



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

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**NOTE:**

This form is for the submission of a CDM PoA whose CPAs apply a large scale approved methodology.

At the time of requesting registration this form must be accompanied by a CDM-CPA-DD form that has been specified for the proposed PoA, as well as by one completed CDM-CPA-DD (using a real case).



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

**A.1 Title of the programme of activities:**

Grid Connect Solar PV Power Generation Plant Programme  
Version: 02.1  
Date: 21/11/2012

Version	Date	Comments
01	10/04/2012	Global Stakeholder Consultation
02	18/10/2012	Revised after DOE's findings
02.1	21/11/2012	Revised based on TR's comments

**A.2. Description of the programme of activities:**

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

Grid Connect Solar PV Power Generation Plant Programme (hereafter referred to as “The proposed PoA”) supports the development of new solar power projects in China that supply electricity to the grid, and aims to generate electricity by using renewable solar PV energy to the grid and replacing equivalent electricity generated by fossil fuel fired power plants connected to the grid and therefore reducing Greenhouse Gas emissions. The geographical boundary of the PoA is that of the 30 provinces in China,.

The coordinating/managing entity for the proposed PoA is GD Power Inner Mongolia New Energy Development Co., Ltd. The CME is responsible for managing all CPAs, coordinating all the entities involved in the PoA, CPA inclusion and sales of CERs. The CME will sign CME contracts with CPA operators, assign consulting company to carry out CDM development and manage the CPA monitoring. Each CPA operators is responsible for planning, financing arrangement and the detailed implementation of each CPA.

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

On July 24<sup>th</sup> 2011, China's NDRC issued *Circular on the Establishment of Feed-in Tariffs for on-grid Solar PV Power projects* to divide the tariff of solar projects in China into two fixed bus-bar tariffs<sup>1</sup>. From January 1<sup>st</sup> 2012, tariff of on-land new solar PV power plants in China must follow the fixed bus bar tariff. In other aspect the investment of solar PV power projects is respectively high compared with other type of power generation through the experience of implemented projects.

The objective of the proposed PoA is to develop a platform for overcoming institutional and financial barriers for the construction of a series of solar PV projects by searching for financial support. As the technical limits exist in solar PV industry, solar PV projects in China mostly face the barriers such as high investment, low solar to electricity efficiency and very low Internal Rate of Return. Therefore, solar PV projects in China are not financial feasible and need CDM support.

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

The proposed PoA is a voluntary action by GD Power Inner Mongolia New Energy Development Co., Ltd. The proposed PoA will include entities which agree over the philosophy and carried out voluntary

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<sup>1</sup>[http://www.sdpc.gov.cn/zcfb/zcfbtz/2011tz/t20110801\\_426501.htm](http://www.sdpc.gov.cn/zcfb/zcfbtz/2011tz/t20110801_426501.htm)



activity having same targets. That is, CPAs for reducing GHG emission by using renewable solar to generate electricity to the grid, which meet the eligibility criteria, will be included in the proposed PoA.

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

The coordinating entity of the proposed PoA is GD Power Inner Mongolia New Energy Development Co., Ltd. and the investors of each CPA will correspond to the project developer of each solar PV plant under the proposed PoA. Project participants of this PoA are listed as follows:

<b>Name of Party involved(*) (host) indicates a host Party)</b>	<b>Private and/or public entity(ies) project participants (as applicable)</b>	<b>Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)</b>
People's Republic of China (host)	GD Power Inner Mongolia New Energy Development Co., Ltd.	No
Japan	Carbon Capital Management, Inc.	No

Further contact information of coordinating entity and project participants is provided in Annex 1.

**A.4. Technical description of the programme of activities:**

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

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

People's Republic of China

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

The physical boundary and geographical boundary of the proposed PoA is that of the 30 provinces in China listed in Table1, as shown in Figure1.

**Table1 Geographical distribution of the grids controlled by State Grid or the Southern Power Grid**

<b>Province</b>	<b>Sub-Total</b>
Liaoning Province, Jilin Province, Heilongjiang Province	3
Beijing Municipality, Tianjin Municipality, Hebei Province, Shanxi Province, Shandong Province, Inner Mongolia Autonomous Region	6
Shanghai Municipality, Jiangsu Province, Zhejiang Province, Anhui Province, Fujian Province	5
Henan Province, Hubei Province, Hunan Province, Jiangxi Province, Sichuan Province, Chongqing Municipality	6



Shaanxi Province, Gansu Province, Qinghai Province, Ningxia Hui Autonomous Region, Xinjiang Uygur Autonomous Region	5
Guangdong Province, Guangxi Zhuang Autonomous Region, Yunnan Province, Guizhou Province, Hainan Province	5

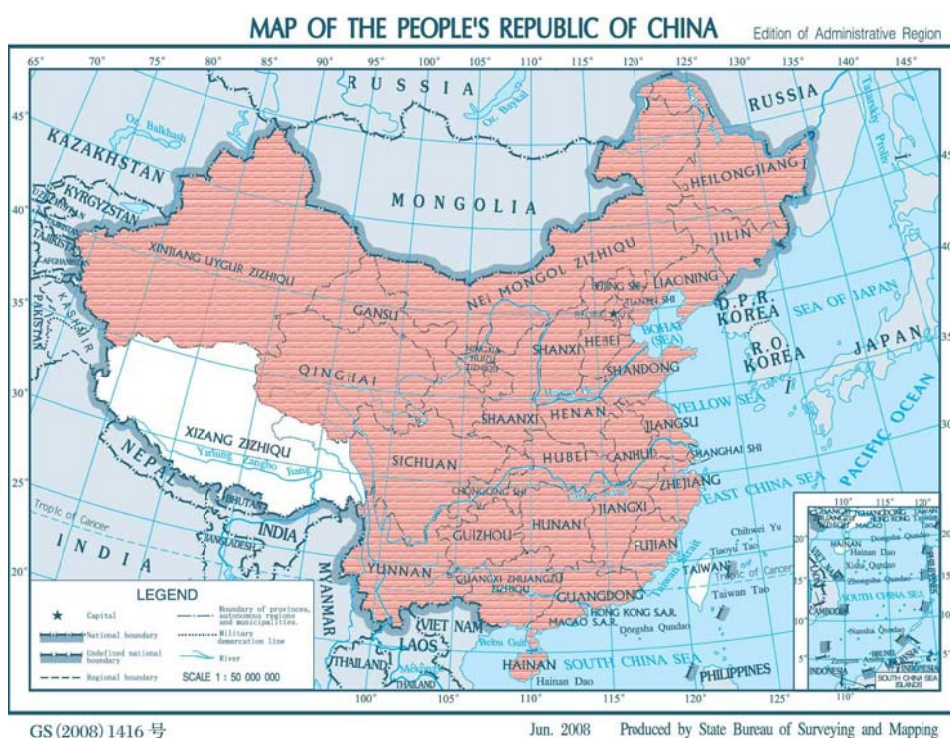


Figure1 Geographical boundary of the proposed PoA

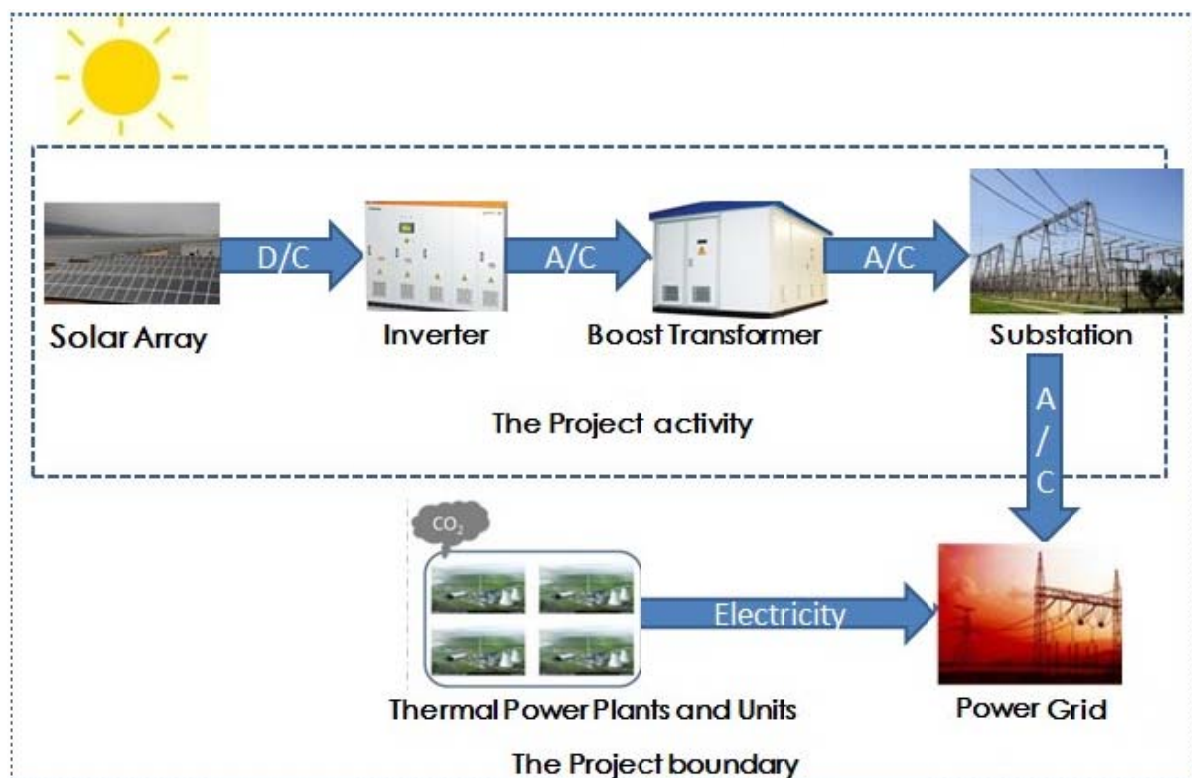
#### A.4.2. Description of a typical CDM programme activity (CPA):

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

The proposed PoA activity consists of CPAs which have the same technical concept.

The process is the solar array inverts a photovoltaic power to a direct current electricity power. The inverter inverts a direct current to an alternating current.

Schematic view of the technology to be employed by the proposed PoA is presented in Figure2:



**Figure2 Schematic view of the technology to be employed by the proposed PoA**

Main Technology to be employed by a CPA in the proposed PoA includes following equipments:

■ PV array

PV array cells are the most important equipment in solar PV plant. PV array cells are to collect solar energy and convert it into electricity. At present, the main types of PV array cells are monocrystalline silicon cells, polycrystalline silicon and others.

■ Inverters

Inverter is an electrical device that converts direct current (DC) to alternating current (AC).

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

Following eligibility criteria should be applicable for inclusion of the CPA in the proposed PoA:

- 1) The geographic boundary of a CPA lies within the geographic boundary set in the PoA, that 30 provinces in China, which showed in the following table:

Province	Sub-Total
Liaoning Province, Jilin Province, Heilongjiang Province	3
Beijing Municipality, Tianjin Municipality, Hebei Province, Shanxi Province, Shandong Province, Inner Mongolia Autonomous Region	6
Shanghai Municipality, Jiangsu Province, Zhejiang	5



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Province, Anhui Province, Fujian Province	
Henan Province, Hubei Province, Hunan Province, Jiangxi Province, Sichuan Province, Chongqing Municipality	6
Shaanxi Province, Gansu Province, Qinghai Province, Ningxia Hui Autonomous Region, Xinjiang Uygur Autonomous Region	5
Guangdong Province, Guangxi Zhuang Autonomous Region, Yunnan Province, Guizhou Province, Hainan Province	5

- 2) According to the project information database set up by the CME, the CME confirm that:
  - (i) All solar PV power plants to be newly installed under a CPA don't registered as a single CDM project and will not be a part of another registered PoA;
  - (ii) To ensure the above information, a written statement should be issued by the CPA operators. Meanwhile, CME will search in UNFCCC website or confirm with relevant organization to ensure the CPA doesn't registered as a single CDM project and will not be a part of another registered PoA
  - (iii) CME will verify and confirm each CPA does not search for carbon revenues through other approaches/schemes such as VCS mechanism.
  - (iv) All CPA operators involved in the PoA are aware and agree with the inclusion of a CPA to the proposed PoA.
- 3) Only solar PV power generation technology is involved by the CPA and no solar thermal project is included;
- 4) The start date of each CPA should not be prior to the PoA GSC date (14/04/2012). The start date of each CPA is determined as the earliest date at which either the implementation or construction or real action of a project activity begins. The starting date of each CPA will be determined through documentary evidence.
- 5) Each CPA shall comply with the applicability criteria of the methodology ACM0002(12.3.0) "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"

The CPA under the proposed PoA shall:

- Install grid-connected green field solar PV power plants at the sites where there were no renewable energy power plants operating prior to the implementation of the proposed CPAs
  - Not involve switching from fossil fuels to renewable energy sources at the sites of the projects.
- 6) The CPA compliance with the additionality requirements stated on section E.5 using the tool "*demonstration and assessment of additionality*" version 06.0.0 through i) Identification of alternatives to the project activity consistent with current laws and regulations; ii) Investment analysis (benchmark analysis); and iii) Common practice analysis.



- 7) The CPAs shall conduct a local stakeholder consultation and environmental analysis at CPA level. These shall be carried out prior to the start date of the CPA.
- 8) The CPAs will not involve public funding from Annex I Parties.
- 9) The CPAs shall be approved by the CME.

**A.4.3. Description of how the anthropogenic emissions of GHG by sources are reduced by a CPA below those that would have occurred in the absence of the registered PoA (assessment and demonstration of additionality):**

The information presented here shall constitute the demonstration of additionality of the PoA as a whole.

(i) The proposed PoA is a voluntary coordinated action;

There are no national, province or local requirements providing for solar PV power plants installation. Therefore the proposed PoA is a voluntary action to reduce GHG emissions and implemented by the coordinating/managing entity.

(ii) If the PoA is implementing a voluntary coordinated action, it would not be implemented in the absence of the PoA;

Major financial benefits generated by the proposed PoA to the PoA coordinator are CER revenues. Without CER revenue, the PoA coordinator has no obligation to, and cannot manage the PoA and conduct coordination between all participants because it is a private entity. Thus, the voluntary coordinated action would not be implemented in the absence of the PoA.

(iii) If the PoA is implementing a mandatory policy/regulation, this would/is not be enforced;

Not applicable. The proposed PoA is not implementing a mandatory policy/regulation.

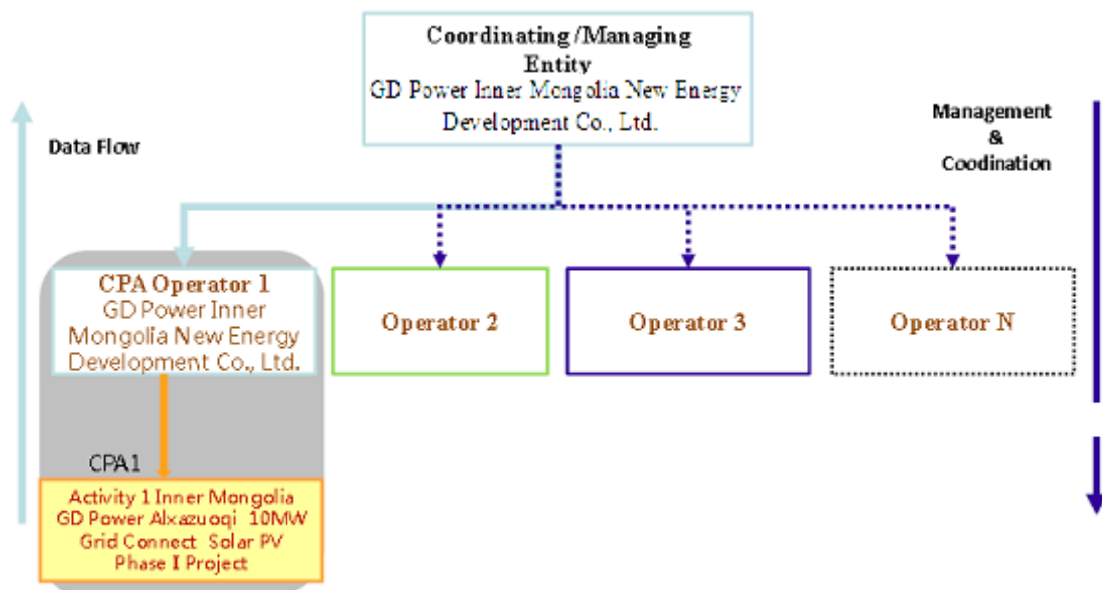
(iv) If mandatory a policy/regulation is enforced, the PoA will lead to a greater level of enforcement of the existing mandatory policy/regulation.

Not applicable. The proposed PoA is not implementing a mandatory policy/regulation.

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

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

Management and operational scheme of the proposed PoA is shown in Figure 3 below.



**Figure3 Management and operational scheme of the proposed PoA**

The managing/coordinating entity, GD Power Inner Mongolia New Energy Development Co., Ltd. is in charge of coordinating all project participants of the proposed PoA, collecting necessary data and information from each CPA for the purpose of monitoring, and also communicating with DOE and CDM Executive Board.

- (i) A record keeping system for each CPA under the PoA.

Each CPA is operated by a CPA operator under the control of the coordinating entity. The CPA operator reports monitored data to the managing/coordinating entity.

The record keeping system consists of the method of data monitoring, the duty and roles of each participants, schedule, coordinates and serial number for each CPA, size of each CPA and the monitoring data of each CPA. The database is completed by CPA operators through *ex ante* and *ex post* survey of entire activity. The database is submitted to the coordinating entity periodically. The entity verifies the reported data with field check if necessary.

Related procedures, responsibilities and tasks of participants under the record keeping system are described in the Table2 below.

**Table2 Procedures, responsibilities and tasks of the participants to the PoA**

Activities	Entity in Charge	Task Description
Inclusion request of CPA	CME will be in charge of check the features of potential CPAs and ensure that the proposed CPA meets all requirements and eligibility criteria before inclusion in the registered PoA.	Receive and approve formal written request for CPA inclusion. Sign the agreement on the participation in the PoA and CER revenue allocation framework. Review competencies of participants.
Writing	CME will be in charge of	Compile PoA guideline with





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Stakeholder guideline	providing the guideline and supervising the implementation.	instruction for all involved stakeholders to definition of roles and responsibility of personnel involved.
Inclusion of CPA	CME will take the full charge of the CDM application.	CPA develop and inclusion under the PoA as along the CDM and PoA regulations.
Monitoring	CPA operators will be in charge of collecting and reporting the monitoring data according to approved methodology.	Collect monitoring data and other information including but not limited to schedule and serial number.
Data archiving and analysis	CME will be in charge of archiving and analyzing the monitoring sent by CPA operators.	Maintain data base and analyze the data in a suitable format for calculating emission reduction.
CDM verification	CME will manage all monitoring report of all CPAs and request to verification by a DOE who has not performed validation/inclusion/renewal of crediting period activities for the PoA.	Verification and issuance of all CPAs under the PoA as along the CDM regulations.
CER trading and revenue allocation	CME will be in charge of trading the CERs and allocating the revenue based on the agreement with the related project participants.	Trade CERs and allocate revenue.
Communication and reporting	CME is in charge of coordinating between project participants and communicating with DOE and CDM EB.	Communicate with project participants, DOE and CDM EB, and report monitoring data, et al.

- (ii) A system/procedure to avoid double accounting e.g. to avoid the case of including a new CPA that has been already registered either as CDM project activity or as a CPA of another PoA.

The operator of a CPA shall, in accordance with the eligibility criteria in section 4.2.2, confirm with a written statement at the time of CPA inclusion that any solar PV power plant under the CPA does not belong to another CPA under this PoA, another registered CDM project activity or another CDM PoA or other approaches such as VCS. CME will check the CPA against the eligibility criteria and other information such as the DNA website and UNFCCC website to confirm no double accounting will occur. CME will build the information database which includes the name, geographic coordinates, technology, product and end-user of the proposed CPA and other similar CDM project activities. CME will check the information of the proposed CPA against the information of other similar CDM project activities to confirm no double accounting will occur.

- (iii) The provisions to ensure that those operating the CPA are aware and have agreed that their activity is being subscribed to the PoA;



As per the eligibility criteria for CPAs in section 4.2.2, the operator shall also confirm with a written statement that they are aware and have agreed that the CPA will be subscribed to the PoA.

(iv) Procedure for technical review.

All the technical requirements for inclusion of the CPA in the PoA, as outlined in this PoA-DD, are specified in technical manual of the PoA management system. The manual will ensure the proposed CPA meeting the requirements of the PoA including the eligibility criteria. The CME will review the technology of the proposed CPA compliance with requirements of the technical manual.

(v) Arrangements for training and capacity development for personnel.

The CME will organize training sessions periodically to stay up to date with CDM regulations. A record of training sessions and other capacity development activities for personnel is included.

(vi) Measures for continuous improvements of the PoA management system.

All the approved procedures or measures must consider the comments from the stakeholders of the PoA.

In the case of a deviation of the process or if a process needs to be updated, any person can request a revision of the procedure, which will be taken into account by the CME, who is responsible that the procedure is efficiently and up to date. The periodic training, as stated in point (iv) above, is a measure of continuous improvements.

#### **A.4.4.2. Monitoring plan:**

No statistically sound sampling method/procedure to be used. All data required for verification of amount of reduction of anthropogenic emission by sources by CPAs under the PoA is provided to the coordinating/managing entity through operators.

The monitoring plan is established to ensure that all CPAs within the PoA are monitored and verified; the list of all CPAs is available to DOE. The managing/coordinating entity will therefore set up a central monitoring database and provide to DOE for verification. The coordinating entity will submit CPAs for verification by the DOE pursuant to the sequence described below:

- The coordinating entity will continuously update a list of all CPAs and monitoring reports which are available to be verified by the DOE.
- The coordinating entity collects the monitoring information for all CPAs that will be verified and prepares one monitoring report for each CPA with an identical verification period.

#### **1. Maintenance of a list of verification procedures to be applied to each CPA**

The coordinating entity will develop and continuously update a list of CPAs and ensure that all CPAs will be monitored and verified.

#### **2. Collection of monitored parameters and elaboration of the monitoring plan**

The monitoring report will compile all required monitoring information for all CPAs that will be verified by the DOE. This report will unambiguously set out the data relating to the emission reductions generated by each specific CPA during the monitoring period consistent with the requirements of this PoA-DD and the corresponding CPA-DD.



The monitoring plan for parameters included in section E.7.1 will be implemented for each CPA with assistance from the coordinating entity as follows:

- CPA owner will implement each CPA individually and monitor and record all parameters included in section E.7.1.
- The coordinating entity will provide guidance to CPA operators on how monitoring should be conducted and data should be collected in regards to emission reductions calculation.
- The CPA operators will provide data to the coordinating entity including:
  - Unique identification code;
  - Monitoring data included but not limited to E.7.1
  - CPA title/name;
  - Implementing entity name, address, contact person and details;
  - Installed capacity and other relevant technical specifications;
  - Location of the CPA (e.g. GPS coordinates of the power plant);
  - List of documents available from the CPA operator;
- The coordinating entity will document and store all parameters included in section E.7.1 provided by CPA operators in an electronic database, while primary data will be stored by CPA owner
- The coordinating entity review relevant monitoring documents, prepare the monitoring report, and provide the latter to the DOE.

**3. A system/procedure to avoid double accounting e.g. to avoid the case of including a new CPA that has been already registered either as CDM project activity or as a CPA of another PoA.**

*The CPA inclusion phase:*

The operator of a CPA shall, in accordance with the eligibility criteria in section 4.2.2, confirm with a written statement at the time of CPA inclusion that any solar PV power plant under the CPA does not belong to another CPA under this PoA, another registered CDM project activity or another CDM PoA. CME will check the CPA against the eligibility criteria and other information such as the DNA website and UNFCCC website to confirm no double accounting will occur. CME will build the information database which includes the name, geographic coordinates, technology, product and end-user of the proposed CPA and other similar CDM project activities. CME will check the information of the proposed CPA against the information of other similar CDM project activities to confirm no double accounting will occur.

*The CPA monitoring phase*

The CME will maintain the electronic database including unique identification code, location, title, entity name, technical specifications of each CPA, which ensures the unique identification and monitoring information of the CPA. Therefore, that no double accounting occurs will be guaranteed.

**3. Verification frequency of the CPAs under the proposed PoA**

All CPAs included in the PoA shall request to DOE for verification purpose and the status of verification can be determined anytime for each CPA the proposed PoA. The request for verification shall be at least three months after the previous one that the status of verification can be determined anytime for each CPA. According to the Procedures for Registration of a Programme of Activities as a Single CDM Project Activity and Issuance of Certified Emission Reductions for a Programme of Activities (version 04.1), all



the CPAs under the proposed PoA will be monitored as per the related methodologies, procedures and guidelines.

All relevant parameters included in the monitoring plan shall be monitored and recorded for each included CPAs independently. Monitoring reports will be prepared separately for each of the CPAs for the purpose of verification and request for issuance of CERs. To guarantee the uncomplicated access to the CPA data, the coordinating entity will maintain a database for all included CPAs.

**A.4.5. Public funding of the programme of activities:**

No public funding from Parties included in Annex I countries is involved.

**SECTION B. Duration of the programme of activities**

**B.1. Starting date of the programme of activities:**

The CDM-PoA-DD of the proposed PoA was published for global stakeholder consultation on 14/04/2012. This is the date of the commencement of validation activities of the PoA. The starting date of the first CPA is 20/04/2012 when the Equipment purchase agreement was signed. This date is after the commencement of validation activities of the PoA. The starting date of the crediting period is 01/01/2013.

**B.2. Length of the programme of activities:**

The length of the proposed PoA is 28 years and 0 months.

**SECTION C. Environmental analysis**

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

1. Environmental Analysis is done at PoA level ☐
2. Environmental Analysis is done at CPA level ☒

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

Not applicable. Environmental Analysis is done at CPA level.

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



In line with the national law/regulations, an Environmental Impact Assessment (EIA) should be carried out and approved by the environmental agency in charge of environmental protection of City or County before a CPA would start. The EIA should be carried out for the following Environmental impact:

- Expected Environmental impacts during construction, on such as atmosphere, noise, waste water and solid waste;
- Expected Environmental impacts during operation, on such as atmosphere, noise, waste water and solid waste.

#### SECTION D. Stakeholders' comments

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

1. Local stakeholder consultation is done at PoA level ☐
2. Local stakeholder consultation is done at CPA level ☒

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

Not applicable. Local stakeholder consultation is done at CPA level before CPA-DD publication.

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

Not applicable. Local stakeholder consultation is done at CPA level.

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

Not applicable. Local stakeholder consultation is done at CPA level.

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

This section shall demonstrate the application of the baseline and monitoring methodology to a typical CPA. The information defines the PoA specific elements that shall be included in preparing the PoA specific form used to define and include a CPA in this PoA (PoA specific CDM-CPA-DD).

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

Approved Consolidated Methodology ACM0002 (Version 12.3.0), "Consolidated baseline methodology for grid-connected electricity generation from renewable sources";

<http://cdm.unfccc.int/methodologies/DB/C505BVV9P8VSNNV3LTK1BP3OR24Y5L>

(b) Any tools and other methodologies to which the selected methodology (ies) refer:

- "Tool for the demonstration and assessment of additionality" (Version 6.0.0);
- "Tool to calculate the emission factor for an electricity system" (Version 02.2.1).

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



ACM0002 (Version 12.3.0) defines the applicability of this methodology. The following Table3 explains the reason why the methodology applies to each CPA:

**Table3 Comparison of extraction components of each CPA with applicability of ACM0002**

<b>No.</b>	<b>As per the methodology</b>	<b>As per the CPA</b>
1	This methodology is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated 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).	YES. The CPAs under the proposed PoA are grid-connected Greenfield solar PV power plants at the sites where there were no renewable energy power plants operating prior to the implementation of the proposed CPAs.
2	The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	YES. The CPAs under the proposed PoA are grid-connected Greenfield solar PV power plants.
3	In the case of capacity additions, retrofits or replacements (except for capacity addition projects for which the electricity generation of the existing power plant(s) or unit(s) is not affected): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity addition or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity;	N/A. The CPAs under the proposed PoA are grid-connected Greenfield solar PV power plants.
4	In case of hydro power plants, one of the following conditions must apply: <ul style="list-style-type: none"> <li>♦ The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; or</li> <li>♦ 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 proposed project Emissions section, is greater than 4 W/m<sup>2</sup>;</li> </ul> or The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the proposed project Emissions section, is greater than 4 W/m <sup>2</sup> .	N/A. The CPAs are not hydro power plants.



	<p>- In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than <math>4\text{W/m}^2</math> after the implementation of the project activity all of the following conditions must apply:</p> <ul style="list-style-type: none"> <li>• The power density calculated for the entire project activity using equation 5 is greater than <math>4\text{ W/m}^2</math>;</li> <li>• All reservoirs and hydro power plants are located at the same river and where are designed together to function as an integrated project<sup>2</sup> that collectively constitutes the generation capacity of the combined power plant;</li> <li>• The water flow between the multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity;</li> <li>• The total installed capacity of the power units, which are driven using water from the reservoirs with a power density lower than <math>4\text{ W/m}^2</math>, is lower than 15 MW;</li> </ul> <p>The total installed capacity of the power units, which are driven using water from reservoirs with a power density lower than <math>4\text{ W/m}^2</math>, is less than 10% of the total installed capacity of the project activity from multiple reservoirs.</p>	
5	<p>The methodology is not applicable to the following:</p> <ul style="list-style-type: none"> <li>♦ Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site;</li> <li>♦ Biomass fired power plants;</li> <li>♦ A hydro power plant that result in the creation of a new single reservoir or in the increase in an existing single reservoir where the power density of the reservoir is less than <math>4\text{W/m}^2</math>.</li> </ul>	N/A. The CPAs under the proposed PoA are grid-connected Greenfield solar PV power plants and do not involve switching from fossil fuels to renewable energy sources at the sites of the projects.

It can be concluded from the above analysis that the proposed project complies with both the baseline and the monitoring methodologies of ACM0002.

<b>E.3. Description of the sources and gases included in the CPA boundary</b>
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<sup>2</sup> This requirement can be demonstrated, for example, (i) by the fact that water flow from upstream power units spilling directly to the downstream reservoir, or (ii) through the analysis of the water balance. Water balance is the mass balance of water fed to power units, with all possible combinations of multiple reservoirs and without the construction of reservoirs. The purpose of such water balance is to demonstrate the requirement of specific combination of multiple reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum three years prior to implementation of CDM project activity.



According to ACM0002 (Version 12.3.0) the spatial extent of the CPA boundary includes the CPA power plant and all power plants connected physically to the electricity system<sup>3</sup> that the CPA power plant is connected to. The boundary of each CPA will be within the boundary of the PoA as a whole.

The greenhouse gases and emission sources included in or excluded from the CPA boundary shown in Table4, the project boundary of the CPA shown in figure 4.

**Table4 Overview on emissions sources included in or excluded from the typical CPA boundary**

	Source	Gas	Included?	Justification/Explanation
<b>Baseline</b>	CO <sub>2</sub> emissions from electricity generation of the grid that are displaced due to the Project.	CO <sub>2</sub>	Yes	Main emission sources.
		CH <sub>4</sub>	No	Minor emission source.
		N <sub>2</sub> O	No	Minor emission source.
<b>Project activity</b>	CO <sub>2</sub> emissions of the Project	CO <sub>2</sub>	No	Minor emission source. It is excluded because the CPAs will all be solar plants and the project emission is zero according to the methodology ACM0002.
		CH <sub>4</sub>	No	Minor emission source. It is excluded because the CPAs will all be solar plants and the project emission is zero according to the methodology ACM0002.
		N <sub>2</sub> O	No	Minor emission source. It is excluded because the CPAs will all be solar plants and the project emission is zero according to the methodology ACM0002.

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<sup>3</sup> Based on the definition by China's DNA. <http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2720.pdf>



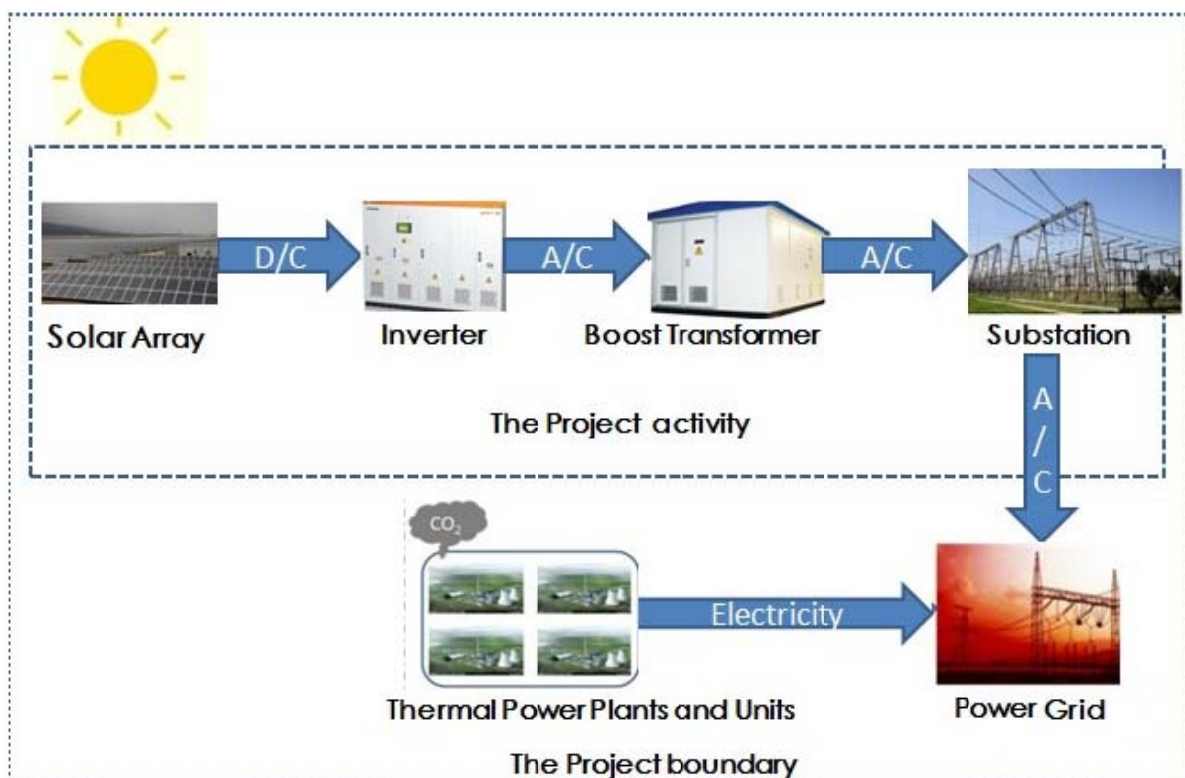


Figure 4 the project boundary of the CPA

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

According to the methodology ACM0002, if the project is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

Electricity delivered to the grid by each CPA would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in *Tool to calculate the emission factor for an electricity system*.

Each CPA under the proposed PoA is the installation of a new grid-connected renewable solar power plant that connects with and delivers electricity to the grid. According to *Tool to calculate the emission factor for an electricity system*, the delineation of grid boundaries of each CPA is the grid which the CPA is connected to according to the methodology ACM0002, the baseline scenario of each CPA is “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, as reflected in the combined margin (CM)”. For detailed analysis please refer to Section E.5.1.

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



>>

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

As required by methodology ACM0002, “*Tool for the demonstration and assessment of additionality* (Version 06.0.0)” is applied to demonstrate additionality of a typical CPA.

***Step 1. Identification of alternatives to the project activity consistent with current laws and regulations:***

The objective of Step 1 is to define realistic and credible baseline alternatives to the CPA through the following sub-steps:

***Sub-step 1a. Define alternatives to the project activity:***

Since the methodology ACM0002 (version 12.3.0) prescribes the baseline scenario, the plausible baseline alternatives include:

Baseline alternative I: The CPA not implemented as a CDM project activity;

Baseline alternative II: The continuation of the current situation - Electricity delivered to the grid by the CPA would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”

***Sub-step 1b. Consistency with mandatory laws and regulations:***

The alternatives are realistic and feasible and comply with applicable laws and regulations.

***Step 2. Investment analysis:***

The procedure to carry out investment analysis of each CPA under the proposed PoA is in accordance with “*Tool for the demonstration assessment of additionality*” (Version 06.0). “*Guidelines on the assessment of investment*” (Version 05.0) is taken into account when calculating the investment analysis for each CPA under the proposed PoA to determine whether the project is not economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs).

***Sub-step 2a. Determine appropriate analysis method***

*Tool for the demonstration and assessment of additionality* suggests three analysis methods which are simple cost analysis (Option I), investment comparison analysis (Option II) and benchmark analysis (Option III). The Project will earn revenues not only from the CERs but also from electricity sales, so the simple cost analysis method is not appropriate. Investment comparative analysis is only applicable to the case that alternative baseline scenario is similar to the proposed projects, so investment comparison analysis (Option II) is not appropriate to the proposed PoA. Benchmark analysis (Option III) will be employed as the baseline scenario of the each CPA is the provision of electricity by the grid.

***Sub-step 2b: (Option III) Apply Benchmark Analysis***

According to *Interim Rules on Economic Assessment of Electric Power Engineering Retrofit Projects* issued by State Power Corporation of China in 2002 (published on September 10<sup>th</sup>, 2002), The financial benchmark project IRR (after tax) on total investment of Chinese power industry is 8%, the proposed



PoA belong to power industry, so the benchmark of project IRR(after tax) adopted by the CPAs in the PoA are 8%. On the basis of this benchmark, calculation and comparison of IRR are carried out in sub-step 2c.

***Sub-step 2c. Calculation and comparison of IRR***

**(1) Basic parameters and assumptions**

The benchmark analysis will be carried out in accordance with the *Tool for the demonstration and assessment of additionality (v.06.0.0)* and *Guidelines on the assessment of investment (Version 05.0)* on investment analysis.

The financial analysis in each the CPA-DD of the Proposed PoA is derived from the Feasibility Study Report (FSR) of each CPA which is approved by the national authorities.

(a) The FSR is the basis for the decision to proceed with the investment in each CPA, i.e. that the period of time between the finalization of the FSR and the investment decision is sufficiently short that it is unlikely in the context of the underlying project activity that the input values would have materially changed.

(b) The values used in the CPA-DD and associated annexes are fully consistent with the FSR.

(c) The investment estimation in the FSR was carried out by an independent design institute, and is based on the national regulation and the material and equipment price level.

Therefore the FSR is a reliable data source for the CPA investment analysis, to which all the key parameters and assumptions refer, which is provided in Table 5.

**Table5 Key parameter and assumptions of investment analysis for a typical CPA**

Item	Unit	Source
Installed capacity	MW	FSR, et al.
Annual Supplied electricity	MWh	FSR, et al.
Construction period	year	FSR, et al.
Operation period	year	FSR, et al.
Total static investment	10000RMB	FSR, et al.
Long-term Loan	10000RMB	FSR,et al
Annual O&M cost	10000RMB	FSR,et al
Tariff (including VAT)	RMB/kWh	FSR, et al.
VAT	%	FSR, et al.
Interest rate of long-term loan	%	FSR, et al.
Interest of working capital loan	%	FSR, et al.
Income tax	%	FSR, et al.
Urban maintenance and construction tax rate	%	FSR, et al.
Surtax for education rate	%	FSR, et al.
Depreciation period	year	FSR, et al.
Residual value rate	%	FSR, et al.
Deductible input VAT	10000RMB	FSR, et al.



*The Tool for the demonstration and assessment of additionality (Version 06.0.0) indicate that: If the CDM project activity has a less favourable indicator (e.g. lower IRR) than the benchmark, then the CDM project activity cannot be considered as financially attractive.*

Therefore, if the IRR of the CPA less than the benchmark of 8% (project IRR after tax), the CPA could not be considered as financially attractive.

#### Sub-step 2d – Sensitivity analysis

A sensitivity analysis should be carried out to estimate whether the conclusion regarding the financial/economic attractiveness is robust to reasonable variation in the critical assumptions. According to EB guidelines, only variables that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variations. For the proposed PoA, the key variables analyzed, which constitute more than 20% of costs or revenues, are:

- 1) Total static investment;
- 2) O&M costs;
- 3) Annual Supplied Electricity;
- 4) Tariff (incl. VAT);

In line with EB guidelines, the range of variations in the sensitivity analysis covers a range of +10% and – 10%, which is also in line with the regulations in China.

The methodological tool states that: *The investment analysis provides a valid argument in favour of additionality only if it consistently supports (for a realistic range of assumptions) the conclusion that the project activity is unlikely to be financially/economically attractive.*

If after the sensitivity analysis and critical points analysis it is concluded that the CPA under the proposed PoA is unlikely to be financially/economically attractive, and then proceed to Step 4 (Common practice analysis).

However, in case the actual situation of the project installation is different from that determined in the FSR on which the investment decision was made, before proceeding to Step 4, the differences will need to be clarified reasonably in the CPA-DD and both the IRR and the sensitivity analysis based on actual situation shall be calculated for crosscheck.

#### **Step 3. Barrier analysis:**

According to the tool, barrier analysis could be skipped for the additionality assessment, if the CPA under the proposed PoA is unlikely to be financially/economically attractive.

#### **Step 4. Common practice analysis:**

##### **Identification of a First-of-its-kind project activity**

As a newly-built solar PV power project, each proposed CPA will not be a First-of-its-kind project. Hence, in line with the tool, it should be determined whether the proposed CPA is one of four types of measures listed in paragraph 6 of the *Tool for the demonstration and assessment of additionality (06.0.0)*:

- (a) Fuel and feedstock switch;



- (b) Switch of technology with or without change of energy source (including energy efficiency improvement as well as use of renewable energies);
- (c) Methane destruction;
- (d) Methane formation avoidance.

Considering the eligibility criteria defined in section A.4.2.2, only newly built solar PV power generation projects are involved in the PoA; hence each CPA will not be a first of its kind project and will belong to the type (b) of measures above.

As per the *Tool for the demonstration and assessment of additionality (06.0.0)*, each CPA under the PoA belonging to the measures (b) above, the common practice shall be analyzed through the following Sub-steps:

*Step 1): Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity;*

In the proposed PoA, the applicable output range as +/-50% of the design capacity of each CPA. (e.g., the capacity of the CPA is 20MW, the applicable output range is 10MW ~ 30MW. If there's difference between the actual implementation and the designed value in the FSR, the lowest/highest end values will be employed to ensure that the widest applicable output range is considered (for example, in case in the designed FSR the CPA installed capacity is 20MW while according to the actual implementation it is 21MW, the applicable output range to be considered would be 10MW (- 50% of 10MW, lowest end value) ~ 31.5MW (+50% of 21MW, highest end value)).

*Step 2): In the applicable geographical area, identify all plants that deliver the same output or capacity, within the applicable output range calculated in Step 1, as the proposed project activity and have started commercial operation before the start date of the project. Note their number  $N_{all}$ . Registered CDM project activities and project activities undergoing validation shall not be included in this step.*

Because the solar PV power project was implemented under the administration of provincial government level, and industry strategy, governmental approval policy; commercial loan policy and taxes policy are provincial oriented. Also, solar PV project activities in the same province have similar solar resource, grid structure, geological conditions, and economic developing status; therefore, it is reasonable that the applicable geographical area is defined as the province where the CPA located in.

The number of all power generation plants within the applicable output range and applicable geographical area, which started the commercial operation before the starting date of the proposed CPA will be found and note their number  $N_{all}$ .

*Step 3): Within plants identified in Step 2, identify those that apply technologies different that the technology applied in the proposed project activity. Note their number  $N_{diff}$ .*

As per the tool, different technologies are technologies that deliver the same output and differ by at least one of the following (as appropriate in the context of the measure applied in the proposed CDM project and applicable geographical area):

- (a) Energy source/fuel;
- (b) Feed stock;
- (c) Size of installation (power capacity):
  - (i) Micro (as defined in paragraph 24 of Decision 2/CMP.5 and paragraph 39 of Decision 3/CMP.6);



- (ii) Small (as defined in paragraph 28 of Decision 1/CMP.2);
- (iii) Large;
- (d) Investment climate in the date of the investment decision, inter alia:
  - (i) Access to technology;
  - (ii) Subsidies or other financial flows;
  - (iii) Promotional policies;
  - (iv) Legal regulations;
- (e) Other features, inter alia:
  - (i) Unit cost of output (unit costs are considered different if they differ by at least 20%);

Identify the projects apply technologies different that the technology applied in the proposed project activity and note their number  $N_{diff}$ .

Step 4): Calculate factor  $F = 1 - N_{diff}/N_{all}$  representing the share of plants using technology similar to the technology used in the proposed project activity in all plants that deliver the same output or capacity as the proposed project activity.

$N_{all}$  is determined in step 2) and  $N_{diff}$  is determined in step 3). If  $F = 1 - N_{diff} / N_{all} > 0.2$  and  $N_{all} - N_{diff} > 3$ , the CPA is considered as a common practice within a sector in the applicable geographical area

Therefore, if **step 2** (investment analysis) and **step 4** (common practice analysis) are satisfied, i.e., a CPA under the proposed PoA is financially not attractive and is not a common practice, then the CPA under the proposed PoA is additional.

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

The criteria included here shall be checked upon inclusion of a CPA to the proposed PoA in order to demonstrate that the additionality arguments presented in section E.5.1 fully apply to the CPA. The criteria are additional to those assessed when determining the general eligibility of the CPA under the PoA as per section A.4.2.2.

Key criteria and data for assessing additionality of a CPA are as follows:

##### ***Criteria related to the investment analysis***

##### **1) Analysis method and Benchmark selection**

A benchmark analysis should be carried out for the CPA to be included in the PoA. The benchmark to be used shall be 8% (project IRR after tax) in compliance with the *Interim Rules on Economic Assessment of Electric Power Engineering Retrofit Projects* commonly used in the Chinese power industry.

##### **2) The calculation of the IRR,**

The project IRR (post tax) of the CPA is calculated based on designed parameters and assumptions and the method provided in section E.5.1 above.

##### **3) The financial additionality is demonstrated by showing that the calculated Project IRR (post-tax) (excluding CDM revenues) is below the applied investment benchmark (8%) after carrying out**



sensitivity analysis (within  $\pm 10\%$  variation range) to the variables parameters that constitute more than 20% of either total project costs or total project revenues. For each CPA under the proposed PoA, the key variables to be analyzed within a range of  $+10\%$  and  $-10\%$  are:

- 1) Total static investment;
- 2) O&M costs;
- 3) Annual Supplied Electricity;
- 4) Tariff (incl. VAT);

Also, the critical analysis will be carried out to demonstrate each parameter above cannot increase/decrease too much to make the IRR of each CPA to reach the benchmark IRR (8%).

4) Criteria related to the common practice analysis showed in E.5.1 are employed for each CPA. If  $F = 1 - N_{diff} / N_{all} < 0.2$  or  $N_{all} - N_{diff} < 3$ , the CPA is not considered as a common practice within a sector in the applicable geographical area and the criteria is met.

The CPA is demonstrated additional when all the criteria above are met.

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

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

The equations determined by the approved methodology ACM0002 (Version 12.3.0) are applied for calculating emission reduction of a CPA.

The formulae from “*Tool to calculate the emission factor for an electricity system* (Version 02.2.1)” are applied for calculating emissions factor.

##### **E.6.2. Equations, including fixed parametric values, to be used for calculation of emission reductions of a CPA:**

#### **1) Project Emissions**

Each CPA under the proposed PoA is new installation of solar PV power project and no project emissions should be considered as per the methodology ACM0002, i.e.,  $PE_y = 0 \text{ tCO}_2\text{e}$ .

#### **2) Baseline Emissions**

As per the methodology ACM0002, baseline emissions include only  $\text{CO}_2$  emissions from electricity generation in the grid that the proposed PoA is connected to. The baseline emissions are to be calculated as follows:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y} \quad (1)$$

Where:

$BE_y$  is the baseline emissions in year  $y$  ( $\text{tCO}_2\text{e}$ );

$EG_{PJ,y}$  is the quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year  $y$  (MWh);



$EF_{grid,CM,y}$  is the combined margin CO<sub>2</sub> emission factor for grid connected power generation in year y calculated using *Tool to Calculate the Emission Factor for an Electricity System* ( 02.2.1 ) (tCO<sub>2</sub>e/MWh).

#### **Calculation of $EG_{PJ,y}$**

If the CPA is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, then:

$$EG_{PJ,y} = EG_{facility,y}$$

Where

$EG_{PJ,y}$  = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)  
 $EG_{facility,y}$  = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh)

#### **Calculation of the CO<sub>2</sub> emission factor for the electricity of the China Power Grid ( $EF_{grid,CM,y}$ )**

The emission factor is determined by the tool “Tool to calculate emission factor for an electricity system (Version 02.2.1)”.

#### **Step 1: Identify the relevant electricity systems**

For determining the electricity emission factors, identify the relevant project electricity system

The host country (China) has published a delineation of the project electricity system and connected electricity systems, these delineations should be used. The electricity system identification will be carried out at the CPA level and showed in the CDM-CPA-DD. the spatial extent of the each CPA power grid comprises all the power plants connected physically to the CPA, referring to *2011 Baseline Emission Factors for Regional Power Grids in China* (issued by China’s DNA on October 20, 2011).<sup>4</sup>

#### **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.

Option I corresponds to the procedure contained in earlier versions of this tool. Option II allows the inclusion of off-grid power generation in the grid emission factor. Option II aims to reflect that in some countries off-grid power generation is significant and can partially be displaced by CDM project activities, e.g. if off-grid power plants are operated due to an unreliable and unstable electricity grid. Option II requires collecting data on off-grid power generation as per Annex 2 and can only be used if the conditions outlined therein are met. Option II may be chosen only for the operating margin emission

<sup>4</sup><http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2720.pdf>





factor or for both the build margin and the operating margin emission factor but not only for the build margin emission factor.

If Option II is chosen, off-grid power plants should be classified as per the guidance in Annex 2 in different classes of off-grid power plants. Each off-grid power plant class should be considered as one power plant  $j$ ,  $k$ ,  $m$  or  $n$  in the following steps, as applicable.

For the proposed PoA, **Option I** is chosen: Only grid power plants are included in the calculation.

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

The calculation of the operating margin emission factor ( $EF_{\text{grid,OM},y}$ ) is based on one of the following methods, which are described under Step 4:

- (a) Simple OM; or
- (b) Simple adjusted OM; or
- (c) Dispatch data analysis OM; or
- (d) Average OM.

The simple OM method (Option a) can only be used if low-cost/must-run 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 dispatch data analysis (Option c) cannot be used if off-grid power plants are included in the project electricity system as per Step 2 above.

For the simple OM, the simple adjusted OM and the average OM, the emissions factor can be calculated using either of the two following data vintages:

- Ex ante option: If the ex ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required. For grid power plants, use a 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation. For off-grid power plants, use a single calendar year within the five most recent calendar years prior to the time of submission of the CDM-PDD for validation.
- Ex post option: If the ex post option is chosen, the emission factor is determined for the year in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring. If the data required to calculate the emission factor for year  $y$  is usually only available later than six months after the end of year  $y$ , alternatively the emission factor of the previous year  $y-1$  may be used. If the data is usually only available 18 months after the end of year  $y$ , the emission factor of the year preceding the previous year  $y-2$  may be used. The same data vintage ( $y$ ,  $y-1$  or  $y-2$ ) should be used throughout all crediting periods.

For the dispatch data analysis OM, use the year in which the project activity displaces grid electricity and update the emission factor annually during monitoring.

The data vintage chosen should be documented in the CDM-PDD and should not be changed during the crediting period. Power plants registered as CDM project activities should be included in the sample



group that is used to calculate the operating margin if the criteria for including the power source in the sample group apply.

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

The simple OM emission factor is calculated as the generation-weighted average CO<sub>2</sub> emissions per unit net electricity generation (tCO<sub>2</sub>/MWh) of all generating power plants serving the system, not including Low-cost/must-run power plants/units.

The simple OM may be calculated by one of the following two options:

Option A: Based on the net electricity generation and a CO<sub>2</sub> emission factor of each power unit;3 or

Option B: Based 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 can only be used if:

- (a) The necessary data for Option A is not available; and
- (b) 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; and
- (c) Off-grid power plants are not included in the calculation (i.e. if Option I has been chosen in Step 2).

However, due to the necessary data, including the fuel consumption and net electricity generation of each power plant, is not available in China, and the other two requirements (b and c) are also satisfied, Option B will be adopted for each CPA.

As per 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:

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 can be identified; thus, Option B is employed to calculate OM.

$$EF_{grid,OM, simple,y} = \frac{\sum_i FC_{i,y} \cdot NCV_{i,y} \times EF_{CO2,i,y}}{EG_y} \quad (3)$$

$EF_{grid,OM, simple,y}$  is Simple operating margin CO<sub>2</sub> emission factor in year y (tCO<sub>2</sub>/MWh)

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

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

$EF_{CO2,i,y}$  is CO<sub>2</sub> emission factor of fossil fuel type i in year y (tCO<sub>2</sub>/GJ)

$EG_y$  is 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* is the relevant year as per the data vintage chosen in Step 3

For this approach (simple OM) to calculate the operating margin, the subscript *m* refers to the power plants/units delivering electricity to the grid, not including low-cost/must-run power plants/units, and including electricity imports to the grid. Electricity imports should be treated as one power plant *m*.

Referring to *2011 Baseline Emission Factors for Regional Power Grids in China*, the simple operating margin emission factors ( $EF_{grid,OM,y}$ ) of the relevant grid are listed in Table6 below:

**Table6 the operating margin emission factors of each grid involved of the PoA**

Power Grid	$EF_{grid,OM,y}$ (tCO2/MWh)
North China Power Grid	0.9803
Northeast Power Grid	1.0852
East China Power Grid	0.8367
Central China Power Grid	1.0297
Northwest Power Grid	1.0001
China Southern Power Grid	0.9489

**Step 5. Calculate the Build Margin (BM) emission factor**

According to *Tool to Calculate the Emission Factor for an Electricity System* (version 02.2.1), project participants shall choose between one of the following two options to calculate the build margin emission factor ( $EF_{grid,BM,y}$ ).

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 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.

Option 2. For the first crediting period, the build margin emission factor shall be updated annually, *ex post*, including those units built up to the year of registration of the Proposed Project or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emission factor shall be calculated *ex ante*, as described in Option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

Option 1 is adopted by the Proposed PoA.

Capacity additions from retrofits of power plants should not be included in the calculation of the build margin emission factor.



The sample group of power units m used to calculate the build margin should be determined as per the following procedure, consistent with the data vintage selected above:

- (a) Identify the set of five power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently ( $SET_{5-units}$ ) and determine their annual electricity generation ( $AEG_{SET-5-units}$ , in MWh);
- (b) Determine the annual electricity generation of the project electricity system, excluding power units registered as CDM project activities ( $AEG_{total}$ , in MWh). Identify the set of power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently and that comprise 20% of  $AEG_{total}$  (if 20% falls on part of the generation of a unit, the generation of that unit is fully included in the calculation) ( $SET_{\geq 20\%}$ ) and determine their annual electricity generation ( $AEG_{SET-\geq 20\%}$ , in MWh);
- (c) From  $SET_{5-units}$  and  $SET_{\geq 20\%}$  select the set of power units that comprises the larger annual electricity generation ( $SET_{sample}$ );

Identify the date when the power units in  $SET_{sample}$  started to supply electricity to the grid. If none of the power units in  $SET_{sample}$  started to supply electricity to the grid more than 10 years ago, then use  $SET_{sample}$  to calculate the build margin. Ignore steps (d), (e) and (f).

Otherwise:

- (d) Exclude from  $SET_{sample}$  the power units which started to supply electricity to the grid more than 10 years ago. Include in that set the power units registered as CDM project activity, starting with power units that started to supply electricity to the grid most recently, until the electricity generation of the new set comprises 20% of the annual electricity generation of the project electricity system (if 20% falls on part of the generation of a unit, the generation of that unit is fully included in the calculation) to the extent is possible. Determine for the resulting set ( $SET_{sample-CDM}$ ) the annual electricity generation ( $AEG_{SET-sample-CDM}$ , in MWh) ;

If the annual electricity generation of that set is comprises at least 20% of the annual electricity generation of the project electricity system (i.e.  $AEG_{SET-sample-CDM} \geq 0.2 \times AEG_{total}$ ), then use the sample group  $SET_{sample-CDM}$  to calculate the build margin. Ignore steps (e) and (f).

Otherwise:

- (e) Include in the sample group  $SET_{sample-CDM}$  the power units that started to supply electricity to the grid more than 10 years ago until the electricity generation of the new set comprises 20% of the annual electricity generation of the project electricity system (if 20% falls on part of the generation of a unit, the generation of that unit is fully included in the calculation);
- (f) The sample group of power units m used to calculate the build margin is the resulting set



$$(SET_{sample-CDM \rightarrow 10yrs}).$$

It is suggested the set of power units that comprises the larger annual generation should be used.

Considering data availability, CDM EB accepts the following deviation in application of methodology<sup>5</sup>:

- 1) Use of capacity additions during the last several years for estimating the build margin emission factor for grid electricity.
- 2) Use of weights estimated using installed capacity in place of annual electricity generation.

And it is suggested to use the efficiency level of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy.

Therefore for the Proposed Project: First, calculate the share of different power generation technology in recent capacity additions. Second, calculate the weight for capacity additions of each power generation technology. And finally calculate the emission factor using the efficiency level of the best technology commercially available in China.

The build margin emissions factor is the generation-weighted average emission factor (tCO<sub>2</sub>/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:

$EF_{grid,BM,y}$	Build margin CO <sub>2</sub> emission factor in year $y$ (tCO <sub>2</sub> /MWh)
$EG_{m,y}$	Net quantity of electricity generated and delivered to the grid by power unit $m$ in year $y$ (MWh)
$EF_{EL,m,y}$	CO <sub>2</sub> emission factor of power unit $m$ in year $y$ (tCO <sub>2</sub> /MWh)
$m$	Power units included in the build margin
$y$	Most recent historical year for which electricity generation data is available

Due to data availability in China, the CO<sub>2</sub> emission factor of each power unit  $m$  ( $EF_{EL,m,y}$ ) should be determined as per the guidance of options A2 to calculate the simple OM, using for  $y$  the most recent historical year for which power generation data is available, and using for  $m$  the power units included in the build margin.

As the data of installed capacity cannot be separated into coal fired, oil fired and gas fired currently, the build margin emission factor is calculated by the following steps and formulae:

Step a. Calculate the power generation emissions of solid fuel, liquid fuel and gas fuel and each share in the total emissions based on *Energy Balance Table* of the most recent year.

<sup>5</sup>[http://cdm.unfccc.int/UserManagement/FileStorage/AM\\_CLAR\\_QEJWJEF3CFBP1OZAK6V5YXPQKK7WYJ](http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_QEJWJEF3CFBP1OZAK6V5YXPQKK7WYJ).



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

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

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

Where:

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

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

$EF_{CO2,i,j,y}$  is the emission factor of fuel i in year y (tCO<sub>2</sub>e/GJ);

COAL, OIL and GAS are footnote group for solid fuels, liquid fuels and gas fuels.

Step b. Calculate the emission factor for thermal power of the grid based on the result of Step a and the efficiency level of the best technology commercially available in China.

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

$$EF_{Coal,Adv,y} = FC_{adv,coal} \times NCV_{coal,y} \times EF_{CO2,coal,y} \quad (8-a)$$

$$EF_{oil,Adv,y} = FC_{adv,oil} \times NCV_{oil,y} \times EF_{CO2,oil,y} \quad (8-b)$$

$$EF_{gas,Adv,y} = FC_{adv,gas} \times NCV_{gas,y} \times EF_{CO2,gas,y} \quad (8-c)$$

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 fired and gas fired power generation technology commercially available in China.

Step c. Calculate the build margin emission factor of the grid based on the result of Step b and the share of thermal power of recent 20% capacity additions.

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

Where:

$CAP_{Total,y}$  is total capacity additions that are close to and exceed 20% of existing capacity;

$CAP_{Thermal,y}$  is capacity additions of thermal power.

The data on installed capacity for calculating the build margin emission factor ( $EF_{grid,BM,y}$ ) are obtained from *China Electric Power Yearbook 2008/2009/2010*. The data on different fuel consumptions for power generation and the net calorific values of the fuels are obtained from *China Energy Statistical Yearbook 2010*. The emission factors of the fuels employed and carbon oxidation rate are obtained from Table 1.3 and Table 1.4 on page 1.21-1.24 of Chapter 1, Volume 2 of *2006 IPCC Guidelines for National*



*Greenhouse Gas Inventories.* The lower values of the 95% confidence intervals in Table 1.4 are used for the emission factors of the fuels employed.

Referring to *2011 Baseline Emission Factors for Regional Power Grids in China*, the build margin emission factor ( $EF_{grid,BM,y}$ ) of the relevant grid are listed in Table7 below:

**Table7 the build margin emission factors of each grid involved of the PoA**

Power Grid	$EF_{grid,BM,y}$ (tCO <sub>2</sub> /MWh)
North China Power Grid	0.6426
Northeast Power Grid	0.5987
East China Power Grid	0.6622
Central China Power Grid	0.4191
Northwest Power Grid	0.5851
China Southern Power Grid	0.3157

**Step6. Calculate the combined margin (CM) emissions factor**

The calculation of the combined margin (CM) emission factor ( $EF_{grid,CM,y}$ ) is based on one of the following methods:

- (a) Weighted average CM; or
- (b) Simplified CM.

The weighted average CM method (option A) should be used as the preferred option.

The simplified CM method (option b) can only be used if:

- The project activity is located in a Least Developed Country (LDC) or in a country with less than 10 registered projects at the starting date of validation; and
- The data requirements for the application of step 5 above cannot be met.

**(a) Weighted average CM**

The combined margin emission factor is calculated as follows:

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

Where:

$EF_{grid,BM,y}$  Build margin CO<sub>2</sub> emission factor in year y (tCO<sub>2</sub>/MWh)

$EF_{grid,OM,y}$  Operating margin CO<sub>2</sub> emission factor in year y (tCO<sub>2</sub>/MWh)

$w_{OM}$  Weighting of operating margin emissions factor (%)

$w_{BM}$  Weighting of build margin emissions factor (%)



According to the “*Tool to calculate the emission factor for an electricity system*”, the default weights for solar power generation projects are as follows:  $w_{om} = 0.75$  and  $w_{bm} = 0.25$ . Therefore the combined margin emission factors, i.e. the baseline emission factors of each relevant grid are calculated as follows:

**Table8 the combined margin emission factors**

Power Grid	$EF_{grid,CM,y}$ (tCO <sub>2</sub> /MWh)
North China Power Grid	0.895875
Northeast Power Grid	0.963575
East China Power Grid	0.793075
Central China Power Grid	0.877050
Northwest Power Grid	0.896350
China Southern Power Grid	0.790600

### 3) Leakage

According to the methodology ACM0002, the leakage is not considered.

### 4) Estimation of emission reductions:

The emission reduction  $ER_y$  by the project activity during a given year  $y$  is the difference between the baseline emissions ( $BE_y$ ) and project emissions ( $PE_y$ ), as follows:

$$ER_y = BE_y - PE_y$$

Where:

$ER_y$	Emissions reductions of the project activity during the year $y$ (tCO <sub>2</sub> e)
$BE_y$	Baseline emissions during the year $y$ (tCO <sub>2</sub> e)
$PE_y$	Project emissions during the year $y$ (tCO <sub>2</sub> e)

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

<b>Data / Parameter:</b>	$EF_{OM,y}$
Data unit:	tCO <sub>2</sub> e/MWh
Description:	Operating margin emission factor of the grid connected by each CPA
Source of data used:	“2011 <i>Baseline Emission Factors for Regional Power Grids in China</i> ” issued by China’s DNA on October 20, 2011
Value applied:	Depends on the grid connected by each CPA, detailed in Table6 in E.6.2
Justification of the choice of data or description of measurement methods and procedures actually applied :	The data obtained from 2011 <i>Baseline Emission Factors for Regional Power Grids in China</i> made publicly available by China’s DNA are reliable
Any comment:	-





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<b>Data / Parameter:</b>	$EF_{BM,y}$
Data unit:	tCO <sub>2e</sub> /MWh
Description:	Build margin emission factor of the grid connected by each CPA
Source of data used:	“2011 <i>Baseline Emission Factors for Regional Power Grids in China</i> ” issued by China’s DNA on October 20, 2011
Value applied:	Depends on the grid connected by each CPA, detailed in Table7 in E.6.2
Justification of the choice of data or description of measurement methods and procedures actually applied :	The data obtained from “2011 <i>Baseline Emission Factors for Regional Power Grids in China</i> ” made publicly available by China’s DNA are reliable
Any comment:	-

<b>Data / Parameter:</b>	$EF_{grid,CM,y}$
Data unit:	tCO <sub>2</sub> /MWh
Description:	Combined margin CO <sub>2</sub> emission factor for grid connected by each CPA
Source of data used:	“2011 <i>Baseline Emission Factors for Regional Power Grids in China</i> ” issued by China’s DNA
Value applied:	Depends on the grid concerned, detailed in Table8 in E.6.2
Justification of the choice of data or description of measurement methods and procedures actually applied :	The data obtained from “2011 <i>Baseline Emission Factors for Regional Power Grids in China</i> ” made publicly available by China’s DNA are reliable
Any comment:	-.

<b>Data / Parameter:</b>	$EF_{CO_2,i,y}$
Data unit:	kgCO <sub>2</sub> /TJ
Description:	CO <sub>2</sub> emission factor of fossil fuel type <i>i</i> in year <i>y</i>
Source of data used:	2006 IPCC Guidelines for National Greenhouse Gas Inventories
Value applied:	Depends on the grid connected by each CPA
Justification of the choice of data or description of measurement methods and procedures actually applied :	IPCC’s official data, which are reliable
Any comment:	-

<b>Data / Parameter:</b>	$FC_{i,y}/F_{i,j,y}$
Data unit:	mass or volume unit
Description:	Amount of fossil fuel type <i>i</i> consumed by the CPA electricity system in year <i>y</i>
Source of data used:	<i>China Energy Statistical Yearbook 2008/2009/2010</i>
Value applied:	Depends on the grid connected by each CPA
Justification of the	According to the <i>Tool to calculate the emission factor for Electricity system</i>



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choice of data or description of measurement methods and procedures actually applied :	(Version 02.2.1), the proposed PoA uses the national values from “China Energy Statistical Yearbook”, the data selection are reasonable and effective.
Any comment:	-

<b>Data / Parameter:</b>	$NCV_{i,y}$
Data unit:	KJ/ mass or volume unit
Description:	Net calorific value (energy content) of fossil fuel type $i$ in year $y$
Source of data used:	China Energy Statistical Yearbook 2010
Value applied:	Depends on the grid connected by each CPA
Justification of the choice of data or description of measurement methods and procedures actually applied :	According to “Tool to calculate the emission factor for an Electricity system (Version 02.2.1)”, the proposed PoA uses the national values from “China Energy Statistical Yearbook 2010”, the data selection are reasonable and effective.
Any comment:	-

<b>Data / Parameter:</b>	$EG_{m,y} / EG_y$
Data unit:	MWh
Description:	Net electricity generated by power plant/unit $m$ (or in the project electricity system in case of $EG_y$ ) in year $y$
Source of data used:	China Electric Power Yearbook 2008/2009/2010
Value applied:	Depends on the grid connected by each CPA
Justification of the choice of data or description of measurement methods and procedures actually applied :	According to “Tool to calculate the emission factor for an Electricity system (Version 02.2.1)”, the proposed PoA uses the national values from “China Electric Power Yearbook 2008/2009/2010”, the data selection is reasonable and effective.
Any comment:	-

<b>Data / Parameter:</b>	$CAP_{j,y}$
Data unit:	MW
Description:	Installed capacity of source $j$ in year $y$ in the grid the CPA connected to
Source of data used:	China Electric Power Yearbook 2008/2009/2010
Value applied:	Depends on the grid connected by each CPA
Justification of the choice of data or description of measurement methods and procedures actually applied :	According to Tool to calculate the emission factor for an Electricity system (Version 02.2.1), the proposed PoA uses the national values from “China Electric Power Yearbook”, the data selection is reasonable and effective.
Any comment:	-



<b>Data / Parameter:</b>	$EF_{coal,adv,y}$ , $EF_{oil,adv,y}$ and $EF_{gas,adv,y}$
<b>Data unit:</b>	%
<b>Description:</b>	Efficiency level of best technologies commercially available in China
<b>Source of data used:</b>	China's DNA : 2011 Baseline Emission Factors for Regional Power Grids in China
<b>Value applied:</b>	Depends on the grid connected by each CPA
<b>Justification of the choice of data or description of measurement methods and procedures actually applied :</b>	The data obtained from "2011 Baseline Emission Factors for Regional Power Grids in China "made publicly available by China's DNA are reliable.
<b>Any comment:</b>	-

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

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

<b>Data / Parameter:</b>	$EG_{facility,y}$
<b>Data unit:</b>	MWh
<b>Description:</b>	Net quantity of electricity delivered to the grid by a typical CPA in year y
<b>Source of data to be used:</b>	<p>The data is obtained based on the annual utilization hours of a typical CPA determined in the approved FSR and the CPA's actual installed capacity.</p> <p>During the monitoring periods data will be calculated based on the monitored data of <math>EG_{output,y}</math> and <math>EG_{input,y}</math> as per the formula below.</p>
<b>Value of data applied for the purpose of calculating expected emission reductions in section B.5</b>	$EG_{facility,y} = EG_{output,y} - EG_{input,y}$
<b>Description of measurement methods and procedures to be applied:</b>	<p>Calculated based on the data of <math>EG_{output,y}</math> and <math>EG_{input,y}</math> using the formula <math>EG_{facility,y} = EG_{output,y} - EG_{input,y}</math>. <math>EG_{output,y}</math> and <math>EG_{input,y}</math> will be continuously monitored and monthly recorded with the employment of meter(s) installed on site.</p> <p>The meter(s) are calibrated annually and checked for accuracy by a qualified third party in accordance with industry standards and the records shall be kept at least for two years after the end of the last crediting period or two years after the issuance of CERs, whichever is later. The measurement precision of the meters employed by the each CPA will be at least 0.5s.</p>
<b>QA/QC procedures to be applied:</b>	The meter(s) is periodically checked and maintained. And receipt(s) is used for crosscheck.
<b>Any comment:</b>	-



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<b>Data/Parameter:</b>	$EG_{output,y}$
<b>Data unit:</b>	MWh
<b>Description:</b>	Electricity delivered by a typical CPA to the grid in year y
<b>Source of data to be used:</b>	The data is obtained based on the annual utilization hours of a typical CPA determined in the approved FSR and the CPA's actual installed capacity.  Actual data will be obtained through on-site measurement.
<b>Value of data applied for the purpose of calculating expected emission reductions in section B.5</b>	Depends on each CPA
<b>Description of measurement methods and procedures to be applied:</b>	Continuously monitored or calculated by continuous monitoring of relevant meter(s) <sup>6</sup> and at least monthly recorded.  The meters are calibrated annually and checked for accuracy by a qualified third party in accordance with industry standards and the records shall be kept at least for two years after the end of the last crediting period or two years after the issuance of CERs, whichever is later. The measurement precision of the meters employed by a typical CPA will be at least 0.5s.
<b>QA/QC procedures to be applied:</b>	The meter(s) is periodically checked and maintained. And receipt(s) is used for crosscheck
<b>Any comment:</b>	-

<b>Data/Parameter:</b>	$EG_{input,y}$
<b>Data unit:</b>	MWh
<b>Description:</b>	Electricity imported by a typical CPA from the grid in year y
<b>Source of data to be used:</b>	The data used are obtained from the approved FSR of a typical CPA. Actual data will be obtained through on-site measurement with meter(s).
<b>Value of data applied for the purpose of calculating expected emission reductions in Section B.5</b>	Depends on each CPA
<b>Description of measurement methods and procedures to be applied:</b>	Continuously monitored or calculated by continuous monitoring of relevant meters <sup>7</sup> and at least monthly recorded.  The meter(s) are calibrated annually and checked for accuracy by a qualified third party in accordance with industry standards and the records shall be kept at least for two years after the end of the last crediting period or two years after the issuance of CERs, whichever is later. The measurement precision of the meters employed by a typical CPA will be at least 0.5s.

<sup>6</sup>If  $EG_{output,y}$  cannot be monitored directly and relevant meters will be needed to calculate  $EG_{output,y}$ , the parameters table involved shall be added depending on each CPA.

<sup>7</sup>If  $EG_{input,y}$  cannot be monitored directly and relevant meters will be needed to calculate  $EG_{input,y}$ , the parameters table involved shall be added depending on each CPA.



QA/QC procedures to be applied:	The meter(s) is periodically checked and maintained. And receipt(s) is used for crosscheck
Any comment:	-

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

#### Monitoring Plan Objective and Organization

The monitoring system of each CPA showed in figure 5. The project participant, as defined in each CPA will monitor the electricity delivered to the grid. The monitoring data and operation condition of each CPA shall be reported to the CME. The data will be archived electronically and be stored for 2 years after the end of the crediting period of each CPA.

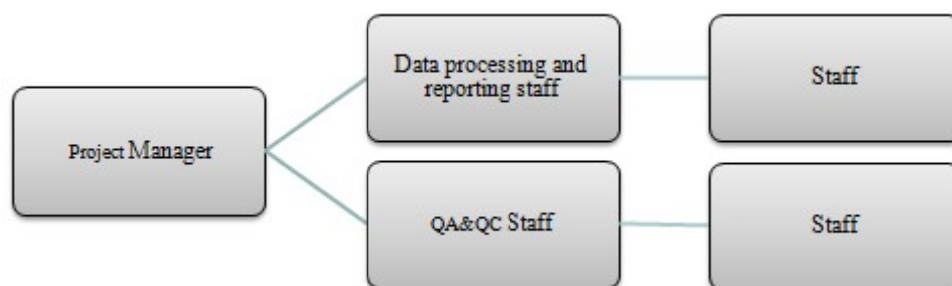


Figure 5. The monitoring system of a CPA

#### Monitoring data

Data to be monitored is the net quantity of electricity delivered to the grid by each CPA in year  $y$ . In different CPAs, the monitoring points and methods may be different according to the real condition of the plant. All CPAs under the proposed PoA shall provide a monitoring point's chart to demonstrate where the meters installed and how to monitor quantity of electricity delivered to the grid, i.e.  $EG_{facility,y}$ .

#### Installation and Maintenance of Meters

The meter(s) of the Project will be equipped in line with *Technical Administrative Code of Electric Energy Metering* (DL/T 448-2000). The measurement precision of the meter(s) employed by the CPA will be at least 0.5s and the meters will be calibrated once a year.

#### Data Management System

- Particular staff will be appointed by the CPA implementer to take the overall responsibility for monitoring emission reductions and keeping all the data collected as part of monitoring archived electronically.
- Electronic data and documents will be regularly copied and archived, and kept at least for two years after the end of the last crediting period or two years after the last issuance of CERs, whichever is later.
- Written data and documents will be copied and archived, and kept for at least two years after the end of the last crediting period or two years after the last issuance of CERs, whichever is later.

#### Quality Assurance and Quality Control Procedure



Particular QC staff will be appointed by the Project Owner to take the overall responsibility of calibrating monitoring equipments, managing and processing the monitored data according to QA/QC procedure provided in Section E.7.1. If something unusual, the Project Manager should be immediately reported.

#### CDM training

All staff involved in the CPA will receive relevant training and ensure that only trained staffs are involved in the operation of the monitoring system.

#### Emergency

In case of emergencies, the CPA operator will not claim emission reductions due to the CPA for the duration of the emergency. The CPA operator will follow the procedure for declaring the emergency period to be over:

- 1) The CPA operator will ensure that all requirements for monitoring of emission reductions have been re-established;
- 2) The chief person who responsible for the plant and the operator will both sign a statement to declare the emergency situation has been ended and normal operation has been resumed;

**E.8. Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies)**

The application of the baseline study and monitoring methodology of the PoA was completed on 21/11/2012.

The name of the responsible person(s)/entity (ies):

Name/origination	Project participant: Yes/No
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**Annex 1**

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

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Annex 2

**INFORMATION REGARDING PUBLIC FUNDING**

No public funding from Parties included in Annex I countries is involved.



**Annex 3**

**BASELINE INFORMATION**

Baseline information has been listed in a separate ER&EF sheet.



**Annex 4**

**MONITORING INFORMATION**

The Monitoring information are listed in E.7.2