

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



NAME /TITLE OF THE PoA: Energy Efficient Commercial Lighting Programme of Activities South Africa



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

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NOTE:

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

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

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

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

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

>>[CPA Title + Serial Number SBSA-EECL-CPA-xxxx]

Version: [XX]

Date: [dd/mm/yyyy]

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

>>

The small-scale CPA (SSC-CPA) is participating in the Energy Efficient Commercial Lighting Programme of Activities coordinated by Standard Bank Plc. The Programme of Activities (PoA) will consist of a series of SSC-CPAs implemented in collaboration with commercial and public building owners and occupiers across the countries stipulated in section A.4.1 of the PoA-DD. Standard Bank Plc will act as the Coordinating/Managing Entity (CME) for the PoA, and will provide an open platform for different lighting technology and service suppliers to participate in the PoA by developing their own SSC-CPAs. The CME will work with participating organisations to design and implement a technology and financing solution to allow for the low-cost uptake of energy efficient lamps and luminaires for commercial and public building lighting applications.

The SSC-CPA involves lighting systems upgrades in the buildings listed below.

[Company/client:

Location:

Building GPS coordinates:

Building description:

Summary of lighting equipment install project:

- **Up-lamping: technology swaps proposed; and/or**
- **Refurbishment: luminaire technology proposed;**

Contribution to Sustainable Development

The PoA-DD sets out in general terms the contribution of the program to meeting the sustainable development objectives of the participating countries. Further specific information is presented below in relation to the contribution of the CPA to sustainable development in the Host Country.

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

>> Here the information on the entity/individual responsible of the CPA shall be included, hence forth referred to as CPA implementer(s). CPA implementers can be project participants of the PoA, under which the CPA is submitted, provided their name is included in the registered PoA.

The CPA Implementers will be:

[Insert project proponent name(s)]

The CPA Implementer is a project participant in the PoA: [Yes/No]

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

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

>>[CPA Name]

ID Number: SBSA-EECL-CPA [XXXX]

A.4.1.1. Host Party:

>>Each SSC-CPA will provide the name of the host party

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

>>Geographic reference or other means of identification³, Name/contact details of the entity/individual responsible for the CPA, e.g. in case of stationary CPA geographic reference, in case of mobile CPAs means such as registration number, GPS devices.

For each SSC-CPA the project boundary will be defined by the specific location of the installed lighting equipment. The project boundary also includes the electricity grid to which those light fittings are connected.

The geographic reference of the SSC-CPA is as follows:

[Company/client:

Street Address:

Building GPS coordinates:

Building description:

Room Numbers/Locations:]

[IMAGE/MAP to be inserted]

CPA Implementer Contact Information

Name	
Email	
Phone	

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

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

>>[dd/mm/yyyy]

³ E.g. in case of stationary CPA geographic reference, in case of mobile CPAs means such as registration number, GPS devices.

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Starting date determined either by the date of signing an agreement with the CME, or the date on which an order for lighting equipment is placed, or lights are installed.

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

>>Insert operational lifetime of equipment to be installed under the SSC-CPA. In the case of multiple technologies, insert the number of years associated with the equipment with the longest rated operational lifetime for which CERs will be claimed.

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

Fixed Crediting period

A.4.3.1. Starting date of the crediting period:

>>[dd/mm/yyyy]

The crediting period shall not start earlier than the date of SSC-CPA inclusion under the Standard Bank Energy Efficient Commercial Lighting PoA.

The start date of the crediting period should be the planned completion date of the lighting equipment installation process in the SSC-CPA target buildings by the CPA Implementer and accepted by the CME.

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

>>10 years

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

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

>>

Year	Estimated annual emission reductions (tCO ₂ e)
1	[CPA implementer to insert values]
2	
3	
4	
5	
6	
7	
8	
9	
10	

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Total estimated emission reductions (tCO₂e)	
Total number of crediting years	10
Annual average over the crediting period of estimated emission reductions (tCO₂e)	

A.4.5. Public funding of the CPA:

>>The source of funding of the SSC-CPA implementer(s) is:

Tick box as appropriate

<input type="checkbox"/> Private	SSC-CPA implementer(s) shall provide written confirmation to the CME that funds used to pay for the implementation of the SSC-CPA are from private sources.
<input type="checkbox"/> Public	Where public funding is utilised, the SSC-CPA Implementer(s) shall provide written confirmation to the CME of the following: “Information on sources of public funding for the project activity from Parties included in Annex I which shall provide an affirmation that such funding does not result in a diversion of official development assistance for the purchase of CERs, and is separate from and is not counted towards the financial obligations of those Parties;”

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

>>

1. For the purposes of registration of a Programme of Activities (PoA)⁴ a proposed small-scale CPA of a PoA shall be deemed to be a de-bundled component of a large scale activity if there is already an activity⁵, which:
 - (a) Has the same activity implementer as the proposed small scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same sectoral scope, and;
 - (b) The boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closest point.
2. If a proposed small-scale CPA of a PoA is deemed to be a debundled component in accordance with paragraph 2 above, but the total size of such a CPA combined with a registered small-scale CPA of a PoA or a registered CDM project activity does not exceed the limits for small-scale

⁴ Only those POAs need to be considered in determining de-bundling that are: (i) in the same geographical area; and (ii) use the same methodology; as the POA to which proposed CPA is being added

⁵ Which may be a (i) registered small-scale CPA of a PoA, (ii) an application to register another small-scale CPA of a PoA or (iii) another registered CDM project activity

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CDM and small-scale A/R project activities as set out in Annex II of the decision 4/CMP.1 and 5/CMP.1 respectively, the CPA of a PoA can qualify to use simplified modalities and procedures for small-scale CDM and small-scale A/R CDM project activities.

As per the latest version of the ‘*Guidance for determining of debundling under a Programme of Activities*’ (v.3 EB 54), if each of the independent subsystems/measures included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the methodology applied (in this case the 60GWh per year), then that SSC-CPA of PoA is exempted from performing de-bundling check i.e., considering as not being a de-bundled component of a large scale activity.

In the case of the energy efficient lighting retrofits proposed under the SSC-CPA, annual energy savings of individual pieces of lighting equipment will be considerably lower than the 1% threshold level (ie. less than 600,000 kWh of energy savings per year), and as such the SSC-CPA is considered as not being a de-bundled component of a large scale CDM activity. The example below clearly demonstrates the compliance of project activities with the debundling requirements of small-scale PoA:

[INSERT EXAMPLE BASED ON EQUIPMENT TYPES LISTED IN SECTION A.2]

As can be seen from this simple example individual lighting units will not exceed the 1% threshold amount of 600,000kWh per annum.

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

>>Prior to including a new SSC-CPA within the PoA, the CME will check the CDM project database to establish whether a CDM project activity or CPA of another PoA utilising energy efficient lighting technologies has already been registered involving the same buildings and lighting systems. Given that each SSC-CPA included in the PoA will be identified by geographical location of buildings where retrofits occur (address, GPS location data and building name), it is possible to unambiguously identify CPAs or CDM project activities potentially operating in the same area. In addition, the CME will confirm with building owners and occupiers participating in the proposed SSC-CPA that they are not participating in any existing or proposed CDM project activity. If the CME identifies that there is an existing or proposed CDM activity involving the buildings targeted by the SSC-CPA, then those buildings will be excluded from participating in the PoA.

Based on this review SSC-CPA implementers should indicate the following:

- This Project will be neither registered as an individual CDM activity or is part of another Registered PoA.**
- The CPA Implementer is undertaking another similar project activity in the same region, and the buildings and/or lighting areas are uniquely identified and are not overlapping.**

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

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

>> Standard Bank Energy Efficient Commercial Lighting Programme of Activities

Reference Number: [Insert UNFCCC Registration Reference Number]

PoA version number [Insert PoA Version Number]

Date: [dd/mm/yyyy]

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

>>A SSC-CPA able to demonstrate compliance with the criteria listed in the table below is considered eligible to participate in the PoA.

No.	Eligibility Criteria	Status
1.	The geographical boundary of the SSC-CPA is within South Africa, Botswana, Kenya, and Uganda.	Yes / No
2.	The SSC-CPA complies with the established procedures for avoiding double counting set out in the PoA-DD and CPA-DD (generic): <ul style="list-style-type: none"> – check of CDM database to confirm project is not registered as an individual CDM activity or part of another registered PoA; – CME has confirmed with building owners and occupiers participating in the proposed SSC-CPA that they are not participating in any other existing or proposed CDM project activity; – unambiguous identification of the location and LPC Group classification of lighting systems according to the monitoring plan procedures; and – agreement reached between CME and building owners and occupiers participating in the proposed SSC-CPA as to the rights to claim CERs for the project activity. 	Yes / No
3.	For each replaced lighting appliance/equipment/system the rated capacity or output or level of service (e.g., lumen or lux output) is not significantly smaller (maximum - 10%) than the baseline or significantly larger (maximum + 50%) than the baseline. In instances where the lighting output or service levels of a project retrofit are more than 10% lower than in the baseline, the CPA implementer must demonstrate to the CME that the lighting levels still satisfy relevant national standards for required lighting levels for their particular building type (eg. office, warehouse, retail shop etc). If these reduced lighting levels satisfy the relevant national standard, the CPA can still satisfy this eligibility criterion.	Yes / No
4.	The start date of the SSC-CPA has been confirmed, through the provision of one of the following forms of documentary evidence, as the latter of: <ul style="list-style-type: none"> – the date of signing an agreement with the CME; – the date on which an order for lighting equipment is placed; or 	Yes / No

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	– the date on which lights are installed or commissioned.	
5.	The SSC-CPA follows the baseline and monitoring methodology AMS IIC “Demand-side energy efficiency activities for specific technologies” and satisfies all applicability and other requirements set out in the methodology.	Yes / No
6.	The SSC-CPA is additional because it is able to demonstrate the existence of one or more of the barriers set out in section B.3 of the CPA-DD which would prevent the project activity from occurring in the absence of the CDM.	Yes / No
7.	If applicable, the SSC-CPA has satisfied all requirements of the local Host Party for the completion of an environmental impact assessment.	Yes / No
8.	A local stakeholder consultation process has been undertaken at the level of the host country in which the SSC-CPA is to be implemented and the results are provided in the CPA-DD.	Yes / No
9.	The SSC-CPA involves the installation of energy efficient lamps, ballasts and/or luminaires in commercial buildings.	Yes / No
10.	The SSC-CPA has classified each of the lighting systems involved in the project into LPC Groups as per the requirements of the monitoring and sampling plan.	Yes / No
11.	The aggregate ex-ante estimated energy savings by the SSC-CPA do not exceed the equivalent of 60 GWh per year.	Yes / No
12.	The SSC-CPA satisfies the latest version of de-bundling rules for PoA.	Yes / No
13.	The CME confirms that any funding from an Annex I party involved in the implementation of the SSC-CPA does not result in a diversion of official development assistance for the purchase of CERs, and is separate from and is not counted towards the financial obligations of those Parties.	Yes / No

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

>>Section A.4.3 of the PoA-DD provides extensive discussion of the additionality of the PoA, in particular the barriers that prevent the adoption of new energy efficiency lighting technologies in commercial buildings. It is expected that individual SSC-CPAs will face similar barriers to those impacting on the PoA as a whole. To demonstrate the additionality of a typical SSC-CPA, the SSC-CPA implementer and CME will provide a discussion of one or more of the barriers listed below, as per the guidance provided in the “Non-binding best practice examples to demonstrate additionality for SSC project activities” in Annex 34, EB35. In summary, it is expected that SSC-CPAs will encounter one or more of the following barriers:

Investment barrier: a financially more viable alternative to the project activity would have led to higher emissions.

CDM provides the only significant source of revenue for projects of this kind on the scale contemplated by the PoA. Whilst demand side energy efficiency improvements through installation of efficient lighting

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systems will deliver cost savings, individual building owners are not able to “monetise” such savings into cash flows, therefore their preference may be to continue to use baseline lamps which have lower upfront unit cost. In addition, the business-as-usual approach does not require a capital intensive refurbishment of lighting systems, but rather only ongoing periodic replacement of failed lamps.

SSC-CPAs can assess the impact of this barrier by undertaking a simple cost analysis to demonstrate the benefit of CDM revenues delivered by the PoA, thereby demonstrating the additionality of the SSC-CPA.

Access-to-finance barrier: the project activity could not access appropriate capital without consideration of the CDM revenues;

The high up front costs of energy efficient lighting presents a significant barrier to building owners and occupiers wishing to switch their lighting to more efficient technologies. Undertaking a whole-of-building retrofit represents a considerable up front investment when compared to the progressive maintenance and replacement of existing lights over time. Each SSC-CPA under the PoA will require that a large number of functional lamps be replaced before the end of their useful lifetimes to avoid additional electricity consumption and emissions.

SSC-CPAs can provide an analysis of the project costs and the lack of available capital to implement the proposed measures. The project proponents, building owners or occupiers may present evidence that CDM revenues are critical to gaining access to capital in order to implement the SSC-CPA.

Technological barrier: a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions.

Many of the energy efficient lighting technologies offered under SSC-CPAs are relatively new, with a low level of awareness amongst consumers and building managers, and even lower levels of operating experience. The innovative nature of some of the lighting technologies, combined with their higher cost, as well as the capital intensive nature of a whole-of-building lighting retrofit combine to create strong preferences for continued utilization of existing lighting systems and technologies. International studies⁶ show that uncertainty regarding realisable cost savings, and therefore return on investment, is a major reason for companies avoiding investment in energy efficiency.

SSC-CPAs should demonstrate that the energy efficient lighting technologies to be installed have a low market share (excluding from consideration the proportion of those technologies distributed as part of SSC-CPAs under the PoA or other CDM projects), and as such face barriers because of perceived performance risks. In such cases a commercial building owner and/or occupier may have access to finance, but choose not to invest it in energy efficient lighting because of concerns that it will not deliver costs savings as promised.

⁶ See for example, Clinton Climate Initiative, 2009. “An Introduction to Energy Performance Contracting”; International Energy Agency/OECD, 2007. “Mind the Gap: Quantifying Principal-Agent Problems in Energy Efficiency”. In support of the G8 Plan of Action. Paris.

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The SSC-CPA should demonstrate that it overcomes these information and perception barriers which impede investment in energy efficient lighting equipment by providing a consolidated source of information, access to technology and services, and also by predicating capital investments by building owners and/or occupiers on demonstrated energy savings using an internationally recognised and endorsed M&V protocol.

Barrier due to prevailing practice: prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions;

Building owners, occupiers and facility maintenance personnel may have a limited understanding of the benefits of energy savings on lowering whole-of-life lighting costs, and as such continue to purchase and use existing, comparatively inefficient lighting technology which is perceived as being cheaper, familiar and risk free. The challenge of monitoring and quantifying realized cost savings (electricity and lamp replacement) for individual building owners, occupiers or facilities managers, and the potential risk of poor technology performance mean that the ongoing use of baseline lighting technologies is highly likely.

SSC-CPAs should demonstrate that building owners and occupiers intend to continue to utilise their existing lighting equipment, and that without access to the services and revenues provided through the PoA, do not intend to implement a retrofit or refurbishment of their lighting systems to improve energy efficiency.

Other barriers: such as institutional barriers or limited information, managerial resources, organizational capacity, or capacity to absorb new technologies.

SSC-CPAs may choose to identify and discuss other barriers such as those listed above in order to demonstrate the additionality of the project activity.

In addition to the assessment of additionality of the CPAs by undertaking a barrier analysis, individual SSC-CPAs shall consider the *Guidelines for assessing the additionality of micro-scale project activities* (EB 60, Annex 25). Paragraph 3 of the guidelines stipulate:

3. Energy efficiency project activities that aim to achieve energy savings at a scale of no more than 20 gigawatt hours per year are additional if any one of the conditions below is satisfied:

- (a) The geographic location of the project activity is in LDC/SID or special underdeveloped zone of the host country identified by the Government before 28 May 2010;
- (b) The project activity is an energy efficiency activity with both conditions (i) and (ii) satisfied;
 - (i) Each of the independent subsystems/measures in the project activity achieves an estimated annual energy savings equal to or smaller than 600 megawatt hours; and
 - (ii) End users of the subsystems or measures are households/communities/SMEs.

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SSC-CPAs will undertake a check to see if they comply with the criteria set out in the guideline. If they meet the criteria as per the guideline they will be deemed to be additional and there will be no requirement to undertake the aforementioned barrier analysis.

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

>>

	Source	Gas	Included?	Justification
Baseline	Power plants servicing the electricity grid	CO ₂	Yes	Main emission source
		CH ₄	No	Minor Source
		N ₂ O	No	Minor Source
Project Activity	Power plants servicing the electricity grid	CO ₂	Yes	Main emission source
		CH ₄	No	Minor Source
		N ₂ O	No	Minor Source

SSC-CPA-DD will provide evidence that the building lighting systems involved in the SSC-CPA are located within the geographical boundary of the countries covered by the PoA.

B.5. Emission reductions:

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

>>

Data / Parameter:	EF
Data unit:	kgCO ₂ /kWh
Description:	Emissions factor for electricity displaced from the grid relevant to the project boundary.
Source of data used:	Relevant data sources for country emissions factors to be provided in CPA-DD
Value applied:	Specified in CPA-DD
Justification of the choice of data or description of measurement methods and procedures actually applied :	Relevant justification provided in the CPA-DD
Any comment:	EF will be revised at the point of renewal of the crediting period of the PoA.

Data / Parameter:	I _v
Data unit:	%
Description:	Average technical grid losses (transmission and distribution) during year y for the grid serving the locations where the devices are installed.
Source of data used:	Data source provided in CPA-DD

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Value applied:	Value applied to be provided in CPA-DD
Justification of the choice of data or description of measurement methods and procedures actually applied :	Relevant justification provided in the CPA-DD
Any comment:	I, will be revised at the point of renewal of the crediting period of the PoA.

Data / Parameter:	n_{PSG}
Data unit:	Number
Description:	The CME will identify and document the sample size used for monitoring utilisation hours or electricity consumption in the Project Sample Group
Source of data used:	Determined by project participants with reference to the “General Guidelines For Sampling and Surveys for Small Scale CDM Project Activity” (Annex-30, EB 50).
Value applied:	To be determined for each SSC-CPA
Justification of the choice of data or description of measurement methods and procedures actually applied :	The Project Sample Group will include enough metered LPCs to ensure representative data is captured in order to determine an average hours of utilisation for the project devices. This sample size will enable a robust assessment of key parameters for the determination of emission reductions. The PSG will be calculated with reference to all CPAs rather than on a per-CPA basis so as to create the most efficient sampling regime possible for the PoA as a whole.
Any comment:	

Data / Parameter:	n_{PCCG}
Data unit:	Number
Description:	The CME will identify and document a sample size of non-metered LPCs which will be subject to annual checks to measure the proportion of project lighting systems installed that are still operating.
Source of data used:	Determined by project participants with reference to the “General Guidelines For Sampling and Surveys for Small Scale CDM Project Activity” (Annex-30, EB 50).
Value applied:	To be determined for each SSC-CPA
Justification of the choice of data or description of measurement methods and procedures actually applied :	The Project Sample Group will include enough metered LPCs to ensure representative data is captured in order to determine an average hours of utilisation for the project devices. This sample size will enable a robust assessment of key parameters for the determination of emission reductions. The PCCG may be calculated with reference to all CPAs rather than on a per-CPA basis so as to create the most efficient sampling regime possible for the PoA as a whole.
Any comment:	-

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Data / Parameter:	n_{i, Group}
Data unit:	Number
Description:	Number of devices of the group of “i” devices (e.g. 40W incandescent bulb) replaced for which the substituted energy efficient equipment is operating during the monitoring period, belonging to each LPC Group as per the monitoring plan.
Source of data used:	SSC-CPA implementer
Value applied:	To be determined for each SSC-CPA
Justification of the choice of data or description of measurement methods and procedures actually applied :	<p>During the baseline audit of participating buildings, the SSC-CPA implementer will record the number of lighting devices to be replaced as part of the retrofit activity. This information will be confirmed during the lighting equipment installation process during which time a record will be kept of the number of pieces of lighting equipment replaced. This information will be stored in the project data management system (DMS). Each employee involved in the project will be trained in the use of the DMS to ensure accurate record keeping.</p> <p>The DMS will use industry standard software, databases, infrastructure and back-up procedures to allow full auditability with the aim of ensuring long-term data integrity and security so that data is not misrecorded, overwritten or lost. Data is verified in a timely manner at point of data entry to ensure valid and non-duplicate customer/building information, and an accurate number of lamps and equipment replaced is recorded.</p> <p>As per AMS.II.C. an independent auditor will be required to verify the collection and subsequent destruction of replaced equipment.</p>
Any comment:	All data will be stored in the project database for at least two years after the crediting period or the last issuance of CERs, for this programme, whichever occurs later.

Data / Parameter:	n_{k, Group}
Data unit:	Number
Description:	Number of energy efficient devices “k” installed that are operating during the monitoring period of the project, belonging to each LPC Group as per the monitoring plan.
Source of data used:	SSC-CPA implementer
Value applied:	To be determined for each SSC-CPA
Justification of the choice of data or description of measurement methods and procedures actually applied :	<p>The SSC-CPA implementer will record the number of energy efficient lighting devices installed as part of the retrofit activity. This information will be stored in the project data management system (DMS). Each employee involved in the project will be trained in the use of the DMS to ensure accurate record keeping.</p> <p>The DMS will use industry standard software, databases, infrastructure and back-up procedures to allow full auditability with the aim of ensuring long-term</p>

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	<p>data integrity and security so that data is not misrecorded, overwritten or lost. Data is verified in a timely manner at point of data entry to ensure valid and non-duplicate customer/building information, and an accurate number of lamps and equipment installed is recorded.</p> <p>The ongoing monitoring of the PCCG will provide the survey data required to determine the proportion of lighting equipment installed that is operational during each monitoring period. The data collected through the PCCG surveys will be used to determine the value of n_k for each monitoring period.</p>
Any comment:	All data will be stored in the project database for at least two years after the crediting period or the last issuance of CERs, for this programme, whichever occurs later.

Data / Parameter:	P_i, Group
Data unit:	Watts
Description:	The power of the lighting equipment “i” replaced belonging to each LPC Group as per the monitoring plan. In the case of a retrofit programme, p_i is the weighted average of the devices replaced.
Source of data used:	SSC-CPA implementer
Value applied:	To be determined for each SSC-CPA
Justification of the choice of data or description of measurement methods and procedures actually applied :	<p>During the baseline audit of participating buildings, the SSC-CPA implementer will record the wattage of lighting devices to be replaced as part of the retrofit activity. This information will be confirmed during the lighting equipment installation process during which time a record will be kept of the wattage of pieces of lighting equipment replaced. This information will be stored in the project data management system (DMS). Each employee involved in the project will be trained in the use of the DMS to ensure accurate record keeping.</p> <p>The DMS will use industry standard software, databases, infrastructure and back-up procedures to allow full auditability with the aim of ensuring long-term data integrity and security so that data is not misrecorded, overwritten or lost. Data is verified in a timely manner at point of data entry to ensure valid and non-duplicate customer/building information, and an accurate number of lamps and equipment replaced is recorded.</p>
Any comment:	All data will be stored in the project database for at least two years after the crediting period or the last issuance of CERs, for this programme, whichever occurs later.

Data / Parameter:	P_k, Group
Data unit:	Watts
Description:	Power of energy efficient devices “k” installed that are operating during the monitoring period of the project, belonging to each LPC Group as per the monitoring plan. In the case of a retrofit activity, “power” is the weighted average of the devices installed.

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Source of data used:	SSC-CPA implementer
Value applied:	To be determined for each SSC-CPA
Justification of the choice of data or description of measurement methods and procedures actually applied :	<p>The SSC-CPA implementer will record the wattage of energy efficient lighting devices installed as part of the retrofit activity. This information will be stored in the project data management system (DMS). Each employee involved in the project will be trained in the use of the DMS to ensure accurate record keeping.</p> <p>The DMS will use industry standard software, databases, infrastructure and back-up procedures to allow full auditability with the aim of ensuring long-term data integrity and security so that data is not misrecorded, overwritten or lost. Data is verified in a timely manner at point of data entry to ensure valid and non-duplicate customer/building information, and accurate lamp and equipment wattage is recorded.</p>
Any comment:	All data will be stored in the project database for at least two years after the crediting period or the last issuance of CERs, for this programme, whichever occurs later.

Data / Parameter:	$O_{i, Group}$
Data unit:	Hours
Description:	Average operating hours during the monitoring period of the lighting equipment “i” replaced belonging to each LPC Group as per the monitoring plan.
Source of data used:	SSC-CPA implementer
Value applied:	To be determined for each SSC-CPA
Justification of the choice of data or description of measurement methods and procedures actually applied :	<p>For the purposes of ex-ante emission reduction calculations the SSC-CPA implementer will estimate the average daily operating hours of baseline lighting equipment. The ex-ante estimate of O_i for each LPC Group can be based on a variety of sources including:</p> <ul style="list-style-type: none"> (a) The building operator's knowledge of average operating hours of LPCs; or (b) Prior study on average operating hours of the LPCs; or (c) Metering a randomly selected sample of LPCs to obtain the average operating hours; or (d) Recording the daily operating hour data of the LPCs for a certain period of time. <p>Once the project has been implemented daily operating hours of energy efficient lighting equipment ($O_{i, Group}$) will be measured by electronic metering equipment installed in the Project Sample Group as per the monitoring plan. The data obtained from this metering will be used ex-post to determine baseline emissions. The metering equipment will feed monitoring information back to a centralised database and will be stored in the project data management system (DMS). Each employee involved in the project will be trained in the use of the DMS to ensure accurate record keeping.</p>

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	The DMS will use industry standard software, databases, infrastructure and back-up procedures to allow full auditability with the aim of ensuring long-term data integrity and security so that data is not misrecorded, overwritten or lost. Data is verified in a timely manner at point of data entry to ensure valid and non-duplicate customer/building information, and accurate lamp and equipment wattage is recorded.
Any comment:	All data will be stored in the project database for at least two years after the crediting period or the last issuance of CERs, for this programme, whichever occurs later.

Data / Parameter:	$O_{k, Group}$
Data unit:	Hours
Description:	Average operating hours during the monitoring period of the energy efficient devices of the group of “k” belonging to each LPC Group as per the monitoring plan.
Source of data used:	SSC-CPA implementer
Value applied:	To be determined for each SSC-CPA
Justification of the choice of data or description of measurement methods and procedures actually applied :	<p>For the purposes of ex-ante emission reduction calculations the SSC-CPA implementer will estimate the average daily operating hours of lighting equipment. The ex-ante estimate of O_k for each LPC Group can be based on a variety of sources including:</p> <ul style="list-style-type: none"> (a) The building operator's knowledge of average operating hours of LPCs; or (b) Prior study on average operating hours of the LPCs; or (c) Metering a randomly selected sample of LPCs to obtain the average operating hours; or (d) Recording the daily operating hour data of the LPCs for a certain period of time. <p>Once the project has been implemented daily operating hours of energy efficient lighting equipment ($O_{k, Group}$) will be measured by electronic metering equipment installed in the Project Sample Group as per the monitoring plan. The metering equipment will feed monitoring information back to a centralised database and will be stored in the project data management system (DMS). Each employee involved in the project will be trained in the use of the DMS to ensure accurate record keeping.</p> <p>The DMS will use industry standard software, databases, infrastructure and back-up procedures to allow full auditability with the aim of ensuring long-term data integrity and security so that data is not misrecorded, overwritten or lost. Data is verified in a timely manner at point of data entry to ensure valid and non-duplicate customer/building information, and accurate lamp and equipment wattage is recorded.</p>

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Any comment:	All data will be stored in the project database for at least two years after the crediting period or the last issuance of CERs, for this programme, whichever occurs later.
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B.5.2. Ex-ante calculation of emission reductions:

>>

Calculation of Grid Emissions Factor

Each CPA-DD to provide EF calculation for country hosting the project.

Calculation of Baseline Emissions

The project proponents have selected AMS IIC Option 1 (paragraph 6) to determine baseline emissions. Because the energy displaced is electricity, the emissions baseline is determined as the product of the baseline energy consumption of equipment/appliances and the emission factor for the electricity displaced:

$$BE_y = E_{BL,y} * EF_{CO_2, ELEC,y} \quad (1)$$

Where:

BE_y Baseline emissions in monitoring period y (tCO₂e)
 $EF_{CO_2, ELEC,y}$ Emission factor in monitoring period y calculated in accordance with the provisions in AMS I.D (tCO₂/MWh)

The calculation of baseline emissions will follow Equation 2 below, where the number (n_i) and power (p_i) of baseline lighting equipment belonging to each LPC Group will be collected during the baseline building audit. Monitoring of the hours of use (o_i) of each LPC Group will be conducted through the ongoing metering of representative samples of project lamps from each LPC Group with the average daily usage value applied to the baseline scenario to determine emissions.

$$E_{BL,y} = \sum_i (n_i * p_i * o_i) / (1 - I_y) \quad (2)$$

Where:

$E_{BL,y}$ Energy consumption in the baseline in monitoring period y (kWh)
 \sum_i Sum over the group of “i” devices (e.g. 40W incandescent bulb, 5hp motor) replaced, for which the substituted energy efficient equipment operating during the monitoring period, implemented as part of the project.
 n_i Number of devices of the group of “i” devices (e.g. 40W incandescent bulb) replaced for which the substituted energy efficient equipment is operating during the monitoring period.
 p_i Power of the devices of the group of “i” devices (e.g. 40W incandescent bulb) replaced. In the case of a retrofit activity, “power” is the weighted average of the devices replaced.

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- o_i Average operating hours during the monitoring period of the devices of the group of “i” devices replaced.
- l_y 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). 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 0.1 shall be used for average annual technical grid losses, if no recent data are available or the data cannot be regarded accurate and reliable.

Note that $E_{BL,y}$ will be calculated for each LPC Group separately and then summed to determine the total baseline emissions.

Calculation of Project Emissions

Project emissions consist of electricity used in the project equipment, determined as follows.

$$PE_y = E_{PJ,y} * EF_{CO2,y} \quad (3)$$

Where:

- PE_y Project emissions in year y (tCO₂e)
- $E_{PJ,y}$ Energy consumption in project activity in year y. This shall be determined *ex post* based on monitored values
- $EF_{CO2,y}$ Emission factor for electricity or thermal baseline energy. The emissions associated with grid electricity consumption should be calculated in accordance with the procedures of AMS-I.D. For fossil fuel displaced reliable local or national data for the emission factor shall be used; IPCC default values should be used only when country or project specific data are not available or difficult to obtain

Project energy consumption in case of project activities that displace grid electricity is determined as follows using the data of the project equipment or system:

$$E_{PJ,y} = \sum_k (n_k * p_k * o_k) / (1 - l_y) \quad (4)$$

Where:

- \sum_k Sum over the group of “k” energy efficient devices installed that are operating during the monitoring period of the project.
- n_k Number of energy efficient devices “k” installed that are operating during the monitoring period of the project.

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- p_k Power of energy efficient devices “k” installed that are operating during the monitoring period of the project. In the case of a retrofit activity, “power” is the weighted average of the devices installed.
- o_k Average operating hours during the monitoring period of the energy efficient devices of the group of “k”.

Note that $E_{PJ,y}$ will be calculated for each LPC Group separately and then summed to determine the total project emissions.

Calculation of Emission Reductions

$$ER_y = (BE_y - PE_y) \quad (5)$$

Where:

ER_y Emission reductions in year y (tCO₂e)

Note that ER_y will be calculated for each LPC Group separately and then summed to determine the total emission reductions.

B.5.3. Summary of the ex-ante estimation of emission reductions:
>>[To be completed by SSC-CPA implementer]

Year	Estimation of project activity emissions (tonnes of CO ₂ e)	Estimation of baseline emissions (tonnes of CO ₂ e)	Estimation of leakage (tonnes of CO ₂ e)	Estimation of overall emission reductions (tonnes of CO ₂ e)
Year A				
Year B				
Year C				
Year ...				
Total (tonnes of CO ₂ e)				

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

B.6.1. Description of the monitoring plan:

>>
The Project Sample Group (PSG) will be monitored at the PoA level, with the results applied to each CPA, depending on the proportion of each LPC Group for that CPA. The project cross check survey will be conducted at the CPA level. The population of LPC groups across the whole PoA will determine the sample size for the Project Sample Groups (PSG).

The sampling approach consists of grouping the population of LPCs into “usage groups” from which

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samples are drawn. Usage groups are subsets of the entire population of LPCs that fall within certain average operating hours groups as shown in the Table 4 in section A.4.4.2 of the PoA-DD. This grouping technique subdivides a large, heterogeneous population into smaller groups that are more homogeneous. The LPCs will be initially classified into 8 groups as shown in the Table 4 in section A.4.4.2 of the PoA DD. Based on the monitoring results obtained the CME may choose to increase or decrease the number of LPC Groups or reclassify LPC Groups in subsequent monitoring periods. If there is any reclassification, it is to ensure that the sample is the best representation of the population as a whole whilst minimising redundant metering.

In order to estimate ex-ante energy savings and emission reductions for each CPA, the CME will initially classify each LPC into the groups by estimating its average operating hours per day. The CME will obtain the required estimation of operating hours by any of the following methods:

- (a) The building operator's knowledge of average operating hours of LPCs; or
- (b) Prior study on average operating hours of the LPCs; or
- (c) Metering a randomly selected sample of LPCs to obtain the average operating hours; or
- (d) Recording the daily operating hour data of the LPCs for a certain period of time.

The operating hour data of a representative sample of LPCs across each LPC group will be monitored for the duration of the crediting period as stated in section A.4.4.2 of the PoA-DD. The proportion of operating lamps under each LPC group will also be surveyed periodically as stated in section A.4.4.2 of the PoA-DD. The LPCs in the sampling group, also known as the Project Sample Group (PSG), will be equipped with monitoring meters that measure the number of operating hours. The data collected from these monitoring meters will be extrapolated to the respective LPC groups. Similarly, the results obtained from the periodic survey of the proportion of operating lamps in the Project Cross Check Group (PCCG) will be extrapolated to the relevant LPC groups.

A detailed description of the statistical methods used for creating PSG and PCCG for SSC-CPA is provided in Section A.4.4.2 of the PoA-DD.

The purpose of the monitoring plan implemented for each SSC-CPA is to collect the following variables:

Parameter	Unit	Description	Symbol
Client	Name	Name of companies or building owners participating in a SSC-CPA	n/a
Exchange location	Address and GPS data	Each building involved in a SSC-CPA will be identified by an address and GPS location	n/a
Sector	Classification	Each client will be classified according to industry sector (eg. office, hotels, shopping centre, car park etc)	n/a
Room type	Classification	Each room or area within which a retrofit or refurbishment takes place will be classified (eg. meeting room, retail shop, bathroom, office etc)	n/a

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Last Point of Control (LPC) group	Classification	LPC will be initially classified into eight groups as stated in section A.4.4.2 of the PoA-DD. The LPC groups will be determined before or after the installation of efficient lighting devices.	n/a
Installation date	Date	The installation date will be used as the earliest starting date for emission reduction calculations for that SSC-CPA	n/a
Quantity of baseline lighting equipment removed	Number	This information will be used to determine the electricity consumption of baseline lighting equipment	n _i
Power of baseline lighting equipment removed	Watts	This information will be used to determine the electricity consumption of baseline lighting equipment	p _i
Quantity of project lighting equipment installed and operational	Number	This information will be used to determine the electricity consumption of project lighting equipment. Data is collected during the cross-check surveys of each monitoring period	n _k
Power of project lighting equipment installed	Watts	This information may be used to determine the electricity consumption of project lighting equipment	p _k
Operating hours of project lighting equipment	hours	This data will be collected during ongoing metering of project lighting equipment in the Project Sample Group	o _k

In order to monitor emission reductions, each SSC-CPA must follow the steps described below:

1. Baseline audit and determination of technology swaps

SSC-CPA implementers must conduct a detailed audit of target buildings to determine the number and type of lighting technologies to be retrofitted as part of the project. This information is then recorded in the PoA database and presented to the DOE at the time of CPA inclusion.

2. Data collection during retrofit

During the retrofit process SSC-CPA implementers must collect data on the number and power rating of equipment replaced and installed. Through this process a complete data set will be created listing the technical specifications of all lighting equipment, including:

- Lamp or luminaire type removed (baseline equipment) and installed (project equipment)
- Number of each lamp or luminaire type removed and installed
- Power rating of each lamp or luminaire removed and installed

This information will be entered and stored in the PoA database.

3. LPC group classification

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During the retrofit process, the SSC-CPA implementer must classify the lighting equipment installed against LPC Groups in accordance with the procedure described in Section A.4.4.2 of the PoA-DD. The LPC group classification will be entered and stored in the PoA database.

4. Baseline equipment scrapping

Each SSC-CPA implementer will ensure that all baseline equipment collected is scrapped to prevent leakage. In order to conduct an independent verification of the scrapping of baseline lighting equipment an independent auditor or environmental audit firm, approved by the CME, must be engaged. Lighting equipment collected during the distribution will be transported to a waste management company who will conduct the equipment scrapping. All storage and destruction processes will be independently verified and the result of such process will be presented to the verifying DOE.

It should be noted that the independent auditor will check that the quantity of baseline equipment collected and recorded in the database, matches the number that is scrapped by the waste management company. Because of the nature of the technology upgrades, it is possible that the number of project lamps and luminaires installed could be *less* than the number of baseline lamps removed. For example, an old inefficient luminaire may contain four tube fluorescent lamps, whilst the replacement contains two, more efficient lamps. The new energy efficient luminaire satisfies the service equivalence requirements of the methodology (AMS IIC v13 paragraph 2), however, it may do so with fewer lamps. Therefore, the leakage test described in the methodology (paragraph 17) will be satisfied by comparing the number of baseline equipment collected against the number scrapped, rather than the number of project equipment installed being compared to the number of baseline equipment scrapped. This approach is conservative because it ensure that the amount of equipment removed from the project site is compared to the amount of equipment scrapped, ensuring that there is no leakage of baseline technology from the project.

5. Metering of project lighting equipment

Monitoring a sample of installed lighting equipment to determine average hours of utilisation (o_k) will be undertaken by installing metering equipment in LPCs belonging to the Project Sample Group (PSG). The selection of PSG will be as per the sampling approach described in Section A.4.4.2 of the PoA-DD. The annual operating hours of monitored devices will be used to determine the energy baseline as per equations listed in B.5.2. above.

The mean hours of use of lighting equipment found in the PSG LPCs will be directly extrapolated to all LPCs involved in the SSC-CPA. The purpose of establishing the PSG is to create a *representative sample* of all other LPCs and their respective lighting systems participating in the efficient lighting initiative. It is not possible to monitor *all* LPCs involved in the SSC-CPA, and it is a fundamentally agreed scientific and statistical procedure to apply mean values obtained through sampling to the broader population. Therefore, for each monitoring period mean values will be obtained for energy consumption for the project and baseline scenarios which will be extrapolated across the unmetered LPCs operating during that monitoring period. This will be used in the calculations of project and baseline emissions as stipulated in the equations provided in section B.5.2. above.

6. Periodic cross-check survey

A sample of non-metered LPCs will be surveyed to determine proportion of energy efficient lamps and equipment operational during the preceding monitoring period.

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A non-metered sample of LPCs installed in participating buildings will be surveyed at least annually to measure the proportion of equipment still in operation. As with the PSG, the Project Cross-Check Sample Group (PCCG) will be selected according to the sampling plan detailed in Section A.4.4.2 of the PoA-DD. The lighting installations included in the PCCG will be randomly selected from the database of participating buildings. The result of this sampling will determine the proportion of the total number of devices still operating at the end of each monitoring period which will be applied to the calculation of emissions reductions for that period.

As discussed above, the results obtained from the sampling process will be directly extrapolated across the entire population of buildings and corresponding lighting systems participating in the CPA. Therefore, the proportion of equipment installed and continuing to function as determined through the cross-check survey will be taken to be representative of the pattern occurring in all LPCs.

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:

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

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

>>Not required – environmental analysis undertaken at PoA level

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

>> There are variations between the different Host Parties covered by the PoA as to whether an EIA is required for typical CPAs. A determination of EIA requirements will be made at the CPA level, and documented accordingly in the CPA-DD.

SECTION D. Stakeholders' comments

>>

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

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

A single stakeholder consultation session will be undertaken for each Host Country involved in the PoA. The results of this engagement process will be applicable to all CPAs implemented in the host country. It

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is not a requirement of the PoA to conduct a new local stakeholder engagement process for each SSC-CPA implemented under the PoA.

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

>>

D.3. Summary of the comments received:

>>

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

>>

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Annex 1

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

Organization:	Standard Bank Plc
Street/P.O.Box:	20 Gresham Street
Building:	
City:	London
State/Region:	
Postfix/ZIP:	EC2V 7JE
Country:	United Kingdom
Telephone:	+44 20 3145 6890
FAX:	+44 20 3189 6930
E-Mail:	co2@standardbank.com
URL:	www.standardbank.com
Represented by:	Geoff Sinclair
Title:	Head of Carbon Sales & Trading
Salutation:	Mr.
Last Name:	Sinclair
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First Name:	Geoff
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Direct tel:	+44 20 3145 6893
Personal E-Mail:	geoff.sinclair@standardbank.com

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

Annex 3

BASELINE INFORMATION

Annex 4

MONITORING INFORMATION
