PROGRAMME DESIGN DOCUMENT FORM FOR SMALL-SCALE CDM PROGRAMMES OF ACTIVITIES (F-CDM-SSC-PoA-DD) Version 02.0

PROGRAMME OF ACTIVITIES DESIGN DOCUMENT (PoA-DD)

PART I. Programme of activities (PoA)

SECTION A. General description of PoA

A.1. Title of the PoA

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Solar PV Power Development Programme in Shandong Province
Version: 2.0
Date: 12/11/2012

A.2. Purpose and general description of the PoA

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In Shandong province most electricity is generated by burning coal, so the objective of this programme is to boost the use of renewable energy. CPAs included into this programme envisage installation of solar PV generation plants at the site where there was no solar PV generation plants operating prior to the implementation of these CPAs. Electricity produced by the independent activities may be supplied either to:

- The end users (excess electricity may be supplied to the North China Power Grid) , which would have been supplied with electricity from the NCPG in the absence of the activity or
- The North China Power Grid (NCPG).

GHG emissions from the electricity generation for the solar PV generation plants amount to zero. The reduction of GHG emissions as a result of the implementation of the CPAs will be achieved due to reduction of CO_2 emissions from combustion of fossil fuel at the existing grid-connected power plants and plants which would likely be built in the absence of the CPAs.

The coordinating and managing entity of this PoA is SinoCarbon Innovation & Investment Co., Ltd. henceforth referred to as SCII, which will distribute CERs produced under this PoA and manage all the independent activities included in the PoA.

1. **General operating and implementing framework of PoA**

The proposed PoA, named as “Solar PV Power Development Programme in Shandong Province”, envisages assisting development of small-scale solar PV generation plants across Shandong Province, China. Each small-scale component project activity (referred later on as CPA) under this PoA will have a combined installed capacity of no more than 15 MW.

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

It has more than 60,000 MW of installed capacity for power generation in Shandong Province, out of which the contribution of solar energy is negligible[1]. This is typically due to high cost associated with solar PV generation in Shandong Province, China.

[1] http://www.serc.gov.cn/jgyj/ztbg/201103/t20110307_14413.htm
http://www.serc.gov.cn/jgyj/ztbg/201103/W020110307325739569938.pdf

The programme satisfies all sustainable development criteria identified by the DNA and the programme will promote:

- Development of renewable energy projects in Shandong province
- Enhancement of the motivation of the households and private companies in Shandong province to use solar PV systems for power generation purposes
- Creation of new jobs for the people and increase of tax revenues for Shandong province budget; and
- Mitigation of the negative environmental impact. Combustion of fossil fuels (mostly coal) at power plants and hereby emissions of the harmful substances into the atmosphere, such as flue ash, oxides of sulphur and nitrogen will be reduced due to the implementation of each CPA under this PoA.

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

This PoA is not implementing any mandatory policy or regulation of the Shandong province government. It is a voluntary action and initiative of SCII. Participation in the PoA is voluntary; owners of solar PV generation plants will be given a choice whether to participate in the programme or not.

A.3. CMEs and participants of PoA

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SCII is the coordinating and managing entity of this PoA. SCII will purchase rights to claim CERs generated as a result of the implementation of CPAs from the owners of the solar PV generation plants and distribute them.

The implementers of the CPA may be the owners of solar PV generation plants or another entity or company designated by SCII. They may or may not be involved in participation of the PoA.

A.4. Party(ies)

Name of Party involved (host) indicates a host Party	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
China	SinoCarbon Innovation & Investment Co., Ltd.	No
United Kingdom of Great Britain and Northern Ireland	Blue World Carbon Capital PCC	No

A.5. Physical/ Geographical boundary of the PoA

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All CPAs included into the PoA shall be located within the geographical boundaries of Shandong Province, the People's Republic of China, which defines the boundary of the PoA.

A.6. Technologies/measures

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Each SSC-CPA will take advantage of the photovoltaic (PV) technology, i.e. convert solar radiation into electrical energy. Such technologies may include, but are not limited to: wafers (cells) made from single crystal silicon, polycrystalline silicon and ribbon silicon as well as advanced thin film technologies.

PV panels may be connected together to form a solar array. PV panels may also be fitted with trackers. The solar tracker is a device capable of turning after the sun, which means following the sun track from it is rising in the east to its setting in the west.

The solar PV generation plants may be connected either to the end user (excess electricity may be supplied to the NCPG) or the NCPG directly.

A.7. Public funding of PoA

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There is no public funding in the programme of activities (PoA)

SECTION B. Demonstration of additionality and development of eligibility criteria

B.1. Demonstration of additionality for PoA

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The proposed PoA is a voluntary coordinated action

This PoA is not implementing a mandatory policy or regulation of the Government of Shandong Province. In fact, in Shandong province there is not any mandatory policy and/or regulation that require installation and/or use of solar PV generation systems or technologies for electricity supply to the end users or the NCPG. The programme described above is a voluntary coordinated action and an initiative of SCII supported by owners of solar PV generation plants. Participation in the PoA is voluntary; the owners of solar PV generation plants will be given a free choice whether to participate in the programme or not.

If the PoA is implementing a voluntary coordinated action, SSC-CPA would not be implemented in the absence of the PoA

As per paragraph 73 of the 47th EB meeting report "additionality is to be demonstrated either at the PoA level or at CPA level".

According to the definition of the small-scale CDM project in the "Glossary of CDM terms"（Version 07.0）, a measure, operation or action that aims to reduce GHG emissions, whether as a whole project or as a component of a project, in one of the following categories is a SSC CDM project activity:

(a) Type I project activities: Renewable energy project activities which have an output capacity up to 15 megawatts (or an appropriate equivalent), in accordance with the CDM rules and requirements;

(b) Type II project activities: Energy efficiency improvement project activities which reduce energy consumption, on the supply and/or demand side, to a maximum output of 60 GWh per year (or an appropriate equivalent) in accordance with the CDM rules and requirements;

(c) Type III project activities: SSC CDM project activities other than Type I and Type II project activities that result in emission reductions of less than or equal to 60 kt carbon dioxide equivalent annually, in accordance with the CDM rules and requirements.

Since CPA size must be smaller or equal to 15 MW installed capacity, the additionality of the CPA is demonstrated using the "Guidelines on the demonstration of additionality of small-scale project activities" (Version 09), reported as Annex 27 to EB 68. Paragraph 2 of this document reads as follows:

"2. Documentation of barriers, as per paragraph 1 above, is not required for the positive list of technologies and project activity types that are defined as automatically additional for project sizes up to and including the small-scale CDM thresholds (e.g. installed capacity up to 15 MW). The positive list comprises of:

(a) The following grid-connected and off-grid renewable electricity generation technologies

(i) Solar technologies (photovoltaic and solar thermal electricity generation);

(ii) Off-shore wind technologies;

(iii) Marine technologies (wave, tidal);

(iv) Building-integrated wind turbines or household rooftop wind turbines of a size up to 100 kW;

Each CPA shall use solar PV generation technologies which enable to convert solar radiation into electrical energy. The capacity of each CPA will be no more than 15MW. Thus, any CPA to be included into this PoA is additional and will not be implemented in the absence of the PoA.

If the PoA is implementing a mandatory policy/regulation, this would/is not enforced
Not applicable as the PoA is not implementing any mandatory policy/regulation.
There are no mandatory requirements in China requiring the use of PV power for electricity generation. Although the Renewable Energy Law /20/ has been in effect since 01 January 2006, it is aimed at making the plan and industry guidance and promotion measures for the development of all renewable energy (including hydro, wind, solar, geothermal and biomass etc.) and no special measures for PV power.

If mandatory a policy/regulation is enforced, the PoA will lead to a greater level of enforcement of the existing mandatory policy/regulation
Not applicable as the PoA is not implementing any mandatory policy/regulation.
There are no mandatory requirements in China requiring the use of PV power for electricity generation. Although the Renewable Energy Law /20/ has been in effect since 01 January 2006, it is aimed at making the plan and industry guidance and promotion measures for the development of all renewable energy (including hydro, wind, solar, geothermal and biomass etc.) and no special measures for PV power.

B.2. Eligibility criteria for inclusion of a CPA in the PoA
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The criteria developed are based on the requirements of the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities" (Version 02.1) [2]. The list of criteria covers the applicability conditions of the methodology AMS-I.F. (Version 02) and methodology AMS-I.D. (Version 17).

The CPA will be assessed against this list of criteria by the CME at the time when the CPA applies to enrol in the PoA.

The eligibility criteria for the inclusion of a CPA in the PoA are as follows:

Item	Requirements for criteria	Criterion
a	The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA.	The CPA must be located within the geographical boundary of Shandong Province. Map of the CPA location and its coordinate's description can be checked.
b	Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo)	Data on each CPA to be included into the PoA shall be accumulated by the CME in accordance with the procedure defined in Section C of the PoA-DD to avoid double accounting, including project owner details, installation details, and technology details and so on.
c	The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications	Each CPA shall use solar PV generation technologies which enable to convert solar radiation into electrical energy. Ensure that the capacity of each CPA will be no more than 15MW. These information will be demonstrated in the FSR compiled by a qualified third party and its approval, as well as relevant standards, including but are not limited to "Code for preparation of

[2] See paragraph 16, http://cdm.unfccc.int/Reference/Standards/meth/meth_stan04.pdf

		photovoltaic power projects feasibility study report"(GD003-2011)[3] and "Assessment method for solar energy resources "(QX/T89-2008)[4].
d	Conditions to check the start date of the CPA through documentary evidence	The start date of the CPA will be the earliest date at which either the implementation or construction or real action of the CPA. Documental evidence such as Equipment Purchase Contract, Construction Contract, Construction Approval Letter and other documental evidence available will be checked. Start date of the qualified CPA should not be prior to the start date of PoA.
e	Conditions that ensure compliance with applicability and other requirements of single or multiple methodology/ies applied by CPAs	• Each CPA will apply the methodology AMS-I.D or AMS-I.F separately. Each CPA will be an independent activity, so there is no cross effects. • All CPAs shall use solar PV technologies to produce electricity and envisage a new installation. The solar PV generating equipment of each CPA is not transferred from another activity • The CPA size shall be smaller or equal to 15 MW installed capacity. If the CPA uses AMS-I.D, electricity produced by the CPA will be supplied to the NCPG. If the CPA uses AMS-I.F, electricity produced by the CPA will be supplied to the end users (excess electricity may be supplied to the NCPG), which would have been supplied with electricity from the NCPG in the absence of the activity. The FSR, FSR Approval, Grid Connection Agreement, Power Purchase Agreement or other evidences can be checked.
f	The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in Section B above	Any CPA under this PoA is additional since each CPA will employ solar PV technologies to produce electricity and each CPA's size is limited with 15 MW installed capacity. All the CPAs will be grid-connected or off-grid. The FSR, FSR Approval, Grid Connection Agreement, Power Purchase Agreement or other evidences can be checked.
g	The PoA-specific requirements stipulated by the CMEs including any conditions related to undertaking local stakeholder consultations and	Local stakeholder consultations and stakeholder questionnaires would be carried out to collect comments from all local stakeholders at the CPA level.

[3] See http://ishare.iask.sina.com.cn/f/22924973.html
[4] See http://wenku.baidu.com/view/712682e79b89680203d825c5.html

	environmental impact analysis	Each CPA should be carried out environmental impact analysis (EIA) on assessment of impact on air, water, acoustic and solid environment. The questionnaires of stakeholders' survey and minute of local stakeholder consultations meeting will be checked to confirm whether the local stakeholder consultation is appropriate. And EIA report by the independent third party and EIA approval will be checked to confirm that the project is in accordance with the requirements of environmental impact analysis of the host country.
h	Conditions to provide an affirmation that funding from Annex I party, if any, does not result in a diversion of official development assistance	Each CPA will not have funding from Annex I parties; otherwise it will not be included in the PoA. The loan contract or other public documents demonstrating no funding from Annex I parties can be checked.
i	Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid-connected/off-grid) and distribution mechanisms (e.g. direct installation)	Electricity produced by each CPA will be supplied to: ● the end users (excess electricity may be supplied to the NCPG), which would have been supplied with electricity from the NCPG in the absence of the activity; or ● The NCPG The distribution mechanism is not applicable for this PoA.
j	Where applicable, the conditions related to sampling requirements for a PoA in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities"	A supplementary criterion is not required because no sampling is going to be employed within any CPAs
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	All qualified CPAs should meet the small-scale (output capacity over 5MW but up to 15 MW) or micro-scale (output capacity up to 5MW) threshold criteria, which is defined in the Glossary of CDM terms (version 07.0), and remains within those thresholds throughout all the crediting period of CPAs. The approved FSR/PDR, the operation and maintenance workbook, name plate of turbines and generators or other available documents could be checked.

l	Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories	According to the procedures described in the section C of PoA-DD, the CME must prove that there is no registered small-scale CDM project activity or an application to register another small-scale CDM project activity • Has the same activity implementer as the proposed small scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same technology/measure, and; • The boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closest point. The declaration from CPA implementer on non-debundling, approved FSR/PDR and available information on all registered activities on the CDM website could be checked and reviewed at the time of inclusion.

CME will ensure that all the CPAs under the PoA are neither registered as an individual CDM project activity nor included in another registered PoA, and that the CPA is subscribed to the PoA.

B.3. Application of methodologies

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Since the PoA is developed to use solar PV technology to generate electricity, the project participants have opted for the use of the following two methodologies.

If the CPA is a greenfield solar PV generation project, and the electricity generated by the CPA will be supplied to the NCPG, the CPA should use the AMS-I.D:

1. AMS-I.D.: Grid connected renewable electricity generation, Version 17, EB 61
Type I: Renewable energy projects
Category I.D.: Grid connected renewable electricity generation
Sectoral Scope: 01
Reference: http://cdm.unfccc.int/methodologies/SSCmethodologies/approved
The baseline scenario is that the electricity delivered to the NCPG by the CPA would have otherwise been generated by the NCPG. The detail information refers to Part II Section B.4.

If the CPA is a greenfield solar PV generation project and the electricity generated by the CPA will be supplied to the end user (excess electricity may be supplied to the NCPG), the CPA should use the AMS-I.F:

2. AMS-I.F.: Renewable electricity generation for captive use and mini-grid, Version 02, EB 61
Type I: Renewable energy projects
Category I.F.: Renewable electricity generation for captive use and mini-grid
Sectoral Scope: 01
Reference: http://cdm.unfccc.int/methodologies/SSCmethodologies/approved
The baseline scenario is that the electricity delivered to the end user by the CPA would have otherwise been generated by the NCPG. The detail information refers to Part II Section B.4.

Each CPA is an independent activity using only one methodology above separately, so there is no cross effects.

SECTION C. Management system

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

- **A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs**

Organization	Roles	Personnel	Competency	Responsibilities
SCII	Coordinating and managing entity	managing team	• Master degree and above • Related working experience in validation or verification of wind, hydro or other type CDM projects	• Apply the registration of the PoA with UNFCCC CDM Executive Board as a focal point • Develop a PoA management system and making continuous improvements of the system • Carry out the management and coordination of PoA in accordance with the management system • Select and contract CPA implementers • Make decision on whether to implement a specific CPA based on the proposal submitted by the CPA implementer • Develop and update eligibility criteria for inclusion of CPAs • Pay the implementation fee • Improve the PoA management system according to the latest methodology and standards. If there are new problems during the random check, the PoA management system should be continuous improved.
		technical advisory team	• Master degree and above • At least two years of experience as CDM project manager	• Provide training and capacity development for personnel in the whole process of CPA implementers • Carry out the technical review and control of inclusion of CPAs • Review of the competencies of personnel, involved in the process of inclusion of CPAs. including mastering basic knowledge of the CDM rules and guidelines, be able to apply eligibility criteria to ensure the CPA inclusion and so on.

(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.

(c) Procedures for technical review of inclusion of CPAs

The Technical Expert and CDM Expert of the CME must have an onsite due diligence visit to the CPA location, where they would confirm the baseline electricity supply, as well as assess the exact project activity implementation requirements depending on the renewable technology employed. They would also be able to inspect the physical boundaries of the CPA. Additional technical information regarding the description of the CPA could be obtained afterward from the responsible authorities or literature.

(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.
- The de-bundling check process describing in the section (g) is a method to avoid double accounting.

Moreover, in case electricity produced by the CPA is delivered to the end user (not to the NCPG), in addition the end user of electricity and the owner of the CPA are not the same company/person, they have to sign a special agreement confirming that the GHG emission reductions will not be claimed by the end user of electricity for using a zero-emission energy source.

(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. When a CPA implementer approaches the CME requesting inclusion under the PoA, the following information would be provided:

No.	Item	CPA Information
1	Project owner details	Name of CPA implementer
2	Installation details	Geographic coordinates of the CPA , installation date
3	Technology details	Capacity and efficiency of the solar PV generation system installed, life time of the project equipment, forecasted electricity generation
4	Electricity recipient details	The end user or the NCPG
5	Public funding	Each CPA should not have public funding.

All information provided by the CPA implementers will be stored in the electronic database maintained by the CME. And relevant documental evidences will be stored by the CME as well.

(f) Measures for continuous improvements of the PoA management system

For continuous development purposes, spot checks will be performed by members of the CME on quarterly basis, producing progress reports complementary with the monitoring report. These progress reports – written by experts of the CME – will be kept in the CME database for each CPA. Training needs and requests for revision/deviation will be developed accordingly.

(g) Other relevant elements

The SSC-CPA included in the PoA is not a de-bundled component of another CDM programme activity (CPA) or CDM project activity

In order to avoid registering a CPA that is in fact a de-bundled component of another CPA or CDM project activity, CME (SCII) will follow the guidelines provided in the "Guidelines on Assessment of Debundling for SSC Project Activities" (Version 03.0, Annex13, EB54) and check the projects registered on the UNFCCC to confirm that whether each CPA is a de-bundled component of another CDM programme activity (CPA) or CDM project activity. A proposed small-scale project activity shall be deemed to be a de-bundled component of a large project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity which meets the following conditions:

- Has the same activity implementer as the proposed small scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same technology/measure, and;

- The boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closest point.

Each CPA under this PoA will not be the registered small-scale CDM project activity or an application to register another small-scale CDM project activity or another CPA, who has the same activity implementer as the proposed small scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same technology/measure, with the same project category and technology/measure within 1 km of the project boundary of the proposed small-scale activity at the closest point. Therefore the proposed CPA is not a debundled component of a larger project activity.

The declaration from CPA implementer on non-debundling, approved FSR/PDR and available information on all registered activities on the CDM website could be checked and reviewed at the time of inclusion.

The provisions to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA

The SCII as coordinating entity requires all SSC-CPA implementer(s) to sign an agreement with SCII before the CPA enrolled. In particular, the SSC-CPA implement(s) are aware of and have agreed that their activity is being subscribed to the PoA.

Moreover, in case electricity produced by the independent activity is delivered to the end user (not to the NCPG), in addition the end user of electricity and the owner of the independent activity are not the same company/person, they have to sign a special agreement confirming that the GHG emission reductions will not be claimed by the end user of electricity for using a zero-emission energy source.

SECTION D. Duration of PoA

D.1. Start date of PoA

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31/05/2012 (the date of publication of the PoA-DD for global stakeholder consultation)

D.2. Length of the PoA

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4×7 years (28 years)

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

Each component project under this PoA should implement environmental impact analysis first and then it can start constructing after getting the approval of local environmental department.

E.2. Analysis of the environmental impacts
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N/A

SECTION F. Local stakeholder comments
F.1. Solicitation of comments from local stakeholders
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Stakeholder consultation will be conducted at CPA level in order to include essential project specific information and to ensure that the all the affected parties have the best opportunity to attend.
A stakeholder consultation meeting will be carried out and invite the relevant parties such as local government officials and residents. And then questionnaires will be distributed and compiled by local stakeholders.

F.2. Summary of comments received
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N/A

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

SECTION G. Approval and authorization
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The Letter of Approval from the Republic of China was issued on 19/10/2012.
The Letter of Approval from the UK was issued on 31/10/2012.
The two Letters of Approval have been provided to the validating DOE.

PART II. Generic component project activity (CPA)

The following description is applicable to the CPA applying AMS-I.D.

SECTION A. General description of a generic CPA
A.1. Purpose and general description of generic CPAs
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A typical CPA under this PoA is:

Each component project under this PoA should be located within Shandong Province and the proposed CPA whose size is smaller or equal to 15 MW installed capacity will use solar PV technologies supplying electricity to the NCPG

Each SSC-CPA will take advantage of the photovoltaic (PV) technology, i.e. convert solar radiation into electrical energy. Such technologies may include, but are not limited to: wafers (cells) made from single crystal silicon, polycrystalline silicon and ribbon silicon as well as advanced thin film technologies.

The main equipment of each CPA includes PV panels, solar trackers and inverters. PV panels may be connected together to form a solar array. PV panels may also be fitted with trackers. The solar tracker is a device capable of turning after the sun, which means following the sun track from it is rising in the east to its setting in the west. They will be installed at the roof, ground or other places.

Each CPA shall use solar PV generation technologies which enable to convert solar radiation into electrical energy. The capacity of each CPA will be no more than 15MW. These information will be demonstrated in the FSR compiled by a qualified third party according to relevant standards, including but are not limited to "Code for preparation of photovoltaic power projects feasibility study report"(GD003-2011) and "Assessment method for solar energy resources "(QX/T89-2008).

The information of each CPA will be included in the CPA-DD as follow:

Item	Description
life time of the project equipment	[Value] *Provide the source of data.*
monitoring equipment and its location	*Specify and provide the location figure.*
capacities and efficiencies	*Specify and provide evidence to prove.*
forecasted electricity generation	[Value] *Provide the source of data.*
geographical coordinates(decimal)	[Value] *Provide the source of data.*
technology transfer from Annex I countries	[Yes or No] *Provide evidence to prove.*

The purpose of the proposed CPA is to boost the use of renewable energy, i.e. solar power.

SECTION B. Application of a baseline and monitoring methodology

B.1. Reference of the approved baseline and monitoring methodology(ies) selected

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AMS-I.D: Grid connected renewable electricity generation, Version 17, EB 61
Type I: Renewable energy projects
Category I.D: Grid connected renewable electricity generation
Sectoral Scope: 01
Reference: http://cdm.unfccc.int/methodologies/SSCmethodologies/approved
The baseline scenario is that the electricity delivered to the NCPG by the CPA would have otherwise been generated by the NCPG. The detail information refers to Part II Section B.4.

The projects refer to the following methodological standards and tools:

Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities", Version 02.1, Annex5, EB 70.

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

B.2. Application of methodology(ies)

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Methodology AMS-I.D is applicable for installation of a greenfield solar PV generation plant supplying electricity to the NCPG. The applicability criteria of the methodology are defined and addressed as follows:

Applicability criterion	Applicability	Comment
This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: a) Supplying electricity to a national or a regional grid; or b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	Applicable	Each CPA comprises renewable electricity generation, by means of solar PV generation systems. Furthermore, the electricity will be supplied to the North China Power Grid.
Illustration of respective situations under which each of the methodology (i.e. AMS-I.D, AMS-I.F and AMS-I.A) applies is included in Table 2[5].	Applicable	Each CPA will use methodology AMS-I.D and supply electricity to the NCPG
This methodology is applicable for project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition, (c) Involve a retrofit of (an) existing plant(s); or (d) Involve a replacement of (an) existing plant(s).	Applicable	Each CPA under the PoA envisages: Install a new solar PV generation plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity.
Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: ● The project activity is implemented in an existing reservoir with no change in the volume of reservoir; ● The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m2; ● The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m2.	Not applicable	Any CPA is not the installation of a hydro power plant, so it does not need to satisfy this applicability condition.
If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel,8 the capacity of the entire unit shall not exceed the limit of 15 MW.	Not applicable	Any CPA does not have non-renewable components, so it does not need to satisfy this applicability condition.
Combined heat and power (co-generation) systems are not eligible under this category.	Not applicable	Any CPA does not involve co-generation. According to the AMS-I.D., the CPA must not satisfy this

[5] AMS-I.D. (version 17), page 15

		applicability condition.
In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	Not applicable	Each CPA under the PoA does not involve capacity addition, so it does not need to satisfy this applicability condition.
In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	Not applicable	Each CPA under the PoA does not involve retrofit or replacement of an existing facility, so it does not need to satisfy this applicability condition.
The following conditions apply for use of this methodology in a project activity under a programme of activities:		
In the specific case of biomass project activities the applicability of the methodology is limited to either project activities that use biomass residues only or biomass from dedicated plantations complying with the applicability conditions of AM0042.	Not applicable	Any CPA is not the installation of a biomass power plant, so it does not need to satisfy this applicability condition.
In the specific case of biomass project activities the determination of leakage shall be done following the general guidance for leakage in small-scale biomass project activities (attachment C of Appendix B of simplified modalities and procedures for small-scale clean development mechanism project activities; decision 4/CMP.1) or following the procedures included in the leakage section of AM0042.	Not applicable	Any CPA is not the installation of a biomass power plant, so it does not need to satisfy this applicability condition.
In case the project activity involves the replacement of equipment, and the leakage from the use of the replaced equipment in another activity is neglected because the replaced equipment is scrapped, an independent monitoring of scrapping of replaced equipment needs to be implemented. The monitoring should include a check if the number of project activity equipment distributed by the project and the number of scrapped equipment correspond with each other. For this purpose scrapped equipment should be stored until such correspondence has been checked. The scrapping of replaced equipment should be documented and independently verified.	Not applicable	Any CPA does not involve replacement of equipment, so it does not need to satisfy this applicability condition.

B.3. Sources and GHGs

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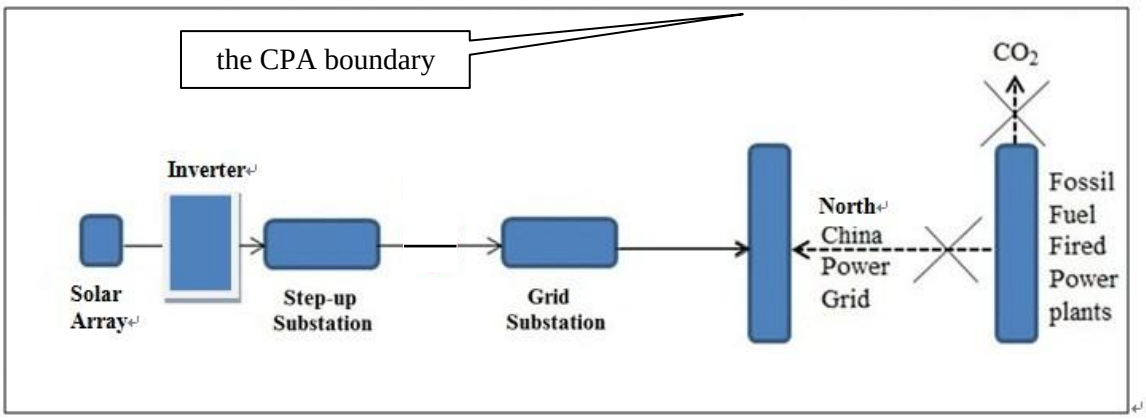
According to AMS-I.D.:

"The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to."

The greenhouse gases and emission sources included in or excluded from the CPA boundary are shown as below:

Table: Emissions sources included in or excluded from the CPA boundary

Source		Gas	Included?	Justification / Explanation
Baseline Emissions	CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the programme	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
Project Emissions	GHG emissions from the combustion of fossil fuel for electricity generation in the independent installations	CO_2	No	GHG emissions for the CPA are equal to zero. Only solar PV technology is used in the CPA and no fossil fuels combustion will occur as part of the CPA.
		CH_4	No	
		N_2O	No	
Leakage Emissions	No leakage	N/A	N/A	The CPAs to be included in PoA are newly installed PV power project, without any transfer of energy generating equipment from another activity, hence, no leakage need to be considered.



B.4. Description of baseline scenario

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According to paragraph 10 of AMS-I.D.:

"The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid."

Electricity generated by the CPA using AMS-I.D under the PoA will be supplied to the NCPG which would have been supplied with electricity from the NCPG in the absence of the activity.

The baseline scenario of each CPA qualified to be included in the PoA according to the eligibility criteria is as follows:

The electricity delivered to the NCPG by the CPAs would have been generated by the NCPG.

B.5. Demonstration of eligibility for a generic CPA

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The proposed CPA should meet the following eligibilities, and then can be included in this PoA.

Item	Eligibility Criterion	Demonstration
a	The CPA must be located within the geographical boundary of Shandong Province. Map of the CPA location and its coordinate's description can be checked.	Map of each CPA location and its coordinate's description will be provided to be checked.
b	Data on each CPA to be included into the PoA shall be accumulated by the CME in accordance with the procedure defined in Section C of the PoA-DD to avoid double accounting, including project owner details, installation details, and technology details and so on.	Each CPA can be checked through the procedure defined in Section C to confirm no double accounting.
c	Each CPA shall use solar PV generation technologies which enable to convert solar radiation into electrical energy. Ensure that the capacity of each CPA will be no more than 15MW. These information will be demonstrated in the FSR compiled by a qualified third party and its approval, as well as relevant standards, including but are not limited to "Code for preparation of photovoltaic power projects feasibility study report"(GD003-2011) 6 and "Assessment method for solar energy resources "(QX/T89-2008)7.	The Feasible Study Report of each CPA and its approval letter can be checked.
d	The start date of the CPA will be the earliest date at which either the implementation or construction or real action of the CPA. Documental evidence such as Equipment Purchase Contract, Construction Contract, Construction Approval Letter and other documental evidence available will be checked. Start date of the qualified CPA should not be prior to the start date of PoA.	The relevant documents, such as Equipment Purchase Contract, Construction Contract, and Construction Approval Letter and so on can be checked.
e	• Each CPA will apply the methodology AMS-I.D or AMS-I.F separately. Each CPA will be an independent activity, so there is no cross effects. • All CPAs shall use solar PV technologies to produce electricity and envisage a new installation. The solar PV generating equipment of each CPA is not transferred from another activity • The CPA size shall be smaller or equal to 15 MW installed capacity.	FSR, FSR approval letter, Grid Connection Agreement, Power Purchase Agreement or other evidences can be checked

[6] See http://ishare.iask.sina.com.cn/f/22924973.html
[7] See http://wenku.baidu.com/view/712682e79b89680203d825c5.html

	If the CPA uses AMS-I.D, electricity produced by the CPA will be supplied to the NCPG. If the CPA uses AMS-I.F, electricity produced by the CPA will be supplied to the end users (excess electricity may be supplied to the NCPG), which would have been supplied with electricity from the NCPG in the absence of the activity. The FSR, FSR Approval, Grid Connection Agreement, Power Purchase Agreement or other evidences can be checked.	
f	Any CPA under this PoA is additional since each CPA will employ solar PV technologies to produce electricity and each CPA's size is limited with 15 MW installed capacity. All the CPAs will be grid-connected or off-grid. The FSR, FSR Approval, Grid Connection Agreement, Power Purchase Agreement or other evidences can be checked.	FSR and FSR approval letter can be checked.
g	Local stakeholder consultations and stakeholder questionnaires would be carried out to collect comments from all local stakeholders at the CPA level. Each CPA should be carried out environmental impact analysis (EIA) on assessment of impact on air, water, acoustic and solid environment. The questionnaire of stakeholders' survey and minute of local stakeholder consultations meeting will be checked to confirm whether the local stakeholder consultation is appropriate. And EIA report by the independent third party and EIA approval will be checked to confirm that the project is in accordance with the requirements of environmental impact analysis of the host country.	Stakeholder questionnaires, EIA and EIA approval letter will be checked.
h	Each CPA will not have funding from Annex I parties; otherwise it will not be included in the PoA. The loan contract or other public documents demonstrating no funding from Annex I parties can be checked.	The loan contract or other public documents demonstrating no funding from Annex I parties of each CPA can be checked.
i	Electricity produced by each CPA will be supplied to: ● the end users (excess electricity may be	Grid Connection Agreement, Power Purchase Agreement or other evidences can be checked.

	supplied to the NCPG), which would have been supplied with electricity from the NCPG in the absence of the activity; or ● The NCPG All the CPAs will be either grid-connected or off-grid. The distribution mechanism is not applicable for this PoA.	
j	A supplementary criterion is not required because no sampling is going to be employed within any CPAs	Not applicable.
k	All qualified CPAs should meet the small-scale (output capacity over 5MW but up to 15 MW) or micro-scale (output capacity up to 5MW) threshold criteria, which is defined in the Glossary of CDM terms (version 6.0), and remains within those thresholds throughout all the crediting period of CPAs. The approved FSR/PDR, the operation and maintenance workbook, name plate of turbines and generators or other available documents could be checked.	The approved FSR/PDR, FSR approval letter, operation and maintenance workbook, name plate of turbines and generators or other available documents of each CPA could be checked.
l	According to the procedures described in the section C of PoA-DD, the CME must prove that there is no registered small-scale CDM project activity or an application to register another small-scale CDM project activity • Has the same activity implementer as the proposed small scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same technology/measure, and; • The boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closest point. The declaration from CPA implementer on non-debundling, approved FSR/PDR and available information on all registered activities on the CDM website could be checked and reviewed at the time of inclusion.	According to the procedures each CPA will be confirmed that it is not a de-bundled component of another CPA or CDM project activity. The declaration from CPA implementer on non-debundling, approved FSR/PDR and available information on all registered activities on the CDM website could be checked and reviewed at the time of inclusion.

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

B.6.1. Explanation of methodological choices

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If the CPA is a greenfield solar PV generation project supplying electricity to the NCPG, the CPA should use the AMS-I.D:

AMS-I.D.: Grid connected renewable electricity generation, Version 17, EB 61

Type I: Renewable energy projects
Category I.D.: Grid connected renewable electricity generation
Sectoral Scope: 01
Reference: http://cdm.unfccc.int/methodologies/SSCmethodologies/approved

"Tool to calculate the emission factor for an electricity system" (Version 02.2.1) is used to calculate the combined margin CO_2 emission factor of NCPG.

Equations used to calculate the GHG emission reductions as well as justifications of chosen methods are discussed in Section B.6.3.

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

Data / Parameter	$FC_{i,y}$
Unit	Mass or volume
Description	the amount of the fossil fuel *i* consumed in the project electricity system in year *y*
Source of data	China Energy Statistical Yearbook
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	$EG_{grid,y}$ *and* $EG_{m,y}$
Unit	MWh
Description	Electricity supplied to power grid by included sources in year y
Source of data	China Electric Power Yearbook
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	NCV_i
Unit	GJ/ mass or volume unit
Description	Net caloric value of fossil fuel type i consumed in the project electricity system in year y
Source of data	China Energy Statistical Yearbook
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	$EF_{CO2,grid,y}$
Unit	tCO_2/kWh
Description	CO_2 emission factor of the grid electricity in year *y*
Source of data	Notification on Determining Baseline Emission Factors for China Power Grids in recent 1 year
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation Baseline Emissions
Additional comment	/

Data / Parameter	$EF_{CO2,i,y}$ *and* $EF_{CO2,m,i,y}$
Unit	tCO_2/GJ
Description	CO2 emission factor of fossil fuel type i used in power unit *m* in year y
Source of data	Original data used are the IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	IPCC default value
Purpose of data	Calculation Baseline Emissions
Additional comment	/

Data / Parameter	Efficiency of the best technology commercially
Unit	%
Description	Best commercial available efficiency of coal, gas, oil fuel power plant
Source of data	Baseline Emission Factors for Regional Power Grids in China published by Chinese NDRC in recent 1 year
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	Installed Capacity
Unit	MW
Description	Installed capacity of the NCPG in year *y*
Source of data	China Electric Power Yearbook
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	Import Electricity from NEPG to the NCPG
Unit	MWh
Description	Net import electricity from NEPG to the NCPG
Source of data	China Electric Power Yearbook
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	Import Electricity from CCPG to the NCPG
Unit	MWh
Description	Net import electricity from CCPG to the NCPG
Source of data	China Electric Power Yearbook
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

B.6.3. Ex-ante calculations of emission reductions

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Baseline emissions:

If the proposed CPA supplies electricity to the NCPG according to AMS-I.D, baseline emissions are calculated as follows:

$$BE_y = EG_{BL,y} \cdot EF_{CO_2,grid,y}$$

Where:

BE_y = Baseline emissions in year y (tCO_2)

$EG_{BL,y}$ = Quantity of net electricity supplied to the NCPG as a result of the implementation of the CPA in year *y* (MWh)

$EF_{CO_2, grid,y}$ = CO_2 emission factor of the grid in year y (tCO_2/MWh)

Calculation of $EG_{BL,y}$:

Each CPA under the PoA envisages

Installation of a solar PV generation plant at the demand-side where there was no solar PV generation plant operating prior to the implementation of the activity; or

If the proposed CPA supplies electricity to the NCPG according to AMS-I.D. $EG_{BL,y}$ is calculated as follows: ,

$$EG_{BL,y} = EG_{facility,\ y}$$

Where:

$EG_{BL,y}$ = Quantity of net electricity supplied to the NCPG as a result of the implementation of the CPA in year *y* (MWh)

$EG_{facility,\ y}$ = Quantity of net electricity supplied to the NCPG from the CPA in year *y* (MWh)

According to paragraph 15 of AMS-I.D.: "In the case of wind, solar, wave or tidal power plants, it is assumed that the addition of new capacity or retrofitting of existing unit to increase capacity does not significantly affect the electricity generated by existing plant(s) or unit(s). In this case, the electricity produced by the added power plant(s) or unit(s) could be directly metered and used to determine $EG_{BL,y}$

provided that the electricity produced by the added power plant(s) or unit(s) addition is separately metered ".

Calculation of emission factor:

According to paragraph 12 of AMS-I.D.: "the emission factor can be calculated in a transparent and conservative manner as follows:

Option (a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the "Tool to calculate the Emission Factor for an electricity system"; or

Option (b) The weighted average emissions (in tCO_2/MWh) of the current generation mix. The data of the year in which project generation occurs must be used."

Option (a) has been selected. Thus $EF_{CO2,grid,y}$ is calculated as follows:

$$EF_{CO2,grid,y} = EF_{grid,CM,y}$$

Where:

$EF_{CO2,grid,y}$ = CO_2 emission factor of the grid in year *y* (tCO_2/MWh)

$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for the project electricity system in year *y* (tCO_2/MWh)

According to the "Tool to calculate the emission factor for an electricity system" $EF_{grid,CM,y}$ is determined in the following six steps:

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 will be determined at the CPA level.

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

The option will be determined at the CPA level. If the option (a) is chose, the calculation is as followed step 4.

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

The Simple Operating Margin emission factor $EF_{\text{grid},OM,y}$ 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).

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:

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

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 (MJ per unit volume or

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

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. This option is chosen as it comprises larger annual generation than the five units built most recently. Following the deviation, 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. 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.

- *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:

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

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 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.
- 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. 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 the latest year.

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 (MJ per unit volume or mass unit)

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

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.

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 solar PV generation projects in the first crediting period and the subsequent crediting period, w_{OM} = 0.75 and w_{BM} = 0.25.

Baseline emissions (BE_y) now can be calculated as the combined margin CO_2 emission factor ($EF_{grid,CM,y}$) multiplied by the annual net generation of the Proposed Project ($EG_{PJ,y}$).

<u>Project emissions</u>

According to AMS-I.D. no project emissions need to be taken into account. Therefore:

$$PE_y = 0$$

<u>Leakage</u>

Each CPA under the PoA is installation of a new solar PV generation plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity. And the solar PV generating equipment is not transferred from another activity. So leakage is to be considered 0.

$$LE_y = 0$$

<u>Emission reductions</u>

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y = Emission reductions in year *y* (tCO_2/y)

BE_y = Baseline emissions in year *y* (tCO_2/y)

PE_y = Project emissions in year *y* (tCO_2/y)

LE_y = Leakage emissions in year *y* (tCO_2/y)

B.7. Application of the monitoring methodology and description of the monitoring plan
B.7.1. Data and parameters to be monitored by each generic CPA
(Copy this table for each data and parameter)

According to the AMS-I.D., the $EG_{facility,y}$ should be monitored.

Data / Parameter	$EG_{facility,y}$
Unit	MWh
Description	Quantity of net electricity supplied to the NCPG from the CPA in year y (MWh)
Source of data	Measurement with electricity meters
Value(s) applied	Measurement by means of electricity meters installed for the CPA.
Measurement methods and procedures	In this section the project participants shall provide description of equipment used for measurement, if applicable, and its accuracy class.
Monitoring frequency	The generated electricity will be continuously measured and recorded. Data on electricity supply will be digitally archived at least on a monthly basis.
QA/QC procedures	The electricity meters are calibrated and checked for accuracy by the qualified third party in accordance with industry standards DL/T 448—2000. In the case of electricity sold to a third party, measurement results shall be cross-checked with records of sold/purchased electricity (e.g. invoices/receipts).
Purpose of data	Calculation the BE_y
Additional comments	/

B.7.2. Description of the monitoring plan for a generic CPA
>>
The monitoring plan is designed to calculate the GHG emission reductions at the CPA level. The monitoring plan was designed based on AMS-I-D.and "General Guidelines for SSC CDM methodologies" (Version 19.0) Annex27, EB69. The following procedures shall be applied to the monitoring:

1. Data monitored and sources
The GHG emission reductions for both CPA types shall be calculated using formula applied as above.

Combined margin CO_2 emission factor for grid connected power generation calculated will be determined at the CPA level.

According to AMS-I.D, the net electricity export/supplied to NCPG is the measured quantities of the grid electricity export minus the import. So for each CPA using AMS-I.D, net electricity generated from the solar PV generation plant in year y will be monitored and recorded by the implementing entity of the CPA.

Measurement results shall be cross checked with records for sold/purchased electricity (e.g. invoices/receipts).

Moreover, the CPA implementer will monitor and document all technical data relevant to the metering devices as follows:

exact location	
serial number	
starting operation date	
history of meters' calibration	
history of meters' replacement	

2. The monitoring team
The management of SCII is fully responsible for the coordination and overall control.

The CPA implementer is responsible for correct installation and maintenance and calibration of metering devices in accordance with industry standards DL/T 448—2000..

The CPA shall be monitored by SCII. SCII will undertake, either itself or through another credible company specially appointed for that, to install meters and/or other instrumentation and measurement equipment as is necessary to provide for accurate data needed for the calculation of GHG emission reductions, and to collect such data in a timely manner.

The GHG emission reductions shall be calculated by SCII specialists on the basis of data representing operation of each CPA collected by SCII acquiring from the CPA implementer. In case of any doubts as to the accuracy of the input data, the specialists of the company shall check and correct the data. The preliminary monitoring report shall be submitted to SCII for review. In case any mistakes are found, SCII will undertake to correct them.

3. Data storage
All data collected as part of monitoring should be archived electronically and kept at least for 2 years after the end of the crediting period. Data collection will occur on a monthly basis

4. Instrumentation calibration
The installed meters will be calibrated and checked annually by qualified third party for accuracy according to industry standards DL/T 448—2000 so that the accuracy degree of the metering equipment is no less than 0.5s.

The meter shall be jointly inspected and sealed on behalf of the parties concerned and shall not be interfered with by either party except in the presence of the other party or its accredited representatives.

The meter installed shall be tested by the NCPG within 10 days after: the detection of a difference larger than the allowable error in the readings of the meter; the repair of all or part of meter caused by the failure of one or more parts to operate in accordance with the specifications.

If any errors are detected the party owning the meter shall repair, recalibrate or replace the meter giving the other party sufficient notice to allow a representative to attend during any corrective activity.

5. Emergency situations
In case of breakdown of any of the solar PV generation system the electricity generation will go down, and amount of electricity supplied by the system will be reduced. If any measuring instrument that is used in the monitoring process fails, either the CPA implementer or another company employed by the CPA implementer shall remedy or, if necessary, replace it as soon as possible.

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Part II. Generic component project activity (CPA)

The following description is applicable to the CPA applying AMS-I.F.

SECTION A. General description of a generic CPA
A.1. Purpose and general description of generic CPAs
>>
A typical CPA under this PoA is:

Each component project under this PoA should be located within Shandong Province and the proposed CPA whose size is smaller or equal to 15 MW installed capacity will use solar PV technologies supplying electricity to the end users (excess electricity will be supplied to the NCPG), which would have been supplied with electricity from the NCPG in the absence of the activity.

Each SSC-CPA will take advantage of the photovoltaic (PV) technology, i.e. convert solar radiation into electrical energy. Such technologies may include, but are not limited to: wafers (cells) made from single crystal silicon, polycrystalline silicon and ribbon silicon as well as advanced thin film technologies.

The main equipment of each CPA includes PV panels, solar trackers and inverters. PV panels may be connected together to form a solar array. PV panels may also be fitted with trackers. The solar tracker is a device capable of turning after the sun, which means following the sun track from it is rising in the east to its setting in the west. They will be installed at the roof, ground or other places.

Each CPA shall use solar PV generation technologies which enable to convert solar radiation into electrical energy. The capacity of each CPA will be no more than 15MW. These information will be demonstrated in the FSR compiled by a qualified third party according to relevant standards, including but are not limited to "Code for preparation of photovoltaic power projects feasibility study report"(GD003-2011) and "Assessment method for solar energy resources "(QX/T89-2008).

The information of each CPA will be included in the CPA-DD as follow:

Item	Description
life time of the project equipment	[Value] *Provide the source of data.*
monitoring equipment and its location	*Specify and provide the location figure.*
capacities and efficiencies	*Specify and provide evidence to prove.*
forecasted electricity generation	[Value] *Provide the source of data.*
geographical coordinates(decimal)	[Value] *Provide the source of data.*
technology transfer from Annex I countries	[Yes or No] *Provide evidence to prove.*

The purpose of the proposed CPA is to boost the use of renewable energy, i.e. solar power.

SECTION B. Application of a baseline and monitoring methodology
B.1. Reference of the approved baseline and monitoring methodology(ies) selected
>>
AMS-I.F.: Renewable electricity generation for captive use and mini-grid, Version 02, EB 61
Type I: Renewable energy projects
Category I.F.: Renewable electricity generation for captive use and mini-grid
Sectoral Scope: 01
Reference: http://cdm.unfccc.int/methodologies/SSCmethodologies/approved
The baseline scenario is that the electricity delivered to the end user by the CPA would have otherwise been generated by the NCPG. The detail information refers to Part II Section B.4.

The projects refer to the following methodological standards and tools:

Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities", Version 02.1, Annex05, EB 70.

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

B.2. Application of methodology(ies)

>>

Methodology AMS-I.F. is applicable for installation of a greenfield solar PV generation project supplying electricity to the end user (excess electricity may be supplied to the NCPG) .The applicability criteria of the methodology are defined and addressed as follows:

Applicability criterion	Applicability	Comment
This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass that supply electricity to user(s). The project activity will displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit i.e. in the absence of the project activity, the users would have been supplied electricity from one or more sources listed below: a) A national or a regional grid (grid hereafter); b) Fossil fuel fired captive power plant; c) A carbon intensive mini-grid.	Applicability	Each CPA comprises renewable electricity generation, by means of solar PV generation systems. Furthermore, electricity will be supplied to users which would have been supplied electricity from the NCPG, furthermore excess electricity may be supplied to the NCPG.
For the purpose of this methodology, a mini-grid is defined as small-scale power system with a total capacity not exceeding 15 MW (i.e. the sum of installed capacities of all generators connected to the mini-grid is equal to or less than 15 MW) which is not connected to a national or a regional grid.	Not applicable	Electricity will not be supplied to users which would have been supplied electricity from a carbon intensive mini-grid. It has been demonstrated in the eligibility criteria.
Illustration of respective situations under which each of the methodology (AMS-I.D, AMS-I.F and AMS-I.A) applies is included in Table 2[8].	Applicable	Each CPA will use methodology AMS-I.F and displace NCPG electricity consumption (e.g. grid import) at the user end (excess electricity may be supplied to NCPG).
Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: ● The project activity is implemented in an existing reservoir with no change in the volume of reservoir; ● The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m2; ● The project activity results in new reservoirs and the power density of the	Not applicable	Any CPA is not the installation of a hydro power plant, so it does not need to satisfy this applicability condition.

[8] AMS-I.F. (version 02), page 11

power plant, as per definitions given in the project emissions section, is greater than 4 W/m2.		
For biomass power plants, no other biomass other than renewable biomass is to be used in the project plant.	Not applicable	Any CPA is not the installation of a biomass power plant, so it does not need to satisfy this applicability condition.
This methodology is applicable for project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition, (c) Involve a retrofit of (an) existing plant(s); or (d) Involve a replacement of (an) existing plant(s).	Applicable	Each CPA under the PoA envisages: Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity.
In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	Not applicable	Each CPA under the PoA does not involve capacity addition, so it does not need to satisfy this applicability condition.
In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	Not applicable	Each CPA under the PoA does not involve retrofit or replacement of an existing facility, so it does not need to satisfy this applicability condition.
If the unit added has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	Not applicable	Any CPA does not have non-renewable components, so it does not need to satisfy this applicability condition.
Combined heat and power (co-generation) systems are not eligible under this category.	Not applicable	Any CPA does not involve co-generation. According to the AMS-I.F., the CPA must not satisfy this applicability condition.
If electricity and/or steam/heat produced by the project activity is delivered to a third party i.e. another facility or facilities within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered that ensures that there is no double counting of emission reductions.	Applicable	In case electricity produced by the CPA is delivered to a third party a contract between the supplier and consumer(s) of the energy will be signed.
The following conditions apply for use of this methodology in a project activity under a programme of activities:		
In the specific case of biomass project activities the applicability of the methodology is limited to either project activities that use biomass residues only or biomass from dedicated plantations complying with the applicability conditions of AM0042.	Not applicable	Any CPA is not the installation of a biomass power plant, so it does not need to satisfy this applicability condition.
In case the project activity involves the	Not	Any CPA does not involve replacement

replacement of equipment, and the leakage from the use of the replaced equipment in another activity is neglected, because the replaced equipment is scrapped, an independent monitoring of scrapping of replaced equipment needs to be implemented. The monitoring should include a check if the number of project activity equipment distributed by the project and the number of scrapped equipment correspond with each other. For this purpose scrapped equipment should be stored until such correspondence has been checked. The scrapping of replaced equipment should be documented and independently verified.	applicable	of equipment, so it does not need to satisfy this applicability condition.

B.3. Sources and GHGs

>>

According to AMS-I.F.:

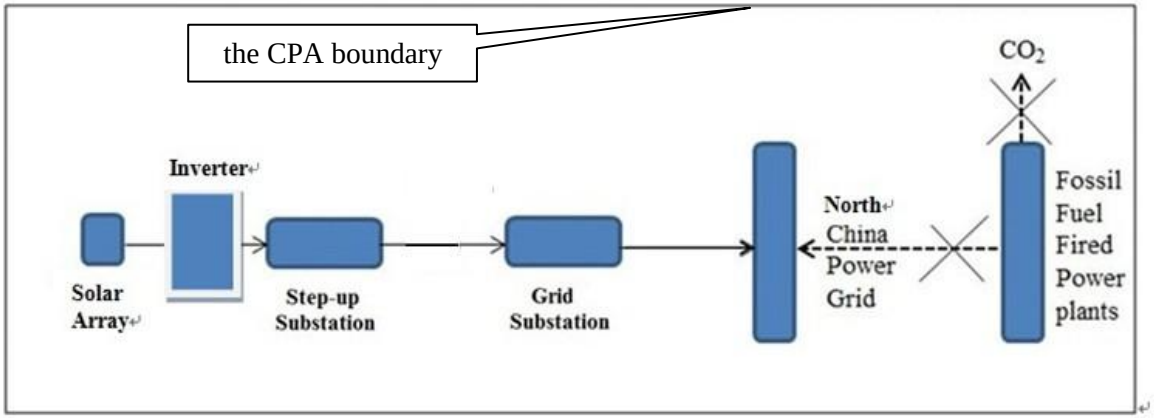
"The spatial extent of the project boundary includes industrial, commercial facilities consuming energy generated by the system. In the case of electricity generated and supplied to distributed users (e.g. residential users) via mini/isolated grid(s) the project boundary may be confined to physical, geographical site of renewable generating units. The boundary also extends to the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to."

Thus the spatial extent of the CPA boundary includes each independent activity, each end user of electricity as well as all power plants connected physically to NCPG.

The greenhouse gases and emission sources included in or excluded from the CPA boundary are shown as below:

Table: Emissions sources included in or excluded from the CPA boundary

Source		Gas	Included?	Justification / Explanation
Baseline Emissions	CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the programme	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
Project Emissions	GHG emissions from the combustion of fossil fuel for electricity generation in the independent installations	CO_2	No	GHG emissions for the CPA are equal to zero. Only solar PV technology is used in the CPA and no fossil fuels combustion will occur as part of the CPA.
		CH_4	No	
		N_2O	No	
Leakage Emissions	No leakage	N/A	N/A	The CPAs to be included in PoA are newly installed PV power project, without any transfer of energy generating equipment from another activity, hence, no leakage need to be considered.



B.4. Description of baseline scenario

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According to paragraphs 1and 14 of AMS-I.F.:

Paragraph 1

"The project activity will displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit i.e. in the absence of the project activity, the users would have been supplied electricity from one or more sources listed below:

(a) A national or a regional grid (grid hereafter)

(b) Fossil fuel fired captive power plant;

(c) A carbon intensive mini-grid."

Depend on the eligibility criteria f *electricity produced by the CPA will be supplied to the end users (excess electricity may be supplied to the NCPG), which would have been supplied with electricity from the NCPG in the absence of the activity*, so the CPA displaces grid electricity consumption (e.g. grid import) at the user end (excess electricity may be supplied to a grid)

For the qualified CPA which supply the electricity to the end users (excess electricity may be supplied to the North China Power Grid), the end user is defined as the user would have been supplied electricity from the NCPG. Therefore, the scenario based on the mini-grid system is excluded.

The baseline scenario of each CPA qualified to be included in the PoA according to the eligibility criteria is that the electricity delivered to the NCPG by the CPAs as well as electricity supplied to the end users would have been generated by NCPG.

Paragraph 14

"Baseline emissions for other systems are the product of amount electricity displaced with the electricity produced by the renewable generating unit and an emission factor."

"Emission factor of a grid shall be calculated as per the procedures provided in AMS-I.D"

Because the baseline scenario of each CPA is that the electricity delivered to the NCPG by the CPAs as well as electricity supplied to the end users would have been generated by NCPG, emission factor of NCPG shall be calculated as per the procedures provided in AMS-I.D.

B.5. Demonstration of eligibility for a generic CPA

>>

The proposed CPA should meet the following eligibilities, and then can be included in this PoA.

Item	Eligibility Criterion	Demonstration
a	The CPA must be located within the geographical boundary of Shandong Province. Map of the CPA location and its coordinate's description can be checked.	Map of each CPA location and its coordinate's description will be provided to be checked.
b	Data on each CPA to be included into the PoA shall be accumulated by the CME in accordance with the procedure defined in Section C of the PoA-DD to avoid double accounting, including project owner details, installation details, and technology details and so on.	Each CPA can be checked through the procedure defined in Section C to confirm no double accounting.
c	Each CPA shall use solar PV generation technologies which enable to convert solar radiation into electrical energy. Ensure that the capacity of each CPA will be no more than 15MW. These information will be demonstrated in the FSR compiled by a qualified third party and its approval, as well as relevant standards, including but are not limited to "Code for preparation of photovoltaic power projects feasibility study report"(GD003-2011) 9 and "Assessment method for solar energy resources "(QX/T89-2008)10.	The Feasible Study Report of each CPA and its approval letter can be checked.
d	The start date of the CPA will be the earliest date at which either the implementation or construction or real action of the CPA. Documental evidence such as Equipment Purchase Contract, Construction Contract, Construction Approval Letter and other documental evidence available will be checked. Start date of the qualified CPA should not be prior to the start date of PoA.	The relevant documents, such as Equipment Purchase Contract, Construction Contract, and Construction Approval Letter and so on can be checked.
e	• Each CPA will apply the methodology AMS-I.D or AMS-I.F separately. Each CPA will be an independent activity, so there is no cross effects. • All CPAs shall use solar PV technologies to produce electricity and envisage a new installation. The solar PV generating equipment of each CPA is not transferred from another activity • The CPA size shall be smaller or equal to 15 MW installed capacity. If the CPA uses AMS-I.D, electricity produced by the CPA will be supplied to the	FSR, FSR approval letter, Grid Connection Agreement, Power Purchase Agreement or other evidences can be checked

[9] See http://ishare.iask.sina.com.cn/f/22924973.html
[10] See http://wenku.baidu.com/view/712682e79b89680203d825c5.html

	NCPG. If the CPA uses AMS-I.F, electricity produced by the CPA will be supplied to the end users (excess electricity may be supplied to the NCPG), which would have been supplied with electricity from the NCPG in the absence of the activity. The FSR, FSR Approval, Grid Connection Agreement, Power Purchase Agreement or other evidences can be checked.	
f	Any CPA under this PoA is additional since each CPA will employ solar PV technologies to produce electricity and each CPA's size is limited with 15 MW installed capacity. All the CPAs will be grid-connected or off-grid. The FSR, FSR Approval, Grid Connection Agreement, Power Purchase Agreement or other evidences can be checked.	FSR and FSR approval letter can be checked.
g	Local stakeholder consultations and stakeholder questionnaires would be carried out to collect comments from all local stakeholders at the CPA level. Each CPA should be carried out environmental impact analysis (EIA) on assessment of impact on air, water, acoustic and solid environment. The questionnaire of stakeholders' survey and minute of local stakeholder consultations meeting will be checked to confirm whether the local stakeholder consultation is appropriate. And EIA report by the independent third party and EIA approval will be checked to confirm that the project is in accordance with the requirements of environmental impact analysis of the host country.	Stakeholder questionnaires, EIA and EIA approval letter will be checked.
h	Each CPA will not have funding from Annex I parties; otherwise it will not be included in the PoA. The loan contract or other public documents demonstrating no funding from Annex I parties can be checked.	The loan contract or other public documents demonstrating no funding from Annex I parties of each CPA can be checked.
i	Electricity produced by each CPA will be supplied to: ● the end users (excess electricity may be supplied to the NCPG), which would have been supplied with electricity from	Grid Connection Agreement, Power Purchase Agreement or other evidences can be checked.

	the NCPG in the absence of the activity; or ● The NCPG All the CPAs will be either grid-connected or off-grid. The distribution mechanism is not applicable for this PoA.	
j	A supplementary criterion is not required because no sampling is going to be employed within any CPAs	Not applicable.
k	All qualified CPAs should meet the small-scale (output capacity over 5MW but up to 15 MW) or micro-scale (output capacity up to 5MW) threshold criteria, which is defined in the Glossary of CDM terms (version 6.0), and remains within those thresholds throughout all the crediting period of CPAs. The approved FSR/PDR, the operation and maintenance workbook, name plate of turbines and generators or other available documents could be checked.	The approved FSR/PDR, FSR approval letter, operation and maintenance workbook, name plate of turbines and generators or other available documents of each CPA could be checked.
l	According to the procedures described in the section C of PoA-DD, the CME must prove that there is no registered small-scale CDM project activity or an application to register another small-scale CDM project activity • Has the same activity implementer as the proposed small scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same technology/measure, and; • The boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closest point. The declaration from CPA implementer on non-debundling, approved FSR/PDR and available information on all registered activities on the CDM website could be checked and reviewed at the time of inclusion.	According to the procedures each CPA will be confirmed that it is not a de-bundled component of another CPA or CDM project activity. The declaration from CPA implementer on non-debundling, approved FSR/PDR and available information on all registered activities on the CDM website could be checked and reviewed at the time of inclusion.

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

B.6.1. Explanation of methodological choices

>>

If the CPA is a greenfield solar PV generation project supplying electricity to the end user (excess electricity may be supplied to the NCPG), the CPA should use the AMS-I.F:

AMS-I.F.: Renewable electricity generation for captive use and mini-grid, Version 02, EB 61

Type I: Renewable energy projects

Category I.F.: Renewable electricity generation for captive use and mini-grid

Sectoral Scope: 01
Reference: http://cdm.unfccc.int/methodologies/SSCmethodologies/approved

"Tool to calculate the emission factor for an electricity system" (Version 02.2.1) is used to calculate the combined margin CO_2 emission factor of NCPG.

Equations used to calculate the GHG emission reductions as well as justifications of chosen methods are discussed in Section B.6.3.

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

Data / Parameter	$FC_{i,y}$
Unit	Mass or volume
Description	the amount of the fossil fuel *i* consumed in the project electricity system in year *y*
Source of data	China Energy Statistical Yearbook
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	$EG_{grid,y}$ *and* $EG_{m,y}$
Unit	MWh
Description	Electricity supplied to power grid by included sources in year y
Source of data	China Electric Power Yearbook
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	NCV_i
Unit	GJ/mass or volume unit
Description	Net caloric value of fossil fuel type i consumed in the project electricity system in year y
Source of data	China Energy Statistical Yearbook
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	$EF_{CO2,grid,y}$
Unit	tCO_2/MWh
Description	CO_2 emission factor for the grid electricity in year *y*
Source of data	Notification on Determining Baseline Emission Factors for China Power Grids in recent 1 year
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation Baseline Emissions
Additional comment	/

Data / Parameter	$EF_{CO2,i,y}$ *and* $EF_{CO2,m,i,y}$
Unit	t CO_2/GJ
Description	CO_2 emission factor of fossil fuel type i used in power unit *m* in year y
Source of data	the IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	IPCC default value
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	Efficiency of the best technology commercially
Unit	%
Description	Best commercial available efficiency of coal, gas, oil fuel power plant
Source of data	Baseline Emission Factors for Regional Power Grids in China published by Chinese NDRC in recent 1 year
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	Installed Capacity
Unit	MW
Description	Installed capacity of the NCPG in year *y*
Source of data	China Electric Power Yearbook
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	Import Electricity from NEPG to the NCPG
Unit	MWh
Description	Net import electricity from NEPG to the NCPG
Source of data	China Electric Power Yearbook
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

Data / Parameter	Import Electricity from CCPG to the NCPG
Unit	MWh
Description	Net import electricity from CCPG to the NCPG
Source of data	China Electric Power Yearbook
Value(s) applied	To be conservative, see each CPA
Choice of data or Measurement methods and procedures	Based on official national statistics
Purpose of data	Calculation of Baseline Emissions
Additional comment	/

B.6.3. Ex-ante calculations of emission reductions

>>

Baseline emissions:

If the proposed CPA supplies electricity to the end user (excess electricity may be supplied to the NCPG), which would have been supplied with electricity from the NCPG in the absence of the CPA according to AMS-I.F. baseline emissions are calculated as follows:

$$BE_y = EG_{BL,y} \cdot EF_{CO2,y}$$

Where:

BE_y = Baseline emissions in year y (tCO_2)

$EG_{BL,y}$ = Quantity of net electricity displaced as a result of the implementation of the CPA in year *y* (MWh)

$EF_{CO2,y}$ = Emission factor (tCO_2/MWh)

Calculation of $EG_{BL,y}$:

Each CPA under the PoA envisages

Installation of a solar PV generation plant at the demand-side where there was no solar PV generation plant operating prior to the implementation of the activity; or

If the proposed CPA supplies electricity to the end user (excess electricity may be supplied to the NCPG), which would have been supplied with electricity from the NCPG in the absence of the CPA according to AMS-I.F. $EG_{BL,y}$ is as follows:

$EG_{BL,y}$ = Quantity of net electricity displaced as a result of the implementation of the CPA in year *y* (MWh)

According to paragraph 17 of AMS-I.F. $EG_{BL,y}$ "shall be calculated following the applicable procedures prescribed in AMS-I.D with the exception that emission factor ($EF_{CO2,y}$,) is calculated as described in this methodology ".

Calculation of emission factor:

If the proposed CPA supplies electricity to the end user (excess electricity may be supplied to the NCPG), which would have been supplied with electricity from the NCPG in the absence of the CPA according to paragraph 14 of AMS-I.F.:
(a) Emission factor of a grid shall be calculated as per the procedures provided in AMS-I.D;

(b) For a mini-grid system other than described in paragraph 13 above, the baseline emission factor shall be determined as per the weighted average emissions for the current generation mix following the procedure provided in AMS-I.D;

(c) Emission factor for captive electricity generation shall be calculated as per the procedures described in the latest version of the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption".

All the end user would have been supplied with electricity from the NCPG, so the mini-grid and the captive electricity generation can be excluded and option (a) has been selected.

According to paragraph 12 of AMS-I.D.: "the emission factor can be calculated in a transparent and conservative manner as follows:
Option (a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the "Tool to calculate the Emission Factor for an electricity system"; or
Option (b) The weighted average emissions (in tCO_2/MWh) of the current generation mix. The data of the year in which project generation occurs must be used."

Option (a) has been selected. Thus $EF_{CO2,grid,y}$ is calculated as follows:

$$EF_{CO2,grid,y} = EF_{grid,CM,y}$$

Where:
$EF_{CO2,grid,y}$ = CO_2 emission factor of the grid in year *y* (tCO_2/MWh)
$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for the project electricity system in year *y* (tCO_2/MWh)

Paragraph 12 of AMS-I.D. is described above. Thus $EF_{CO2,y}$ is calculated as follows:

$$EF_{CO2,y} = EF_{grid,CM,y}$$

Where:
$EF_{CO2,y}$ = Emission factor (tCO_2/MWh)
$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for the project electricity system in year *y* (tCO_2/MWh)

According to the "Tool to calculate the emission factor for an electricity system" $EF_{grid,CM,y}$ is determined in the following six steps:

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:

(e) 0 tCO_2/MWh, or
(f) The weighted average operating margin (OM) emission rate of the exporting grid; or
(g) The simple operating margin emission rate of the exporting grid; or
(h) The simple adjusted operating margin emission rate of the exporting grid.

The option will be determined at the CPA level.

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

The option will be determined at the CPA level. If the option (a) is chose, the calculation is as followed step 4.

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

The Simple Operating Margin emission factor $EF_{\mathrm{grid},OM,y}$ 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).

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 (MJ per unit volume or mass unit)

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

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

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. This option is chosen as it comprises larger annual generation than the five units built most recently. Following the deviation, 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. 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.

- *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 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.
- 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. 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 the latest year.

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:*

$$\lambda_{Coal,y} = \frac{\sum_{i \in Coal,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO_2,i,j,y}}{\sum_{i,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO_2,i,j,y}} \quad (5)$$

$$\lambda_{Oil,y} = \frac{\sum_{i \in Oil,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO_2,i,j,y}}{\sum_{i,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO_2,i,j,y}} \quad (6)$$

$$\lambda_{Gas,y} = \frac{\sum_{ieGAS,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO_2,i,j,y}}{\sum_{i,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO_2,i,j,y}} \quad (7)$$

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 (MJ per unit volume or mass unit)

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

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.

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 solar PV generation projects in the first crediting period and the subsequent crediting period, w_{OM} = 0.75 and w_{BM} = 0.25.

Baseline emissions (BE_y) now can be calculated as the combined margin CO_2 emission factor ($EF_{grid,CM,y}$) multiplied by the annual net generation of the Proposed Project ($EG_{PJ,y}$).

Project emissions

According to AMS-I.F, no project emissions need to be taken into account. Therefore:

$$PE_y = 0$$

Leakage

Each CPA under the PoA is installation of a new solar PV generation plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity. And the solar PV generating equipment is not transferred from another activity. So leakage is to be considered 0.

$$LE_y = 0$$

Emission reductions

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y = Emission reductions in year *y* (tCO_2/y)
BE_y = Baseline emissions in year *y* (tCO_2/y)
PE_y = Project emissions in year *y* (tCO_2/y)
LE_y = Leakage emissions in year *y* (tCO_2/y)

B.7. Application of the monitoring methodology and description of the monitoring plan
B.7.1. Data and parameters to be monitored by each generic CPA
(Copy this table for each data and parameter)

According to the AMS-I.F., the $EG_{BL,y}$ should be monitored.

Data / Parameter	$EG_{BL,y}$
Unit	MWh
Description	Quantity of net electricity displaced from the CPA in year y (MWh)
Source of data	Measurement with electricity meters
Value(s) applied	Measurement by means of electricity meters installed for the CPA.
Measurement methods and procedures	In this section the project participants shall provide description of equipment used for measurement, if applicable, and its accuracy class.
Monitoring frequency	The generated electricity will be continuously measured and recorded. Data on electricity supply will be digitally archived at least on a monthly basis.
QA/QC procedures	The electricity meters are calibrated and checked for accuracy by the qualified third party in accordance with industry standards DL/T 448—2000. In the case of electricity sold to a third party, measurement results shall be cross-checked with records of sold/purchased electricity (e.g. invoices/receipts).
Purpose of data	Calculation the BE_y
Additional comments	/

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

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The monitoring plan is designed to calculate the GHG emission reductions at the CPA level. The monitoring plan was designed based on AMS-I.F and "General Guidelines to SSC CDM methodologies" (Version 17). The following procedures shall be applied to the monitoring:

1. Data monitored and sources

The GHG emission reductions for both CPA types shall be calculated using formula applied as above.

Combined margin CO_2 emission factor for grid connected power generation calculated will be determined at the CPA level.

According to AMS-I.F, the net electricity displaced is energy generation by the project activity power plant. So for each CPA used AMS-I.F, net electricity displaced to end user and NCPG in year *y* will be monitored and recorded by the implementing entity of the CPA.

Measurement results shall be cross checked with records for sold/purchased electricity (e.g. invoices/receipts).

Moreover, the CPA implementer will monitor and document all technical data relevant to the metering devices as follows:

exact location	
serial number	
starting operation date	
history of meters' calibration	
history of meters' replacement	

2. The monitoring team

The management of SCII is fully responsible for the coordination and overall control.

The CPA implementer is responsible for correct installation and maintenance and calibration of metering devices in accordance with industry standards DL/T 448—2000..

The CPA shall be monitored by SCII. SCII will undertake, either itself or through another credible company specially appointed for that, to install meters and/or other instrumentation and measurement equipment as is necessary to provide for accurate data needed for the calculation of GHG emission reductions, and to collect such data in a timely manner.

The GHG emission reductions shall be calculated by SCII specialists on the basis of data representing operation of each CPA collected by SCII acquiring from the CPA implementer. In case of any doubts as to the accuracy of the input data, the specialists of the company shall check and correct the data. The preliminary monitoring report shall be submitted to SCII for review. In case any mistakes are found, SCII will undertake to correct them.

3. Data storage
All data collected as part of monitoring should be archived electronically and kept at least for 2 years after the end of the crediting period. Data collection will occur on a monthly basis

4. Instrumentation calibration
The installed meters will be calibrated and checked annually by qualified third party for accuracy according to industry standards DL/T 448—2000 so that the accuracy degree of the metering equipment is no less than 0.5s.

The meter shall be jointly inspected and sealed on behalf of the parties concerned and shall not be interfered with by either party except in the presence of the other party or its accredited representatives.

The meter installed shall be tested by the NCPG within 10 days after: the detection of a difference larger than the allowable error in the readings of the meter; the repair of all or part of meter caused by the failure of one or more parts to operate in accordance with the specifications.

If any errors are detected the party owning the meter shall repair, recalibrate or replace the meter giving the other party sufficient notice to allow a representative to attend during any corrective activity.

5. Emergency situations
In case of breakdown of any of the solar PV generation system the electricity generation will go down, and amount of electricity supplied by the system will be reduced. If any measuring instrument that is used in the monitoring process fails, either the CPA implementer or another company employed by the CPA implementer shall remedy or, if necessary, replace it as soon as possible.

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

Organization	SinoCarbon Innovation & Investment Co., Ltd.
Street/P.O. Box	No.1 Qinglong Bystreet, Docheng District
Building	Room B922, Gehua Tower
City	Beijing
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Fax	
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Website	
Contact person	Wenqiang Wang
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First name	Wenqiang
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Direct tel.	010-84186673
Personal e-mail	wangwenqiang@sino-carbon.cm

Organization	Blue World Carbon Capital PCC
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State/Region	Jersey
Postcode	JE2 4UH
Country	UK
Telephone	+44 1534 834626
Fax	+44 1534 834601
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Contact person	Emma Parmiter
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Salutation	Mrs
Last name	Parmiter
Middle name	
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Department	
Mobile	
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Direct tel.	+44 1534 834626
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Appendix 2: Affirmation regarding public funding

There is no public funding in the PoA.

Appendix 3: Application of methodology(ies)

See the applicable sections above.

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

BASELINE INFORMATION

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

Appendix 5: Further background information on the monitoring plan

The monitoring plan is described in Part II section B.7.2. above.

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History of the document

Version	Date	Nature of revision(s)
02.0	EB 66 13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the programme design document form for small-scale CDM programmes of activities" (EB 66, Annex 13).
01	EB33, Annex43 27 July 2007	Initial adoption.
Decision Class: Regulatory **Document Type:** Form **Business Function:** Registration		