



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

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**NOTE:**

- (i) This form is for the submission of a CDM PoA whose CPAs apply a small scale approved methodology.
- (ii) At the time of requesting registration this form must be accompanied by a CDM-SSC-CPA-DD form that has been specified for the proposed PoA, as well as by one completed CDM-SSC-CPA-DD (using a real case).



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

**A.1 Title of the small-scale programme of activities (PoA):**

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CFL Distribution Programme in Sichuan Province

Version number: 02

Date: 26/11/2012

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

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**General operating and implementing framework of PoA**

The objective of this Programme of Activities is to replace approximately 50 million<sup>1</sup> 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).

Zhenjiang Qiangling Energy-saving Light Source Co., Ltd. (QL), as the Coordinating and Managing Entity (CME), will coordinate the Small-Scale Programme of Activities (SSC-PoA) and will support the project implementer(s)<sup>2</sup> in implementing the component project activities (CPAs) in Sichuan Province in assistance with local governments. The proposed programme after implementation will result in CO<sub>2</sub> 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 QL and other project implementer(s) to residential households in exchange of an incandescent lamp (ICL) for free or for a minimal fee. Each household can install no more than six CFLs through the CPAs by replacing used ICLs. To avoid re-sale of the CFL, the label on the CFL will be clearly marked accordingly.

**Policy/measure or stated goal of the PoA**

The proposed PoA is to distribute around 50 million CFLs, replacing low efficient ICLs, mainly covering the rural area of Sichuan Province and to reduce the electricity consumed by local residents, in order to reduce corresponding CO<sub>2</sub> emissions during power generation.

**Contributions of the PoA to sustainable development**

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.

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<sup>1</sup> The amount is estimated based on the statistics of households located in the Sichuan Province, the actual one will be confirmed when all CPAs were included and implemented.

<sup>2</sup> Zhenjiang Qiangling Energy-saving Light Source Co., Ltd. may become the SSC-CPA implementer, and all relevant requirements shall also be achieved.



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 voluntarily developed by QL to promote energy efficient lighting in Sichuan Province.

In addition, there are no mandatory requirements in Sichuan Province and in China requiring the use of energy efficient CFL 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<sup>3</sup> in 2007. Due to this measurement, a certain amount of efficient lighting equipments was promoted with government subsidy in the past years; however, the promotion was limited in major cities of China and small proportion was promoted in mass rural areas<sup>4</sup>.

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

**Coordinating or managing entity of the PoA as the entity which communicates with the Board**

The coordinating or managing entity of the SSC-PoA will be the Zhenjiang Qiangling Energy-saving Light Source Co., Ltd. (QL). 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.

<b>Name of Party involved (host) indicates a host Party)</b>	<b>Private and/or public entity(ies) project participants (*) (as applicable)</b>	<b>Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)</b>
People’s Republic of China (host)	Zhenjiang Qiangling Energy-saving Light Source Co., Ltd.	Yes

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

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**A.4.1. Location of the programme of activities:**

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**A.4.1.1. Host Party(ies):**

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<sup>3</sup> [http://www.sdpc.gov.cn/zjgx/t20080508\\_210093.htm](http://www.sdpc.gov.cn/zjgx/t20080508_210093.htm)

<sup>4</sup> <http://finance.sina.com.cn/chanjing/b/20061115/09551042841.shtml>;

[http://www.ledb2b.cn/lib/0909/I01\\_09211.asp](http://www.ledb2b.cn/lib/0909/I01_09211.asp)

China

**A.4.1.2. Physical/ Geographical boundary:**

The political boundary of Sichuan 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.

Sichuan Province is with the geographical coordinates<sup>5</sup> of north latitude 26°03'~34°19' and east longitude 97°21'~108°31'.

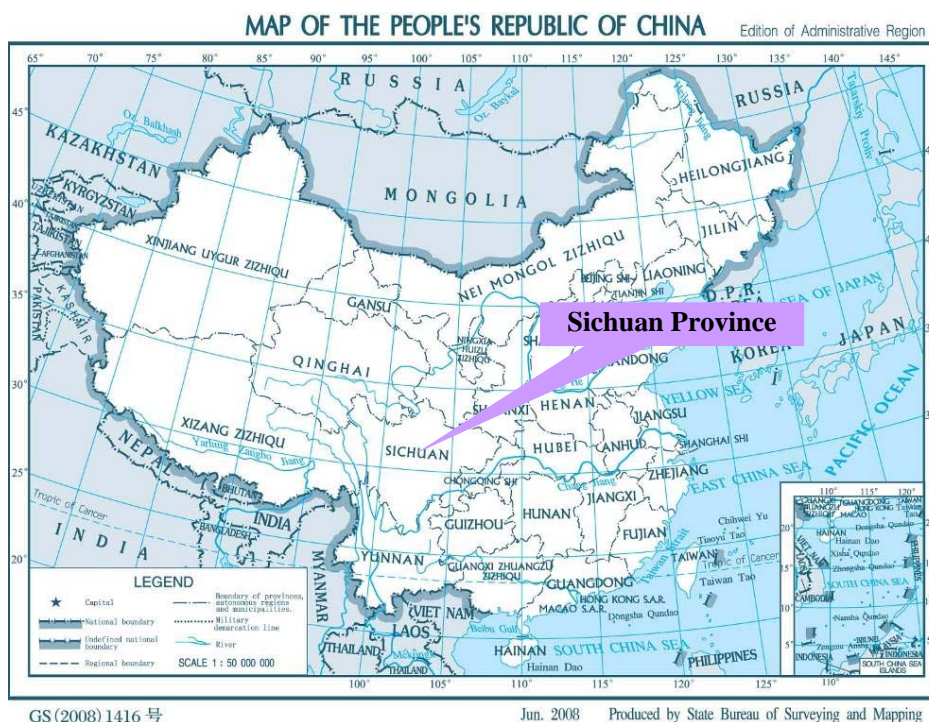


Figure1. The geographical boundary of the SSC-PoA

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

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

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The SSC-CPA under the programme is to distribute high efficient self-ballasted CFLs, replacing equal amount of ICLs being used by residents. The CFLs distributed are new equipment, and have ballasts integrated to the lamp as a non-removable part. 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;

<sup>5</sup> <http://baike.baidu.com/view/7627.htm>



- (2) Have an average life of 10,000 hours or longer, which conforms to the national technical specification<sup>6</sup> (GB/T 17263) stipulated for CFLs by AQSIQ (General Administration of Quality Supervision, Inspection and Quarantine of P.R.C.);
- (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.

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

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

QL, 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 the Sichuan 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. logo)	2.	CFLs utilized under the SSC-CPA are marked for clear unique identification for the PoA and the SSC-CPA, such as "PCDM-SC-CPA001", which will be specified on the CFL procurement contract.
		3.	CFL manufacturer and project households will sign agreements with QL to relinquish their rights over the CERs generated from the project CFL use. The QL as CME requires all SSC-CPA implementer(s) to sign an agreement with QL before the CPA enrolled, if the SSC project activity was not implemented by the QL itself.
		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	5.	The baseline technology is Incandescent Lamp being used by SSC-CPA residents. The CFLs distributed in the

<sup>6</sup> <http://www.5ibzw.com/bbs/viewthread.php?tid=34222>



	compliance with testing/certifications		SSC-CPA are new equipments, and have ballasts integrated to the lamp as a non-removable part.
		6.	<p>The lumen output of project CFL are greater than or equal to that of the ICL replaced and the eligible wattage of project CFL is lower than that of the ICLs. CFLs distributed in the proposed CPAs should have extra Long average life of 10,000 hours or longer.</p> <p>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.</p>
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 SSC-CPA implementer(s) should ensure that the returned ICLs are recorded and destroyed in a manner which allows for verification. <sup>7</sup>
f	The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in Section A of <i>standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities</i> .	9.	According to the “Guidelines on the demonstration of additionality of small-scale project activities” (Version 09.0), reported as Annex 27 to EB 68, the CPA is additional if the maximum annual saved electricity of each project household is less than 3000 MWh <sup>8</sup> 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.	<p>Stakeholders’ consultation meeting should be conducted.</p> <p>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:</p>

<sup>7</sup> Other requirements of AMS-II.J have been included in other eligibility criteria.

<sup>8</sup> It is 5% of the small-scale CDM thresholds (60GWh per year).



			<ul style="list-style-type: none"> <li>◆ Will the Project bring improvements to their livelihoods?</li> <li>◆ Will the Project have negative impacts on their livelihoods?</li> <li>◆ Do they support the Project?</li> </ul> <p>Environment analysis is conducted at PoA level</p>
h	Conditions to provide an affirmation that funding from Annex I party, if any, does not result in a diversion of official development assistance	11.	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)	12.	The target group should be the residents who will participate in the PoA voluntarily and are using ICLs in their houses.
		13.	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.
		14.	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	15.	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	16.	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	17.	The maximum annual saved electricity



	the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories		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.
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**A.4.3. Description of how the anthropogenic emissions of GHG by sources are reduced by a SSC-CPA below those that would have occurred in the absence of the registered PoA (assessment and demonstration of additionality):**

As described in section A.2, The proposed PoA is a programme voluntarily developed by QL to promote high quality CFL in Sichuan 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 QL, participating implementer(s) and households are voluntarily taking part in the programme.

In the absence of CDM, the CPAs under the PoA would not occur.

**(i) The proposed voluntary measure would not be implemented.**

A number of barriers prevent the occurrence as below:

- (1) High initial price of CFLs- the unit market price of the high quality CFLs is over 20 RMB, much higher than that of standard ICLs (1 to 2 RMB);
- (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. The poor performance of that low quality CFLs created consumers distrust in the CFL technology.

**(ii) The mandatory policy/regulation would be systematically not enforced and that noncompliance with those requirements is widespread in the country/region.**

There is no mandated legal requirement for replacing ICLs with CFLs in the Sichuan 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 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

**(iii) The PoA will lead to a greater level of enforcement of the existing mandatory policy/regulation.**

As described above, there is no existing mandatory policy/regulation to require replacing ICLs with CFLs in the Sichuan Province, China.

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

**A.4.4.1. Operational and management plan:**





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
QL	Coordinating & Managing Entity(CME)	managing team	<ul style="list-style-type: none"> <li>• Apply the registration of the PoA with UNFCCC CDM Executive Board as a focal point;</li> <li>• Develop a PoA management system and making continuous improvements of the system;</li> <li>• Carry out the management and coordination of PoA in accordance with the management system</li> <li>• Select and contract CPA implementers;</li> <li>• Make decision on whether to implement a specific CPA based on the proposal submitted by the CPA implementer;</li> <li>• Develop and update eligibility criteria for inclusion of CPAs;</li> <li>• Provide qualified CFLs;</li> <li>• Pay the implementation fee;</li> <li>• Improve the PoA management system. If there are new problems during the random check, the PoA management system should be continuous improved.</li> </ul>
		technical advisory team	<ul style="list-style-type: none"> <li>• Provide training and capacity development for personnel in the whole process of CPA implementers;</li> <li>• Carry out the technical review and control of inclusion of CPAs according to the Quality Control &amp; Manage Manual(QCMM);</li> <li>• Review of the competencies of personnel involved in the process of inclusion of CPAs.</li> </ul>
CPA implementer	Implement CPA	<ul style="list-style-type: none"> <li>• Submit a proposal about CPA implementation to QL for making decision;</li> <li>• Collect the initial information using standardized formats and transfer them into an electronic data base;</li> <li>• Maintain all the records, documents and database in the process of CPA implementing, and make them available to QL for checking randomly and DOE for validation or verification;</li> <li>• Carry out monitoring action in accordance with monitoring plan.</li> </ul>	

**(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.



QL 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, QL 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 non-conformity, the CPA implementer should be required to make the CPA conform to the all criteria and submit proposal to QL again.

At the same time, QL 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 QL 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 QL 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**



QL 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.

So if 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, the SSC-CPA is not considered as a de-bundled component of a large scale activity.

**Awareness of CPA implementer(s) on PoA Provisions**

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

<b>A.4.4.2. Monitoring plan:</b>
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The project database shall be maintained by the SSC-CPA implementer(s) and shared with QL as the PoA coordinator.

The SSC-CPA project database is managed by the SSC-CPA implementer(s)<sup>9</sup> and includes the following data-set that can unambiguously determine the emission reductions attributable to each CPA:

1. Project record: A list of households participating in each CPA including name, address, number and wattage of ICL exchanged and CFL distributed, date of distribution and installation;
2. Lamp Failure rate: Where ex-post monitoring survey is proposed by SSC-CPA sample household and survey data. If the result of ex post monitoring survey is different with ex ante or prior year failure rate value, Lamp Failure Rate will be changed
3. Leakage: ICL destruction records
4. Monitoring Survey Records

Ex post monitoring survey should follow the principles as below:

- First ex post monitoring survey, carried out 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

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<sup>9</sup> The project database may be directly managed by the QL, if it was the SSC-CPA implementer.



under the project activity. The results of this survey are used to determine the quantity of CFLs ( $Q_{PJ,i}$ ) in the Emission Reduction calculation.

- Subsequent ex post monitoring surveys are carried out at the following intervals to determine the *ex post* Lamp Failure Rate ( $LFR_{i,y}$ ) for use in *ex post* Emission Reduction calculations : once every 3 years or once for every 30% of the elapsed Rated Average Life or Average Life of the lamp.
- The surveys will consist of identifying CFLs, which are installed and operating. Only CFLs with the unique logos which identify these CFLs belonging to this PoA can be counted as installed. While CFLs replaced as part of a regular maintenance or warranty program can be counted as operating, cannot be replaced as part of this monitoring survey process and counted as operating for the purposes of determining  $Q_{PJ,i}$ .

The relevant parameters included in the monitoring plan shall be monitored and recorded for each of the CPAs independently. Monitoring reports will be prepared separately for each of the CPAs for the purpose of verification and request for issuance of CERs. A database for all the CPAs shall be maintained by the Coordinating/Managing Entity, and each CPA database shall be managed by the CPA implementer. Each CPA shall have its own monitoring period and the same shall be specified in the database.

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.

In case verification of more than one CPA is carried out at the same time, the DOE may consider the latest standard or guidance available from the CDM Executive Board (CDM EB) to carry out verification following a sampling approach. In such circumstances, the DoE would undertake a detailed verification (including site visit) for only a sample number of CPAs. The sample size will be calculated as per the latest sampling standard or guidance issued by the CDM EB. If there is only one CPA in the PoA, the DOE also need to use the sampling approach conformed to the standard or guidance available from CDM EB.

The records and documentations pertaining to monitoring and verification for all the project areas (represented by CPAs) participating in the program would be maintained by QL and shall be made available to DOE for checking status at any point of time. The DOE will be provided with all the monitoring reports and other Programme related documents of each CPA during verification. The DOE shall hold all technical discussions with the Managing/Coordinating Entity and may visit only the sample facilities/CPAs as described above.

The electricity savings from the efficient lighting equipment installed by the project activity shall be considered from the date of completion of installation of the equipment. Ex post monitoring and adjustment of corresponding Net Electricity Savings (NESy) shall be conducted as the following requirement:

- (a) First ex post monitoring survey, carried out 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. The results of this survey are used to determine the quantity of CFLs ( $Q_{PJ,i}$ ) in the Emission Reduction calculation.
- (b) Subsequent ex post monitoring surveys are carried out once every 3 years to determine the ex post Lamp Failure Rate ( $LFR_{i,y}$ ) for use in ex post Emission Reduction calculations until such time as CERs are being requested.



(c) The surveys will consist of identifying CFLs, marked with the unique logos which identify these CFLs belonging to this PoA that are installed and operating. Only CFLs with an original marking can be counted as installed. While CFLs replaced as part of a regular maintenance or warranty program can be counted as operating, cannot be replaced as part of this monitoring survey process and counted as operating for the purposes of determining  $Q_{PJ,i}$ .

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

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The proposed programme of activities does not involve any public funding.

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

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

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27/07/2011(start date of PoA i.e. the date of publication of the PoA-DD for global stakeholder consultation)

31/01/2013 (start date of the crediting period of PoA)

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

>>

28years

**SECTION C. Environmental Analysis**

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

- |  |                                     |
|--|-------------------------------------|
| 1. Environmental Analysis is done at PoA level | <input checked="" type="checkbox"/> |
| 2. Environmental Analysis is done at CPA level | <input type="checkbox"/>            |

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 requirements on CFL disposal.

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

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Currently all fluorescent lamps used in China are not being recycled but disposed with the regular waste in landfills<sup>10</sup>. Every CFL contains small quantities of mercury and therefore may eventually add to contamination of soils and groundwater resources in China.

QL as the PoA C/M entity 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, QL

<sup>10</sup> <http://www.zyhbw.gov.cn/government/ny1.asp?id=3803>



**CDM – Executive Board**

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 lifetime up to 10,000 utilization hours.
- 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.

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

>>

The Government of China does not require any documentation of the environmental impacts of the project activity. The project type/category is not included in the “List of projects or activities requiring prior environmental clearance”, included in the “Environmental Protection Management of infrastructure projects” issued by Environment Protection Leading Group of the State Council<sup>11</sup>.

**SECTION D. Stakeholders’ comments**

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

- |  |                                     |
|--|-------------------------------------|
| 1. Local stakeholder consultation is done at PoA level | <input type="checkbox"/>            |
| 2. Local stakeholder consultation is done at CPA level | <input checked="" type="checkbox"/> |

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

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

>>

N/A

**D.3. Summary of the comments received:**

>>

N/A

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

>>

N/A

**SECTION E. Application of a baseline and monitoring methodology**

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

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<sup>11</sup> [http://law.baidu.com/pages/chinalawinfo/0/9/13c902cbea1bc497449891617cb40d59\\_0.html](http://law.baidu.com/pages/chinalawinfo/0/9/13c902cbea1bc497449891617cb40d59_0.html)



AMS-II.J: Demand-side activities for efficient lighting technologies (EB 54, version 04).

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

>>

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	<p>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.</p> <p>It has been included in the eligibility criteria.</p>
2.	The CFLs adopted to replace existing equipment must be new equipment and not transferred from another activity	<p>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.</p> <p>It has been included in the eligibility criteria</p>
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).	<p>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.</p> <p>It has been included in the eligibility criteria</p>
4.	The aggregate electricity savings by a single project activity may not exceed the equivalent of 60 GWh per year.	<p>The aggregate energy savings from a CPA shall not exceed 60 GWh.</p> <p>It has been included in the eligibility criteria</p>
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.	<p>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.</p> <p>It has been included in the eligibility criteria</p>
6.	CFLs utilized under the project activity	The distributed CFL lamps under the CPA shall



	shall, in addition to the standard lamp specifications, be marked for clear unique identification for the project.	<p>carry on the unique logos which identify these CFLs belonging to this PoA.</p> <p>It has been included in the eligibility criteria</p>
7.	<p>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.</p> <p>Project participants are required to undertake at least one of the following actions:</p> <ul style="list-style-type: none"> <li>(i) Directly installing the CFLs;</li> <li>(ii) Charging at least a minimal price for efficient lighting equipment;</li> <li>(iii) Restricting the number of lamps per household distributed through the project activity to six.</li> </ul>	<p>The replaced ICLs will be destroyed, thus the project activity will limit undesired secondary market effects.</p> <p>The programme requires the amount of CFLs per household distributed through the project activity cannot be more than 6.</p> <p>It has been included in the eligibility criteria</p>
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.	<p>CFL manufacturer and project households will sign agreements with QL to relinquish their rights over the CERs generated from the project CFL use. Confirmation that this SSC-CPA is not registered or being registered, as a stand-alone CDM or as a CPA of another PoA.</p> <p>It has been included in the eligibility criteria</p>
9.	Ensure that the replaced ICLs are collected, destroyed and documented; the proposed method of CFL distribution is explained in the project document.	<p>The replaced ICLs are collected directly from households or from the dedicated distribution / collection points and stored at a centralized or multiple storage sites.</p> <p>The SSC-CPA implementer(s) should ensure that the returned ICLs are recorded and destroyed in a manner which allows for verification.</p> <p>It has been included in the eligibility criteria</p>
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.	<p>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.</p> <p>It has been included in the eligibility criteria</p>





11.	The Project design document shall also explain how the proposed procedures eliminate double counting of Emission Reductions.	<p>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.</p> <p>CFL manufacturer and project households will sign agreements with QL to relinquish their rights over the CERs generated from the project CFL use.</p> <p>Confirmation that this SSC-CPA is not registered or being registered, as a stand-alone CDM or as a CPA of another PoA.</p> <p>It has been included in the eligibility criteria</p>
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**E.3. Description of the sources and gases included in the SSC-CPA boundary**

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As per the methodology AMS-II.J (version 04), the proposed project physical boundary of a typical CPA is the location of each CFL installed for which an ICL has been collected and destroyed, and the geographical boundary is the area defined by the CPA.

The geographical boundary of the PoA is the political area governed by Sichuan Province. The boundary of each CPA will be within the PoA boundary.

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, Sichuan 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 CCPG.

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.

	<i>Source</i>	<i>Gas</i>	<i>Included?</i>	<i>Justification/Explanation</i>
<b>Baseline</b>	<i>Power plants serving the electricity grid</i>	<i>CO<sub>2</sub></i>	<i>Yes</i>	<i>Main emission source</i>
		<i>CH<sub>4</sub></i>	<i>No</i>	<i>Excluded for simplification. This emission source is assumed to be very small.</i>
		<i>N<sub>2</sub>O</i>	<i>No</i>	<i>Excluded for simplification. This emission source is assumed to be very small.</i>
<b>Project Activity</b>	<i>Power plants serving the</i>	<i>CO<sub>2</sub></i>	<i>Yes</i>	<i>Main emission source</i>



	<i>electricity grid</i>	<i>CH<sub>4</sub></i>	<i>No</i>	<i>Excluded for simplification. This emission source is assumed to be very small.</i>
		<i>N<sub>2</sub>O</i>	<i>No</i>	<i>Excluded for simplification. This emission source is assumed to be very small.</i>

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

>>

The proposed programme activity is the distribution of CFLs to replace ICLs using in the households of Sichuan Province, which consumes electricity imported from the grid (CCPG). Accordingly, 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 Sichuan Province would be used and purchased as a continuation of current practice”.

To confirm the baseline scenario at CPA level, an eligibility criteria should be complied with, which is to demonstrate that the baseline technology is Incandescent Lamp being used by SSC-CPA residents.

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

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

>>

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<sup>12</sup> 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. To judge the additionality of CPA, an eligibility criteria should be complied with, which is to demonstrate that the maximum annual saved electricity of each project household, due to using the distributed project CFLs, is less than 3000 MWh per year.

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

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<sup>12</sup> 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.



As described in NO.9 of eligibility criteria above, according to the “Guidelines on the demonstration of additionality of small-scale project activities” (Version 09.0), reported as Annex 27 to EB 68, the CPA is additional if the maximum annual saved electricity of each project household is less than 3000 MWh per year.

NOTE: Information provided here shall be incorporated into the PoA specific CDM-SSC-CPA-DD that shall be included in documentation submitted by project participants at registration of PoA.

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

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

>>

According to the applied AMS-II.J version 04, 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 CFL lamps 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 version 04, the selection of options shall be conducted for the following variables:

**TD<sub>y</sub>**: 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 10% shall be used for average annual technical grid losses, if no recent data are available or the data cannot be regarded accurate and reliable

Reliability of the data used (e.g., appropriateness, accuracy/uncertainty, especially exclusion of non technical grid losses) shall be established and documented. A default value of 10% shall be used for average annual technical grid losses, if no recent data are available or the data cannot be regarded accurate and reliable.

**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 Sichuan 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 (LFRy) 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 ( $LFR_{i,y}$ ) and where relevant *ex post* average daily operating hours ( $O_i$ ), 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 life 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 with “PCDM”, “CFL Distribution Programme in Sichuan Province” (printed as simplified Chinese character) and SSC-CPA number (e.g. CPA001).

<b>E.6.2. Equations, including fixed parametric values, to be used for calculation of emission reductions of a SSC-CPA:</b>
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According to the AMS-II.J version 04, 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<sub>2e</sub>)

$NES_y$  Net electricity saved in year y (kWh)

$EF_{CO2,ELEC,y}$  Grid Emission factor (GEF) in year y, (tCO<sub>2e</sub>/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 3 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 the rated average life is used to calculate the ex ante Lamp Failure Rate as follows:

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

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

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

<b>Data / Parameter:</b>	$EF_{CO_2,ELEC,y}$
<b>Data unit:</b>	tCO <sub>2</sub> /MWh
<b>Description:</b>	CO <sub>2</sub> 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 <sub>2</sub> /MWh)
<b>Source of data used:</b>	The latest version of <i>Baseline Emission Factors for Regional Power Grids in China</i> , published by Chinese DNA
<b>Value applied:</b>	SSC-CPA to apply value as per the grid-connectivity
<b>Justification of the choice of data or description of measurement methods and procedures actually applied :</b>	The SSC-CPA shall apply the latest grid emission factor database available on the Chinese DNA website when the CPA-DD was uploaded for global stakeholder consultation and fix the value ex-ante.
<b>Any comment:</b>	

<b>Data / Parameter:</b>	$O_i$
<b>Data unit:</b>	hours/ day
<b>Description:</b>	Average daily operating hours of the baseline ICLs of the group of “i”,
<b>Source of data used:</b>	Default value presented in AMS-II.J version 04



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Value applied:	3.5 hours per 24 hours period
Justification of the choice of data or description of measurement methods and procedures actually applied :	The SSC-CPA shall use fixed 3.5 hours per 24 hrs period. The value applied will be entered into the SSC-CPA database.
Any comment:	--

<b>Data / Parameter:</b>	$X_i$
Data unit:	hours/ year
Description:	Number of operating hours per year for equipment type i
Source of data used:	Calculated value
Value applied:	1277.5 hours per year
Justification of the choice of data or description of measurement methods and procedures actually applied :	The SSC-CPA shall use 3.5 hours per 24 hrs period. Hence for the yearly value the estimate is fixed.
Any comment:	--

<b>Data / Parameter:</b>	$TD_y$
Data unit:	None
Description:	The factor for average annual technical grid losses during year y
Source of data used:	Methodology default value
Value applied:	10%
Justification of the choice of data or description of measurement methods and procedures actually applied :	The SSC-CPA shall use a default value of 10% under the proposed programme.
Any comment:	--

<b>Data / Parameter:</b>	NTG
Data unit:	None
Description:	Net-to-gross adjustment factor
Source of data used:	Methodology default value
Value applied:	0.95
Justification of the choice of data or description of measurement methods and procedures actually applied :	The SSC-CPA shall use a default value of 0.95 under the proposed programme.
Any comment:	--



<b>Data / Parameter:</b>	$L_i$
Data unit:	Hours
Description:	Average life (or Rated Average Life until average life value is available) for equipment type i
Source of data used:	Technical specification of CFL
Value applied:	As per SSC-CPA database
Justification of the choice of data or description of measurement methods and procedures actually applied :	Determined as per the independent life-tests of the CFLs as per national/international standard. The value shall be known <i>ex ante</i> and the CPA-DD shall cite the standard-used. If the average life value is not available <i>ex ante</i> , 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 version 04, are available for verification.
Any comment:	--

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

**D.7.1. Data and parameters to be monitored by each SSC-CPA:**

<b>Data / Parameter:</b>	N
Data unit:	--
Description:	Sample size of Monitoring Survey
Source of data to be used:	Calculated value as per statistical analysis provided in PoA-DD and SSC-CPA-DD
Value of data applied for the purpose of calculating expected emission reductions	At least 100
Description of measurement methods and procedures to be applied:	Sampling shall be statistically sound and random.
QA/QC procedures to be applied:	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.
Any comment:	--

<b>Data / Parameter:</b>	$LFR_{i,y}$
Data unit:	%
Description:	Ex post Lamp Failure Rate for CFL type i in year y (fraction)
Source of data to be used:	Subsequent ex post monitoring surveys
Value of data applied for the purpose of calculating expected emission reductions	The ex-ante 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 E.6.2, as soon as Average Life values are available they shall be used for calculation of subsequent year $LFR_{i,y}$ values.





	<p>If the ex-post monitoring surveys indicate that the failure rate is equal to or less than the <math>LFR_{i,y}</math> value indicated using equation(4) in section E.6.2 with ex-ante or prior year, ex-post monitoring values, for subsequent years <math>LFR_{i,y}</math> shall continue to be determined using Equation (4) in section E.6.2 and the established Average Life values for <math>L_i</math>.</p> <p>However, for subsequent years, <math>L_i</math> values in <math>LFR_{i,y}</math> equation (4) in section E.6.2 shall be adjusted if the ex-post monitoring surveys indicate that the failure rate (<math>LFR_{i,y}</math>) is greater than the value indicated using equation (4) in section E.6.2 with Average Life or prior year, ex-post monitoring values. In this situation, a new value for <math>L_i</math> shall be determined using equation (4) in section E.6.2 and new values of <math>LFR_{i,y}</math> shall be used beginning from the first calculation year after completion of the ex-post survey.</p>
Description of measurement methods and procedures to be applied:	Determined as per monitoring surveys of the installed CFLs.
QA/QC procedures to be applied:	The survey will 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.
Any comment:	--

<b>Data / Parameter:</b>	$DATE_{start}$ and $DATE_{end}$				
Data unit:	--				
Description:	The start date and completion date of distribution of CFLs				
Source of data to be used:	SSC-CPA database				
Value of data applied for the purpose of calculating expected emission reductions	<table border="1"> <tr> <td>Distribution of CFLs-Start date</td><td>dd/mm/yyyy</td></tr> <tr> <td>Distribution of CFLs-Completion date</td><td>dd/mm/yyyy</td></tr> </table>	Distribution of CFLs-Start date	dd/mm/yyyy	Distribution of CFLs-Completion date	dd/mm/yyyy
Distribution of CFLs-Start date	dd/mm/yyyy				
Distribution of CFLs-Completion date	dd/mm/yyyy				
Description of measurement methods and procedures to be applied:	The information from the distribution form is afterwards entered into the SSC-CPA database.				
QA/QC procedures to be applied:	The data should be documented and verifiable by Managing Entity and DOE at random.				
Any comment:	--				

<b>Data / Parameter:</b>	$Q_{BL,i}$
Data unit:	--
Description:	The number of each type of the replaced ICLs collected and destroyed
Source of data to be used:	SSC-CPA database
Value of data applied for the purpose of	To be filled by SSC-CPA. Once determined, the value is fixed for the entire project crediting period.



calculating expected emission reductions	
Description of measurement methods and procedures to be applied:	The replaced ICLs data will be entered into the SSC-CPA database.
QA/QC procedures to be applied:	Use of standardized data forms
Any comment:	The destruction of replaced ICLs shall be documented via witnessing by local environmental officials or time stamped video records.

<b>Data / Parameter:</b>	$Q_{PJ,i}$
Data unit:	--
Description:	Number of each type of CFLs in operation under the SSC-CPA
Source of data to be used:	SSC-CPA database based on ex-post monitoring survey.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	To be filled by SSC-CPA.
Description of measurement methods and procedures to be applied:	The status of each checked CFL will be recorded on the survey questionnaire while the first ex post monitoring survey is conducted within the first year after distribution 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.
QA/QC procedures to be applied:	Application of standardized data forms
Any comment:	

<b>Data / Parameter:</b>	$P_{i,BL}$
Data unit:	W
Description:	Rated power of each type of the replaced ICLs
Source of data used:	SSC-CPA database
Value of data applied for the purpose of calculating expected emission reductions in section B.5	To be filled by SSC-CPA.
Description of measurement methods and procedures to be applied:	Read by the distribution team from the lamp while replacement is taking place and recorded on the distribution form.
QA/QC procedures to be applied:	Use of standardized data forms
Any comment:	

<b>Data / Parameter:</b>	$P_{i,PJ}$
--------------------------	------------



Data unit:	Watt
Description:	Rated power of each type of CFLs distributed under the SSC-CPA
Source of data to be used:	SSC-CPA database
Value of data applied for the purpose of calculating expected emission reductions in section B.5	To be filled by SSC-CPA.
Description of measurement methods and procedures to be applied:	The SSC-CPA will monitor $P_{i,pj}$ during the CFL distribution. The data will be entered into the SSC-CPA database.
QA/QC procedures to be applied:	Application of standardized data forms
Any comment:	

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

>>

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 QL<sup>13</sup> or other SSC-CPA implementers with support from local governments, 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

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<sup>13</sup> QL (Qiangling Energy Saving Co., Ltd.) is defined as the Coordinating/Managing Entity of the proposed PoA, but it may become the SSC-CPA implementer and the implementation teams will be built.



distribution to household<sup>14</sup>.

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 QL 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 QL. The QL as managing entity would build a check team to verify the declared date as under:

1. Obtain the SSC-CPA database for which distribution 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 QL 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 QL.
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 distribution 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 elsewhere etc).

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<sup>14</sup> 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 distribution in SSC-CPA project area.



## 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<sub>PJ</sub> 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 ( $0.1 \times 0.5 = 0.05 = 5\%$  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.

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 in association with local governments 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) QL



- 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 does not belong to QL.
- 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.

<b>E.8 Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies)</b>
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The baseline study and monitoring methodology has been determined on 26/11/2012 by:  
Sino Carbon Innovation & Investment Co.,Ltd (SCII)

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**Annex 1**

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

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



**CDM – Executive Board**

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**Annex 2**

**INFORMATION REGARDING PUBLIC FUNDING**

There is no public funding for the proposed project.



**Annex 3**

**BASELINE INFORMATION**

The latest version of the AMS-II.J is applied and the baseline grid emission factor calculated according to AMS-I.D, using a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) entitled with equal weights (50%).



Annex 4

MONITORING INFORMATION

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