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

CONTENTS

Annexes

NOTE:

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

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

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

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

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

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

>>
"CFL Distribution Programme in Hebei Province" CPA-XXX
Version Number: XX
Date: dd/mm/yyyy

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

>> The SSC-CPA project general operating framework and specific details are included as under:

The project is developed under the Small-Scale Programme of Activities (PoA) titled "CFL Distribution Programme in Hebei Province". The high quality CFLs will be distributed by SSC-CPA implementer to residents of Hebei province 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.

The plan of the proposed SSC-CPA project for distributing CFLs to replace ICLs is as following table:

CFLs distributed				ICLs exchanged		
Rated power (Watts)	**Average lifetime[4] (hours)**	**Light output (lumen)**	**Amount**	**Rated power (Watts)**	**Light output (lumen)**	**Amount**

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. Evidence for this shall be provided by SSC-CPA.

The CFLs should be installed in relatively high-usage areas. The participating households will need to sign an agreement with the SSC-CPA implementer forbidding them to re-sell the CFLs. To avoid re-sale of the CFL, the label on the project CFL will also be clearly marked accordingly. The replaced ICLs will be destroyed so as to ensure these are not used elsewhere.

[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.

[4] If average life is not available, the rated average life can be used for ex-ante calculation.

To ensure that no more than 6 CFLs are distributed to each household, the following procedures are in place:

- Training of persons involved in the distribution to emphasize that a maximum of 6 CFLs to be distributed to each participating household;
- The hard copy ledger form and the database that must be completed upon distribution of CFLs to each household will only allow entry for a maximum of 6 CFLs. The electronic database will not allow data entry beyond 6 CFLs.
- The spot checks to be performed by the check personnel of the SSC-CPA implementer will also provide a cross check to ensure that households have not received more than 6 CFLs. If a household has more than 6 CFLs (which are embossed with the unique identification), then the check personnel will remove the excess CFLs, which can then be used in other eligible households.

The CPA implementer will ensure the appropriate and environmentally friendly system of disposal of the ICLs replaced. They will be destroyed under supervision of an independent body, so that they are not used somewhere else.

Recording
All replaced ICLs will be recorded during the distribution process in a specially designed database. The Database will identity the wattage of each replaced ICL.

Storage
The replaced ICLs will be collected and stored in appropriate boxes indicating the wattages of the replaced ICLs. Each box will state the number of ICLs stored in that box. The boxes will be stored at dedicated storage facilities.

Destruction
The CPA Implementer will arrange for destruction, which will be documented via witnessing by local environmental officials or time stamped video records.

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. This date of completing distribution, on acceptance by the managing entity after scrutiny, would be treated as the start date of the crediting of GHG reductions for the SSC-CPA area, if it is later than the starting date defined in section A.4.3.1

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

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

S. No	SSC-CPA Title	Description
1	CPA Implementer(s)	<agency(ies) which implement the SSC-CPA on the ground>

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

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

>>

A.4.1.1. Host Party:

>>China

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

>>Geographic reference or other means of identification[5], Name/contact details of the entity/individual responsible for the CPA, e.g. in case of stationary CPA geographic reference, in case of mobile CPAs means such as registration number, GPS devices.

S. No	SSC-CPA Title	Description
1	The entity/individual responsible for the CPA	
2	City	
3	County (District)	
4	Town	
5	Village	
	Subdivision	**Section**
	<insert rows as necessary>	<insert rows as necessary>
6	SSC-CPA Unique Identification Number	<as assigned by QL>
7	Longitude of Project area	<in standard format>
8	Latitude of Project area	<in standard format>

The key geographic location of the applied measure (CFLs) is determined using the household owner name and the household physical address. These two parameters together would uniquely identify the household.

<insert the map >

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

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

dd/mm/yyyy
For example-date of signing the date of purchasing or distributing the CFLs

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

>>
<The CPA operational life cannot be more than that of the rated life of the distributed CFLs. For example if CFL average life is 10,000 hours then taking usage as 3.5 hours per 24 hours, the project operational lifetime is 7 years and 302 days.>

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

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

Fixed Crediting period: < indicate SSC-CPA choice from amongst the following (whichever is less) viz. project operational lifetime or 10 years fixed or residual PoA lifetime >

A.4.3.1. Starting date of the crediting period:

dd/mm/yyyy; (The start date would be the declared end date of the CFL installation process in SSC-CPA project area by the CPA Implementer and accepted by the Managing Entity, if it is later than the defined starting date above)

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

>> indicate SSC-CPA choice from amongst the following (whichever is less) viz. project operational lifetime or 10 years fixed or residual PoA lifetime
NOTE: Please note that the duration of crediting period of any *CPA* shall be limited to the end date of the *PoA* regardless of when the CPA was added.

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

>>SSC-CPA annual emission reductions are as under:

Year	Estimation of annual emission reductions (tones of CO_2e)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
Total estimated reductions	
Annual average	

A.4.5. Public funding of the CPA:

>>There is no public funding from Annex I Parties for this Project.

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

>>
As per section A.4.4.1 of the PoA, the maximum annual saved electricity of each distribution of a CFL is used for de-bundling check at CPA level.

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

>>

SSC-CPA status is indicated as below:

☐ This Project will be neither registered as an individual CDM activity nor is part of another Registered PoA.

☐ The households of the CPA are uniquely identified and are not overlapping.

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

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

>>

CFL Distribution Programme in Hebei Province

Version: <provide version of PoA>

Date: dd/mm/yyyy

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

>> With reference to section A.4.2.2 of the PoA. The eligibility criteria stated under the SSC-PoA are confirmed by the SSC-CPA implementer(s) as under:

S.No	Eligibility Criteria	Status	Comments
1	The geographical boundary of the SSC-CPA area is uniquely defined and located in Hebei Province.	☐ Yes / ☐ No	
2	CFLs utilized under the SSC-CPA are marked for clear unique identification for the PoA and the SSC-CPA.	☐ Yes / ☐ No	
3	CFL manufacturer and project households will sign agreements with Zhenjiang Qiangling Energy-saving Light Source Co., Ltd. to relinquish their rights over the CERs generated from the project CFL use.	☐ Yes / ☐ No	
4	Confirmation that this SSC-CPA is not registered or being registered, as a stand-alone CDM or as a CPA of another PoA.	☐ Yes / ☐ No	
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.	☐ Yes / ☐ No	
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 is tested and confirmed according to relevant	☐ Yes / ☐ No	

	national or international standards.		
7	The average life or the rated average life of the CFLs is determined in accordance with IEC 60969 or an equivalent national standard, which shall be longer than 6000 hours. 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.	☐ Yes / ☐ No	
8	The start date of the SSC-CPA is not, or will not be, prior to the commencement of validation of the programme of activities (11/11/2011). The start date of the SSC-CPA shall be check through documentary evidence, e.g. CFL procurement contract.	☐ Yes / ☐ No	
9	The baseline and monitoring methodology AMS-II.J is applied. All the CPAs should meet applicability and other requirements of AMS-II.J.	☐ Yes / ☐ No	
10	The CPA is additional if the maximum annual saved electricity of each project household is less than 3000 MWh per year.	☐ Yes / ☐ No	
11	Stakeholders' consultation meeting is conducted prior to the publication of SSC-CPA-DD on the UNFCCC website and CPA inclusion. Environment impact analysis should be included in stakeholder consultation process.	☐ Yes / ☐ No	
12	Confirmation that no funding from Annex I parties; if any, does not result in a diversion of official development assistance	☐ Yes / ☐ No	
13	The target group should be the residents who will participate in the PoA voluntarily and are using ICLs in their houses.	☐ Yes / ☐ No	
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.	☐ Yes / ☐ No	
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.	☐ Yes / ☐ No	
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	☐ Yes / ☐ No	

	calculation) separately and independently for each of the CPAs included in this PoA.		
17	The aggregate electricity savings by a single SSC-CPA do not exceed the equivalent of 60 GWh per year.	☐ Yes / ☐ No	
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	☐ Yes / ☐ No	
19	The crediting period of SSC-CPA should be within the 28years of the crediting period of PoA	☐ Yes / ☐ No	

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

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[6] of each unit is no larger than 5% of the small-scale CDM thresholds."

<The detailed description of each CPA>

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

>> The project boundary is the physical, geographical location of each measure (i.e. each CFL) installed. The CFL installed is energy efficient in comparison to the comparable conventional incandescent lamp (ICL)

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, Hebei Province belongs to North China Power Grid (NCPG).

Therefore the project boundary is the physical, geographical location of each project CFL installed and all power plants connected physically to North China Power Grid. The area covered by the proposed CPA is located within the geographical boundary of the proposed PoA. It belongs to Hebei Province in terms of political boundary.

[6] 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.

The electricity is supplied by the NCPG 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 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.*
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.5. Emission reductions:

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

>> The section E.6.3 of PoA is adapted for the SSC-CPA project area as under:

Data / Parameter:	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 this PoA .
Any comment:	

Data / Parameter:	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	The SSC-CPA shall use a default value of 0.95 under this PoA .

and procedures actually applied :	
Any comment:	

Data / Parameter:	O_i
Data unit:	Hours /day
Description:	Average daily operating hours of the lighting devices
Source of data used:	Methodology default value
Value applied:	3.5
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.
Any comment:	

Data / Parameter:	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 CFL>
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 the international standard of IEC 60969 or other national/international standard (the value shall be known ex ante and the CPA-DD shall cite the standard-used).
Any comment:	

Data / Parameter:	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 :	Stipulated by the applied methodology, the default value of 3.5 hours per 24 hrs period is considered for the project activity. Hence for the yearly value the estimate is fixed.
Any comment:	

Data / Parameter:	$EF_{CO2,ELEC,y}$
Data unit:	tCO_2/MWh

Description:	CO_2 emission factor for displacement of electricity in the NCPG serving the household consumers that participate in the SSC-CPA project area during the monitoring interval *y*, calculated according to the latest approved version of AMS-I.D (tCO2/MWh)
Source of data used:	The <indicate version, date> of *Baseline Emission Factors for Regional Power Grids in China*, published by Chinese DNA
Value applied:	<SSC-CPA to apply value >
Justification of the choice of data or description of measurement methods and procedures actually applied :	The SSC-CPA shall apply the latest grid emission factor database available on the Chinese DNA website at the time of CPA validation and fix the value ex-ant.
Any comment:	

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

>>The equations under the SSC-PoA section E.6.2 are applied as per project values**.**
Ex ante emission reductions are calculated as below.

Net Energy Savings (NES_y)

The net energy saved is derived using the equation (1) below:

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

Where:

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

Where:

$P_{i,BL}$ <Project value> Watt

Rated power of the baseline lighting devices of the group of "i" lighting devices

$P_{i,PJ}$ <Project value> Watt

Rated power of the project lighting devices of the group of "i" lighting devices

O_i 3.5 hours per day

Average daily operating hours of the lighting devices replaced by the group of "i" lighting devices

ES_i <Project value> kWh per year

Estimated annual electricity savings for equipment of type i, for the relevant technology

$Q_{PJ,i}$ <Project value> lamps

Number (quantity) of pieces of equipment of type i distributed or installed under the project activity

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

Lamp Failure Rate ($LFR_{i,y}$)

In the context of the SSC-CPA, the project lamp (CFL) failure rate was calculated *ex-ante* and then measured *ex-post* till the end of the crediting period as follows:

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

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

Where:

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

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

X_i 1,277.5 hours
Number of operating hours per year for equipment type i

Y Counter for year

Based on the above data, yearly LFR and NES are as shown below:

Year	1	2	3	4	5	6	7	8	9	10
Till date cumulative CFL Operating Hours in project (hours)										
Lamp Failure Rate (LFR, %)										
Net Energy Saved (NES, MWh)										

Emissions Reduction (ER_y)

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

$ER_y = NES_y \times EF_{CO2,ELEC,y}$

Where:

$EF_{CO2,ELEC,y}$ <apply project value> tCO_2/MWh

Thus, *ex ante* calculations of emission reductions over crediting period is as follows:

Year	1	2	3	4	5	6	7	8	9	10
Emission Reductions (ER, tCO_2e)										

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

>>

Year	Estimation of project activity emissions (tonnes of CO_2 e)	Estimation of baseline emissions (tonnes of CO_2 e)	Estimation of leakage (tonnes of CO_2 e)	Estimation of overall emission reductions (tonnes of CO_2 e)
Year 1	N/A	N/A	N/A	
Year 2	N/A	N/A	N/A	
Year 3	N/A	N/A	N/A	
Year 4	N/A	N/A	N/A	
Year 5	N/A	N/A	N/A	
Year 6	N/A	N/A	N/A	
Year 7	N/A	N/A	N/A	
Year 8	N/A	N/A	N/A	
Year 9	N/A	N/A	N/A	
Year 10	N/A	N/A	N/A	
Total (tonnes of CO_2 e)				

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

B.6.1. Description of the monitoring plan:

>>

☐ SSC-CPA implementer(s) confirm to follow the monitoring plan as described in the section E.7.2 of -PoA

A list of parameters to be measured during the implementation of project activity is adapted from PoA-DD section E.7.2 for the SSC-CPA project area as under:

Data / Parameter:	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 in section B.5	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:	--

Data / Parameter:	$LFR_{i,y}$
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 in section B.5	The ex-ante LFR calculated value is corrected as per the monitoring survey. If Rated Average Life values were used initially for calculating LFRy, per equation(4) in section E.6.2 of PoA-DD, as soon as Average Life values are available they shall be used for calculation of subsequent year LFRi,y values. If the ex-post monitoring surveys indicate that the failure rate is equal to or less than the LFRi,y value indicated using equation(4) in section E.6.2 of PoA-DD with ex-ante or prior year, ex-post monitoring values, for subsequent years LFRi,y shall continue to be determined using Equation (4) in section E.6.2 of PoA-DD and the established Average Life values for Li. However, for subsequent years, Li values in LFRi,y equation (4) of in section E.6.2 of PoA-DD shall be adjusted if the ex-post monitoring surveys indicate that the failure rate (LFRi,y) is greater than the value indicated using equation (4) in section E.6.2 of PoA-DD 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 E.6.2 of PoA-DD and new values of LFRi,y shall be used beginning from the first calculation year after completion of the ex-post survey.
Description of measurement methods and procedures to be applied:	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.
QA/QC procedures to be applied:	The surveys will consist of identifying CFLs, with unique SSC-CPA markings 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 $Q_{PJ,i}$.
Any comment:	--

Data / Parameter:	$DATE_{start}$ and $DATE_{end}$
Data unit:	--
Description:	The start date and completion date of installation of CFLs

Source of data used:	SSC-CPA database
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Installation of CFLs-Start date: dd/mm/yyyy Installation 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:	

Data / Parameter:	$Q_{BL,i}$
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 calculating expected emission reductions in section B.5	<To be filled by SSC-CPA>
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.

Data / Parameter:	Q_{PJ}
Data unit:	Number
Description:	Number of CFLs of the group of "*i*" CFLs (e.g. 12W CFL) in operation
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:	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:	Use of standardized data forms
Any comment:	--

Data / Parameter:	$P_{i,BL}$
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:	--

Data / Parameter:	$P_{i,PJ}$
Data unit:	W
Description:	Rated power of each type of CFLs distributed under the SSC-CPA
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:	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:	Use of standardized data forms
Any comment:	--

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

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

This information is provided at the PoA level.
SSC-CPA need not complete sections C.2. and C.3 of this form.

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

>>Not applicable

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

>> Not applicable

SECTION D. Stakeholders' comments

>>

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

This information is provided at the CPA level.

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

>>
A stakeholder consultation meeting has been carried out among the local stakeholders on <dd/mm/yy>. After the meeting, < number> questionnaires has been distributed and compiled by local stakeholders from <dd/mm/yy> to <dd/mm/yy>. The questionnaire shall be designed to be easily filled in with the following sections:

1) Project introduction
2) Respondent's basic information and education level
3) Questions on:
- What is their opinion on their living environment? Do they understand about this project?
- Will the Project bring improvements to their livelihoods?
- Will the Project have negative impacts on their livelihoods?
- Do they support the Project?
- What other comments and suggestions do the respondents have for the company regarding the Project?

4) Space for the respondents' signature and date

D.3. Summary of the comments received:

>>

The survey had a < %> response rate and the following is a summary of the key findings:

Table E-1 Information about the respondents

		Number	Percentage
Gender	Male		

		Number	Percentage
	Famale		
Education level	High school and above		
	Others middle level		
	Unknown		

Table E-2 Summary of the comments received

What is their opinion on their living environment?	Satisfied	Not satisfied	Reason
Do they understand about this project?	Thoroughly understand	Partially understand	Not understand
Will the Project bring improvements to their livelihoods?	Yes	No	
Will the project lead to some problems on their livelihoods?	Yes	No	
Do they support the Project?	Support	Against	Never mind

Conclusion
<To be filled by SSC-CPA>

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

>>
<SSC-CPA to fill if negative comments had been received for this Project. Else write "no need to modify the project due to comments received">

Annex 1

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

Organization:	
Street/P.O.Box:	
Building:	
City:	
State/Region:	
Postfix/ZIP:	
Country:	
Telephone:	
FAX:	
E-Mail:	
URL:	
Represented by:	
Title:	
Salutation:	
Last Name:	
Middle Name:	
First Name:	
Department:	
Mobile:	
Direct FAX:	
Direct tel:	
Personal E-Mail:	

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

<SSC-CPA to fill if public funding is planned for this Project. Else write "not applicable">

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%).

The combination of operating margin ($EF_{grid,OM,y}$) and build margin ($EF_{grid,BMy,}$) factors according to the following six steps defined in the "Tool to calculate the emission factor for an electricity system". Data for the calculations are based on official national statistics books: *China Energy Statistical Yearbook* and *China Electric Power Yearbook.*

Step 1. Identify the relevant electricity systems

The power generated from the proposed project activity will be supplied to the grid. As the DNA has published a delineation of the project electricity system and connected electricity systems, these delineations are used.

Following the DNA delineation, the project electricity system is the North China Power Grid (NCPG), consisting of six provincial grids: Beijing, Tianjin, Hebei, Shanxi, Inner Mongolia and Shandong.

The connected electricity system is the Northeast Power Grid (NEPG), consisting of three provincial grids: Jilin, Liaoning and Heilongjiang, and Central China Power Grid (CCPG), consisting of Jiangxi, Henan, Hubei, Hunan, Chongqing and Sichuan. There is electricity transferring from the connected electricity systems to the project electricity system, so the CO_2 emission factor for net electricity imports ($EF_{grid,import,y}$) from the connected electricity system should be determined using one of the following options for the purpose of determining the operating margin emission factor:

(a) 0 tCO_2/MWh, or
(b) The weighted average operating margin (OM) emission rate of the exporting grid; or
(c) The simple operating margin emission rate of the exporting grid; or
(d) The simple adjusted operating margin emission rate of the exporting grid.

The option (c) is selected to calculated the CO_2 emission factor(s) for net electricity imports ($EF_{grid,import,y}$) according to the delineation.

The electricity imports from the Northeast Power Grid to the North China Power Grid has not changed significantly in recent years (see Annex 3), and the electricity from Central China Power Grid to North China Power Grid just started from 2006 and the imported electricity is negligible compared to the power generated from NCPG. So for the purpose of determining the build margin emission factor, the spatial extent is limited to the project electricity system according to the tool.

Step 2. Choose whether to include off-grid power plants in the project electricity system (optional)

Project participants may choose between the following two options to calculate the operating margin and build margin emission factor:

Option I: Only grid power plants are included in the calculation.
Option II: Both grid power plants and off-grid power plants are included in the calculation.

Following the calculations of the DNA, and the statistical data available, Option I is chosen.

Step 3. Select a method to determine the operating margin (OM)

According to the tool, four various methods are provided for calculating the operating margin emission factor ($EF_{grid,OM,y}$), including:

a) Simple OM;
b) Simple Adjusted OM;
c) Dispatch data analysis OM;
d) Average OM

According to the tool, the Simple OM method (a) is applicable to the project if the low-cost resources constitute less than 50% of total grid generation in: 1) average of the five most recent years, or 2) based on long-term averages for hydroelectricity production

Since the share of the low-cost/must run resources in the North China Power Grid are 0.75% (2005), 0.85% (2006), 0.90% (2007), 1.19% (2008) and 2.00% (2009), respectively[7] and this percentage has not changed significantly in recent years, the Simple OM method is applicable to the proposed project.

The Simple OM emissions factor can be calculated using either ex-ante or ex-post data vintages. The project proponents have chosen to use the ex-ante option, and $EF_{grid,OM,y}$ is fixed for the duration of the first crediting period.

- Ex ante option: A 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation, without requirement to monitor and recalculate the emissions factor during the crediting period.

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

The Simple Operating Margin emission factor $EF_{grid,OM,y}$ is defined as the generation-weighted average emissions per unit net electricity generation (tCO_2/MWh) of all generating sources serving the system, not including low-operating cost and must-run power plants. Two options can be selected to calculate the simple OM:

- Based on the net electricity generation and a CO_2 emission factor of each power unit (Option A); or
- Based on data on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system (option B).

[7] *China Electric Power Yearbook 2006~ 2010*

As data for options A is not available, and only nuclear and renewable power generation are considered as low-cost / must-run power sources and the quantity of electricity supplied to the grid by these sources is known, therefore, option B is chosen to calculate the OM emission factor, following the published DNA data and calculations.

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

$$EF_{grid,OMsimple,y} = \frac{\sum_i FC_{i,y} \times NCV_{i,y} \times EF_{co_2,i,y}}{EG_y} \quad (3)$$

Where

$EF_{grid,OMsimple,y}$ is the simple operating margin CO_2 emission factor in year y (tCO_2/MWh)

$FC_{i,y}$ is the amount of fossil fuel type i consumed in the project electricity system in year y (mass or volume unit)

$NCV_{i,y}$ is the net calorific value (energy content) of fossil fuel type i in year y (GJ/mass or volume unit)

$EF_{CO2,i,y}$ is the CO_2 emission factor of fossil fuel type i in year y (tCO_2/GJ)

EG_y is the net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost / must-run power plants / units, in year y (MWh)

i is all fossil fuel types combusted in power sources in the project electricity system in year y

y, when using the ex-ante option, is the three most recent years for which data is available at the time of submission of the CDM-PDD to the DOE for validation

On the basis of the data available, the three-year average operating margin emission factor is calculated by the DNA as a full-generation-weighted average of the emission factors[8]:

$EF_{grid,OMsimlpe,y}$ = XXXX tCO_2/MWh

Step 5. Calculate the build margin (BM) emission factor

The sample group of power units *m* used to calculate the build margin consists of the set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently.[9] This option is chosen as it comprises larger annual generation than the five units built most recently. Following the deviation[10], the latest statistical data available (from the China Power Yearbook) is used by the DNA to determine the most recent year from which the added generation capacity is equal to or just exceeds 20% of the latest statistic year 2009. The added generation capacity is the sample group of power units *m* used to calculate the build margin.

In terms of vintage of data, project participants can choose between option 1 ex-ante, and option 2 ex-post data vintages. The project proponents have chosen to use the ex-ante option, and $EF_{grid,BM,y}$ is fixed for the duration of the first crediting period.

[8] http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2720.pdf
[9] If 20% falls on part capacity of a unit, that unit is fully included in the calculation.
[10] Deviation for projects in China (DNV, 7 Oct 05), see http://cdm.unfccc.int/Projects/Deviations.

- *Option 1.* For the first crediting period, calculate the build margin emission factor ex-ante based on the most recent information available on units already built for sample group m at the time of CDM-PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

The build margin emissions factor is the generation-weighted average emission factor (tCO_2/MWh) of all power units *m* during the most recent year *y* for which power generation data is available, calculated as follows:

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}} \quad (4)$$

Where
$EF_{grid,BM,y}$ is the Build margin CO_2 emission factor in year *y*(t CO_2/MWh);
$EG_{m,y}$ is the Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh);
$EF_{EL,m,y}$ is the CO_2 emission factor of power unit *m* in year y (tCO_2/MWh);
m is the power units included in the build margin;
y is the most recent historical year for which power generation data is available.

The CO_2 emission factor of each power unit *m* ($EF_{EL,m,y}$) should be determined as per the guidance in step 3 (a) for the simple OM. However, due to the limited availability of publicly available data, the DNA uses the accepted deviation mentioned in Step 4 to calculate $EF_{BM,y}$, as follows:

- Use of capacity additions for estimating the build margin emission factor for grid electricity.
- Use of weights estimated using installed capacity in place of annual electricity generation.
- Using the latest statistical data available from China Energy Statistical Yearbook 2010 to calculate the different CO_2 emission percentage (λ_i) of solid, liquid and gas fuel in the total emission from thermal generation in the North China Power Grid in 2009.
- Based the emission percentage (λ_i) of different kind fossil fuels and the corresponding emission factor (EF_i) according to the best technology commercially available in the China, the weighted emission factor of thermal power ($EF_{thermal}$)is calculated.
- Using the latest statistical data available (from the China Electric Power Yearbook) determine the year from which the added generation capacity is equal to or just exceeds 20% of the capacity of the latest statistic year 2009. Regarding the added generation capacity above 20%, calculate the Build Margin through multiply the weighted emission factor of thermal power ($EF_{thermal}$) by the capacity percentage of the thermal power among the about 20% new capacity of 2009.

The calculation steps and formulas are as follows:

Sub-step a *Calculate the proportion of CO_2 emission caused by solid, liquid and gas fuels in the total emission respectively:*

$$\lambda_{Coal,y} = \frac{\sum_{i \in Coal,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}} \quad (5)$$

$$\lambda_{Oil,y} = \frac{\sum_{i \in Oil,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}} \quad (6)$$

$$\lambda_{Gas,y} = \frac{\sum_{ieGAS,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}} \quad (7)$$

Where:

$F_{i,j,y}$ = the amount of fuel i (in a mass or volume unit) consumed by province j in year(s) y

$NCV_{i,y}$ = the weighted average net calorific value of the fuel type i in year y (GJ/mass or volume unit)

$EF_{CO2,i,j,y}$ = the weighted average CO_2 emission factor of fuel type i in year y (tCO_2/GJ)

Sup-step b *Calculate the emission factor of thermal power generation*

$$EF_{Thermal,y} = \lambda_{Coal,y} \times EF_{Coal,Adv,y} + \lambda_{Oil,y} \times EF_{Oil,Adv,y} + \lambda_{Gas,y} \times EF_{Gas,Adv,y} \quad (8)$$

Where:

$EF_{Coal,Adv,y}$, $EF_{Oil,Adv,y}$ and $EF_{Gas,Adv,y}$ are emission factor proxies of efficiency level of the best coal-fired, oil based and gas-based power generation technology commercially available in China.

Sub-step c *Calculate BM of the grid*

$$EF_{grid,BM,y} = \frac{CAP_{Thermal,y}}{CAP_{Total,y}} \times EF_{Thermal,y} \quad (9)$$

Where:

$CAP_{Total,y}$ = the total amount of incremental installed capacity;

$CAP_{Thermal,y}$ =the increased installed capacity of thermal power generation.

The data on different fuel consumptions for power generation and the net caloric values of the fuels are obtained from the *China Energy Statistical Yearbook 2010*. The emission factors and oxidation factors of the fuels adopted are obtained from Table 1-4 of *2006 IPCC Guidelines for National Greenhouse Gas Inventories: Workbook*.

The $EF_{grid,BM,y}$ of North China Power Grid is XXXX tCO_2/MWh[11]. (see Annex 3 for more details)

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

According to the tool, there are two methods for calculation of the combined margin (CM) emission factor, i.e. (a) Weighted average CM; or (b) Simplified CM, and the weighted average CM method (option a) should be used as the preferred option. The combined margin emission factor is calculated as follows:

$$EF_{grid,CM,y} = w_{OM} \bullet EF_{grid,OM,y} + w_{BM} \bullet EF_{grid,BM,y} \quad (10)$$

Where
$EF_{grid,BM,y}$ is the build margin CO_2 emission factor in year y (tCO_2/MWh)
$EF_{grid,OM,y}$ is the operating margin CO_2 emission factor in year y (tCO_2/MWh)
w_{OM} is the weighting of operating margin emissions factor (%)
w_{BM} is the weighting of build margin emissions factor (%).

The default weights are used, i.e. for the project in the first crediting period and the subsequent crediting period, $w_{OM} = 0.5$ and $w_{BM} = 0.5$.

On the basis of these weights for the first crediting period, the combined margin emission factor is calculated, and fixed ex-ante:

$EF_{grid,CM,y}$ = XXXX tCO_2/MWh

[11] http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2720.pdf

Annex 4

MONITORING INFORMATION

Under the methodology AMS-II.J (Version is to be filled by SSC-CPA), sampling is required for determining:
a) Number of CFLs placed in service and operating (*ex-post Q_{PJ} survey*)
b) CFL failure rate (*ex-post monitoring survey*)

In the table below, the methodology for determining the sample size is outlined.

Information	**Coverage**
Sampling Objectives	Sampling Objective is to obtain a reliable estimate of the key variables used in the estimation of GHG reductions viz.: ·Number of CFLs placed in service and operating (ex-post Q_{PJ} survey) ·CFL failure rate (ex-post monitoring surveys)
Target Population	The target population is the households that participate in the project activity in <To be filled by SSC-CPA> (County/District), < To be filled by SSC-CPA > City, Hebei Province. Assumed that 1 household owns 1 CFL at least.
Data to be collected	Number of CFLs placed in service and operating (ex-post Q_{PJ} survey) · Within 12 months of the start of CFL distribution, an on-site visual survey of sample households shall be done to identify CFLs that are installed and operating. · Only CFLs bearing the "PCDM", "CFL Distribution Programme in Hebei Province" (printed as simplified Chinese character) and <SSC-CPA region name> (printed as simplified Chinese character) can be counted as installed. While CFLs replaced as part of a regular maintenance or warranty program can be counted as operating, CFLs cannot be replaced as part of the survey process and counted as operating. CFL failure rate (ex-post monitoring surveys) ·The project activity shall carry out subsequent surveys as per the outline provided for the ex-post Q_{PJ} survey above.
Sampling Frame	Sample frame will be developed from the data recorded by SSC-CPA implementer. The frame will consist of the recipient information in the project region. The information sources used to develop the sampling frame is as below: ➢ Information on households that receive CFLs: ● A list of each household that received CFLs (house address, name of occupant); ● 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. ➢ Information on households included in *ex-post* monitoring survey ● A list of each household in the survey (house address, name of occupant). ● 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).
Sample Method	Considering that each of the households in the project region holds an equal probability of being identified therefore a simple random sampling method will be used.
Desired Precision /Expected Variance and Sample Size	AMS-II.J requires a minimum 90% confidence interval and the 10% maximum error margin. **a) 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 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 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. To be conservative, we assume that 50% CFLs either were installed and not working or were not installed. Thus, using a rough estimate for p of 0.50 i.e. 50% of all lamps are installed and operating, in the

formula for n given above, we get (For p= 0.50), n= <Project value>.

Allowing for some (about 20%) non-response, we finalize the sample size of CFLs to be at least <Project value>, which comply with a minimal sample size of 100 required by AMS-II.J.

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

To estimate the proportion, p, of CFLs failure rate 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(158,607)
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.

We plan to carry out the subsequent ex-post monitoring survey once every 3 years.

As per choice made in section B.5.2 and allowing for some (about 20%) non-response, we finalize the sample size of these years, which comply with a minimal sample size of 100 required by AMS-II.J.

If the sample survey was carried out in the 4th year, we use a rough estimate of p as <Project value> i.e <Project value> % failure in the formula for n given above, we get (For p= <Project value>), n = <Project value>. Finally, allowing for some (about 20%) non-response, we finalize the sample size of CFLs to be at least <Project value>.

Determining Random Selection of Household
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.
QA/QC	To achieve good quality data, a standard form shall be designed ex-ant and assessed by the CME. All field personnel will be trained to decrease the non-response error. A new sample should be selected as supplement, when there is non-response during site-visit project household; but if the non-response rate was higher than 20%, the sampling frame should be re-constructed as the above requirement.
Data Analysis	Only the data meet the requirement of QA/QC can be used for data analysis.
Implementation Plan	The schedule for implementing the survey for a SSC-CPA is the first survey will be conducted within the first year after installation of project CFLs. Subsequent surveys will be carried out a minimum of once every 3 years. The personnel who will conduct date collection and the analysis should be trained ex-ant through specific training programme.