



**Component project activity design document form**  
(Version 09.0)

*Complete this form in accordance with the instructions attached at the end of this form.*

**BASIC INFORMATION**

<b>Title of the CPA</b>	CPA No. 1: IFEC Solar PV
<b>Scale of the CPA</b>	<input type="checkbox"/> Large-scale <input checked="" type="checkbox"/> Small-scale
<b>Version number of the CPA-DD</b>	4.1
<b>Completion date of the CPA-DD</b>	17/08/2020
<b>Title and UNFCCC reference number of the registered CDM PoA</b>	PoA 6222 : Small-Scale Renewable Energy PoA
<b>Title and reference number of the corresponding generic CPA</b>	Generic CPA No. 2 Technology Type: Solar photovoltaic power generation (PV)
<b>Coordinating/managing entity</b>	Carbon Coordinating Managing Entity Limited
<b>Host Party</b>	Thailand
<b>Applied methodologies and standardized baselines</b>	AMS-I.D.: Grid connected renewable electricity generation, version 18
<b>Sectoral scopes</b>	Sectoral scope 1: Energy industries (renewable - / non-renewable sources)
<b>Estimated amount of annual average GHG emission reductions</b>	7,661

## SECTION A. Description of component project activity (CPA)

### A.1. Purpose and general description of CPA

The proposed small scale CDM Programme Activity “CPA No. 1: IFEC Solar PV” (hereafter referred to as CPA) entails the installation of two Project Activities<sup>1</sup> based on Technology Type 2 (Solar Photovoltaic) bundled under the same CPA with a total installed capacity of 11 MW. Each Project Activity has an installed electricity generation capacity of 5.5 MW and an individual connection to the grid (subject to individual Power Purchase Agreements (PPA) with the Provincial Electric Authority (PEA) of Thailand). Both Project Activities are located at the same site within Kanchanaburi province in Thailand.

Based on an average daily solar radiation of 4.88 kWh/m<sup>2</sup>/day in the CPA region, the average expected electricity export to the grid is about 6,729 MWh/year per Project Activity (13,458 MWh/year for the entire CPA). The CPA is expected to reduce 7,661 tCO<sub>2</sub>e per annum, which would have been otherwise emitted to the atmosphere by fossil fuel-based power plants connected to the Thai national grid.

The Project Activities under CPA has been implemented in parallel by different legal entities (hereafter referred to as Project Entities) under the same mother company Eastern Printing Public Company Limited (EPCO). These legal entities also represent the companies responsible for implementation and operation of the Solar Photovoltaic (PV) power plants, hence Project Entities<sup>2</sup> and Project Implementers<sup>3</sup> as defined in the PoA DD are the same for each Project Activity. The details for each Project Activity are provided below:

#### **Project Activity No. 1**

Project Entity: JKR Energy Company Limited (JKR)

Project Implementer: same as Project Entity

Technology Type: 2 Solar PV

Installed capacity: 5.5 MW

Project location: BanNongKo Moo 1, Bor Ploy, Kanchanaburi Province, Thailand

#### **Project Activity No. 2**

Project Entity: RPV Energy Company Limited (RPV)

Project Implementer: same as Project Entity

Technology Type: 2 Solar PV

Installed capacity: 5.5 MW

Project location: BanNongKo Moo 1, Bor Ploy, Kanchanaburi Province, Thailand

Carbon Coordinating Managing Entity Limited (hereafter referred to as CCME) is the coordinating/managing entity (CME) of the PoA.

There is no mandatory requirement in Thailand to implement the Project Activities under the CPA. The Project Activities under the CPA are implemented on a voluntary basis, in line with the Eligibility Criteria for inclusion in the PoA (see Section F below).

The CPA contributes to the sustainable development in Thailand as follows:

#### ***Environmental benefits***

By generating electricity through solar power, the Project Activities under the CPA displace fossil fuel based electricity from the Thai national grid. The CPA thereby contributes to the reduction of pollutants such as NO<sub>x</sub>, SO<sub>x</sub> and particles, as well as greenhouse gas (GHG) emissions.

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<sup>1</sup> As defined in the PoA-DD, the generation and supply of renewable energy to the grid is classified into different “Technology Types” and is referred to as “Project Activity”. More than one Project Activity of the same Technology Type can be bundled under one SSC CPA (as long as the CPA remains under the SSC threshold and complies with the eligibility criteria described under Section F). For the sake of clarity, a Project Activity in the context of this PoA-DD shall be defined as a power generation facility with a distinctive connection to the grid. For example, a power generation facility that consists of multiple power generation units that share the same grid connection and are covered under the same Power Purchase Agreement (PPA) shall be regarded as one Project Activity.

<sup>2</sup> A Project Entity is the entity that owns the underlying assets and is ultimately responsible to local authorities for the Project Activity.

<sup>3</sup> A Project Implementer is the entity responsible for implementation/operation of the Project Activity.

*Social benefits*

The Project Activity leads to alleviation of poverty by establishing direct and indirect employment related to the manufacturing of local components, the civil construction of the solar power plants and operation of the same. The infrastructure in and around the project area will also improve due to the presence of the Project Activities.

*Economic benefits*

The CPA leads to significant investments in a rural and underdeveloped region, which would rarely occur in the absence of the Project Activities implemented under the CPA. The Project Activities implemented under the CPA will reduce fossil-fuel imports (improving Thailand's trade balance), support Thailand's transformation to a low carbon economy, expand the reach of Thailand's renewable energy development policy and make better use of Thailand's natural resources. The Project Activities also provide job opportunities and fosters income generation in Thailand related to the construction, operation and maintenance of the solar power plants.

*Technological benefits*

The solar PV based electricity generation systems implemented under the CPA represents a cutting-edge and environmentally safe and sound technology. The Project Activities contribute to technology transfer, the promotion of clean energy technologies and foster the creation of a local renewable energy industry in Thailand.

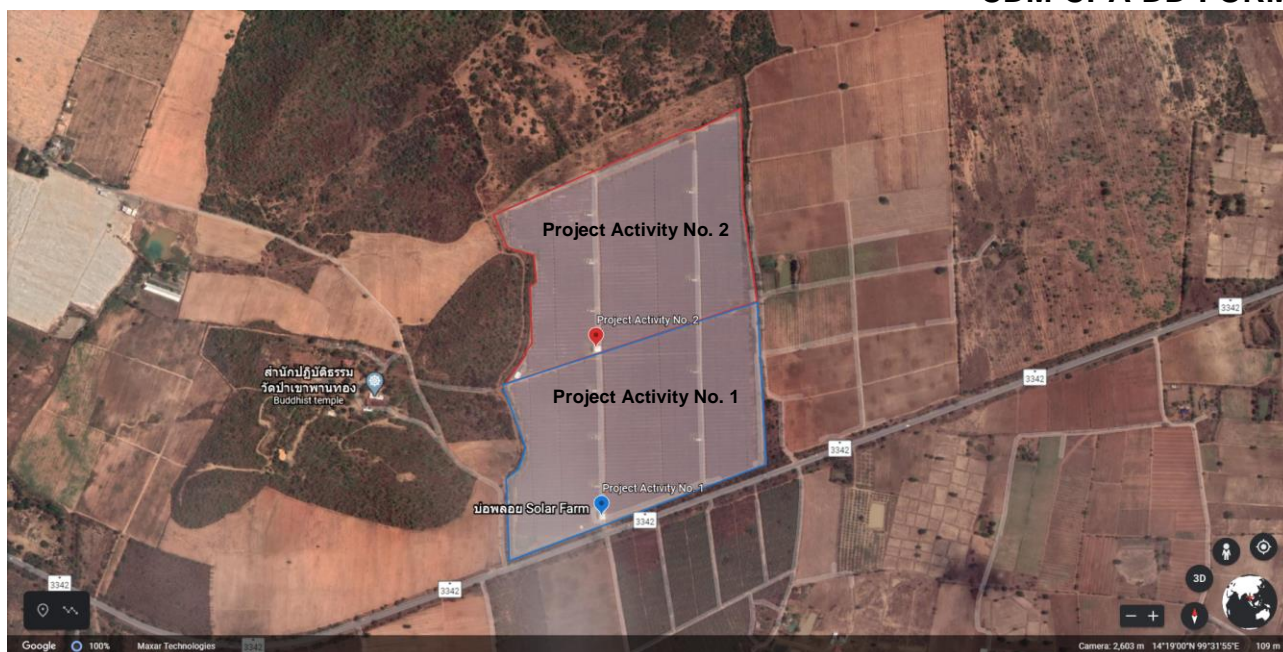
**A.2. Location of CPA**

Following information is used as means of identification of the Project Activities implemented under the CPA:

Project Activity level parameters	Project Activity specific details
<b>Project Activity No. 1</b>	
Serial number of the Project Activity under the CPA <sup>4</sup>	1
Address of the Project Activity	BanNongKo Moo 1
City/town/village	BanNongKo Moo 1
District	Bor Ploy
Province	Kanchanaburi
Country	Thailand (host Party)
Geographic coordinates (latitude/longitude)	14.310498 N / 99.543018 E
<b>Project Activity No. 2</b>	
Serial number of the Project Activity under the CPA <sup>5</sup>	2
Address of the Project Activity	BanNongKo Moo 1
City/town/village	BanNongKo Moo 1
District	Bor Ploy
Province	Kanchanaburi
Country	Thailand (host Party)
Geographic coordinates (latitude/longitude)	14.313632 N / 99.542936 E

<sup>4</sup> One running number starting from 1 for each Project Activity under the CPA (e.g. Project Activity No. 1, Project Activity No. 2, etc.)

<sup>5</sup> One running number starting from 1 for each Project Activity under the CPA (e.g. Project Activity No. 1, Project Activity No. 2, etc.)



**Figure 1** Location of the Project Activities

### A.3. Technologies/measures

Both Project Activities under the CPA apply the same technology and equipment. Each Project Activity consists of 55,000 amorphous silicon (a-Si) thin film modules with a capacity of 100 W each, amounting to a total installed capacity of 5.5 MW and a total solar panel surface area of 84,700 m<sup>2</sup> for each Project Activity under the CPA. Further details about the technology components installed for each Project Activity are provided in the table below.

Item	Description	Manufacturer	Model	Capacity
1	PV module amorphous silicon (a-Si) thin film module	Sungen	SG-HN100-GG	Refer to the following table
2	Inverter	KACO	XP500-HV TL	Input DC: 780 V DC (max) Output AC: 370 V AC (fix)
3	Transformer	Charoenchai Transformer Co., Ltd.	Hermetically Sealed without Gas Cushion	Input DC: 370V (fix) Output AC: 22 kV (fix)
4	Combiners	Cooper Bussman	Not applicable	Not applicable
5	DC Cabinet	PMK	Not applicable	Not applicable
6	HV 24KV switch gear	ABB	Not applicable	Not applicable
7	Controller/Monitoring System	National Instrument	Not applicable	Not applicable
8	Cable MV (AC/DC)	MCI	Not applicable	Not applicable

The capacity and number of the installed PV module for each Project Activity are detailed as follows.

<b>Nominal rated power per module (nameplate capacity)</b>	100	W
<b>Number of modules</b>	55,000	Modules
<b>Total rated power output</b>	5,500,000	W

Both Project Activities are connected to the 22kV PEA distribution line close the project's location, whereas each Project Activity has its own connection point and electricity meter maintained by the PEA (subject to the conditions of the individual PPAs).

**A.4. Coordinating/managing entity**

Carbon Coordinating Managing Entity Limited

**A.5. Parties and CPA implementers**

Parties involved	CPA implementers	Indicate if the Party involved wishes to be considered as CPA implementer (Yes/No)
Thailand	JKR Energy Company Limited	No
Thailand	RPV Energy Company Limited	No

**A.6. Public funding of CPA**

No public funding from foreign countries or Official Development Assistance (ODA) is being used to implement the CPA.

**A.7. History of CPA**

The project participants confirm that:

- (a) The proposed CPA is neither registered as a CDM project activity nor included in another CDM PoA;
- (b) The proposed CPA is not a project activity that has been deregistered.

and declare that:

- (a) The proposed CPA was not a CPA that has been excluded from a registered CDM PoA;
- (b) A registered CDM project activity or a CPA under a registered CDM PoA whose crediting period has or has not expired does not exist in the same geographical location as the proposed CPA.

**A.8. Debundling**

The results of the debundling assessment according to the system/procedure described in the PoA-DD to ensure that the SSC CPA to be included in the PoA is not a debundled component of another CDM Programme Activity or another CDM project activity is summarized based on the standard questions listed below:

- Is there already another activity<sup>6</sup> with the same activity implementer as the proposed small-scale CPA or with a coordinating/managing entity, which also manages a large scale PoA of the same technology/measure?  
☐ Yes ☒ No

*There is no other activity (as per definition above) with the same Project Entity/Project Implementer or under a large scale PoA by the same coordinating/managing entity.*

- Is there already another activity<sup>7</sup> where its boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closest point?  
☐ Yes ☒ No

<sup>6</sup> In this context, an activity may be a (i) registered small-scale CPA of a PoA, (ii) an application to register another small-scale CPA of a PoA or (iii) another registered CDM project activity.

<sup>7</sup> In this context, an activity may be a (i) registered small-scale CPA of a PoA, (ii) an application to register another small-scale CPA of a PoA or (iii) another registered CDM project activity.

*The Project Activities under the CPA are adjacent to each other; however, there is no other activity (as per definition of activity above) within 1 km at the closest point of this proposed CPA.*

### **Conclusion**

The CPA does not satisfy both conditions above and is therefore not deemed to be a debundled component of another CDM Programme Activity or another CDM project activity. Hence, the CPA qualifies to use the simplified modalities and procedures for small-scale CDM project activities.

The Project Entities have provided a declaration to CCME confirming that the Project Activities under the CPA are not a debundled component of large-scale activity. CCME also confirms that the Project Activities under the CPA comply with Tool20 "Assessment of debundling for SSC project activities" (Version 4.0) and the Project Activities are not a debundled component of large-scale project activity.

## **SECTION B. Application of methodologies and standardized baselines**

### **B.1. References to methodologies and standardized baselines**

The following approved baseline methodology will be applied to SSC-CPAs included in the PoA:

Title: AMS-I.D Grid connected renewable electricity generation

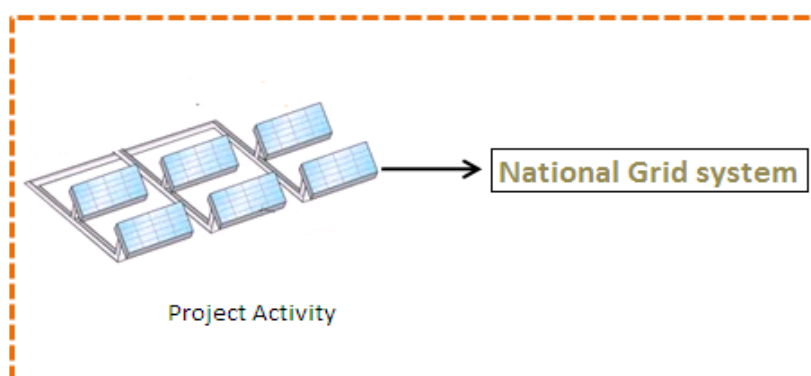
Version: 18, valid from 28 November 2014 onwards

The following methodological tool will be applied to the Project Activity(ies) under Technology Type 2:

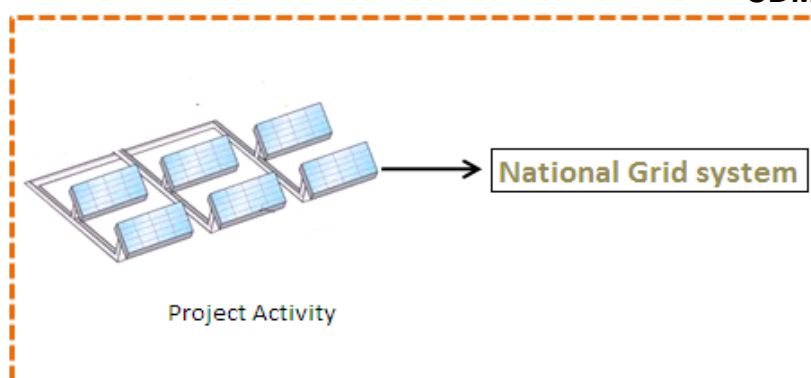
- *Tool to calculate the emission factor for an electricity system, version 07.0*

### **B.2. Project boundary, sources and greenhouse gases (GHGs)**

The project boundary of the Project Activities to be implemented under the CPA is described in the figure below. The project boundary includes the renewable energy generating unit and the power plants connected to the Thai national grid.



**Figure 2** Project Boundary of Project Activity No. 1



**Figure 3** Project Boundary of Project Activity No. 2

A description of the sources and gases included in Technology Type 2: Solar photovoltaic power generation (PV) is given below:

**GHG sources and gases included in baseline emission calculations:**

Source		GHG	Included?	Justification/Explanation
Baseline	Electricity grid	CO <sub>2</sub>	Included	CO <sub>2</sub> emissions from fossil fuel-based electricity generation plants connected to the electricity grid represent the only baseline component as per AMS-I.D and the Tool07 "Tool to calculate the emission factor for an electricity system" (version 07.0).
		CH <sub>4</sub>	Excluded	CH <sub>4</sub> emissions from fossil fuel-based electricity generation plants connected to the electricity grid are excluded for simplification, in line with AMS-I.D. and the Tool07 "Tool to calculate the emission factor for an electricity system" (version 07.0).
		N <sub>2</sub> O	Excluded	N <sub>2</sub> O emissions from fossil fuel-based electricity generation plants connected to the electricity grid are excluded for simplification, in line with AMS-I.D. and the Tool07 "Tool to calculate the emission factor for an electricity system" (version 07.0).

**GHG sources and gases included in project emission calculations:**

The Project Activities implemented under the CPA do not have fossil fuel-based electricity generation components nor do they co-fire fossil fuels. Therefore, as described in the PoA-DD, there are no applicable GHG sources for project emission calculations in this particular CPA based on Technology Type 2: Solar photovoltaic power generation (PV).

### B.3. Establishment and description of baseline scenario

According to AMS-I.D, version 18, paragraph 19, the baseline scenario corresponds to the electricity delivered to the grid by the project activity, which would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.

The baseline emissions are the product of the **electrical energy**  $EG_{PJ,y}$  expressed in MWh and based on the electricity produced by the renewable generating unit multiplied by the **grid emission factor**  $EF_{grid,y}$ , whereas (as per AMS-I.D, version 18, paragraph 22):

- the **electrical energy**  $EG_{PJ,y}$  is based on the monitored amount of net electricity generation that is produced and fed into the grid as a result of the implementation of the Project Activity (in MWh); **AND**
- the **grid emission factor**  $EF_{grid,y}$  is calculated in a transparent and conservative manner as the combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the Tool07 "Tool to calculate the emission factor for an electricity system" (version 07.0)

For more details about methodological assumptions and baseline emission calculations, please refer to section B.4.

## B.4. Estimation of emission reductions

### B.4.1. Explanation of methodological choices

The emission reductions achieved by the proposed PoA are calculated according to the approved methodology AMS-I.D. "Grid connected renewable electricity generation, version 18". Following methodological choices are applicable to CPAs under the PoA:

#### Determination of baseline emissions

The baseline scenario is based on the assumption that electricity delivered to the grid by the Project Activities implemented under the PoA would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources to the grid. Hence, baseline emissions are the product of the net electricity supplied to the grid by the Project Activity multiplied by the grid emission factor.

In line with Paragraph 23 of AMS-I.D., version 18, the following methodological choices shall be applied to all CPAs for calculation of the grid emission factor:

- The emission factor shall be calculated in a transparent and conservative manner based on the CM approach, consisting of the combination of the OM and the BM according to the procedures prescribed in Tool07 "Tool to calculate the emission factor for an electricity system, version 07.0"; **AND**
- Calculation of the grid emission factor shall be based on official data available at the time of the CPA inclusion; **AND**
- The value of the grid emission factor shall be fixed ex-ante for the entire crediting period of the CPA, in line with the ex-ante option provided under Step 3 of Tool07 "Tool to calculate the emission factor for an electricity system, version 07.0".

#### Determination of project emissions

Project emissions for all CPAs applying **Technology Type 2 (Solar photovoltaic power generation)** are considered to be zero. Hence, the only possible project emission source for such CPAs are project emissions from on-site consumption of fossil fuel.

The CPAs do not use any fossil fuels for the electricity generation process, thus the project emissions from on-site consumption of fossil fuel are considered to be zero.

Further details regarding calculation of baseline and project emissions are provided in Section B.4.3 of the CPA-DD.

#### Determination of leakage emissions

Leakage emissions are considered to be zero. There is no use of biomass under the CPA applying Technology Type 2, hence, the determination of leakage emissions as per paragraph 42 of AMS-I.D., version 18 is not applicable.

### B.4.2. Data and parameters fixed ex ante

Data/Parameter	Technology Type applied in the CPA
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Data unit	-
Description	CPA Technology Type definition as per technology descriptions provided in Section A.3 of the PoA-DD.
Source of data	<input checked="" type="checkbox"/> Legally binding contract <sup>8</sup> between the Project Entity and a third party related to the implementation or construction of the Project Activity containing a clear project design description; <b>OR</b> <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; <b>OR</b> <input type="checkbox"/> Feasibility study or technical-commercial proposal by technology provider; <b>OR</b> <input type="checkbox"/> Confirmation by DOE following a site visit (in cases where the Project Activity is already under construction or commissioned at the time of the visit).
Value(s) applied	Technology Type 2: Solar photovoltaic power generation
Choice of data or measurement methods and procedures	The applied technology under the CPA is in line with the Technology Type description provided in Section A.3 of the PoA DD. The applicable Technology Type is confirmed based on information contained in the signed EPC Agreement.
Purpose of data	To check the type of technology
Additional comment	n/a

<b>Data/Parameter</b>	<b>Installed capacity</b>
Data unit	MW
Description	Installed electricity generation capacity of the Project Activity implemented under the CPA
Source of data	<input checked="" type="checkbox"/> Legally binding contract <sup>9</sup> between the Project Entity and a third party related to the implementation or construction of the Project Activity containing information about the total installed capacity of the Project Activity; <b>OR</b> <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; <b>OR</b> <input type="checkbox"/> Confirmation by DOE based on the nameplate capacity of installed electricity generation equipment, following a site visit (in cases where the Project Activity is already under construction or commissioned at the time of the visit).
Value(s) applied	11.0 MW for the Project Activities
Choice of data or measurement methods and procedures	Based on signed EPC Agreement. The total (combined) installed electricity generation capacity of the Project Activities under the CPA is below the SSC threshold of 15 MW.
Purpose of data	To check the installed capacity
Additional comment	n/a

<b>Data/Parameter</b>	<b>EF<sub>grid,y</sub></b>
Data unit	tCO <sub>2</sub> /MWh
Description	Combined margin emission factor of national electricity grid
Source of data	Official data published by the Thai DNA based on data of following years: 2014, 2015 and 2016
Value(s) applied	0.5692
Choice of data or measurement methods and procedures	Calculated according to the "Tool to calculate the emission factor for an electricity system" based on the Thai DNA's grid emission factor calculation, which builds upon official data sources by the Ministry of Energy in Thailand and IPCC factors (see Appendix 4 of the registered PoA-DD for more details).

<sup>8</sup> "Engineering Procurement and Construction" (EPC), "Turnkey" or "Build Own Operate Transfer" (BOOT) are typical examples of such contracts.

<sup>9</sup> "Engineering Procurement and Construction" (EPC), "Turnkey" or "Build Own Operate Transfer" (BOOT) are typical examples of such contracts.

Purpose of data	Calculation of baseline emissions.
Additional comment	The calculation of the grid emission factor is based on official data available at the time of the CPA inclusion and the value of the grid emission factor shall be fixed ex-ante for the entire crediting period of the CPA. More details regarding the calculation of the combined margin factor for different Technology Types are provided in Appendix 4 to the PoA-DD.

### B.4.3. Ex ante calculation of emission reductions

Emission reductions of the CPA are calculated based on the following equations and parameters as following details. The baseline grid emission factor of the Thai national grid is fixed ex-ante under Section B.4.2 and the calculation details can be found in Appendix 4 of the PoA-DD.

The Project Activities under the CPA are expected to export a combined average amount of 13,458,478 kWh/year over their technical lifetime. This value is based on information provided in the Engineering, Procurement and Construction (EPC) agreement for the CPA as summarized in the table below. The information below applies to the combination of both Project Activities at CPA level.

<b>Technology</b>	A-Si Thin Film	-
<b>Model</b>	SG-HN100-GG	-
<b>Nominal rated power per module (nameplate capacity)</b>	100	W
<b>Number of modules</b>	110,000	Modules
<b>Total rated power output</b>	11,000,000	W
<b>Total net energy production per year (average based on guaranteed energy output)</b>	13,458,478	kWh/year

The annual net electricity exports based on the guaranteed energy output provided in the EPC agreement over the second crediting period of the CPA are as follows:

<b>Year</b>	<b>Annual electricity exports (kWh/year)</b>
Year 1	13,788,158
Year 2	13,671,310
Year 3	13,554,461
Year 4	13,452,218
Year 5	13,349,975
Year 6	13,247,733
Year 7	13,145,490
<b>Average</b>	<b>13,458,478</b>

### Calculation of emission reductions

According to Paragraph 43 of AMS-I.D., version 18, emission reductions at CPA level shall be calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \quad (1)$$

Where:

$ER_y$	Emission reductions in year y (tCO <sub>2</sub> /y)
$BE_y$	Baseline emissions in year y (tCO <sub>2</sub> /y)
$PE_y$	Project emissions in year y (tCO <sub>2</sub> /y)
$LE_y$	Leakage emissions in year y (tCO <sub>2</sub> /y)

### Calculation of baseline emissions

Baseline emissions at CPA level shall be calculated as per Paragraph 22 of AMS-I.D., version 18, as product of the electrical energy baseline  $EG_{PJ,y}$  (expressed in MWh of electricity produced by the Project Activity(ies) implemented under the CPA) multiplied by the grid emission factor.

$$BE_y = EG_{PJ,y} \times EF_{grid,y} \quad (2)$$

Where:

$BE_y$  Baseline Emissions in year y (tCO<sub>2</sub>)  
 $EG_{PJ,y}$  Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the Project Activity(ies) under the CPA in year y (MWh)  
 $EF_{grid,y}$  Combined margin CO<sub>2</sub> emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system (tCO<sub>2</sub>/MWh)

The grid emission factor shall be calculated in a transparent and conservative manner based on the CM approach, according to the procedures prescribed in the Tool07 "Tool to calculate the emission factor for an electricity system" (version 7.0). The calculation of the grid emission factor shall be based on official data available at the time of the CPA inclusion and the value of the grid emission factor shall be fixed ex-ante for the entire crediting period of the CPA. The detailed grid emission factor calculation based on data available is provided in Appendix 4 to the PoA-DD.

Hence, annual baseline emissions are calculated by multiplication of the annual quantity of net electricity supplied to the grid (as calculated above) with the grid emission factor. The average annual baseline emissions are calculated as follows:

$$\begin{aligned} BE_y &= EG_{PJ,y} \times EF_{grid,y} \\ &= 13,458.48 \text{ MWh/y} \times 0.5692 \text{ tCO}_2\text{e/MWh} \\ &= 7,661 \text{ tCO}_2\text{e} \end{aligned}$$

#### Calculation of project emissions

As described in Section B.2 of the present CPA-DD, there are no relevant project emissions in the particular case of the proposed CPA.

Hence:

$$PE_y = 0$$

#### Calculation of leakage emissions

There is no use of biomass under the CPA applying Technology Type 2, therefore, the determination of leakage emissions as per paragraph 42 of AMS-I.D., version 18 is not applicable.

Hence:

$$LE_y = 0$$

#### Emission reduction results

Based on the individual components calculated above, the emission reductions at the CPA level are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y = 7,661 - 0 - 0 = 7,661 \text{ tCO}_2\text{e}$$

#### B.4.4. Summary of ex ante estimates of emission reductions

Year	Baseline emissions (t CO <sub>2</sub> e)	Project emissions (t CO <sub>2</sub> e)	Leakage (t CO <sub>2</sub> e)	Emission reductions (t CO <sub>2</sub> e)
Year 1	7,848	0	0	7,848
Year 2	7,782	0	0	7,782

Year 3	7,715	0	0	7,715
Year 4	7,657	0	0	7,657
Year 5	7,599	0	0	7,599
Year 6	7,541	0	0	7,541
Year 7	7,482	0	0	7,482
<b>Total</b>	53,624	0	0	53,624
<b>Total number of crediting years</b>	7			
<b>Annual average over the crediting period</b>	7,661	0	0	7,661

## B.5. Monitoring plan

### B.5.1. Data and parameters to be monitored

Data/Parameter	EG <sub>PJ,y</sub>
Data unit	MWh/y
Description	Quantity of net electricity supplied to the grid in year y
Source of data	On-site measurements (monthly PEA report)
Value(s) applied	6,729 MWh/year from each Project Activity under the CPA (13,458 MWh/year are expected at CPA level)
Measurement methods and procedures	All data collected as part of monitoring shall be archived electronically for a period of two years from the end of the crediting period of the underlying CPA
Monitoring frequency	Continuous measurement, at least monthly reading and recording
QA/QC procedures	Measurement results shall be cross-checked with records for sold/purchased electricity (e.g. invoices/receipts) to/from the grid. Electricity meters should be certified to national or IEC standards and calibrated according to the national standards and reference points or IEC standards and recalibrated at appropriate intervals according to manufacturer specifications, but at least once every three years.
Purpose of data	Calculation of baseline emissions
Additional comment	

Data/Parameter	Installed capacity after implementation of the Project Activity
Data unit	MW
Description	Installed electricity generation capacity of the Project Activity implemented under the CPA throughout the crediting period
Source of data	Verification of name plate information by DOE during site visits for verification of CERs from the underlying CPA
Value(s) applied	11.0 MW for the Project Activities
Measurement methods and procedures	As per technical specification of the installed equipment (or to be installed), it shall be confirmed that the total installed electricity generation capacity of the Project Activity is less than or equal to 15 MW. In cases of bundled Project Activities under one CPA, the combined installed capacity of the entire bundle shall also be less than or equal to 15 MW.  In cases where the Project Activity applies the Additionality Approach 1 based on Tool19 "Demonstration of additionality of microscale project activities", it shall be confirmed that the installed capacity of the Project Activity is not expanded beyond 5 MW.
Monitoring frequency	Periodic check of installed capacity at each monitoring and verification cycle of the CPA

QA/QC procedures	n/a
Purpose of data	n/a
Additional comment	n/a

### **B.5.2. Sampling plan**

There is no sampling plan applied for the CPA.

### **B.5.3. Other elements of monitoring plan**

#### **1. Monitoring Plan Objective and Organization**

The objective of the monitoring plan is to ensure the complete, consistent, clear, and accurate monitoring and calculation of the emission reductions during the whole crediting period. The project owner is mainly responsible for the implementation of the monitoring plan.

A chief monitoring officer will be appointed by the project developer, who supervises and certifies metering and recording, collects data (meter data readings, sale/billing receipts), calculates emission reductions and prepares a monitoring report with a support from CCME.

#### **2. Monitoring Data and archiving**

According to the regulation regarding the selling of electricity to the national grid, electricity meter with national accuracy standard that belongs to the government will also be installed. Moreover, the calibration schedule will be done as per a normal procedure equally applied in the kingdom. The operators will be responsible for the execution of the monitoring plan while the plant manager will take care of approval. At the end of the month, the power distributor, together with the plant manager, will take the meter readings for the transparency and accuracy of the monitoring data.

The power distributor is responsible for operation of the measuring equipment and guarantees that it is in good operation. Any adjustment made to the meter is prohibited by law. The data is presented electronically and recorded manually on a daily basis with monthly aggregation.

#### **3. Quality Assurance and Quality Control**

The verification of electricity meter is periodically carried out by the power distributor according to the national standard.

The project owner will properly store and keep the spreadsheets, joint records, as well as the invoice amount of selling electricity on a monthly basis for a period of 2 years following the end of the crediting period.

## **SECTION C. Start date, crediting period type and duration**

### **C.1. Start date of CPA**

The start date of the CPA is 06/02/2012 (date of signed Engineering, Procurement and Construction Agreement (EPC)).

### **C.2. Expected operational lifetime of CPA**

The expected operational lifetime of both Project Activities under the CPA is 25 years.

**C.3. Crediting period of CPA****C.3.1. Type of crediting period**

Renewable crediting period

**C.3.2. Start date of crediting period**

01/07/2019 – Second crediting period

**C.3.3. Duration of crediting period**

The length of the crediting period for the CPA is 7 years.

**SECTION D. Environmental impacts****D.1. Analysis of environmental impacts**

The complete Initial Environmental Evaluation (IEE) report can be provided to the Designated Operational Entity upon request. The IEE report, conducted at CPA level for both Project Activities together, concluded that the Project Activity represents a clear improvement with regards to environmental impacts as compared to the baseline scenario of mainly fossil fuel-based grid-connected power plants.

**Air quality**

Since there is no combustion unit whatsoever in the Project Activities under the proposed CPA, there are therefore no on-site emission sources of air pollutants such as PM-10, NO<sub>x</sub>, SO<sub>x</sub>. In this regard, the Project Activities perform much better than business-as-usual fossil fuel-based technologies applied for electricity generation in Thailand.

**Effluent quality**

The Project Activities under the proposed CPA do not generate any liquid or solid wastes during their operational phase. As such, the Project Activities perform much better than business-as-usual fossil-fuel-based technologies connected to the electricity grid in Thailand.

**Noise**

As per Thai DNA requirements, noise generated by the Project Activities should be kept within 70 dBA for average noise levels and 115 dBA for maximum noise levels. The Project Activities under the CPA are not expected to generate any significant noise levels, which is also a clear improvement in comparison to business-as-usual fossil fuel-based technologies.

Furthermore, given the nature and location of the proposed Project Activities under the CPA, these projects are not expected to result in any transboundary impact affecting a neighboring country of Thailand.

**D.2. Environmental impact assessment**

The Project Activities under the proposed CPA do not require an Environmental Impact Assessment (EIA). However, Thailand's DNA guidelines for small-scale CDM projects require project participants to conduct an IEE.

**SECTION E. Local stakeholder consultation****E.1. Modalities for local stakeholder consultation*****Invitation procedure***

**CDM-CPA-DD-FORM**

Two initial stakeholder consultations have been conducted by the Project Entities according to Thai regulations. The invitation letters were handed to local stakeholders living in the vicinity of the Project Activities as well as local authorities and independent organizations. Two public hearings, which were conducted in Thai and focused on a set of topics related to environmental and socio-economic aspects, took place on 6 November 2010 at the Bor Ploy district community hall, and on 17 November 2010 at the Bor Ploy district authority meeting room.

For the first public hearing, following 70 attendants were present during the meeting:

<b>Name</b>	<b>Position</b>
Somnuk Serbinn	Head of village
Anukul Polkwan	Local stakeholder
Kanueng Serbinn	Local stakeholder
Kaemthong Thongyom	Local stakeholder
Jaran Kongdee	Local stakeholder
Supit Serbinn	Local stakeholder
Kunton Rungsawang	Local stakeholder
Patipan Jaroensook	IFEC
Sangchai Rattanachothipat	IFEC
Suchai Pinnarat	IFEC
Phichet Ruesontorn	IFEC
Nippon Jetsiri	IFEC
Kimpen Prankeaw	Local stakeholder
Manop Serbinn	Local stakeholder
Yunfaa Onwong	Local stakeholder
Wien Kusew	Local stakeholder
Chaiyod Phothong	Local stakeholder
Wut Khumdee	Local stakeholder
Siriporn Onwong	Local stakeholder
Lamod Kusolma	Local stakeholder
Chalom Sarasasin	Local stakeholder
Thummee Sornprab	Local stakeholder
Wieng Pamornpon	Local stakeholder
Arom Chaiya	Local stakeholder
Monta Pankeaw	Local stakeholder
Phool Wongchangyen	Local stakeholder
Nopporn Pankeaw	Local stakeholder
Sompong Serbda	Local stakeholder
Narongwet Parnkeaw	Local stakeholder
Karm Roonrorb	Local stakeholder
Waa Cheudee	Local stakeholder
Bootsakorn Dumparn	Local stakeholder
Sor Saejun	Local stakeholder
Sumruey Meunchang	Local stakeholder
Amphai Serbinn	Local stakeholder
Nitchaphat Serbinn	Local stakeholder
Pornpen Parnkeaw	Local stakeholder
Suthee Parnkeaw	Local stakeholder
Sew Pongkun	Local stakeholder
Somboon Kumpan	Local NGO representative
Sombat Pongkun	Local stakeholder
Moo Chienginn	Local stakeholder
Samarn Meuangsoon	Local stakeholder
Namyen Pongkun	Local stakeholder
Sayan Ruksu	Local stakeholder
Dueungdee Sudla	Local stakeholder
Namoy Sarasarin	Local stakeholder
Wow Chaugdee	Local stakeholder
Amnat Wongsuwisarnsil	Local stakeholder
Supin Parnkeaw	Local stakeholder
Amnuey Wongsuwisarnsil	Local stakeholder

Name	Position
Pen Phutaraksa	Local stakeholder
Od Ewjeam	Local stakeholder
Sanan Kawthet	Local stakeholder
Sathit Kawthet	Local stakeholder
Thawat Buathong	Local stakeholder
Renu Kengjaidee	Local stakeholder
Kij Tayasan	Local stakeholder
Wichai Shukunhorm	Local stakeholder
Banternng Lawa	Local stakeholder
Chumnan Serbinn	Local stakeholder
Saman Phupho	Local stakeholder
Panan Kusew	Local stakeholder
Sanong Wisedsing	Local authority (Chief Executive of the Provincial Administrative Organization)
Subin Janbut	Local stakeholder
Teau Sumtub	Local stakeholder
Pairoj Kuseu	Local stakeholder
Narong Keawtamthong	Local stakeholder
Chamaiporn Sumneangwan	Local stakeholder
Nutpitya Wikrityotin	Local stakeholder

For the second public hearing, the following 47 attendants were present during the meeting:

Name	Position
Choosuk Kunakornpraphan	Local authority (chief of district authority)
Jaroon permpoonsubsin	Local authority (vice chief of district authority)
Snong Visedsing	Local authority
Peddej Chertong	Local authority
Suwit Keawngamwong	Local authority
Wirutch Phuckkhum	Local stakeholder
Sukchai Ardharn	Local stakeholder
Boonlerd Panpuong	Local stakeholder
Pathom Lawa	Local stakeholder
Kunthon Roongswang	Local stakeholder
Pisanoo Sripetde	Local stakeholder
Kumron Nernhom	Local stakeholder
Tanongsak Buasorn	Local stakeholder
Pramod Kingtuplung	Local stakeholder
Ruthapong Rojpuang	Local stakeholder
Orapin Glenkong	Local stakeholder
Suthat Sapachai	Local stakeholder
Boonchai Horchaem	Local stakeholder
Seksan jongwatanapaisarn	Local stakeholder
Wacharin Siripaiboon	Local stakeholder
Jaroon Kongde	Local stakeholder
Supit Subin	Local stakeholder
Manusanan Angkunpanoowit	Local stakeholder
Thanakorn Kongna	Local stakeholder
Suparb Roorawang	Local stakeholder
Kongkiret Kanjanasomasak	Local stakeholder
Daowsawan Kanjanasingto	Local stakeholder
Surapon Kasemwiranon	Local stakeholder
Kanokwan Pornapacharoen	Local budget planning head officer
Suwalai Cherngam	Local policy planner
Kowit Muenauum	Civil technician
Nutsika Saridi	Local stakeholder
Monkawee Lengpa	Local NGO representative
Hatairat Jukratok	Representative from academia (education)
Arirat Thamai	Representative from academia (economics)

Name	Position
Napaporn Saranapiboon	Local stakeholder
Sarinya Pothibron	Local stakeholder
Kingdow Saeheng	Local stakeholder
Chalerm Sri Amornsiripong	Local stakeholder
Supisara Boonnim	Local NGO representative
Catareya Samarnsoph	Local stakeholder
Tosaphon Tekeau	Local stakeholder
Supoon Wisedsing	Local stakeholder
Sasithon Kunchorn	Local stakeholder
Nutawut Wisedsing	Local stakeholder

The proposed Project Activities were presented during the public hearings followed by a question and answers session on general questions as well as specific environmental and socio-economic aspects. Attendants were invited to express their views on the proposed Project Activities orally and in writing (through a questionnaire) during the meeting.

## E.2. Summary of comments received

In the first meeting, the overall response to the project was positive as most participants agreed with the proposed Project Activities. Questions were openly invited, and the participants were active in giving their comments and asking questions, which were of a more general nature and resulted in the action items summarized in Section E.3 below.

In the second meeting, the present stakeholders during the consultation meeting did not raise any objections to the proposed Project Activities. General support to the Project Activities by local stakeholders was evident during the meeting.

## E.3. Consideration of comments received

As a result of the stakeholder consultation process, the Project Entities will support the community as follows:

1. Set up a fund for sports activities and develop a learning center within the project area.
2. Support the reforestation in the area surrounding the project.
3. Create job opportunity during the operation of the power plants as well as support tourism, which will generate additional income for the community.
4. Support religious activities in the community.

As no major concerns in relation to the construction or implementation of the Project Activities were raised during the stakeholder consultation process, it was neither necessary to make any changes to the project design nor incorporate any additional measures to limit or avoid negative environmental or socio-economic impacts.

It is evident from the stakeholder consultation process, that the proposed Project Activities are perceived as a positive example in Thailand, that contribute to sustainable development in the region.

## SECTION F. Eligibility for inclusion

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion	Description of this CPA in relation to the criterion and supporting evidence
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No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion	Description of this CPA in relation to the criterion and supporting evidence
1	The Project Activity is a voluntary initiative and not implemented due to mandatory policies or regulations.	In Thailand, there is no mandatory requirement to generate electricity from renewable energy sources and the Project Activity is carried out as a voluntary initiative, which is also confirmed in the declaration provided by the Project Entity to CME.	Declaration by Project Entity to CME regarding voluntary initiative.	As described under Section A.1, there is no mandatory requirement in Thailand to implement the Project Activities. The declaration by Project Entities to CME regarding a voluntary initiative are provided as evidence. Thus, the Project Activities are eligible for inclusion under the PoA
2	The Project Activity falls under one of the following Project Types: 1. Wind power 2. Solar photovoltaic power generation 3. Concentrated solar power 4. Run-of-the-River hydropower 5. Renewable biomass based power generation 6. Biogas based power generation	The Project Activity falls under Technology Type 2: Solar photovoltaic power generation (PV), which is also confirmed by CME based on the Technology Type descriptions provided in Section A.3 of the PoA-DD.	All of the following: X Confirmation by CME regarding eligibility of the technology type applied in a Project Activity;  <b>AND</b> any of the following: X Legally binding contract <sup>10</sup> between the Project Entity and a third party related to the implementation or construction of the Project Activity containing a clear project design description; <b>OR</b> <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; <b>OR</b> <input type="checkbox"/> Feasibility study or technical-commercial proposal by technology provider; <b>OR</b> <input type="checkbox"/> Confirmation by DOE following a site visit (in cases where the Project Activity is already under construction or commissioned at the time of the visit)	As described in Section A.1 and A.3 of the CPA-DD, the CPA entails application of solar PV technology, which consists of two Project Activities with an installed capacity of 5.5 MW of each Project Activity. The total combined electricity generation capacity of all Project Activities under the CPA is 11.0 MW.  The supporting evidence is confirmation by CME and the signed Engineering, Procurement and Construction Agreement dated 06/02/2012, which is a legally binding contract <sup>11</sup> between the Project Entity and a third party related to the construction of the Project Activity containing information about the total installed capacity of the Project Activity.  Thus, the Project Activities are eligible for inclusion under the PoA.

<sup>10</sup> "Engineering Procurement and Construction" (EPC), "Turnkey" or "Build Own Operate Transfer" (BOOT) are typical examples of such contracts.

<sup>11</sup> "Engineering Procurement and Construction" (EPC), "Turnkey" or "Build Own Operate Transfer" (BOOT) are typical examples of such contracts.

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion	Description of this CPA in relation to the criterion and supporting evidence
3	The installed electricity generation capacity of the Project Activity is less than or equal to 15 MW. In case of multiple Project Activities under one CPA, the combined installed capacity of all Project Activities under the CPA is less than or equal to 15 MW.	The CPA consists of two Project Activities with an installed capacity of 5.5 MW of each Project Activity under the CPA. The total electricity generation capacity of all Project Activities under the CPA is 11.0 MW. Both the individual Project Activities as well as the CPA as a whole are below the 15 MW threshold.	X Legally binding contract <sup>12</sup> between the Project Entity and a third party related to the implementation or construction of the Project Activity containing information about the total installed capacity of the Project Activity; <b>OR</b> <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; <b>OR</b> <input type="checkbox"/> Confirmation by DOE based on the nameplate capacity of installed electricity generation equipment, following a site visit (in cases where the Project Activity is already under construction or commissioned at the time of the visit)	As described in Section A.1 and A.3 of the CPA-DD, the CPA consists of two Project Activities with an installed capacity of 5.5 MW of each Project Activity. The total combined electricity generation capacity of all Project Activities under the CPA is 11.0 MW.  The supporting evidence is the signed Engineering, Procurement and Construction Agreement dated 06/02/2012, which is a legally binding contract <sup>13</sup> between the Project Entity and a third party related to the construction of the Project Activity containing information about the total installed capacity of the Project Activity.  Thus, the Project Activities are eligible for inclusion under the PoA.

<sup>12</sup> "Engineering Procurement and Construction" (EPC), "Turnkey" or "Build Own Operate Transfer" (BOOT) are typical examples of such contracts.

<sup>13</sup> "Engineering Procurement and Construction" (EPC), "Turnkey" or "Build Own Operate Transfer" (BOOT) are typical examples of such contracts.

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion	Description of this CPA in relation to the criterion and supporting evidence
	<p>Criterion 3.a: Additional requirements for Project Activities with both renewable and non-renewable components (e.g. a wind/diesel unit):</p> <p>If the Project Activity has both renewable and non-renewable components, the eligibility limit of 15 MW shall apply only to the renewable component (in line with AMS-I.D., version 18, paragraph 6).</p>	<p>The Project Activity does not have non-renewable components.</p>	<p>X Declaration by Project Entity to CME regarding availability of non-renewable components within the Project Boundary; <b>AND</b></p> <p>Any of the following:  X Legally binding contract<sup>14</sup> between the Project Entity and a third party related to the implementation or construction of the Project Activity containing information about the total installed capacity of the Project Activity's renewable energy component; <b>OR</b>  <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; <b>OR</b>  <input type="checkbox"/> Confirmation by DOE based on the nameplate capacity of installed electricity generation equipment, following a site visit (in cases where the Project Activity is already under construction or commissioned at the time of the site visit)</p>	<p>Please refer the description under Eligibility Criteria No. 3.</p>

<sup>14</sup> "Engineering Procurement and Construction" (EPC), "Turnkey" or "Build Own Operate Transfer" (BOOT) are typical examples of such contracts.

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion	Description of this CPA in relation to the criterion and supporting evidence
	<p>Criterion 3.b: Additional requirement for Project Activities that co-fire fossil fuel<sup>15</sup>:</p> <p>If the Project Activity entails co-firing of fossil fuel(s), the capacity of the entire unit shall not exceed the limit of 15 MW (in line with AMS-I.D., version 18, paragraph 6).</p>	The project does not co-fire fossil fuels.	<p>X Declaration by Project Entity to CME whether Project Activity envisages to co-fire fossil fuels; <b>AND</b></p> <p>Any of the following:  X Legally binding contract<sup>16</sup> between the Project Entity and a third party related to the implementation or construction of the Project Activity containing information about the total installed capacity of the Project Activity (including co-firing capacity); <b>OR</b>  <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; <b>OR</b>  <input type="checkbox"/> Confirmation by DOE based on the nameplate capacity of installed electricity generation equipment, following a site visit (in cases where the Project Activity is already under construction or commissioned at the time of the site visit)</p>	Please refer the description under Eligibility Criteria No. 3.
4	The Project Activity is a grid-connected facility supplying electricity to the Thai national grid under Thailand's feed-in tariff/adder policy for Very Small Power Producers (VSPPs).	The Project Activity will supply electricity to the Thai national grid under the VSPP scheme.	<p>X Single-line diagram of the Project Activity provided by Project Entity to CME; <b>AND</b></p> <p>X Signed PPA between the Project Entity and the Distribution Utility confirming that the Project Activity falls under the VSPP scheme.</p>	<p>The Project Activities generate and supply electricity to the national grid as described under Section A.1 of the CPA-DD.</p> <p>The supporting evidence is the signed PPA between Project Entities and the Provincial Electricity Authority (PEA) dated 07/09/2009 and single line diagram of the Project Entities.</p> <p>Thus, the Project Activities are eligible for inclusion under the PoA.</p>

<sup>15</sup> A co-fired system uses both fossil and renewable fuels, for example the simultaneous combustion of both biomass residues and fossil fuels in a single boiler. Fossil fuel may be used during a period of time when the biomass is not available and due justifications are provided.

<sup>16</sup> "Engineering Procurement and Construction" (EPC), "Turnkey" or "Build Own Operate Transfer" (BOOT) are typical examples of such contracts.

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion	Description of this CPA in relation to the criterion and supporting evidence
5	The Project Activity is implemented under a Greenfield scenario (in line with AMS-I.D., version 18, paragraph 4).	There is no existing renewable power generation unit at the project site prior to the start of the Project Activity. Hence, the project is considered as a "Greenfield project".	X Declaration by Project Entity to CME confirming that the Project Activity is a Greenfield plant; <b>AND</b>  <b>Option 1:</b> For Project Activities that have not started construction by the time of the CPA inclusion:  X Confirmation by DOE following a site visit.	The implementation of the Project Activities under Greenfield scenario was confirmed during DOE site visit for validation for inclusion. The declaration by the Project Entities to CME confirming that the Project Activity is a Greenfield plant are available as evidence.  Thus, the Project Activities are eligible for inclusion under the PoA.
6	The Project Activity is not a combined heat and power (co-generation <sup>17</sup> ) project (in line with AMS-I.D., version 18, paragraph 7).	The Project Activity is not a combined heat and power (co-generation) project.	X Legally binding contract <sup>18</sup> between the Project Entity and a third party related to the implementation or construction of the Project Activity containing a clear project design description; <b>OR</b> <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; <b>OR</b> X Signed PPA <sup>19</sup>	Please refer the description under Eligibility Criteria No. 2 and 3.
7	The proposed Project Activity meets the <i>Assessment of debundling for small-scale project activities, version 04.0.</i>	Confirmation that the Project Activity complies with the <i>Assessment of debundling for small-scale project activities, version 04.0.</i>	X Confirmation by CME on debundling check as per <i>Assessment of debundling for small-scale project activities, version 04.0.</i> ; <b>AND</b> X Declaration by Project Entity that the Project Activity is not a debundled component of a large-scale activity.	As demonstrated under section A.8 of the CPA-DD, the Project Activities comply with the Tool20 "Assessment of debundling for SSC project activities" (version 4.0).  Thus, the Project Activities are eligible for inclusion under the PoA.

<sup>17</sup> Defined as the simultaneous generation of thermal energy and electrical energy in one process.

<sup>18</sup> "Engineering Procurement and Construction" (EPC), "Turnkey" or "Build Own Operate Transfer" (BOOT) are typical examples of such contracts.

<sup>19</sup> There are different PPA regulations and contracts for VSPP electricity and cogeneration projects in Thailand. Hence, it is evident from the PPA whether the Project Activity is just an electricity generation or a cogeneration project. Along with some basic information about fuel usage in the generic PPA application form, project proponents have to also provide additional documents to PEA/MEA, which allow for a clear distinction of electricity and co-generation projects (based on the PPA application documents).

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion	Description of this CPA in relation to the criterion and supporting evidence
8	The Project Activity's boundary is within the geographical territory of Thailand.	Both the Project Activities' location is at Kanchanaburi province in Thailand.	<p>X Declaration by Project Entity to CME confirming that the boundary of the Project Activity is within the geographical boundaries of Thailand, including geographic coordinates (latitude and longitude), name and address of the Project Entity as well as the address of the Project Activity;</p> <p><b>AND</b> any of the following:  X Signed PPA; <b>OR</b>  X Confirmation by DOE following a site visit (in cases where the Project Activity is already under construction or commissioned at the time of the visit).</p>	<p>As described in Section A.2 of the CPA-DD, the Project Activities' location is at Kanchanaburi province in Thailand.</p> <p>Thus, the Project Activities are eligible for inclusion under the PoA.</p>

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion	Description of this CPA in relation to the criterion and supporting evidence
9	<p>The additionality for each Project Activity is demonstrated by any one of the following approaches:</p> <p><b>Approach 1:</b> Demonstration of additionality of microscale project activities, version 12.0; <b>OR</b></p> <p><b>Approach 2:</b> As per “<i>Demonstration of additionality of small-scale project activities</i>”, version 12.0, paragraph 10, additionality is demonstrated based on the investment barrier analysis.</p> <p>In case of bundled Project Activities within one CPA, additionality assessment using Approach 2 might be carried out at CPA level or at Project Activity level depending on how the underlying investment was structured.<sup>20</sup> <b>OR</b></p> <p><b>Approach 3:</b> As per “<i>Demonstration of additionality of small-scale project activities</i>”, version 12.0, paragraph 11, Project Activities based on solar technologies (i.e. Technology Type 2 and 3) and off-shore wind technology (as defined under Section A.3 of the PoA-DD) with an installed capacity of up to 15 MW (subject to compliance with Eligibility Criteria No. 3) are automatically defined as additional.</p>	<p>The Approach 3 is applied for the Project Activities applying the Technology Type 2.</p>	<p><b>Approach 3:</b> All of the following: X Confirmation by CME regarding eligibility of the technology type applied in a Project Activity;</p> <p><b>AND</b> any of the following: X Legally binding contract<sup>21</sup> between the Project Entity and a third party related to the implementation or construction of the Project Activity containing information about the applied technology type and the total installed capacity of the Project Activity; <b>OR</b> <input type="checkbox"/> Purchase order(s) of the Project Activity’s equipment/technology; <b>OR</b> <input type="checkbox"/> Confirmation by DOE following a site visit (in cases where the Project Activity is already under construction or commissioned at the time of the visit).</p>	<p>Given the applied Technology Type under the CPA, Approach 3 is used for demonstration of additionality at CPA level.</p> <p>As confirmed under Eligibility Criteria No. 3, the total combined electricity generation capacity of all Project Activities under the CPA is 11.0 MW. Hence, both the individual Project Activities as well as the CPA as a whole are below the 15 MW threshold.</p> <p>Furthermore, as confirmed under Eligibility Criteria No. 2, the Project Activities under the CPA fall under Project Type 2 (Solar photovoltaic power generation).</p> <p>Therefore, as per Demonstration of additionality of small-scale project activities, version 12.0, paragraph 11, the CPA complies with the positive list of grid-connected renewable electricity generation technologies that are automatically defined as additional.</p>

<sup>20</sup> In cases where a bundle of small units is considered as a single investment by an investor, the investment analysis shall be conducted at CPA level. In cases where different Project Activities bundled under one CPA were not conceived as a single investment (e.g. subject to different conditions, timing, etc.) the investment analysis shall be conducted individually for each Project Activity under the bundle.

<sup>21</sup> “Engineering Procurement and Construction” (EPC), “Turnkey” or “Build Own Operate Transfer” (BOOT) are typical examples of such contracts.

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion	Description of this CPA in relation to the criterion and supporting evidence
10	The proposed Project Activity does not lead to double counting of emission reductions.	<p>The Project Activity does not and will not lead to double counting of emission reductions since it does not and will not claim emission reductions as:</p> <p>1. Standalone CDM project activity; <b>OR</b>  2. Part of a bundled CDM project activity; <b>OR</b>  3. Another registered CDM PoA; <b>OR</b>  4. Project activity under another emission reduction crediting scheme (e.g. voluntary carbon markets) during the same crediting period.</p>	<p>X Declaration by Project Entity to CME that the Project Activity does not and will not lead to double counting of emission reductions; <b>AND</b>  X Contract assigning the right to claim and manage emission reduction certificates related to the Project Activity from the Project Entity to the CME; <b>AND</b>  X Declaration by CME that the Project Activity does not and will not lead to double counting of emission reductions.</p>	<p>It is confirmed by the supporting evidence listed for inclusion that the Project Activities do not lead to double counting of emission reductions.</p> <p>Thus, the Project Activities are eligible for inclusion under the PoA.</p>
11	The starting date of the Project Activity is not before the date of commencement of validation of the PoA, i.e. the date on which the POA-DD is first published for global stakeholder consultation (in line with the "Glossary of CDM Terms", version 10).	The Project Activity start date is 06/02/2012, which is after the date of commencement of validation of the PoA.	<p>X Legally binding contract<sup>22</sup> between the Project Entity and a third party with a commitment by the Project Entity to expenditures<sup>23</sup> related to the implementation or construction of the Project Activity; <b>OR</b>  <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/ technology; <b>OR</b>  <input type="checkbox"/> Any other significant<sup>24</sup> purchase order, contract or payment evidence related to the construction of the Project Activity; <b>OR</b>  X Confirmation by DOE following a site visit that construction has not started before the date of commencement of the PoA validation (in case of early stage Project Activities)</p>	<p>As described in Section C.1 of the CPA-DD, the start date of the Project Activities is 06/02/2012 in line with the supporting evidence as signed Engineering, Procurement and Construction Agreement dated 06/02/2012 and the confirmation by DOE during the site visit for validation for inclusion (refer to approved Validation Report date 04/05/2012).</p> <p>Thus, the Project Activities are eligible for inclusion under the PoA.</p>

<sup>22</sup> "Engineering Procurement and Construction" (EPC), "Turnkey" or "Build Own Operate Transfer" (BOOT) are typical examples of such contracts.

<sup>23</sup> Expenditures related to minor pre-project expenses, e.g. the contracting of services /payment of fees for feasibility studies or preliminary surveys, are not applicable in the context of this Eligibility Criterion as they do not necessarily indicate the commencement of implementation of the Project Activity.

<sup>24</sup> Minor pre-project expenses, e.g. the contracting of services /payment of fees for feasibility studies or preliminary surveys, shall not be considered as significant.

## Appendix 1. Contact information of CPA implementers

### Project Activity No. 1:

<b>Organization name</b>	JKR Energy Company Limited (JKR)
<b>Country</b>	Thailand
<b>Address</b>	51/29, 51/61 Soi Wiphawadee Rangsit 66 (Siamsamakee), Laksi, Bangkok
<b>Telephone</b>	+ 66 2 551 0541
<b>Fax</b>	+ 66 2 551 0529
<b>E-mail</b>	-
<b>Website</b>	-
<b>Contact person</b>	Mr. Sukit Lertassawarat

### Project Activity No. 2:

<b>Organization name</b>	RPV Energy Company Limited (RPV)
<b>Country</b>	Thailand
<b>Address</b>	51/29, 51/61 Soi Wiphawadee Rangsit 66 (Siamsamakee), Laksi, Bangkok
<b>Telephone</b>	+ 66 2 551 0541
<b>Fax</b>	+ 66 2 551 0529
<b>E-mail</b>	-
<b>Website</b>	-
<b>Contact person</b>	Mr. Sukit Lertassawarat

## Appendix 2. Affirmation regarding public funding

No public funding from foreign countries or Official Development Assistance (ODA) is being used to implement the CPA.

## Appendix 3. Further background information on ex ante calculation of emission reductions

Please refer details under Appendix 4 of the PoA-DD.

## Appendix 4. Further background information on monitoring plan

Please refer details provided in section B.5.1 and B.5.3 of the CPA-DD.

## Appendix 5. Summary report of comments received from local stakeholders

Please refer details provided in section E.2 of the CPA-DD.

## Appendix 6. Summary of post-registration changes

There is no post-registration changes applied for this CPA.

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
09.0	31 May 2019	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with version 02.0 of the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN);</li> <li>• Make editorial improvements.</li> </ul>
08.1	20 October 2017	Editorial revision to remove appendix “Applicability of methodologies and standardized baselines” from the main part of the form which had been mistakenly kept in the previous version.
08.0	28 June 2017	Revision to: <ul style="list-style-type: none"> <li>• Remove appendix “Applicability of methodologies and standardized baselines” as the appendix is not relevant at the CPA level;</li> <li>• Make editorial improvement.</li> </ul>
07.0	7 June 2017	Revision to: <ul style="list-style-type: none"> <li>• Improve consistency with the “CDM project standard for programmes of activities” and with the PDD and PoA-DD forms;</li> <li>• Make editorial improvement.</li> </ul>
06.0	24 May 2017	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with the “Standard: CDM project standard for programme of activities” (CDM-EB93-A07-STAN) (version 01.0);</li> <li>• Incorporate the “Component project activity design document form for small-scale component project activities” (CDM-SSC-CPA-DD-FORM);</li> <li>• Make editorial improvement.</li> </ul>
05.0	15 April 2016	Revision to ensure consistency with the “Standard: Applicability of sectoral scopes” (CDM-EB88-A04-STAN) (version 01.0).
04.0	9 March 2015	Revision to: <ul style="list-style-type: none"> <li>• Include provisions related to statement on erroneous inclusion of a CPA;</li> <li>• Include provisions related to delayed submission of a monitoring plan;</li> <li>• Provisions related to local stakeholder consultation;</li> <li>• Provisions related to the Host Party;</li> <li>• Make editorial improvement.</li> </ul>
03.0	25 June 2014	Revisions to: <ul style="list-style-type: none"> <li>• Include the Attachment: Instructions for filling out the component project activity design document form for CDM component project activities (these instructions supersede the "Guidelines for completing the component project activity design document form" (Version 01.0));</li> <li>• Include provisions related to standardized baselines;</li> <li>• Add contact information on a CPA implementer and/or responsible person/ entity for completing the CDM-CPA-DD-</li> </ul>

<i>Version</i>	<i>Date</i>	<i>Description</i>
		FORM in A.13. and Appendix 1; <ul style="list-style-type: none"><li>• Add general instructions on post-registration changes in paragraph 4 and 5 of general instructions and Appendix 6;</li><li>• Change the reference number from F-CDM-CPA-DD to CDM-CPA-DD-FORM;</li><li>• Make editorial improvement.</li></ul>
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the component project activity design document form" (EB 66, Annex 16).
01.0	27 July 2007	EB 33, Annex 42 Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: component project activity, project design document		