeria Poverty Rate: http://www.tradingeconomics.com/nigeria/poverty-headcount-ratio-at-dollar2-a-day-ppp-percent-of-population-wb-data.html

[27] CIA 2007, The World Fact Book: Population Below Poverty Line https://www.cia.gov/library/publications/the-world-factbook/geos/ni.html

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.

E.5.2. Key criteria and data for assessing additionality of a SSC-CPA:

The key criteria for assessing additionality of a CPA proposed for inclusion in the registered PoA is:

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;

A simple cost analysis method will be used to determine Net Present Value (NPV) 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 spreadsheet has been 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.

E.6. Estimation of Emission reductions of a CPA:

E.6.1. Explanation of methodological choices, provided in the approved baseline and monitoring methodology applied, selected for a typical SSC-CPA:

The emission reductions achieved by a typical SSC-CPA will be estimated and measured by application of the options within AMS II.J. The equations used to determine the emission reduction are identified in section E.6.2 below.

The AMS II.J, Version 4 methodological choices are outlined below:

1. **Lumen Output Requirements:**

In accordance with paragraph 2 of AMS-II.J version 4, 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 e.g., 493 Lumens for a 45 W lamp.

SSC-CPA shall use relevant national or international standards or adopt the values in Table 1 of AMS-II.J Version 4 (below) to ascertain the lumen equivalence as follows:

Table 1 AMS-II.J version 4 Light Output Requirements

Baseline Technology – Incandescent Lamp (Watt)	Minimum Light Output (Lumen)	Compact Fluorescent Lamps (*Watts)
25	230	5-7
40	415	9-11
50	570	11-12
60	715	13-15
75	940	17-18
90	1,227	18-19
100	1,350	20-23
150	2,180	37-39
200	3,090	50-55
* This range is for indicative purposes only. The actual installed CFL wattage may be outside of this range		

2. **CFL Rated Average Life**

In accordance with paragraph 4 of AMS-II.J Version 4, 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), 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.

IEC 60969 will be used to determine the rated average life of CFLs for the SSC-CPA. This is because there is no relevant national standard of CFL performance in the project location. If, in future, the host nation adopts a national standard then the project may decide to use the relevant national standard.

3. **Limit undesired secondary market effects**

In accordance with paragraph 7 of AMS-II.J Version 4, the project activity shall be designed to limit undesired secondary market effects (e.g., leakage) and free riders by ensuring that replaced lamps are exchanged and destroyed. Further project participants are required to undertake at least one of the following actions:

(i) Directly installing the CFLs;
(ii) Charging at least a minimal price for efficient lighting equipment (i.e. provide CFL at an equivalent cost of an incandescent light bulb; and/or
(iii) Restricting the number of (CFLs) lamps per household distributed through the project activity to six.

4. **Operating hours of project and baseline lamps**

In accordance with paragraph 11 of AMS-II.J Version 4, operating hours of project (and baseline) lamps will be determined using one of the following two options:

- Option 1: A default value of 3.5 hours per 24 hrs period for 'daily operating hours', i.e., factor Oi in equation 2, is chosen ex ante and is used ex post throughout the crediting period. In this case no surveying to determine Oi is required.
- 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 Oi for equation (2).

Option 1, a default value of 3.5 hours per 24 hrs period for 'daily operating hours' will be applied to the SSC-CPA *ex ante* and used *ex post* throughout the monitoring period.

5. **Technical Grid Losses (TD)**

In accordance with paragraph 12 of AMS-II.J Version 4, 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 are available or the data cannot be regarded accurate and reliable.

A default value of 10% shall be used for average annual technical grid losses for the SSC-CPA because recent accurate and reliable data is not available. 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.

6. **Net-to-gross adjustment factor**

In accordance with paragraph 12 of AMS-II.J Version 4, Net-to-gross adjustment factor, a default value of 0.95 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.

Due to non-available or unreliable/inaccurate lighting use survey, default value of 0.95 shall be applied to the SSC-CPA.

7. **Lamp Failure rate LFR ex ante estimation**

The Lamp Failure Rate (LFR_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 per AMS-II.J version 4, to estimate

ex-ante, a linear curve of 10,000 hour lamp implies 5% LFR for every 1,000 hours. Therefore, where the average or average rated life time of CFL is 10,000 hours, then 50% of the lamps would fail at 10000 hour i.e. 5% LFR for every 1,000 hours and 50% LFR for the project life to end.

8. **Ex post monitoring**

To determine the minimum number of ex post monitoring surveys for Lamp Failure Rate (LFRi,y) and where relevant ex post average daily operating hours (Oi), SSC-CPA shall choose either of the following two options:

1. Once every 3 years; or
2. Once for every 30% of the elapsed rated lifetime of the lamp.

Option 1 - once every 3 years will be used for SSC-CPA. SSC-CPA may choose to use a more frequent monitoring period than option 1.

E.6.2. Equations, including fixed parametric values, to be used for calculation of emission reductions of a SSC-CPA:

Emission Reduction, ex ante calculation

In accordance with AMS-II.J Version 4 methodology, *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) Option 1 – a default value of 3.5 hours is used to determine operating hours of project (and baseline) lamps;

(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.

The electricity saved by the project activity in year y is calculated as indicated in equations1 and (2)

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

Where:

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

Where:

NES_y	Net electricity saved in year y (kWh
$QPJ_{,i}$	Number (quantity) of pieces of equipment (CFLs) of type i distributed or installed under the project activity (units). In total for all "i", this value shall be equal to or less than the documented number of all baseline incandescent lamps destroyed.

	Once all of the project CFLs are distributed or installed, *QPJ,i* is a constant value independent from y
i	Counter for equipment type
n	Number of types of equipment i
ESi	Estimated annual electricity savings for equipment of type i, for the relevant technology (kWh)
LFRi,y	Lamp Failure Rate for equipment type i in year y (fraction)
TDy	Average annual technical grid losses (transmission and distribution) during year y for the grid serving the locations where the devices are installed, expressed as a fraction. This value shall not include non-technical losses such as commercial losses (e.g., theft/pilferage).
NTG	Net-to-gross adjustment factor, a 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
Pi, BL	Rated power of the baseline lighting devices of the group of "i" lighting devices (Watts)
Pi, PJ	Rated power of the project lighting devices of the group of "i" lighting devices (Watts)
Oi	Average daily operating hours of the lighting devices replaced by the group of "i" lighting devices, use 3.5 hours per 24 hour period as the default value.

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

$$ER_y = NES_{,y} \times EF_{CO2,ELEC,y} \quad \textbf{(3)}$$

Where:

EFCO2,ELEC,y	Emission Factor in year y calculated in accordance with the provisions in AMS-I.D (tCO2/MWh)
ERy	Emission Reductions in year y (tCO2e)

The Lamp Failure Rate (LFRi,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:

$$\text{If } y * X_i < L_i, \text{ then } LFR_{i,y} = y * X_i * (100 - R_i) / (100 * L_i) \quad \textbf{(4)}$$

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

Where:

LFRi,y	Lamp Failure Rate for equipment type i in year y (fraction)
Li	Rated Average Life for equipment type i (hours)
Ri	% of lamps of type i operating at the end of average life or the rated average life (use a value of 50)
Xi	Number of operating hours per year for equipment type i (hours)
y	Counter for year

Emission Factor
As stipulated in paragraph 15 of AMS-II.J version 4, Emission Factor (EF) for CPAs under this PoA should be calculated in accordance with provisions under of AMS-I.D. "The tool to calculate emission factor of an electricity system" version 2.2.1 (hereforth "Tools") will be used to calculate the parameters.

As per paragraph 12 of AMS-I.D., Version 17, in order to calculate the $C0_2$ emission factor for the project electricity systems, three parameters will be applied, namely: Operating Margin (OM), Build Margin (BM) and Combined Margin (CM).

Baseline Methodology Procedure
Step 1. Identify the relevant electric power system
Step 2. Choose whether to include off-grid power plants in the project electricity system (optional).
Step 3. Select a method to determine the operating margin (OM)
Step 4. Calculate the operating margin emission factor according to the selected method
Step 5. Calculate the build margin emission factor
Step 6. Calculate the combined margin (CM) emissions factor

Step 1. Identify the relevant electric power system
As described by the Tools, a project electricity system is defined by the spatial extent of the power plants that are physically connected through transmission and distribution lines to the project activity (e.g. the renewable power plant location or the consumers where electricity is being saved) and that can be dispatched without significant transmission constraints.

National Grid of Nigeria is identified as connected electricity system for grid emission factor estimation. The SSC-CFA will distribute CFLs to households serve by the Nigerian national electricity grid.

Step 2. Choose whether to include off-grid power plants in the project electricity system
Option I: Only grid power plants are included in the calculation of the operating margin and build margin emission factors. The SSC-CPA will distribute CFLs to households that are served by the national grid.

Step 3. Select a method to determine the operating margin (OM)
The Tool provided four options that can be used to determine the operating margin. The Simple OM **(Option A)** method will apply to the SSC-CPA because low-cost/must-run resources constitute less than 50% of total grid generation in the five most recent years. Hydro makes up 31% of the total grid generation in the last five years, as shown in the table below[28].

For the simple OM, the emissions factor can be calculated using either the EX ante option or the Ex post option. According to the Tool, if the ex ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required. For grid power plants, use a 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation. For off-grid power plants, use a single calendar year within the 5 most recent calendar years prior to the time of submission of the CDM-PDD for validation.

If the ex post option is chosen, the emission factor is determined for the year in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring. If the

[28] Source: Annual Technical Report 2004-2008, National Control Centre Osogbo, PHCN

data required to calculate the emission factor for year y is usually only available later than six months after the end of year y, alternatively the emission factor of the previous year y-1 may be used. If the data is usually only available 18 months after the end of year y, the emission factor of the year proceeding the previous year y-2 may be used. The same data vintage (y, y-1 or y-2) should be used throughout all crediting periods.

For Simple OM emission factor calculation, Ex ante option is selected and 3-year generation-weighted average is applied.

Table: Power plant-wise electricity generation from 2004 to 2008

Power Plant Type	Power plant Name	Generation (MWh)					Total (MWh)
		2004	2005	2006	2007	2008	
Hydro	KAINJI	2,878,774	2,586,929	2,366,716	2,816,750	2,707,020	13,356,190
	JEBBA	2,703,750	2,268,230	2,171,747	2,728,899	2,794,976	12,667,602
	SHIRORO	2,425,575	1,236,090	2,432,640	2,230,761	1,941,344	10,266,410
	NESCO*						
Thermal	EGBIN	7,962,764	8,592,097	4,924,478	3,636,680	4,381,564	29,497,584
	SAPELE	1,025,568	878,417	185,079	490,790	728,977	3,308,831
	AFAM	1,247,813	1,838,934	1,864,110	1,274,103	312,272	6,537,232
	DELTA	3,933,785	3,235,212	3,752,054	2,696,719	1,510,988	15,128,758
	AES	1,953,276	2,018,364	1,966,492	1,675,496	1,846,702	9,460,330
	CALABAR	936	202	-	-	-	1,138
	AGGREKO	1,409	-	-	-	-	1,409
	GEOMETRIC	1,060	-	-	-	-	1,060
	OKPAI	-	1,343,611	3,267,430	3,294,207	2,708,671	10,613,919
	AJAOKUTA	-	80,597	356,452	572,517	30,344	1,039,910
	OMOKU	-	-	12,282	429,268	297,580	739,130
	OMOTOSHO	-	-	-	146,801	491,852	638,653
	GEREGU	-	-	-	1,193,553	995,875	2,189,427
	OLORUNSGO	-	-	-	-	418,546	418,546
	AFAM6	-	-	-	-	142,389	142,389
Total Generation (2004-2008) - MWh		116,008,516					
Generation from Hydro (2004-2008) - MWh		36.290,202					

Generation from Other Sources(2004-2008) MWH	79,718,314
Share of Hydro (%)	31%
Share of Other Sources (%)	69%

*Data from NESCO Power Plant is not considered as it operates as an isolated system.

Step 4. Calculate the operating margin emission factor according to the selected method

The simple OM emission factor is calculated using Option B. The data vintage option selected is the ex-ante approach.

Option B is selected to calculate the simple OM due to the following reasons:

- CO2 emission factor for each unit of the power plant as required by Option A is not available.
- Only renewable power generation (hydro) is considered as low-cost/must-run power sources and the quantity of electricity supplied to the grid by these sources is known.
- Off-grid power plants are not included in the calculation.

Option B calculation is based on total fuel consumption and electricity generation of the system. Under the option, the simple OM emission factor is calculated based on the net electricity supplied to the grid by all power plants serving the system, not including low-cost/must-run power plants/units, and based on the fuel type(s) and total fuel consumption of the project electricity system, as follows:

$$EF_{grid,OMsimple,y} = \frac{\sum_{i}\left(FC_{i,y} \times NCV_{i,y} \times EF_{CO2,i,y}\right)}{EG_{y}}$$

Where:

Parameter	Details
$EF_{grid,OMsimple,y}$	Simple operating margin CO_2 emission factor in year y tCO_2/MWh
$FC_{i,y}$	Amount of fossil fuel type i consumed by plant/unit m in year y (mass or volume unit)
$NCV_{i,y}$	Net calorific value (energy content) of fossil fuel type i in the year y (GJ/mass or volume unit)
$EF_{CO2,i,y}$	CO2 emission factor of fossil fuel type i, in the year y (tCO2/GJ)
$EG_{,,y}$	Net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost/must-run power plants/units in year y (MWh)
i	All fossil fuel types combusted in power sources in the project electricity system in year y
y	The relevant year as per the data vintage chosen in Step 3

In accordance to the Tool, in the project activity, (ex-ante) the full generation-weighted average for the most recent 3 years for which data are available at the time of PDD submission has been considered.

The data vintage option selected is the ex-ante approach. The 3-year generation-weighted average is calculated from 2006-2008. A detailed calculation of the simple OM using option B is shown below. *The input and conversion data used to calculate the emission are provided to the DOE for validation.*

Table: Power plant-wise fuel consumption (2006-2008)

Fuel Type	Power plant Name	Fuel Consumption for electricity generation 2006-2008 (MMSCF/Year for NG, Tonnes/Year for Diesel, and no fuel consumption for Hydro)		
		2006	2007	2008
	KAINJI	0	0	0
	JEBBA	0	0	0
	SHIRORO	0	0	0
HYDRO	NESCO *			
	EGBIN	50523	35601	47875
	SAPELE	2631	7398	7675
	AFAM	24732	17935	4749
	DELTA	48004	38216	21058
	AES	24909	20709	23920
	CALABAR	0	0	0
GAS	AGGREKO	0	0	0
DIESEL	GEOMETRIC	0	0	0
	OKPAI	NA	NA	NA
	AJAOKUTA	NA	NA	NA
	OMOKU	NA	NA	NA
	OMOTOSHO	0	1393	5508
	GEREGU	0	10593	11476
	OLORUNSGO	0	0	4638
GAS	AFAM6	0	0	NA

*** Data from NESCO Power Plant is not considered as it operates as an isolated system**

NA : Data on fuel consumption was not available.

Table: Calculation of Operating Margin Emission Factor (2006 - 2008)

Plant name	Plant wise Emissions (tCO2/Year)		
	2006	2007	2008
KAINJI	-	-	-

JEBBA	-	-	-
SHIRORO	-	-	-
NESCO *			
EGBIN	3,080,149	2,170,439	2,918,687
SAPELE	160,376	450,992	467,934
AFAM	1,507,810	1,093,380	289,527
DELTA	2,926,584	2,329,860	1,283,796
AES	1,518,587	1,262,513	1,458,297
CALABAR	-	-	-
AGGREKO	-	-	-
GEOMETRIC	-	-	-
OKPAI	1,670,608	1,684,299	1,384,919
AJAOKUTA	182,251	292,723	15,515
OMOKU	6,280	219,481	152,150
OMOTOSHO	-	84,903	335,792
GEREGU	-	645,822	699,621
OLORUNSGO	-	-	282,776
AFAM6	-	-	72,802
Total Emissions (tCO2) - 2006			11,052,644
Total Emissions (tCO2) - 2007			10,234,411
Total Emissions (tCO2) - 2008			9,361,816
Total Electricity Generated (MWh) - 2006			16,328,377
Total Electricity Generated (MWh) - 2007			15,410,133
Total Electricity Generated (MWh) - 2008			13,865,759
Emission Factor (tCO2/MWh)-2006			0.68
Emission Factor (tCO2/MWh)-2007			0.66
Emission Factor (tCO2/MWh)-2008			0.68
Average OM EF (tCO2/MWh)			0.67

*** Data from NESCO Power Plant is not considered as it operates as an isolated system**

Step 5. Calculate the build margin emission factor

The build margin emissions factor is the generation-weighted average emission factor (tCO2/MWh) of all power units m during the most recent year y for which power generation data is available, calculated as:

$$EF_{grid,BM,y} = \frac{\sum_{m} EG_{m,y} \times EF_{EL,m,y}}{\sum_{m} EG_{m,y}}$$

Where:

Parameter	Details
$EF_{grid,BM,y}$	Build margin CO_2 emission factor in the year y, (tCO2/MWh)
$EG_{m,y}$	Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
$EF_{EL,m,y}$	CO2 emission factor of power unit m in the year y, (tCO2/MWh)
m	Power units included in the build margin
y	Most recent historical year for which power generation data is available

According to the Tools, the sample group of power units m used to calculate the build margin should be determined as per the following procedure, consistent with the selected data vintage:

(a) Identify the set of five power units, excluding power units registered as CDM project activities that started to supply electricity to the grid most recently and determine their annual electricity generation.

(b) Identify the set of power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently and that comprise 20% of annual electricity generation total. Determine their annual electricity generation.

(c) Select the set of power units that comprises the larger annual generation.

The Build Margin (BM) emission factor is calculated ex-ante using the set of 7 power units (highlighted in the table below) that were built most recently and that represents 20% of the system generation. The 7 power units are chosen because the electricity generated from the set of five power units built most recently accounts for only 11% of the total generation in the system during 2008, the year selected for the build margin calculation. Likewise, electricity generation from the six power plants that are built most recently constitutes only 11.2%. Conversely, electricity generation from seven power plants built most recently represents 23.9% of the total generation, which is consistent with the 20% benchmark required by the Tool to select the build margin power plants.

Power plants included the calculation of Build Margin (BM)

Plant Name	**Installed Capacity of Power Plants (MW)**	**Electricity generation (MWh) in 2008**	**Year of Commissioning**
KAINJI	760	2,707,020	
JEBBA	578.4	2,794,976	
SHIRORO	600	1,941,344	
NESCO *	-	-	

EGBIN	1320	4,381,564	
SAPELE	1020	728,977	
AFAM	931.6	312,272	
DELTA	882	1,510,988	
AES	302	1,846,702	
CALABAR		-	
AGGREKO		-	
GEOMETRIC		-	
OKPAI	450	2,708,671	
AJAOKUTA	110	30,344	
OMOKU		297,580	2006
OMOTOSHO	335	491,852	2007
GEREGU	414	995,875	2007
OLORUNSGO	335	418,546	2007
AFAM6	331.5	142,389	2008
Annual Electricity Generation **(AEG_{total}, in MWh)**		21,309,099	
Annual Electricity Generation in 5 newly built plants **($AEG_{SET-5-units}$, in MWh)**		2,346,242	
Share of 5 newly built plans in the annual electricity generation (%)		11.0%	
Annual Electricity Generation in 6 newly built plants **($AEG_{SET-\geq 20\%}$, in MWh)**		2,376,586	
Share of 6 newly built plans in the annual electricity generation (%)		11.2%	
Annual Electricity Generation in 7 newly built plants **($AEG_{SET-\geq 20\%}$, in MWh)**		5,085,257	
Share of 7 newly built plans in the annual electricity generation (%)		23.9%	

- **Data from NESCO Power Plant is not considered it operates as an isolated system**

According to the guidelines set out in the Tool, wherever fuel consumption data was not available, the emission factor of those power plants is calculated using the following formula: Option B2 is used to determine the CO2 emission factor of each power unit m (EFEL,m,y) as per the guidance in Step 4 (a) for the simple OM. The option is applied due to limited available data

$$EF_{EL,m,y} = \frac{EF_{CO2,m,i,y} x 3.6}{\eta_{m,y}}$$

Where:

Parameter	Details
$EF_{EL,m,y}$	CO_2 emission factor of power unit m in year y (tCO2/MWh)
$EF_{CO2,m,i,y}$	Average CO2 emission factor of fuel type i used in power unit m in year y (tCO2/GJ)
$\eta_{m,y}$	Average net energy conversion efficiency of power unit m in year y (ratio)
m	All power units serving the grid in year y except low-cost/must-run power units
i	All fossil fuel types combusted in power plant/unit m in year y
y	The relevant year as per the data vintage chosen in Step 3

The CO2 emission factor of each power unit m (EFEL,m,y) is determined for year *y* using the most recent historical year for which power generation data is available, and using for *m* the power units included in the build margin as follows:

Table: Build Margin Calculations

Power plant name	Gas consumed	Electricity	EF(el,m,y)	EF BM
	MMSCF	MWh	tCO2/MWh	tCO2/MWh
OKPAI	NA	2,708,671	0.51	0.58
AJAOKUTA	NA	30,344	0.51	
OMOKU	NA	297,580	0.51	
OMOTOSHO	5,508	491,852	0.68	
GEREGU	11,476	995,875	0.70	
OLORUNSGO	4,638	418,546	0.68	
AFAM6	NA	142,389	0.51	

Step 6. Calculate the combined margin (CM) emissions factor

The calculation of the combined margin (CM) emission factor (EFgrid,CM,y) is based on one of the following methods:

(a) Weighted average CM; or
(b) Simplified CM.

As per the "Tool to calculate emission factor for an electricity system, version 02.2.1", for all project other than wind and hydro, the default weights are as follows: $w_{OM} = 0.5$ and $w_{BM} = 0.5$ for the first crediting period, and $w_{OM} = 0.5$ and $w_{BM} = 0.75$ for the second and third crediting period, unless otherwise specified in the approved methodology which refers to this tool.
Option A, The weighted average CM method is used to calculate the combined margin (CM) emissions factor. The combined margin emissions factor is calculated as follows:

EFgrid,CM,y = EFgrid,OM,y * WOM + EFgrid,BM,y * WBM

Where:

Parameter	Details
$EF_{BM,y}$	Build Margin CO2 emission factor in the year y (tCO2/GWh)
$EF_{OM,y}$	Operating Margin CO2 emission factor in the year y (tCO2/GWh)
W_{OM}	Weighting of operating margin emission factor (%)
W_{BM}	Weighting of build margin emission factor (%)

Where the weights w_{OM} and w_{BM} are 50% and 50% respectively, and $EF_{OM,y}$ and $EF_{BM,y}$ are calculated and are expressed in tCO_2/MWh.

The baseline emission factor for power projects in year y is calculated as the sum of 50% weightage of OM and 50% weightage of BM emission factor. The resulting Combined Margin is fixed ex ante.

Table: Combined Margin 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

A combined margin emission factor 0.63 tCO2/MWh will be used for the PoA and throughout the crediting period.

***Ex post* monitoring surveys**

Ex post monitoring surveys are required to be conducted to adjust the net electricity savings considering the actual lamp failure data. In accordance with paragraph 17 of AMS-II.J Version 4 methodology, the following ex post monitoring shall apply:

First ex post monitoring survey, will be carried out within the first year after installation of all efficient lighting equipment to provide a value for the number of CFLs placed in service and operating under the project activity. The results of this survey will be used to determine the quantity of CFLs (QPJ,i) in the Emission Reduction calculation to determine the ex post Lamp Failure Rate (LFRi,y) for use in ex post Emission Reduction calculations.

Subsequent ex post monitoring surveys will be carried out once every 3 years to determine the ex post Lamp Failure Rate (LFRi,y) for use in ex post Emission Reduction calculations until such time as CERs are being requested.

The monitoring surveys will consist of identifying CFLs, marked with unique identification (as per paragraph 6), that are installed and operating. 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, cannot be replaced as part of this monitoring survey process and counted as operating for the purposes of determining $QPJ_{,i}$

Changes to lamp failure rate ($LFR_{i,y}$)

The Net Electricity Savings shall be modified for changes to the Lamp Failure Rate as may be indicated by ex post monitoring survey results and/or on the basis of CFL Average Life values if a CFL Rated Average Life was used initially. The modifications shall be made using the following methods:

1. If Rated Average Life values were used initially for calculating LFR_y, per equation (4), as soon as Average Life values are available they shall be used for calculation of subsequent year $LFR_{i,y}$ values.

2. 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 (4) with ex ante or prior year, ex post monitoring values, for

subsequent years $LFR_{i,y}$ shall continue to be determined using Equation (4) and the established Average Life values for L_i.

3. However, for subsequent years, L_i values in $LFR_{i,y}$ equation (4) 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 (4) with Average Life or prior year, ex post monitoring values. In this situation, a new value for L_i shall be determined using equation (4) and new values of $LFR_{i,y}$ shall be used beginning from the first calculation year after completion of the ex post survey.

E.6.3. Data and parameters that are to be reported in CDM-SSC-CPA-DD form:

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 :	Data is calculated ex ante under AMS-I.D using: "Tool to calculate the emission factor for an electricity system" version to 2.2.1, based on the most recent data available and provided by PCHN, Nigeria
Any comment:	All SSC-CPA under the PoA shall use 0.63 tCO2/MWh, fixed ex ante

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 :	SSC-CPA implementer shall apply a default value of 3.5hrs per 24hrs, in accordance with AMS-II.J version 4. SSC-CPA implementer shall enter the value into the SSC-CPA database. The value shall be fixed ex-ante and apply throughout the crediting period.
Any comment:	-

Data / Parameter:	**NTG**
Data unit:	-
Description:	Net-to-gross adjustment factor
Source of data used:	Methodology AMS-II.J version 4
Value applied:	0.95
Justification of the	All SSC-CPA under the PoA shall use a default value of 0.95

choice of data or description of measurement methods and procedures actually applied :	
Any comment:	The default value is in accordance with AMS-II.J version 4

Data / Parameter:	**L_i**
Data unit:	Hours
Description:	Average life or rated average life for equipment type *i* (hours)
Source of data used:	Life test report of CFLs
Value applied:	Base on the rated average life value supplied by CFL manufacturer/supplier
Justification of the choice of data or description of measurement methods and procedures actually applied :	Determined as per the independent life-tests of the CFLs as per national or international standard. The value is fixed ex-ante.
Any comment:	-

Data / Parameter:	**X_i**
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)
Value applied:	1277.5 hour per 365 year, 1281 hours for leap year
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, shall be used by SSC-CPA. Therefore, the estimated yearly value is fixed.
Any comment:	-

E.7. Application of the monitoring methodology and description of the monitoring plan:

E.7.1. Data and parameters to be monitored by each SSC-CPA:	
Data / Parameter:	***Lamp Distribution Data***
Data unit:	-
Description:	**<u>Data to be monitored</u>** • 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	• dd/mm/yyyy format for start date of CFL distribution • dd/mm/yyyy format for completion date of CFL distribution
Description of measurement methods and procedures to be applied:	• SSC-CPA implementer will formulate and use standardized data format approved by the CME • SSC-CPA implementer will comply with monitoring guideline set-out by CME
QA/QC procedures to be applied:	• 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 to be completed by SSC-CPA **Ex post monitoring Survey for Crediting period** **Sample household** **Actual household**
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 in Year 1 and the subsequent surveys will take place in Year 4, Year 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 to be applied:	SSC-CPA shall determine the representative sample size with minimum 90% confidence interval and 10% maximum error margin. To be conservative the minimum number of households surveyed should be 100. The SSC-CPA implementer(s) may choose a sample size higher than 100
Any comment:	

Data / Parameter:	$\mathbf{P_{i, BL}}$
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	To be determined by SSC-CPA. Once determined, value shall be fixed for the crediting period.
Description of measurement methods and procedures to be applied:	• SSC-CPA implementer will formulate and use standardized data format approved by the CME • SSC-CPA implementer will comply with monitoring guideline set-out by CME
QA/QC procedures to be applied:	• 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 • $\mathbf{P_{i, BL}}$ data will be verified by DOE
Any comment:	-

Data / Parameter:	$\mathbf{P_{i ,PJ}}$
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	To be determined by SSC-CPA. Once determined, value shall be fixed for the crediting period.
Description of measurement methods and procedures to be applied:	• SSC-CPA implementer will formulate and use standardized data format approved by the CME • SSC-CPA implementer will comply with monitoring guideline set-out by CME
QA/QC procedures to be applied:	• 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 • $\mathbf{P_{i, PJ}}$ data will be verified by DOE
Any comment:	

Data / Parameter:	$\mathbf{TD_y}$
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	10%
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:	All SSC-CPA under the PoA 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, SSC-CPA 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	To be determined by SSC-CPA based on the ex-post QPJ, survey
Description of measurement methods and procedures to be applied:	• SSC-CPA implementer will formulate and use a standardized data format and SSC-CPA approved by the managing entity to record the number of CFLs in operation during the first 12 months of distribution/installation • 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:	• 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 • **Q_{PJ}** 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* in year y
Source of data to be used:	Ex-post Monitoring survey conducted by SSC-CPA
Value of data applied	According to AMS-II.J version 4, if more than 50% of CFLs fail, LFRi,y is

for the purpose of calculating expected emission reductions in section B.5	100%. The ex-ante LFR calculated value is corrected as per the monitoring survey.
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
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	To be filled by SSC-CPA. Once determined, the value is fixed and applied throughout the crediting period.
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:	

E.7.2. Description of the monitoring plan for a SSC-CPA:

The CPA implementer will be responsible for the implementation of the monitoring plan. All parameters indicated in section E.7.1 will be monitored. The monitoring plan involves collecting, recording and storing all monitoring information clearly, consistently and accurately. Monitoring data that are directly used to calculate emission reduction should be measured/collected on a continuous/regular (i.e. daily/weekly/monthly) basis and made available to the CME. Monitoring data that is generally constant or fixed and indirectly used to calculate emission reduction should be measured or calculated at least once a year.

The monitoring plan will be implemented to ensure that real, measurable and long term GHG emissions reductions per each SSC-CPA are monitored and reported.

In accordance with the monitoring guidelines of AMS-II.J version 4, SSC-CPA implementer shall implement monitoring plan for the following activities under the SSC-CPA:
1. CFL distribution
2. Ex-ante and ex-post Monitoring Survey
3. ICL destruction

CFL Distribution

CFL distribution will be carried out by SSC-CPA implementer with the support of CME.

- SSC-CPA implementer shall directly install CFLs at households and collect incandescent light bulbs replaced during installation; and/or
- Distribute CFLs door-to-door (where direct installation is not possible) and collect incandescent light bulbs at the time of distribution;
- CFL distribution and incandescent light bulbs collection can take place via a dedicated distribution/collection point advertised/announced in advance, for example in the local media, by SSC-CPA implementer;
- SSC-CPA implementer shall educate CFL recipients to install CFLs in high usage areas. The methods of education may include one or more of the following: verbal education, flyers, campaign, leaflets/manual contained in CFL packs;
- During CFL distribution/installation, SSC-CPA implementer will use the formulated standardized data recording formats to record CFL distribution data, including: name, address, signature, dates, nameplate, watts, number of device distributed/installed and exchanged/replaced.
- SSC-CPA implementer will record and store CFL distribution data recorded during CFL distribution/installation in the SSC-CPA database. The SSC-CPA database will be maintained by the SSC-CPA implementer.
- After CFLs distribution/installation has been completed for the SSC-CPA, the SSC-CPA implementer shall perform the following quality and assurance checks after notifying the coordinating/managing entity of end-date of CFL distribution/installation but before CFL distribution data contained in the SSC-CPA database is electronically submitted to the coordinating/managing entity:
    - Reconciliation of the number of CFLs and incandescent light bulbs distributed/installed and replaced. The total number of CFLs that are eligible for calculating emission reductions for the monitoring interval *y* should be less than or equal to the number of incandescent light bulbs replaced at the start of the project activity.
    - Perform a simple random sample of households that received CFLs, ensuring accuracy of CFL distribution data recorded for the sample households, based on 90% confidence interval. Any discrepancy should be investigated and corrected by SSC-CPA implementer.
    - The results of reconciliation exercise and sample survey should be submitted to the coordinating/managing entity for verification.
    - The accuracy of the sample households' CFL distribution data will declare the end date effective by the coordinating/managing entity; at which point, the SSC-CPA database is electronically submitted to the coordinating/managing entity.
    - If there is any discrepancy in the sample household survey, SSC-CPA implementer will correct issue/error before submitting CFL distribution data to the coordinating/managing entity.

***Ex post* monitoring surveys**

Ex post monitoring surveys shall follow the guideline described in Appendix 4 and outlined below:

- Simple random sampling method will be used for the ex post monitoring survey. Under this method, sample households are chosen entirely by chance from the SSC-CPA database;
- Sample Frame is the SSC-CPA database list of all households that receive CFLs from the SSC-CPA;
- The sample shall be based on 90% confidence interval and 10% minimum error margin;
- SSC-CPA will collect and collate ex post monitoring survey data using the following guidelines:
    - Survey will be carried out through site visits to sample households that have been randomly selected from the SSC-CPA database: Does sample household's (being visited) unique SSC-CPA number matches one of the randomly selected households? **[Yes] [No]**
    - 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: Does installed CFL(s) in sample household have coordinating/managing entity's logo/name or unique identification? **[Yes] [No]**
    - Are installed CFLs in sample household operational? **[Yes] [No]**
    - Is the person (s) interviewed for the survey confirmed to be over 12 years old? **[Yes] [No]**
- Where SSC-CPA's target population can be demonstrated to be homogenous (e.g. multiple CPAs in one geographic and/or socio-economic population), for the purpose of monitoring, SSC-CPAs will be clustered together and one representative ex post monitoring survey conducted to satisfy monitoring requirements across like SSC-CPAs.

Incandescent Light Bulbs Destruction and Verification

SSC-CPA implementer will arrange for the following activities to be carried out:

- Collect replaced incandescent light bulbs at the time of CFL installation, during door-to-door distribution to each household and at CFL distribution or collection point/centre advertised or announced in advance for example in the local media by SSC-CPA implementer;
- Record details including nameplate/wattage of incandescent light bulbs collected;
- Assemble incandescent light bulbs collected during CFL installation/distribution at a collection 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 (scrapped) according to applicable environmental norms and as stipulated in the AMS-II.J, version 4 methodology;
- Commission qualified third party(s) to carry out periodic audit to independently verify the storage and destruction of incandescent light bulbs collected during the SSC-CPA or verify storage/destruction of ICL by time stamped video records;

- SSC-CPA implementer shall produce documented record of ICL destruction via witnessing by qualified third party such as local environmental officials appointed by SSC-CPA implementer or time stamped video records;
- Record of destruction of incandescent light bulbs shall be made available for verification by the DOE.

CFL Destruction and Verification

SSC-CPA implementer will arrange for the following activities to be carried out:

- Compile and update record of the number and wattage of used/broken, faulty or fused project CFLs at drop-off centre/point, deliver CFL to storage/ warehouse or directly to waste disposal facility for recycling;
- If recycle facility is not available at SSC-CPA location, CFLs should be destroyed in hazardous waste facility, according to the applicable national environmental norms;
- Commission qualified third party(s) to pay at least one random visit to waste disposal agency(s) to verify recycle/destruction of used/broken/faulty/fused CFLs or verify recycle /destruction of CFL by time stamped video records;
- Where required by regulation, qualified third party(s) record/report on recycle/destruction of broken, faulty or fused CFLs to demonstrate compliance with monitoring requirements. The record/report will be available to DOE for verification.

Defined Roles & Responsibilities of Coordinating/managing entity and SSC-CPA Implementer

Icimi Ltd, as coordinating and managing entity, shall:

- Coordinate and manage the PoA
- Develop Small-Scale Programme of Activities Design Document (SSC-PoA-DD).
- Register SSC-PoA with UNFCCC CDM Executive Board.
- Develop SSC-CPA Design Document (SSC-CPA-DD) in accordance with criteria stipulated in the SSC-PoA-DD.
- Include SSC-CPAs to the SSC-PoA upon satisfaction of the eligibility criteria stipulated in the SSC-PoA-DD.
- Register SSC-CPA-PDD with UNFCCC and pay any associated registration fee to the UNFCCC
- Source and contract CFL manufacturer/Supplier. Ensure CFLs meet the requirements stipulated in AMS-II.J Version 4. i.e. lumen, rated life/average rated life, compliance with national and international standards
- Source Designated Operational Entity (DOE). Get SSC-CPA–PDD validated /verified by a DOE Pay DOE validation/verification fee
- Officially communication with the CDM Executive Board, DOE and host country DNA.
- Allocate CERs generated from SSC-CPA as applicable.
- Secure financing of initial investment. Source and contract Annex 1 buyer of CERs

SSC-CPA implementer(s) shall:

- Define geographic boundary of the SSC-CPA
- Determine grid-connected residential households in the SSC-CPA
- Establish record keeping and database of grid connected residential households in the SSC-CPA, including where applicable, name, address, electricity bill folio or voter registration number
- Distribute/install CFLs at grid connected households and collect replaced incandescent light bulbs

- Establish dedicated drop-off centre/point(s) for the collection of used/broken/fault/ fused CFLs
- Arrange storage, disposal and independent verification by a qualified third party(s) or by time stamped video records, the destruction of incandescent light bulbs and recycle or disposal of spent CFLs
- Collect and send monitoring data/report to the Coordinating and Managing Entity in a standardised form in order to comply with the verification procedure.

E.8 Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies)

28 December 2012
Gbemi Cassandra Jayesimi
www.icimi.com

Annex 1

CONTACT INFORMATION ON COORDINATING/MANAGING ENTITY and PARTICIPANTS IN THE PROGRAMME of ACTIVITIES

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Direct FAX:	As Above
Direct tel:	As Above
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Annex 2

INFORMATION REGARDING PUBLIC FUNDING

No public funding is used to develop this PoA.

If public funding is received by SSC-CPA(s) in the PoA, the SSC-CPA will affirm 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.

Annex 3

BASELINE INFORMATION

The latest version of AMS I.D is used to calculate the baseline Grid Emission Factor. To determine Grid Emission Factor, three parameters were applied, namely: Operating Margin (OM), Build Margin (BM) and Combined Margin (CM).

The calculated baseline Grid Emission Factor is based on the most recent data publicly available from the Power Holding Company of Nigeria (PHCN) at the time of submission of the CDM-PDD to the DOE for validation.

Annex 4

MONITORING INFORMATION

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);
- 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	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. The two variable are: • 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	• 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	**The number of CFLs placed in service and operating under the project activities ($Q_{PJ,i}$)** • 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 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 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 **Lamp fail rate (LFR,y)** • 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 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 **Survey Frequency** The first *ex post* monitoring survey will be carried out within 12 months of CFL installation/distribution. Subsequent *ex post* 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 **Data collection** • 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 Frame	The sample frame is the list of households that received CFLs and whose details are recorded in the SSC-CPA database. Where information mis-match is observed, conservative assumptions shall be made and applied.
Sample Size Desired Precision /Expected Variance.	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. **Equation to determine sample size (n):** $$\frac{Z^2 N \times p(1-p)}{(N-1) \times r^2 \times p^2 + Z^2 \ p(1-p)}$$ Where: n = Sample size z^2 = confidence interval r^2 = margin of error N = estimated quantity /number of CFL distributed or installed p= proportion of CFLs placed in service and operating under the project activity **1. 1st ex-post monitoring survey to determine the quantity of CFLs (QPJ,i)** **n =** $$\frac{1.645^2 \times 700{,}000 \times p(1-p)}{(700{,}000-1) \times 0.1^2 \times p^2 + 1.645^2 \ p(1-p)}$$ The sample size denoted by **n** will be known if we know the value of **p**. So, if we estimate p to be 90% i.e. **p** = 0.90 of all CFLs placed in service and operating based on the following assumptions: • Quantity of CFLs per CPA is 700,000 • 10,000 hours average rated life of CFLs installed. • Estimated lamp failure rate (LFR) of 6.4% in the first year • 3.6% of CFL distributed will not be installed or utilised by participating households Therefore **n** = $$\frac{1.645^2 \times 700{,}000 \times 0.9 \times 0.9}{(700{,}000 - 1) \times 0.1^2 \times 0.9^2 + 1.645^2 \times 0.9 \times 0.9}$$ $$n = 30$$ Allowing 10% for non-response rate, the sample size = 33 According to AMS IIJ version 4, the minimum sample size of CFLs to be taken is 100. In a measure of conservatism and to allow for non-response (at 10%) the sample size is 110.

	Since the actual number of households in the CPA depends on the number of CFL distributed or installed , assuming the project distribute 4 CFLs per household, the households to be surveyed = 110/4 = 27.5 households However, to meet the requirement of AMS-II.J version 4, SSC-CPA implementers shall survey 100 households. **2. <u>Ex-post CFL Monitoring Survey to assess failure rate (LFR,y)</u>** n = $\frac{1.645^2 \times 700{,}000 \times p(1-p)}{(700{,}000-1) \times 0.1^2 \times p^2 + 1.645^2 \times p(1-p)}$ As per AMS IIJ, the LFR can be determined ex-ante as per section E.6.2, equation (4). The sample size denoted by **n** will be known if we know the value of **p**. If we assume: 700,000 CFLs are distributed per CPA, 10,000 hours average rated life of CFLs installed. and estimate the lamp failure rate (LFR) in the fourth year at 25.55% then p = 74.45%. Therefore **n**= $\frac{1.645^2 \times 700{,}000 \times 0.7445 \times 0.7445}{(700{,}000 - 1) \times 0.1^2 \times 0.7445^2 + 1.645^2 \times 0.7445 \times 0.7445}$ n = 92.8 In a measure of conservatism and to allow for non-response (10%) the sample size of CFL to be surveyed is 102 . Since the actual number of households in the CPA depends on the number of CFL distributed or installed , assuming the project distribute 4 CFLs per household, the number of sample household to be surveyed to determine LFR = 26 However, according to the guideline of AMS-II.J the minimum sample household shall be 100 Likewise, if we assume **p** to be 0.5 in the 7th year then **n** will be 271. After adjusting for non-response rate of 10% **n** will equal 298. Therefore the number of sample household to determine LFR in year 7 is 298/4 = 75. As per AMS-II.J the minimum sample household shall be 100. Each SSC-CPA can choose sample size bigger than the calculated values. However, as per the requirements of AMS-II.J version 4, the sample size must be at least 100.
"Cluster" of homogenous SSC-CPAs	If there are multiple SSC-CPAs in one geographic location and/or socio-economic population, and the target population of the SSC-CPAs can be demonstrated to be homogenous, SSC-CPAs may be clustered together and a single representative ex post monitoring survey may be carried out to satisfy monitoring requirements across like SSC-CPAs

Annex 5

1. Summary of comments received during stakeholder consultation and project proponent response:

Stakeholder Comment	Was comment taken into account (Yes/ No)?	Explanation (Why? How?)
How long does the CFLs last?	Yes	Lamp service life is expressed as number of operating hours. The CFLs that will be introduced will have a lifetime of 10,000 hours or more. . However, it is important to note that lamp life depends on many factors including good installation, voltage fluctuations, mismatch lamps and ballasts, which can shorten a lamp life. Project implementers will install CFLs and educate households on how to look after the CFLs to avoid any possible shortcoming.
CFLs are being distributed to residential homes alone. Something should be done to certify that only the households that are with NEPA are involve in the project and receive free bulbs (CFLs)	Yes	The project proponent will install CFLs door to door in order to ensure that only those households that are connected to the national grid receive CFLs. The project will also distribute CFLs via collection points/centres pre-arranged and communicated in advance to stakeholders.
Given the amount and cost of fuel used by generator, free bulbs (CFLs) should be extended to users of generators too.	No	Whilst the project proponent is aware of the financial cost of using generators at home, In accordance with the UNFCCC rules regarding Demand-side Energy Efficiency project targeting households under the Clean Development Mechanism, distribution of CFLs to households that are not connected to the national grid is out of scope of the project activity.
Households should have the opportunity to replace faulty CFLs.	Yes	In the rare or unlikely occasion that distributed CFL is faulty, participating households will have the opportunity to exchange such CFLs for new one. The project will establish dedicated local drop-off centre/point(s) where households taking part in the project can exchange faulty CFL for a new one, for free, within the first month of CFL distribution, upon producing a valid identification document and residential proof such as. electricity bill folio or voter registration card.
Households should have the opportunity to request more than four free CFLs.	No	In order to prevent leakage and minimise the possible effect of secondary market, the maximum number of CFLs under the programme is six however it more likely that CFLs will be restricted to four per home to minimise wastage and abuse.
Households should have the opportunity to buy CFLs to meet their requirements.	Yes	Under a giveaway scheme, where households require more than four CFLs, such households may have the opportunity to buy additional two CFLs for a minimal fee, which is comparable to the market price of a conventional incandescent light bulb. However, for the sale to take place, the household will have to bring in old ILBs. The maximum number of CFL that the programme can

		distribute to each household is six.
Action should be taken to ensure that distributed CFLs are not available in the market or sold illegally at high prices.	Yes	Wherever possible, CFLs will be distributed/installed door-to-door at participating households depending on the existing illumination needs or number of ILB in use in the house at the time. Furthermore, to discourage and curtail secondary market behaviour, each CFL will be marked 'for CDM project'; or/and 'not for sale or resale'
Retailers and sellers of other sources of lights such as incandescent lights may loss their source of income.	Yes	The project proponent has weighed the likely impact of the project on retailers of ILBs. Our view is that about 20% of the ILB market in the country may be impacted by the project because the project only concern private households that are connected to the national grid. Non-grid connected households, commercial buildings, and the public sector will not receive CFLs. These groups will continue to use ILBs. However, to reduce possible negative impact on retailers of ILBs, the project may look at employing the service of local retailers to help with CFL distribution and implementation efforts and to provide post implementation supports such as overseeing faulty and broken CFLs.
We do not have a CFL market in Nigeria or perhaps, the market is sparse with fake CFLs that last less than a year. The organiser of this project should consider entering the CFL market in Nigeria after distributed CFLs reach their lifecycle. This way, there will be continuity in the use of CFLs in the country.	Yes	The project proponent shares the concern of a lack of credible CFL market in Nigeria. The propose project can facilitate better institutional capacity and would increase energy efficiency practises which can help to grow the CFL market in Nigeria. Furthermore, the project aim to facilitate and enable a proper functioning CFL market in Nigeria by making available to the public and CFL market in Nigeria quality, efficient and where applicable competitively priced CFLs.
The project should provide employment to the locals and youngsters to help the community prosper	Yes	Employment of local workforce within the community has always been central to the project development. Wherever possible, local labour force will be employed. The target is to employ up to 70% of the labour force from the CPA location/communities.
It is not enough to distribute free CFLs. It is only fair for the community to share in the profit that comes from the sale of the CER	No	The project is being implemented as a voluntary action and every household that take part in the project does so voluntarily. Furthermore, the CFLs will be provided free-of charge or at a minimal price, thus ensuring that participating households benefit financially in terms of free/discounted CFLs and extra disposable income from reduced electricity bill.
CFLs will be installed in our homes How do we identify installers?	Yes	Shortly before CFL distribution and installation commence, the CPA location will be made aware of the timeframe of CFL distribution through public announcements, posters or leaflets distributed to households in the project location. Also, during the project implementation, CFL distributors and installers will wear identifiable uniform and carry identification at all time.
How will the mercury	Yes	Mercury is an important constituent of CFLs. The CFLs

contained in CFLs be dealt with? I recommend recycling of all bad CFL bulbs.		that are used in the project will contain a very small amount of mercury – 5 milligram or less per CFL, some of the smallest CFL mercury content on the market. CFLs are safe to use because the mercury contained in them is not emitted from lamps when in use. However, mercury from defective or broken CFLs can be emitted into the environment if they are not properly collected and recycled. Thus the project proponent will undertake the following measures to curtail mercury in CFLs getting into the wider environment: ➢ Establish local centre(s) where households can take broken CFLs or exchange faulty CFLs for new ones, within the first month of installation or distribution. ➢ Spent, faulty and broken CFLs will be delivered to a waste disposal unit where they will be recycled. ➢ Households will be educated and informed through an awareness campaign on how to handle and dispose of used CFLs and how to prevent CFL breakage. ➢ The process outlined above including recycling of faulty and broken CFLs will be monitored. These measures will ensure that no or non-material mercury leakage occurs has a result of the project activity.
An independent body should check that faulty CFLs are properly collected and disposed.	Yes	The project implementer shall employ specialist third party such as independent environmental auditor (s) to verify and report on the collection and recycle of used or defective CFLs; or/and use a time-stamped video to record and report on disposal of CFLs.
Requests for a Local Community Liaison Officer.	Yes	A Local Community Liaison Officer will be appointed for the duration of the distribution and installation of CFLs. The appointment will be communicated to the community before distribution of CFLs begins through flyers and/or public announcement.
The project developer should work with our government to ensure that the energy that is conserved from the project is used within the community where the project took place.	No	The project is aware of the chronic power shortage and energy constraint in Nigeria. The energy that is conserved by the project ensures that more energy will be available however how the extra available energy is used or which community benefit from it is a national issue that is out of the remit of this project. Nevertheless, the fact is that the project will lead to energy conservation for the nation as a whole, and may curtail the chronic power outage in the community taking part in the project activity.

2. Original Participation/attendance list. Contact details have been blanked out.

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GOLD STANDARD LOCAL STAKEHOLDER CONSULTATION

"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"

Better Light Nigeria

Participants list

Date and time: **05 January 2012** 2.30pm

Location: **Ikorodu Town, Lagos State Nigeria**

Name and Title	Contact Details Phone/Email/Address	Job/Position/Organisation	Signature
Bamidele Abaderin (M	070 [redacted] 61714	Environmental Manager Oduduwa Natures Protection Association.	
Adenike Kalejaye (Mrs	[redacted] State Nigeria	Founder, Poverty No More	
Dayo Ibikunle (Mr)		Electrical trader	
Olajumoke Adeoti (Mr		Chairman Rural Women Alliance	
Babatunde Afolabi		Foundation for The Prevention of Environmental Disaster	
Abimbola Tijani (Mrs		housewife	
Funmilayo Yunusa (M		housewife	
Samuel Adebiyi (Mr		Student	
Tunji Onafowokan (Mr		Farmer	
Mustapha Jimoh (Mr		CEMM	
Ola Babalola (Mrs)		Housewife	
Pastor Jide Badejo (Mr		Pastor, Head of Congregation Local Baptist church	
Alhaja Rabiu (Mrs)		E-RIMA	
Alhaji Mudasiru Abodu		Imam Jamaitu Islamia	

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Nnenike Charles Ogun(		Hon Member, Lagos State Hou.	Charles Ogunnm
Honourable Tunji Chi (Mr)		Co Coalition for Subst. Development. Perm Sec	
Bola Babalola (Mrs)		–	
Magi Makodi (Mrs)		other, Ikorodu Residence	
Femi Lawal (Mr)		sistation Worker	
Tolu Tanimola (Mr)		olice Officer	
Akeem Akindu (Mr)		mronmental Safety Res.	
Aishatu Lawal (Miss)		lofner, Ijede farmer	
Mallam Alli Yusuf (Mr		unemployed	
James (Dalekan(		outh leader Ijede.	
Femi Alison (Mr		outh Generation Club	
		de farmers Association	
Charles Ballogam (Mr)		wner, O&T Electrical Trading	
Dunni Tanimola (Miss)		PR officer, Lagos ssociation of electrical ctentors	
Monsola Muhammed (M		IT Worker	
Shola Ahmed (Mr)		Villager	
Dr Adeoye Peters (Mr)		Chairman, Ijede < Scion Residence Association.	
Rotimi Fashola (Mr)		–	
Zainab Salvador (Mrs		uance for Agricultural Development.	
Chief Matthew Isaac Gob		Local Chief	
Sue Maladuje (Mrs)		orodu Oga Regional Rep.	
Alhaja Sekinat Oreoluwa(		aiman Ikorodu Women Operatives evelopment	
Bola Lawanson (Mr		ician, Lagos State Polytechnic	
Ocadimeji Aregbesola (M		NIEE : Green Climate Network Cretary to the Treasurer	
Joanna Fashola (Mrs)			
Michael Nwaiidi (Mr		Student	

3. Parts of original evaluation form completed by stakeholders in attendance at local stakeholder consultation

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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'

EVALUATION FORM
05/JANUARY/2012

Name	Bimbola Tijani
What is your impression of the meeting?	Some good questions and answers
What do you like about the project?	Bulb installation, recycling jobs
What do you not like about the project?	
Signature	

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EVALUATION FORM
05/JANUARY/2012

Name	ABIMBOLA TIJANI
What is your impression of the meeting?	GREAT
What do you like about the project?	FREE LIGHT, JOBS, RECYCLE
What do you not like about the project?	N/A
Signature	

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EVALUATION FORM
05/JANUARY/2012

Name	Mallam Alhaji Yusuf
What is your impression of the meeting?	Good
What do you like about the project?	Good, everything + free bulbs and fits
What do you not like about the project?	Nothing
Signature	

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EVALUATION FORM
05/JANUARY/2012

Name	Mathias A. Dada
What is your impression of the meeting?	Perfect
What do you like about the project?	community improvements
What do you not like about the project?	—
Signature	

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