PROGRAMME DESIGN DOCUMENT FORM FOR SMALL-SCALE CDM PROGRAMMES OF ACTIVITIES (FCDMSSCPoADD) Version 02.0

PROGRAMME OF ACTIVITIES DESIGN DOCUMENT (PoA-DD)

PART I. Programme of activities (PoA)

SECTION A. General description of PoA

A.1. Title of the PoA

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CFL Distribution Programme in Jiangxi Province
Version Number: 03
Date: 27/12/2012

A.2. Purpose and general description of the PoA

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General operating and implementing framework of PoA

The objective of this Programme of Activities is to replace approximately 65 million[1] household incandescent lamps (ICLs) with equal number of energy efficient, self-ballasted, compact fluorescent lamps (CFLs), of same or higher lumen output. The use of CFLs instead of ICLs will reduce carbon dioxide emissions associated with the combustion of fossil fuel from grid connected power plants in the Central China Power Grid (CCPG).

Carbon Gold Beijing Technology Co., Ltd. (CG) will coordinate the Small-Scale Programme of Activities (SSC-PoA) and will support the project implementer(s)[2] in implementing the component project activity (CPA) in Jiangxi Province. The proposed programme after implementation will result in CO_2 emission reduction by saving electricity consumption generated by fossil fuel fired-based power plants in the CCPG, due to the electricity consumed by the project residents is imported from CCPG.

Under the programme, high quality long-life CFLs would be distributed by CG and other project implementer(s) to residential households in exchange of ICLs for free or for a minimal fee. When a fee is charged, it will not be higher than 1RMB[3] which is comparable to the price of an ICL and therefore much lower than the costs for a CFL. Each household can install no more than six CFLs through the CPAs by replacing used ICLs. To avoid re-sale of the CFLs, the label on the CFLs will be clearly marked accordingly.

Policy/measure or stated goal of the PoA

The proposed PoA is to distribute around 65 million CFLs, replacing low efficient ICLs, mainly covering rural area of Jiangxi Province and to reduce the electricity consumed by local residents, in order to reduce corresponding CO_2 emissions during power generation.

Contributions of the PoA to sustainable development

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[1] The amount is estimated based on the statistics of households located in Jiangxi Province. http://number.cnki.net/cyfd/MetaShow.aspx?zhibiao=%u603b%u4eba%u53e3&areacode=xj1400&pn=%u6c5f%u897f%u7701%u5168%u7701%u8303%u56f4
The actual one will be confirmed when all CPAs were included and implemented.

[2] Carbon Gold Beijing Technology Co., Ltd. may become the SSC-CPA implementer, and all relevant requirements shall also be achieved.

[3] The main reason for charging the minimal fee is that it will increase the feeling of ownership of the households that receive the CFLs and that the households are more likely to handle them with appropriate care.

The successful implementation of the PoA will have environmental, social and technological benefits. Such benefits are discussed below:

- Reduced emissions of pollutants as a result of the less combustion of fossil fuel for power.
- Reduced emissions will help provide cleaner air-quality for the local residents and therefore better health.
- Promote further usage of CFLs and create a demand for the CFLs.

So the proposed PoA will contribute to local sustainable development.

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

The proposed PoA is a programme developed by CG to promote energy efficient lighting in Jiangxi Province. All the key players under the programme like the CG, participating implementer(s) and households are voluntarily taking part in the programme.

In addition, there are no mandatory requirements in Jiangxi Province and in China requiring the use of energy efficient CFLs at the household level. Although a notification of "The Provisional Measures of Financial Subsidy for Promoting Efficient Lighting Equipment" was jointly published by NDRC and Ministry of Finance[4] in 2007. Due to this measurement, a certain amount of efficient lighting equipment was promoted with government subsidy in the past four years; however, the promotion was limited in major cities of China and small proportion was promoted in mass rural areas[5].

A.3. CMEs and participants of PoA

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The coordinating or managing entity of the SSC-PoA will be the Carbon Gold Beijing Technology Co., Ltd. The contact details are as listed in Annex I.

Project participants under the PoA

Project participants are defined as either

1. a Party involved, which has indicated to be a project participant, or
2. a private and/or public entity authorized by a Party involved to participate in a CDM project activity.

A.4. Party(ies)

Name of Party involved (host) indicates a host Party	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
People's Republic of China (host)	Carbon Gold Beijing Technology Co., Ltd.	Yes

A.5. Physical/ Geographical boundary of the PoA

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The political boundary of Jiangxi Province in China is chosen as the geographical boundary of the SSC-PoA. The SSC-CPAs that will be included under the SSC-PoA will be within the defined geographical location of the SSC-CPA area and follow applicable national and / or sectoral policies and regulations. Jiangxi Province is with the center geographical coordinates of north latitude 28°40′40.04″ and east longitude 115°54′15.63″[6].

[4] http://www.sdpc.gov.cn/zjgx/t20080508_210093.htm
[5] http://www.ledb2b.cn/lib/0909/I01_09211.asp
[6] http://www.gpsspg.com/jingweidu/360000.htm

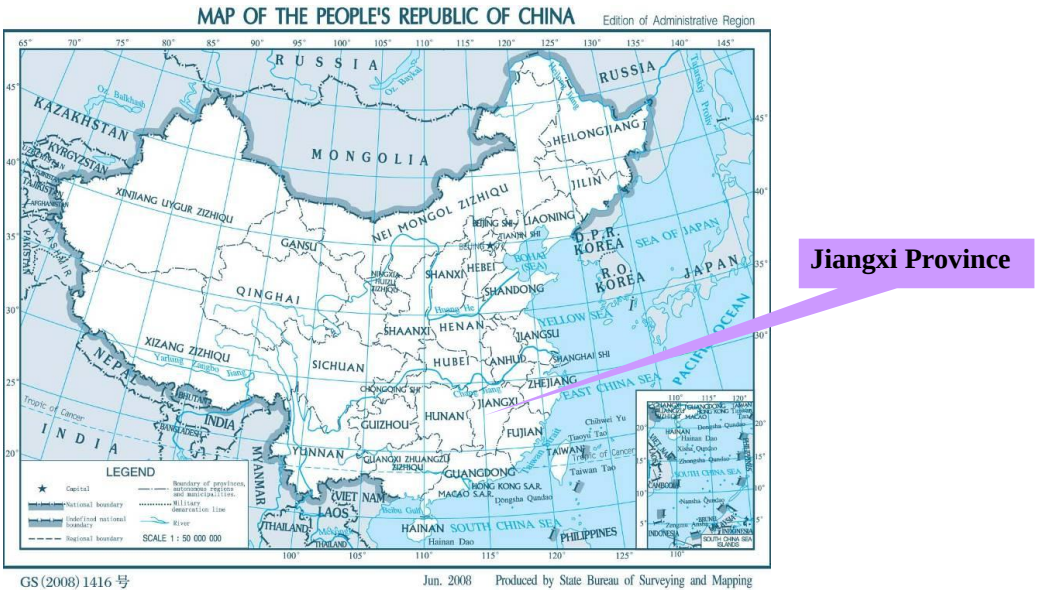

Figure 1. The geographical boundary of the SSC-PoA

A.6. Technologies/measures

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The SSC-CPA under the programme is to distribute high efficient CFLs, replacing equal amount of ICLs being used by residents.

The baseline technology, i.e. the minimum output of incandescent lamp are as follows (if a lamp wattage is not in the Table below, linearly interpreted value shall be used to determine the minimum light output requirements e.g., 493 Lumens for a 45 W lamp):

Baseline Technology - Incandescent Lamp (Watt)	Minimum Light Output (Lumen)

25	230
40	415
50	570
60	715
75	940
90	1,227
100	1,350
150	2,180
200	3,090

And the ICLs replaced by CFLs should be used in locations where the utilization hours are relatively high, for example common areas.

In particular, the specification of CFLs distributed in the project should be as following:
(1) To ensure the electricity saving, the power of CFL is lower than that of substituted ICL;
(2) Have an average life longer than 6000 hours, which conforms to the national technical specification[7];
(3) The total lumen output of the CFL should be equal to or more than that of the ICL being replaced, consistent with the applied methodology. (GB/T 17263) stipulated for CFLs by AQSIQ (General Administration of Quality Supervision, Inspection and Quarantine of P.R.C.);

In addition, the CFLs distributed in the project will be made in China, not referring to international technology transfer.

A.7. Public funding of PoA
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The proposed programme of activities does not involve any public funding.

SECTION B. Demonstration of additionality and development of eligibility criteria
B.1. Demonstration of additionality for PoA
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The proposed PoA is a programme voluntarily developed by CG to promote high quality CFL in Jiangxi Province, China. There are no mandatory requirements in China requiring the use of energy efficient CFL at the household level. All the key players under the programme like the CG, participating implementer(s) and households are voluntarily taking part in the programme.

The PoA Procedures require demonstration that in the absence of the CDM
(i) the proposed voluntary measure would not be implemented, or
(ii) the mandatory policy/regulation would be systematically not enforced and that noncompliance with those requirements is widespread in the country/region, or
(iii) the PoA will lead to a greater level of enforcement of the existing mandatory policy/regulation.

In the absence of CDM the proposed voluntary programme would not be implemented. As per Guidelines on the demonstration of additionality of small-scale project activities a small scale CDM project activity need only demonstrate one of the four barriers faced by the project activity to establish the project additionality. The four types of barriers that could be demonstrated for a small scale project activity are:
1. Investment barrier
2. Technological barrier
3. Barrier due to prevailing practice

[7] http://www.wendangdoc.com/word_jingji/20110628/665488_2.html

4. Other barriers

According to the "Guidelines on the demonstration of additionality of small-scale project activities" (Version 09.0), reported as Annex 27 to EB 68, documentation of barriers defined above is not required for the positive list of technologies and project activity types 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). Paragraph 2(c) of this document reads as follows:

"Project activities solely composed of isolated units where the users of the technology/measure are households or communities or Small and Medium Enterprises (SMEs) and where the size[8] of each unit is no larger than 5% of the small-scale CDM thresholds."

The component project activities, under this PoA, solely composed of isolated units where the users of the CFL are households and where the size of each household should be much less than 3000 MWh of energy savings per year. Hence the maximum annual saved electricity of each distribution of a CFL is used for additionality demonstration at CPA level. If the maximum annual saved electricity of each project household, due to using the distributed project CFLs, is less than 3000 MWh per year, the SSC-CPA is automatically additional. This has been defined as an eligibility criterion to include CPA.

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

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CG, as the SSC-PoA managing entity, shall verify eligibility conditions before enrolling a SSC-CPA. The eligibility criteria shall be stated and checked in each SSC-CPA document as follows:

Serial No.	Requirements for criteria	Serial No.	Eligibility Criteria
a	The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA.	1.	The geographical boundary of the SSC-CPA area is uniquely defined and located in Jiangxi Province. Map of the CPA location and its coordinate's description can be checked.
b	Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo)	2.	CFLs utilized under the SSC-CPA are marked for clear unique identification for the PoA and the SSC-CPA, which will be specified on the CFL procurement contract.
		3.	CFL manufacturer and project households will sign agreements with CG to relinquish their rights over the CERs generated from the project CFL use.
		4.	Confirmation that this SSC-CPA is not registered or being registered, as a stand-alone CDM or as a CPA of another PoA.
c	The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications	5.	The baseline technology is Incandescent Lamp being used by SSC-CPA residents. The CFLs distributed in the SSC-CPA are new equipments, and have ballasts integrated to the lamp as a

[8] That is the size of each unit under 750 kW installed capacity or under 3000 MWh of energy savings per year or 3000 tonnes of emission reductions per year.

			non-removable part.
		6.	The lumen output of project CFL are greater than or equal to that of the ICL exchanged and the eligible wattage of project CFL is lower than that of the ICLs. This shall be tested and confirmed according to relevant national or international standards.
d	Conditions to check the start date of the CPA through documentary evidence	7.	The start date of the SSC-CPA is not, or will not be, prior to the commencement of validation of the programme of activities. The start date of the SSC-CPA shall be checked through documentary evidence, e.g. CFL procurement contract.
e	Conditions that ensure compliance with applicability and other requirements of single or multiple methodology/ies applied by CPAs	8.	The baseline and monitoring methodology AMS-II.J is applied. All the CPAs should meet applicability and other requirements of AMS-II.J.
f	The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in Section A of *standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities.*	9.	The maximum annual saved electricity of each project household, due to using the distributed project CFLs, is less than 3000 MWh per year.
g	The PoA-specific requirements stipulated by the CMEs including any conditions related to undertaking local stakeholder consultations and environmental impact analysis	10.	Stakeholders' consultation meeting is conducted prior to the publication of SSC-CPA-DD on the UNFCCC website and CPA inclusion. Each CPA should carry out local stakeholder consultations and provide stakeholder questionnaires to the CME, which should question on the followings, but are not limited to: ♦ Will the Project bring improvements to their livelihoods? ♦ Will the Project have negative impacts on their livelihoods? ♦ Do they support the Project?
		11.	Environment impact analysis should be included in stakeholder consultation process. The approval letter of Environmental impact analysis will be checked.
h	Conditions to provide an affirmation that funding from Annex I party, if any, does not result in a diversion of official development assistance	12.	Each CPA will not have funding from Annex I parties; if any, does not result in a diversion of official development assistance, otherwise it will not be included in the PoA.

i	Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid-connected/off-grid) and distribution mechanisms (e.g. direct installation)	13.	The target group should be the residents who will participate in the PoA voluntarily and are using ICLs in their houses.
		14.	The proposed method of distribution of efficient lighting equipment and how ICL collection (e.g., exchanged for project CFLs) and destruction should be indicated in the CPA DD.
		15.	The total amount of CFLs distributed for each household is no more than six. Actions are defined in the SSC-CPA-DD to be taken to encourage CFLs being installed in locations within the residences where the utilization hours are relatively high, for example common areas.
j	Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys	16.	Simple random sampling should be used by each CPA to conduct the monitoring survey. Parameter value to be monitored shall be estimated by sampling in accordance with the requirements in the applied methodology (applying 90/10 confidence/precision for the sample size calculation) separately and independently for each of the CPAs included in this PoA.
k	Where applicable, the conditions that ensure that CPA in aggregate meets the small-scale or micro-scale threshold criteria and remains within those thresholds throughout the crediting period of the CPA	17.	The aggregate electricity savings by a single SSC-CPA do not exceed the equivalent of 60 GWh per year.
l	Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories	18.	The maximum annual saved electricity of the subsystem of under the CPA is less than 1% of the small-scale thresholds (60GWh per year) defined by the applied methodology AMS-II.J.

B.3. Application of methodologies

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"AMS-II.J: Demand-side activities for efficient lighting technologies", Version 4.0, EB 54
Type II: Energy demand projects
Sectoral Scope: 03
Reference: http://cdm.unfccc.int/methodologies/DB/5RMYBVTQ83H9CJA99M2392TSNO9IUJ

Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities", Version 02.0, EB 70.

Tool to calculate the emission factor for an electricity system, Version 02.2.1, EB 63

Each CPA included in the PoA should meet the requirements as following:

No.	AMS-II.J requirement	SSC-CPA Qualification Justification
1.	Adoption of new self-ballasted compact fluorescent lamps (CFLs) to replace incandescent lamps (ICLs) in residential applications	The CG promotes this programme under which long-life CFL lamps would be distributed in exchange of an incandescent lamp (ICL) to residential households on a voluntary basis. The CFL distribution is taken up by SSC-CPA implementer(s), who enter into agreement[9] with CG and distribute CFLs (i.e. energy efficient lamps) to households in the CPA area.
2.	The CFLs adopted to replace existing equipment must be new equipment and not transferred from another activity	The CFLs provided by CG shall be new and have ballasts integrated to the lamp as a non-removable part. The project lamps also carry on the unique logos[10] which identify these CFLs belonging to this PoA and thus are distinguishable.
3.	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).	The lumen output of project CFL are greater than or equal to that of the ICL exchanged and the eligible wattage of project CFL is much lower than that of the ICLs. These will be tested and confirmed based on the national or international standard e.g. CIE84:1989.
4.	The aggregate electricity savings by a single project activity may not exceed the equivalent of 60 GWh per year.	The aggregate energy savings from a CPA shall not exceed 60 GWh. This shall be demonstrated in SSC-CPA-DD.
5.	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, e.g., ISO/IEC 17025.	CFLs distributed in the proposed projects have extra long average life of 10,000 hours or longer. This shall be tested by an independent third party, which shall comply with the requirements of a relevant national or international standard, e.g., ISO/IEC 17025. To ensure the credibility, the international standard of IEC 60969 was applied. The laboratory conducting and certifying the tests to determine CFL average life shall comply with the requirements of a relevant national or international standard, e.g., ISO/IEC 17025. The relevant documentation has been provided to the DOE for verification.
6.	CFLs utilized under the project activity shall, in addition to the standard lamp specifications, be marked for clear	The distributed CFL lamps under the CPA shall carry on the unique logos which identify these CFLs belonging to this PoA.

[9] The agreement may not be signed, if the CG itself becomes the SSC-CPA implementer.

[10] The specific information about the logos refers to the specific CPA-DD and the contract signed between CME and CFL manufacturer.

	unique identification for the project.	
7.	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. 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; (iii) Restricting the number of lamps per household distributed through the project activity to six.	The replaced ICLs will be destroyed, thus the project activity will limit undesired secondary market effects. At least Option (iii) is met as per PoA design. The programme requires the amount of CFLs per household distributed through the project activity cannot be more than 6.
8.	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.	To eliminate double counting, the CME shall sign agreements with the manufacturer and project residents during implementation. According to the agreements, the emission reduction is only employed by the CME (CG) and all rights about emission reductions are given up by the manufacturer and project residents.
9.	Ensure that the replaced ICLs are collected, destroyed and documented; the proposed method of CFL distribution is explained in the project document.	The replaced ICLs are collected directly from households or from the dedicated distribution / collection points and stored at a centralized or multiple storage sites. The SSC-CPA implementer(s) ensures that the returned ICLs are recorded and destroyed in a manner which allows for verification. In addition, the distribution method will be defined in the CPA-DD.
10.	Whether the CFLs are directly installed or not directly installed, the project design document shall define actions to be taken to encourage CFLs being installed in locations within the residences where the utilization hours are relatively high, for example common areas. For CFLs not directly installed these actions can include educating the CFL recipients of the best uses for CFLs.	The distribution of CFLs and replacement of previously used ICLs in households in the SSC-CPA area can take place using one or more of the following methods: ● direct installation at each household; and/or ● ICL collection and CFL distribution through dedicated distribution points e.g. resident association offices, schools etc. Where direct installation is not done, the recipient shall be educated to install the CFL in relatively high-usage areas. The methods of this education could include posters, printed hand-outs, verbal explanation by SSC-CPA representatives etc.
11.	The Project design document shall also explain how the proposed procedures eliminate double counting of Emission	CG seeks confirmation in SSC-CPA when conducting CPA eligibility check. In particular, each SSC-CPA has unique geographical boundary

	Reductions.	as defined by the project area. To confirm that no CPA or CDM project activity developed in the proposed project area, the relevant information, about the projects using the same methodology AMS-II.J or the same measure/technology, on websites of UNFCCC and Chinese DNA will be checked before applying for CDM and implementation of the CPA in Jiangxi Province. During CPA implementation, CFL manufacturer and project households will sign agreements with CG to relinquish their rights over the CERs generated from the project CFL use. In an instance where a CPA of another PoA or CDM project activity is already registered in the same geographic area as a proposed SSC-CPA, the CG will not proceed with the submission for inclusion of the SSC-CPA in the PoA.

SECTION C. Management system

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CME create an organizational structure to provide the administrative support for all stakeholders of the PoA.

(a) A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs

Organization	Roles	Personnel	Responsibilities
CG	Coordinating &Managing Entity(CME)	managing team	• Apply the registration of the PoA with UNFCCC CDM Executive Board as a focal point; • Develop a PoA management system and making continuous improvements of the system; • Carry out the management and coordination of PoA in accordance with the management system • Select and contract CPA implementers; • Make decision on whether to implement a specific CPA based on the proposal submitted by the CPA implementer; • Develop and update eligibility criteria for inclusion of CPAs; • Provide qualified CFLs; • Pay the implementation fee; • Improve the PoA management system according to the latest methodology and standards. If there are new problems during the random check, the PoA management system should be continuous improved.
		technical advisory team	• Provide training and capacity development for personnel in the whole process of CPA implementers;

			• Carry out the technical review and control of inclusion of CPAs according to the Quality Control & Manage Manual(QCMM); • Review of the competencies of personnel involved in the process of inclusion of CPAs.
CPA implementer	Implement CPA	• Submit a proposal about CPA implementation to CG for making decision; • Collect the initial information using standardized formats and transfer them into an electronic data base; • Maintain all the records, documents and database in the process of CPA implementing, and make them available to CG for checking randomly and DOE for validation or verification; • Carry out monitoring action in accordance with monitoring plan.	

(b) Records of arrangements for training and capacity development for personnel

Members of the CME should be well equipped with basic knowledge of the CDM rules and guidelines. They should also acquire sufficient data to help them identify the types of projects which would be eligible under this PoA. Furthermore, each staff member should have good understanding of his/her role, as well as a general idea regarding the roles of all other members of the CME, to ease the communication within the team.

CG will arrange training and capacity development for personnel, who take part in the whole process of implementing the PoA as follows:

- Determine the necessary competence for these personnel;
- Provide training or take other actions achieve the necessary competence;
- Evaluate the effectiveness of the actions taken;
- Maintain appropriate records of training and capacity development.

(c) Procedures for technical review of inclusion of CPAs

In order to guarantee that each CPA conforms to the inclusion criteria, CG should carry out technical review of inclusion of CPAs. The procedures are as follow:

- Determine the CPAs inclusion criteria according to the PoA-DD and related standards;
- Conduct technical review to determine whether the CPAs conform to these criteria;
- If the CPA is a non conformity, the CPA implementer should make the CPA conform to the all criteria and submit proposal to CG again.

At the same time, CG also needs to control the implementation of each CPA under PoA.

- Make sure that each CPA conforms to the requirements of PoA-DD, CPA-DD and related standards;
- Maintain appropriate records and documents of the control process.

(d) A system/procedure to avoid double accounting

For quality control and avoidance of double counting, the CME will also document the following:

- A declaration stating that CPA implementers are aware and agree that the project will be subscribed to the PoA.
- CPA implementers acknowledge that their project is not registered or seeking registration as a stand-alone CDM project activity, part of a bundle CDM project activity, or CPA under a PoA different from this PoA.
- Each CPA will be uniquely identified and checked against the projects seeking validation or already registered in UNFCCC database online to ensure that there is no double counting.
- Geographic coordinates of the CPA can be checked against existing CDM projects and CPAs in the region.

- During CPA implementation, CFL manufacturer and project households will sign agreements with Carbon Gold Beijing Technology Co., Ltd. to relinquish their rights over the CERs generated from the project CFL use.

(e) **Records and documentation control process for each CPA under the PoA**
As a CME for the PoA, it will maintain records for each CPA. The following information would be provided:

1. The geographical location of each CPA;
2. The name, address and record of specifications of ICLs exchanged and distributed CFLs in households participating in the CPA;
3. The names, addresses and monitoring data of each household involved in sample households for lamp failure rates and monitoring surveys;
4. Destruction of ICLs. To facilitate random verification, dates of ICL destruction would be communicated to CG in advance by SSC-CPA implementer(s). To enhance process credibility, SSC-CPA shall carry out the destruction in the presence of responsible witnesses e.g. local environmental officials, or documented by time stamped video records.

(f) Measures for continuous improvements of the PoA management system
CG shall continually improve the effectiveness of the PoA management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review according to the QCMM. And if the methodology and standard are updated, the PoA management system should be improved too.

(g) Other relevant elements
Procedure to check for De-bundling

The CDM EB 54 meeting report Annex 13 "Guidance on assessment of de-bundling for SSC project activities" version 03. Para 10 stipulate the following:

If each of the independent subsystems/measures (e.g., biogas digester, solar home system) included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the methodology applied, then that 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.

CG and the SSC-CPA implementer(s) would cover the project cost through sale of GHG emission reductions achieved in CPA areas. The maximum wattage rating of an ICL which can be replaced under the programme is 200 W (from AMS-II.J) 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 GWh. 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 GWh 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.

Awareness of CPA implementer(s) on PoA Provisions

The CG as CME requires all SSC-CPA implementer(s) to sign an agreement with CG before the CPA enrolled, if the SSC project activity was not implemented by the CG itself. In particular, the SSC-CPA implement(s) are aware of and have agreed that their activity is being subscribed to the PoA.

SECTION D. Duration of PoA
D.1. Start date of PoA
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23/07/2012 (the date of publication of the PoA-DD for global stakeholder consultation)
31/01/2013(expected start date of the crediting period of PoA, choosing the later one between CFLinstallation completion date of the first CPA or registration date)

D.2. Length of the PoA
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28 years

SECTION E. Environmental impacts
E.1. Level at which environmental analysis is undertaken
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1. Environmental Analysis is done at PoA level ☑
2. Environmental Analysis is done at CPA level ☐

Environmental Analysis is done at PoA level, due to the following reason:
1. The CFLs distributed in this programme meet the requirements of GB/T 17263;
2. There are no statutory environmental impact assessment requirements on lighting facilities distribution and disposal.

E.2. Analysis of the environmental impacts
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Currently all fluorescent lamps used in China are not being recycled but disposed with the regular waste in landfills. Every CFL contains small quantities of mercury and therefore may eventually add to contamination of soils and groundwater resources in China.

CG as the PoA CME is aware of this fact and therefore wants to address this issue proactively. Although Chinese Government does not mandate an EIA or any precautionary measures for CFL use, CG will require itself and SSC-CPA implementer(s) to contribute to the prevention of mercury pollution from the CPA project activity, with mitigation plan that containing the following elements:

- It shall be demonstrated that the average amount of mercury inside the distributed CFLs lamps is achieved the requirement of National Standard in China.
- The CFLs used in the CPA project activities shall have a long average life of 10,000 hours or longer.
- All households that take part in the project activity shall be informed in detail how to use and handle the CFLs properly.

In addition, the waste of the collected and destroyed ICLs will be handled in an appropriate and environmental friendly way with due care and safety without causing any hazard as specified by local authority. The destruction methods will be documented via witnessing by local environmental officials or time stamped video records.

SECTION F. Local stakeholder comments
F.1. Solicitation of comments from local stakeholders
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1. Local stakeholder consultation is done at PoA level ☐
2. Local stakeholder consultation is done at CPA level ☑

Local stakeholder consultation will be done at SSC-CPA level, because it is difficult to carry out the stakeholder consultation at PoA level. In particular, a consultation meeting will be carried out in each CPA district and the comments by local stakeholders will be recorded.

F.2. Summary of comments received
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N/A

F.3. Report on consideration of comments received
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N/A

SECTION G. Approval and authorization
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The Letter of Approval from the People Republic of China has been provided to the validating DOE.

PART II. Generic component project activity (CPA)

SECTION A. General description of a generic CPA
A.1. Purpose and general description of generic CPAs
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The CG will coordinate the Small-Scale Programme of Activities (SSC-PoA) as a PoA CME, and will support the project implementer(s) in implementing the Component Programme Activities (CPAs) in Jiangxi Province.

Under the programme, approximately 65 million household incandescent lamps will be replaced by equal number of energy efficient, self-ballasted, compact fluorescent lamps, of same or higher lumen output. . The latest version of CDM small scale methodology AMS-II.J shall be applied. A certain amount of CFLs can be distributed within a single SSC-CPA small scale CDM, which should meet the requirement of the limitation of 60 GWh.

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 in households in the SSC-CPA area can take place using one or more of the following methods:

- Direct installation at each household; and/or
- ICLs collection and CFLs distribution through dedicated distribution points e.g. retail outlets, resident association offices, schools etc.

Where direct installation is not done, SSC-CPA shall educate the recipient to install the CFL in high-usage areas. The methods of this education could include posters, printed hand-outs, verbal explanation by SSC-CPA representatives etc.

The replaced ICLs are collected directly from households or from the dedicated distribution/collection points and stored at a centralized or multiple storage sites. The SSC-CPA implementer(s) ensures that the returned ICLs are recorded and destroyed in a manner which allows for verification.

Under the programme the SSC-CPA shall use a fixed value of 3.5 hours to estimate the carbon dioxide emission reductions under the CDM project.

SECTION B. Application of a baseline and monitoring methodology
B.1. Reference of the approved baseline and monitoring methodology(ies) selected
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AMS-II.J: Demand-side activities for efficient lighting technologies, Version 4.0, EB54
Type II: Energy demand projects

Sectoral Scope: 03
Reference: http://cdm.unfccc.int/methodologies/DB/5RMYBVTQ83H9CJA99M2392TSNO9IUJ

The projects refer to the following methodological standards and tools:

"Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities", Version 02.0, EB 70.

"Tool to calculate the emission factor for an electricity system", Version 02.2.1, EB 63

B.2. Application of methodology(ies)
>>

No.	AMS-II.J requirement	SSC-CPA Qualification Justification
1	Adoption of new self-ballasted compact fluorescent lamps (CFLs) to replace incandescent lamps (ICLs) in residential applications	The CG promotes this programme under which long-life CFL lamps would be distributed in exchange of an incandescent lamp (ICL) to residential households on a voluntary basis. The CFL distribution is taken up by SSC-CPA implementer(s), who enter into agreement[11] with CG and distribute CFLs (i.e. energy efficient lamps) to households in the CPA area.
2	The CFLs adopted to replace existing equipment must be new equipment and not transferred from another activity	The CFLs provided by CG shall be new and have ballasts integrated to the lamp as a non-removable part. The project lamps also carry on the unique logos[12] which identify these CFLs belonging to this PoA and thus are distinguishable.
3	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).	The lumen output of project CFL are greater than or equal to that of the ICL exchanged and the eligible wattage of project CFL is much lower than that of the ICLs. These will be tested and confirmed based on the national or international standard e.g. CIE84:1989.
4	The aggregate electricity savings by a single project activity may not exceed the equivalent of 60 GWh per year.	The aggregate energy savings from a CPA shall not exceed 60 GWh. This shall be demonstrated in SSC-CPA-DD.
5	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	CFLs distributed in the proposed projects have extra Long average life of 10,000 hours or longer. This shall be tested by an independent third party, which shall comply with the requirements of a relevant national or international standard, e.g., ISO/IEC 17025. To ensure the credibility, the international standard of IEC 60969 was applied. The laboratory conducting and certifying the tests to determine CFL average life shall comply with the requirements of a relevant national or international standard, e.g., ISO/IEC 17025. The

[11] The agreement may not be signed, if the CG itself becomes the SSC-CPA implementer.
[12] The specific information about the logos refers to the specific CPA-DD and the contract signed between CME and CFL manufacturer.

	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, e.g., ISO/IEC 17025.	relevant documentation has been provided to the DOE for verification.
6	CFLs utilized under the project activity shall, in addition to the standard lamp specifications, be marked for clear unique identification for the project.	The distributed CFL lamps under the CPA shall carry on the unique logos which identify these CFLs belonging to this PoA.
7	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. 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; (iii) Restricting the number of lamps per household distributed through the project activity to six.	The replaced ICLs will be destroyed, thus the project activity will limit undesired secondary market effects. At least Option (iii) is met as per PoA design. The programme requires the amount of CFLs per household distributed through the project activity cannot be more than 6.
8	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.	To eliminate double counting, the CME shall sign agreements with the manufacturer and project residents during implementation. According to the agreements, the emission reduction is only employed by the CME (CG) and all rights about emission reductions are given up by the manufacturer and project residents.
9	Ensure that the replaced ICLs are collected, destroyed and documented; the proposed method of CFL distribution is explained in the project document.	The replaced ICLs are collected directly from households or from the dedicated distribution / collection points and stored at a centralized or multiple storage sites. The SSC-CPA implementer(s) ensures that the returned ICLs are recorded and destroyed in a manner which allows for verification. In addition, the distribution method will be defined in the CPA-DD.
10	Whether the CFLs are directly installed or not directly installed, the project design document shall define actions to be taken to encourage CFLs being installed in locations within the residences where the utilization hours are relatively high, for example common	The distribution of CFLs and replacement of previously used ICLs in households in the SSC-CPA area can take place using one or more of the following methods: ● direct installation at each household; and/or ● ICL collection and CFL distribution through dedicated distribution points e.g. resident

	areas. For CFLs not directly installed these actions can include educating the CFL recipients of the best uses for CFLs.	association offices, schools etc. Where direct installation is not done, the recipient shall be educated to install the CFL in relatively high-usage areas. The methods of this education could include posters, printed hand-outs, verbal explanation by SSC-CPA representatives etc.
11	The Project design document shall also explain how the proposed procedures eliminate double counting of Emission Reductions.	CG seeks confirmation in SSC-CPA when conducting CPA eligibility check. In particular, each SSC-CPA has unique geographical boundary as defined by the project area. To confirm that no CPA or CDM project activity developed in the proposed project area, the relevant information, about the projects using the same methodology AMS-II.J or the same measure/technology, on websites of UNFCCC and Chinese DNA will be checked before applying for CDM and implementation of the CPA in Jiangxi Province. During CPA implementation, CFL manufacturer and project households will sign agreements with CG to relinquish their rights over the CERs generated from the project CFL use. In an instance where a CPA of another PoA or CDM project activity is already registered in the same geographic area as a proposed SSC-CPA, the CG will not proceed with the submission for inclusion of the SSC-CPA in the PoA.

B.3. Sources and GHGs

>>

As per the methodology AMS-II.J, the proposed project boundary is the physical, geographical location of each CFL installed for which an ICL has been collected and destroyed, covering the CPA area in Jiangxi Province.

Due to the electricity consumed by the project residents is imported from the local power grid, the project boundary also includes all power plants connected physically to the electricity system that each CFL distributed in the project activity will be connected to. According to the delineation which is published by the Chinese DNA, Jiangxi Province belongs to Central China Power Grid (CCPG).

Therefore the project boundary is the physical, geographical location of each project CFL installed and all power plants connected physically to Central China Power Grid.

The electricity is supplied by the CCPG which is pre-dominantly fossil fuel based. Therefore, in-directly GHG emission from grid-connected power plants are reduced.

	Source	***Gas***	***Included?***	***Justification/Explanation***
Baseline	*Power plants serving the*	*CO_2*	*Yes*	*Main emission source*

	electricity grid	*CH_4*	*No*	*Excluded for simplification. This emission source is assumed to be very small.*
		N_2O	*No*	*Excluded for simplification. This emission source is assumed to be very small.*
Project Activity	*Power plants serving the electricity grid*	*CO_2*	*Yes*	*Main emission source*
		CH_4	*No*	*Excluded for simplification. This emission source is assumed to be very small.*
		N_2O	*No*	*Excluded for simplification. This emission source is assumed to be very small.*

B.4. Description of baseline scenario

>>

In the context of this PoA, the geographical location of the SSC-CPA is within the political boundary of Jiangxi Province, China. Under the project activity CFLs replace existing ICLs and hence at the household level, there are three possible alternative scenarios as following:

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

This alternative is not applicable as there is no mandated legal requirement for replacing ICLs with CFLs in Jiangxi Province, China. In particular, there is no any national policy or regulation that requires using CFLs in households, although a notification of "The Provisional Measures of Financial Subsidy for Promoting Efficient Lighting Equipment" was jointly published by NDRC and Ministry of Finance[13] in 2007. Due to this measurement, a certain amount of efficient lighting equipments was promoted with government subsidy in the past three years; however, the promotion was limited in major cities of China and small proportion was promoted in mass rural areas[14].

2. Autonomously replacing ICLs with new lighting devices with same or greater efficiency without being registered as CDM project activity.

It is possible for autonomously replacing ICLs by the local residents; however, a number of barriers would prevent the occurrence as below:

(1) High initial price of CFLs- the unit market price of the high quality CFLs is over 20 RMB[15], much higher than that of standard ICLs (1 to 2 RMB) [16];
(2) Lack of consumer information- domestic consumers in a developing country like China, have insufficient information about the costs and benefits of CFLs. Domestic consumers often have a limited understanding of the benefits of CFL life cycle costing. They are often cash-conscious and since the investment in CFL is nearly 10 times that of an ICL, domestic consumers are not willing to make such investments. Building consumer awareness on this aspect is difficult.
(3) Doubts that promised savings will accrue there are low quality CFLs in China market[17]. The poor performance of that low quality CFLs created consumers distrust in the CFL technology.

[13] http://www.sdpc.gov.cn/zjgx/t20080508_210093.htm

[14] http://finance.sina.com.cn/chanjing/b/20061115/09551042841.shtml; http://www.ledb2b.cn/lib/0909/I01_09211.asp

[15] Each high quality CFL should be paid at least 20 RMB, if the residents purchase individually in the retail market. It's showed in the following website: http://www.360buy.com/products/1620-1623-1649.html

[16] Each ICL could be purchased by only 1 to 2 RMB, if the residents purchase individually in the retail market. It's showed in the following website: http://yc.ganji.com/qitawupin/12020917_123365.htm

[17] http://home.focus.cn/news/2009-12-10/159036.html

3. Continued use of ICLs
The scenario of "continued use of ICL" represents the lighting option choice in the business as usual scenario in China households.

In conclusion, the baseline scenario can be defined as "the proposed project would not be invested by the Project Proponent and the incandescent lamps (ICLs) of households in Jiangxi Province would be used and purchased as a continuation of current practice".

B.5. Demonstration of eligibility for a generic CPA
>>
The eligibility criteria stated in the Part I Section B.2 of SSC-PoA should be confirmed by the SSC-CPA implementer(s).

No.	Demonstration
1	The geographical boundary of the SSC-CPA area is uniquely defined and located in Jiangxi Province. Map of the CPA location and its coordinate's description can be checked.
2	CFLs utilized under the SSC-CPA are marked for clear unique identification for the PoA and the SSC-CPA, which will be specified on the CFL procurement contract.
3	CFL manufacturer and project households will sign agreements with CG to relinquish their rights over the CERs generated from the project CFL use.
4	Confirmation that this SSC-CPA is not registered or being registered, as a stand-alone CDM or as a CPA of another PoA.
5	The baseline technology is Incandescent Lamp being used by SSC-CPA residents. The CFLs distributed in the SSC-CPA are new equipments, and have ballasts integrated to the lamp as a non-removable part.
6	The lumen output of project CFL are greater than or equal to that of the ICL exchanged and the eligible wattage of project CFL is lower than that of the ICLs. This shall be tested and confirmed according to relevant national or international standards.
7	The start date of the SSC-CPA is not, or will not be, prior to the commencement of validation of the programme of activities. The start date of the SSC-CPA shall be checked through documentary evidence, e.g. CFL procurement contract.
8	The baseline and monitoring methodology AMS-II.J is applied. All the CPAs should meet applicability and other requirements of AMS-II.J.
9	The maximum annual saved electricity of each project household, due to using the distributed project CFLs, is less than 3000 MWh per year.
10	Stakeholders' consultation meeting is conducted prior to the publication of SSC-CPA-DD on the UNFCCC website and CPA inclusion. Each CPA should carry out local stakeholder consultations and provide stakeholder questionnaires to the CME, which should question on the followings, but are not limited to: ♦ Will the Project bring improvements to their livelihoods? ♦ Will the Project have negative impacts on their livelihoods? ♦ Do they support the Project?
11	Environment impact analysis should be included in stakeholder consultation process.The approval letter of Environmental impact analysis will be checked.
12	Each CPA will not have funding from Annex I parties; if any, does not result in a diversion of official development assistance, otherwise it will not be included in the PoA.
13	The target group should be the residents who will participate in the PoA voluntarily and are using ICLs in their houses.
14	The distribution of CFLs and replacement of previously used ICLs in households in the

	SSC-CPA area can take place using one or more of the following methods, but are not limited to: • Direct installation at each household; and/or • ICLs collection and CFLs distribution through dedicated distribution points e.g. retail outlets, resident association offices, schools etc.
15	The total amount of CFLs distributed for each household is no more than six. Actions are defined in the SSC-CPA-DD to be taken to encourage CFLs being installed in locations within the residences where the utilization hours are relatively high, for example common areas.
16	Simple random sampling should be used by each CPA to conduct the monitoring survey. Parameter value to be monitored shall be estimated by sampling in accordance with the requirements in the applied methodology (applying 90/10 confidence/precision for the sample size calculation) separately and independently for each of the CPAs included in this PoA.
17	A supplementary criterion is not required because all the CPA size is no more than 60GWh. The ER calculation sheet of each CPA can be checked.
18	The maximum annual saved electricity of the subsystem of under the CPA is less than 1% of the small-scale thresholds (60GWh per year) defined by the applied methodology AMS-II.J.

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

B.6.1. Explanation of methodological choices

>>

According to the applied AMS-II.J, the methodological choices are required to be made and the SSC-CPA shall indicate the choices in the following manner:

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 the Table below may be used as an alternative option to such standards. If a lamp wattage is not in the Table below, linearly interpreted value shall be used to determine the minimum light output requirements e.g., 493 Lumens for a 45 W lamp.

Baseline Technology - Incandescent Lamp (Watt)	Minimum Light Output (Lumen)
25	230
40	415
50	570
60	715
75	940
90	1,227
100	1,350
150	2,180
200	3,090

The distributed CFLs under the CPA shall meet the applicable standard CIE84:1989 or other national/international standard for CFLs.

SSC-CPA Options on Variables

As per AMS-II.J, the selection of options shall be conducted for the following variables:

TD_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.

A default value of 10% is applied.

NTG: 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.

Since in Jiangxi Province, China, such lighting use surveys are not available, under the PoA, the default value of 0.95 is applied.

***O_i*:** Average daily operating hours of the lighting devices (ICLs) replaced by the group of "i" lighting devices, use 3.5 hours per 24 hrs period or the measured value determined from the representative sample. Under the PoA, the value of 3.5 hours per 24 hrs period shall be applied in all SSC-CPAs.

Lamp Failure rate Monitoring Survey Frequency

The Lamp Failure Rate (LFR_y) is the % of lamps that have failed during a year.

Ex-ante Estimation

Average life of a CFL is defined as the length of time during which 50% of the lamps reach the end of their individual life.

Ex-post Determination

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 average life or average of the lamp.

The SSC-CPA is free to choose a monitoring periodicity more frequent than the frequency as required above during the SSC-CPA crediting period.

CFL Unique Identification

CFLs utilized under the proposed programme shall, in addition to the standard lamp specification, be marked for clear unique identification.

B.6.2. Data and parameters that are to be reported ex-ante

Data / Parameter	$EF_{CO2,ELEC,y}$
Unit	tCO_2/MWh
Description	CO2 emission factor for displacement of electricity in the grid serving the household consumers that participate in the SSC-CPA during the monitoring interval *y*, calculated according to the latest approved version of AMS-I.D (tCO_2/MWh)
Source of data	Calculated as per the latest approved version methodology AMS-I.D
Value(s) applied	SSC-CPA to apply value as per the grid-connectivity
Choice of data or Measurement methods and procedures	The SSC-CPA shall apply the latest grid emission factor database available on the Chinese DNA website and fix the value ex-ant.
Purpose of data	Calculation ERs
Additional comment	/

Data / Parameter	O_i
Unit	hours/ day
Description	Average daily operating hours of the baseline ICLs of the group of "*i*",
Source of data	Default value presented in AMS-II.J
Value(s) applied	3.5 hours per 24 hours period
Choice of data or Measurement methods and procedures	The SSC-CPA shall use fixed 3.5 hours per 24 hrs period. The value applied will be entered into the SSC-CPA database.
Purpose of data	Calculation ERs
Additional comment	/

Data / Parameter	X_i
Unit	hours/ year
Description	Number of operating hours per year for equipment type i
Source of data	Calculated value
Value(s) applied	1277.5 hours per year
Choice of data or Measurement methods and procedures	The SSC-CPA shall use 3.5 hours per24 hrs period. Hence for the yearly value the estimate is fixed.
Purpose of data	Calculation ERs
Additional comment	/

Data / Parameter	TD_y
Unit	None
Description	The factor for average annual technical grid losses during year y
Source of data	Methodology default value
Value(s) applied	10%
Choice of data or Measurement methods and procedures	The SSC-CPA shall use a default value of 10% under the proposed programme.
Purpose of data	Calculation ERs
Additional comment	/

Data / Parameter	NTG
Unit	None
Description	Net-to-gross adjustment factor
Source of data	Methodology default value
Value(s) applied	0.95
Choice of data or Measurement methods and procedures	The SSC-CPA shall use a default value of 0.95 under the proposed programme.
Purpose of data	Calculation ERs
Additional comment	/

Data / Parameter	L_i
Unit	Hours
Description	Average life (or Rated Average Life until average life value is available) for equipment type i
Source of data	Technical specification of CFL
Value(s) applied	As per SSC-CPA database
Choice of data or Measurement methods and procedures	Determined as per the independent life-tests of the CFLs as per national/international standard. The value shall be known ex ante and the CPA-DD 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) in AMS-II.J, are available for verification.
Purpose of data	Calculation ERs
Additional comment	/

B.6.3. Ex-ante calculations of emission reductions

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According to the AMS-II.J, the emission reduction achieved by the SSC-CPA project activity shall be determined as the following:

Emissions Reduction (ER_y)

Emission reduction (ER_y) is net electricity savings (NES_y) times an emission factor (EF_{CO2}, $ELEC_y$)

$$ER_y = NES_y \times EF_{CO2,ELEC,y} \quad (1)$$

Where:

ER_y	Emission reductions in year y (tCO_{2e})
NES_y	Net electricity saved in year *y* (kWh)
$EF_{CO2,ELEC,y}$	Grid Emission factor (GEF) in year *y*, (tCO2e/MWh); Under the PoA, the GEF is calculated as per the methodology AMS-I.D using a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM). Refer Annex 4 of CPAs for how to calculate the GEF. The calculated GEF value is fixed ex-ante in the SSC-CPA.

Net Energy Savings (NES_y)

The net energy saved is derived using the equation (2) below:

$$NES_y = \sum_{i=1}^{n} Q_{PJ,i} \times (1 - LFR_{i,y}) \times ES_i \times \frac{1}{(1 - TD_y)} \times NTG \quad (2)$$

Where:

$$ES_i = (P_{i,BL} - P_{i,PJ}) \times O_i \times 365/1000 \quad (3)$$

Where:

NES_y	Net electricity saved in year y (kWh)
$Q_{PJ,i}$	Number (quantity) of pieces of equipment of type i distributed or installed under the project activity (units)
i	Counter for equipment type
n	Number of types of equipment
ES_i	Estimated annual electricity savings for equipment of type i, for the relevant technology (kWh)
$LFR_{i,y}$	Lamp Failure Rate for equipment type i in year y (fraction)
TD_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. Use default value of 10%
NTG	Net-to-gross adjustment factor, a default value of 0.95 to be used
$P_{i,BL}$	Rated power of the baseline lighting devices of the group of "i" lighting devices (Watts)
$P_{i,PJ}$	Rated power of the project lighting devices of the group of "i" lighting devices (Watts)
O_i	Average daily operating hours of the lighting devices replaced by the group of "i" lighting devices, use 3.5 hours per 24 hrs period as default value

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

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

If $y * X_i > or = L_i, LFR_{i,y} = 1$ (4)

Where:

$LFR_{i,y}$ Lamp Failure Rate for equipment type i in year y (fraction)

L_i Average life (or Rated Average Life until average life value is available) for equipment type i (hours)

R_i % of lamps of type i operating at the end of average life or the rated average life (use a value of 50)

X_i Number of operating hours per year for equipment type i (hours)

y Counter for year

B.7. Application of the monitoring methodology and description of the monitoring plan
B.7.1. Data and parameters to be monitored by each generic CPA

Data / Parameter	n
Unit	/
Description	Sample size of Monitoring Survey
Source of data	Calculated value as per statistical analysis provided in PoA-DD and SSC-CPA-DD
Value(s) applied	At least 100
Measurement methods and procedures	Sampling shall be statistically sound and random.
Monitoring frequency	The first sample survey will be carried out within the first year after installation of all efficient lighting equipment, and the subsequent surveys will be carried out once every 3 years.
QA/QC procedures	The 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.
Purpose of data	Calculation ERs
Additional comments	/

Data / Parameter	$LFR_{i,y}$
Unit	%
Description	Ex post Lamp Failure Rate for CFL type i in year y (fraction)
Source of data	Subsequent ex post monitoring surveys
Value(s) applied	The ex-ant LFR calculated value is corrected as per the monitoring survey. If Rated Average Life values were used initially for calculating LFR_y, per equation (4) in Section B.6.3 Part II, as soon as Average Life values are available they shall be used for calculation of subsequent year $LFR_{i,y}$ values. If the ex-post monitoring surveys indicate that the failure rate is equal to or less than the $LFR_{i,y}$ value indicated using equation(4) in Section B.6.3 Part II with ex-ante or prior year, ex-post monitoring values, for subsequent years $LFR_{i,y}$ shall continue to be determined using Equation (4) in Section B.6.3 Part II and the established Average Life values for L_i. However, for subsequent years, L_i values in $LFR_{i,y}$ equation (4) in Section B.6.3 Part II 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) in Section B.6.3 Part II with Average Life or prior year, ex-post monitoring values. In this situation, a new value for Li shall be determined using equation (4) in Section B.6.3 Part II and new values of $LFR_{i,y}$ shall be used beginning from the first calculation year after completion of the ex-post survey.
Measurement methods and procedures	Determined as per monitoring surveys of the installed CFLs. The number of CFLs that failed over time would be determined by subtracting the number of CFLs in operation determined at the previous ex post monitoring survey by the number of CFLs in operation determined at the current ex post monitoring survey. Then this number would be divided by the number of CFLs in operation determined at the previous ex post monitoring survey, which would suggest ex post LFR.
Monitoring frequency	The first sample survey will be carried out within the first year after installation of all efficient lighting equipment to confirm Q_{PJ}, and the subsequent surveys will be carried out once every 3 years to determine $LFR_{i,y}$
QA/QC procedures	The survey will consist of identifying 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.
Purpose of data	Calculation ERs
Additional comments	/

Data / Parameter	$DATE_{start}$ and $DATE_{end}$
Unit	/
Description	The start date and completion date of installation of CFLs
Source of data	SSC-CPA database
Value(s) applied	To be filled by SSC-CPA
Measurement methods and procedures	The information from the installation form is afterwards entered into the SSC-CPA database.
Monitoring frequency	N/A. The date of replacement is recorded on the distribution form while the replacement of ICL by CFL is physically taking place.
QA/QC procedures	The data should be documented by implementer. And it is verifiable by CME and DOE at random.
Purpose of data	Calculation ERs
Additional comments	/

Data / Parameter	$Q_{BL,i}$
Unit	/
Description	The number of each type of the replaced ICLs collected and destroyed
Source of data	SSC-CPA database
Value(s) applied	To be filled by SSC-CPA. Once determined, the value is fixed for the entire project crediting period.
Measurement methods and procedures	The replaced ICLs data will be entered into the SSC-CPA database.
Monitoring frequency	N/A. This parameter will be read by the distribution team from the lamp while replacement is taking place and recorded on the distribution form.
QA/QC procedures	Use of standardized data forms.
Purpose of data	Calculation ERs
Additional comments	The destruction of replaced ICLs shall be documented via witnessing by local environmental officials or time stamped video records.

Data / Parameter	$Q_{PJ,i}$
Unit	/
Description	Number of each type of CFLs in operation under the SSC-CPA
Source of data	SSC-CPA database based on ex-post monitoring survey.
Value(s) applied	To be filled by SSC-CPA.
Measurement methods and procedures	The status of each checked CFL will be recorded on the survey questionnaire in the first ex post monitoring survey, carried out within the first year after installation of all CFLs. One questionnaire is filled in per each sampled household. The information from the questionnaire is afterwards entered into SSC-CPA database, which is related to the first ex-post monitoring survey.
Monitoring frequency	N/A. This parameter will be confirmed by the first ex-post monitoring survey, which is within the first year after installation of all CFL.
QA/QC procedures	Application of standardized data forms
Purpose of data	Calculation ERs
Additional comments	/

Data / Parameter	$P_{i,BL}$
Unit	W
Description	Rated power of each type of the replaced ICLs
Source of data	SSC-CPA database
Value(s) applied	To be filled by SSC-CPA.
Measurement methods and procedures	Read by the distribution team from the lamp while replacement is taking place and recorded on the distribution form.
Monitoring frequency	N/A. This parameter will be read by the distribution team from the lamp while replacement is taking place and recorded on the distribution form.
QA/QC procedures	Use of standardized data forms
Purpose of data	Calculation ERs
Additional comments	/

Data / Parameter	$P_{i,PJ}$
Unit	W
Description	Rated power of each type of CFLs distributed under the SSC-CPA
Source of data	SSC-CPA database
Value(s) applied	To be filled by SSC-CPA
Measurement methods and procedures	The SSC-CPA will monitor $P_{i,PJ}$ during the CFL distribution. The data will be entered into the SSC-CPA database.
Monitoring frequency	N/A. This parameter will be read by the distribution team from the lamp while replacement is taking place and recorded on the distribution form.
QA/QC procedures	Application of standardized data forms
Purpose of data	Calculation ERs
Additional comment	/

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

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As per applied methodology AMS-II.J, the monitoring for the SSC-CPA would be carried out at the following levels:

1. CFL distribution
2. Ex-post Monitoring Survey
3. ICL destruction

This section also describes the arrangements made under the PoA to support:

4. Roles and Responsibilities
5. Training

1. CFL Distribution

The CFLs will be distributed directly by the CG[18] or other SSC-CPA implementers, using one or more of the following methods:

- Direct installation at each household; and/or
- ICL collection and CFL distribution through dedicated distribution points, for instant, residential association offices, schools etc.

Where direct installation is not done, SSC-CPA shall educate the recipient to install the CFL in high-usage areas. The methods of this education could include posters, printed hand-outs, verbal explanation by SSC-CPA representatives etc. Evidence for this shall be provided by SSC-CPA.

A database of each household provided with CFLs shall be maintained by the SSC-CPA. For the installed CFL light points in the household: Number, Wattage, date of supply is to be recorded. For both direct installation and CFLs through distribution points, CFL installation would be deemed on the date of distribution to household[19].

The information above is to be entered into a SSC-CPA database, and maintained by the SSC-CPA. The database should be in computer format. The compiled information should be electronically submitted to the CG at the end of the CFL distribution campaign / monitoring survey in the SSC-CPA area.

Once distribution of CFLs is completed in the SSC-CPA project area, the implementer shall inform the managing entity that the CFL distribution in project area is completed. The completion date of CFLs distribution would be treated as the start date of the crediting of GHG reductions for the SSC-CPA area.

The records of distribution with dates of start and completion would be maintained by CPA and declared to CG. The CG as managing entity would build a check team to verify the declared date as under:

1. Obtain the SSC-CPA database for which installation is completed as recorded in standardized distribution forms.
2. At least 100 sample households are chosen, the sample size would be calculated according to the latest “Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities” and relevant guidelines.
3. Identify a random sample of consumers on a sample basis and submit to the check team of CG the scanned copy of their distribution records.
4. If consumer distribution records are in order, the declared date is accepted by the check team of CG.

[18] CG (Carbon Gold Beijing Technology Co., Ltd.) is defined as the CME of the proposed PoA, but it may become the SSC-CPA implementer and the implementation teams will be built.

[19] It is expected that the consumer would install the CFL at the point where the ICL was in use. Normally, this would be done, before night-fall of the same day on which the CFL is distributed. However, the crediting period is taken from the date of completion of CFL installation in SSC-CPA project area.

5. Any discrepancies observed by the check team would be reported to the SSC-CPA for correction, and database accepted only once the corrections are made. Where necessary this may also imply a change in the declared date.

Establish the SSC-CPA database

The SSC-CPA will establish a database where all relevant information will be entered. Such information includes, inter alia:

- Defined geographical area of the SSC-CPA, for instance, political district maps etc.
- For each household that receives CFLs:
  - A list of each household that received CFLs (name, address, and applicable SSC-CPA area).
  - For each corresponding light bulb.
    - Date of installation of the CFLs.
    - Number and nominal power ratings of the replaced ICLs and distributed CFLs.
    - Date of collection of the replaced ICLs.
    - Number of ICLs destroyed.
    - Date of return and safe disposal of the distributed CFLs that were broken.
- In addition to above, for each household included in Monitoring survey (if applicable)
  - A list of each household in the survey (house address, name of occupant, and applicable SSC-CPA area).
  - Information on when the household has been added to the survey and information on when it has been removed (if applicable).
  - Information on any changes made to the CFL (exchange, repair, removed and installed else-where etc.).

2. Ex-post Monitoring Survey

Random selection of households

To ensure random selection, random number generators will be applied.

1. Each household is allotted a unique serial number starting at 1 and up to the total number of households in the project boundary.
2. Using random number generators, the households are randomly chosen.

The random number thus obtained is correlated with the recipient information in the project region.

Survey principles

In conducting the surveys, the following survey principles will be followed:

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

The following monitored parameters will be monitored with regard to the requirement of the applied methodology.

N: Sample size of Monitoring Survey. Calculated value as per statistical analysis provided in PoA-DD and SSC-CPA-DD. The 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.

1) Ex-post Q_{PJ} Survey to determine the quantity of CFLs.
To estimate the proportion, p, of CFLs placed in service and operating under the project activity in household population with a 10% margin of error at desired confidence level of 90%, the optimal sample size n of CFLs is calculated by:

$$n \geq \frac{1.645^2 NV}{(N-1) \times 0.1^2 + 1.645^2 V}$$

Where:

$$V = \frac{p(1-p)}{p^2}$$

n Sample size
N Total number of households
p The proportion of CFLs placed in service and operating
1.645 Represent the 90% confidence required
0.1 Represent the 10% relative precision (0.1*0.5=0.05=5% points either side of *p*)

Depending on the value of p i.e. proportion of CFLs installed and working is varied then the sample size also changes. This survey takes place within the first year after installation of all efficient lighting equipment will provide a value for the number of CFLs placed in service and operating under the project activity.

2) Subsequent ex-post monitoring Survey to determine the lamp failure rate (LFR)

To estimate the proportion, p, of CFLs installed and not working, we define the target value p is the value of LFR, under the project activity in household population with a 10% margin of error at desired confidence level of 90%, the optimal sample size n of CFLs is given by:

$$n \geq \frac{1.645^2 NV}{(N-1) \times 0.1^2 + 1.645^2 V}$$

Where:

$$V = \frac{p(1-p)}{p^2}$$

n Sample size
N Total number of households
p The proportion of CFLs failure rate
1.645 Represent the 90% confidence required
0.1 Represent the 10% relative precision (0.1*0.5=0.05=5% points either side of *p*)

Depending on the value of p i.e. proportion of CFLs installed and not working is varied then the sample size also changes.

The subsequent ex-post monitoring survey will be carried out once every 3 years.

Considering designed 20% non-response rate during Ex-post monitoring survey, the final sample size of CFLs (parameter n) is finalized to be: the above calculated n/0.8.

3. ICL Destruction

Replaced ICLs would be collected from the household or from dedicated CFL distribution points e.g. resident association offices, schools, community centers etc.

The destruction of ICLs should be documented via witnessing by local environmental officials or time stamped video records. With recorded documentation of ICL destruction, the destruction can precede verification.

4. Roles & Responsibilities

The key roles and responsibilities are listed below:

(1) SSC-CPA Implementer(s)

- Distribution of CFLs and ensure no more than 6 CFLs were distributed for each household;
- Record the distribution data
- Collection of ICLs and destruction via witnessing by local environmental officials or time stamped video records.
- Assisting the SSC-CPA validated and verified by a Designated Operational Entity of CDM Executive Board.

(2) CG

- Providing CFLs with lumen output equivalent at least to the baseline Incandescent Lamps, in exchange for Incandescent Lamps that are currently being used in the households.
- Pay the implementation fee, if the SSC-CPA implementer is not belonging to CG.
- Registration of the SSC-PoA with UNFCCC CDM Executive Board
- Inclusion of SSC-CPAs to the SSC-PoA upon satisfaction of the eligibility criteria stipulated in the SSC-PoA-DD.
- Official communication with the CDM–EB, DOE and China DNA.

5. Training

The SSC-CPA shall develop a project handbook before the start of the CFL distribution. Such a handbook is to ensure reliable and transparent data collection, which includes at least the following three components:

(1) Detailed instructions on data collection procedures and determination of household sample size.

(2) Outline of the data forms that are used for the data collection during Survey(s).

(3) Procedures which are applied to ensure a sufficient level of quality assurance (how to handle data deviations etc).

All the SSC-CPA staff members involved in implementing the project as per the hand-book should be trained before the start of the relevant monitoring steps. Evidence in support of the training should be documented. Preparation of compliance protocols for each monitoring step is also mandatory. With each compliance protocol, all the involved entities confirm:

(1) Knowledge of the project handbook.

(2) Complete application of the relevant data forms.

(3) Correct work according to the procedural instructions.

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Appendix 1：Contact information on entity/individual responsible for the PoA

Organization:	Carbon Gold Beijing Technology Co., Ltd.
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Represented by:	
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Appendix 2: Affirmation regarding public funding

There is no public funding in the PoA.

Appendix 3: Application of methodology(ies)

See the applicable sections above.

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

Ex-ante calculation of emission reductions is done separately for each CPA.

Appendix 5: Further background information on the monitoring plan

Ex-ante calculation of emission reductions is done separately for each CPA.

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