



Component project activity design document form
(Version 10.0)

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

BASIC INFORMATION

Title of the CPA	CPA No. 3: Pho Thong Solar PV Power Project
Scale of the CPA	<input type="checkbox"/> Large-scale <input checked="" type="checkbox"/> Small-scale
Version number of the CPA-DD	2
Completion date of the CPA-DD	09/02/2022
Title and UNFCCC reference number of the registered CDM PoA	PoA 6222 Small-Scale Renewable Energy PoA in Thailand
Title and reference number of the corresponding generic CPA	Generic CPA No. 2 Technology Type: Solar photovoltaic power generation (PV)
Coordinating/managing entity	Carbon Coordinating Managing Entity Limited
Host Party	Thailand
Applied methodologies and standardized baselines	AMS-I.D.: Grid connected renewable electricity generation, version 18
Sectoral scopes	Sectoral scope 1: Energy industries (renewable - / non-renewable sources)
Estimated amount of annual average GHG emission reductions	9,971 t CO ₂ e

SECTION A. Description of component project activity (CPA)

A.1. Purpose and general description of CPA

The small scale CDM Programme Activity “CPA No. 3: Pho Thong Solar PV Power Project” (hereafter referred to as CPA) entails the installation of one Project Activity based on Technology Type 2 (Solar Photovoltaic) with a total installed capacity of 9.66 MW. The Project Activity installs a new solar power plant and electricity generated is exported to the grid with the Provincial Electricity Authority (PEA) of Thailand, which would have otherwise been generated mainly by fossil fuel based grid-connected power plants. The Project Activity is located at Ang Thong province in Thailand. The average expected electricity export to the grid is about 17,520 MWh/year during the first crediting period. The CPA is expected to reduce on an average 9,971 tCO₂e 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 activity under CPA is developed by Siam Solar Power Public Company Limited (hereafter referred to as Project Entity). This legal entity is also responsible for implementation and operation of the Solar Photovoltaic (PV) power plant, therefore Project Entity¹ and Project Implementer² as defined in the PoA DD are the same for Project Activity. The detail for Project Activity is provided below.

Project Activity No 1

Project Entity: Siam Solar Power Public Company Limited

Project Implementer: same as Project Entity

Technology Type: 2 Solar PV

Installed capacity: 9.66 MW

Project location: Moo1, Khok Phutsa sub-district, Pho Thong district, Ang Thong 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 Activity under the CPA. The Project Activity under the CPA is implemented on a voluntary basis, in line with the Eligibility Criteria for inclusion of a SSC-CPA in the PoA (see Section SECTION F below).

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

Environmental benefits

By generating electricity through solar power, the Project Activity under the CPA displaces fossil fuel based electricity from the Thai national grid. Thereby, the CPA contributes to the reduction of pollutants such as NO_x, SO_x and particles as well as greenhouse gas (GHG) emissions.

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 Activity.

Economic benefits

The CPA leads to significant investments in a rural and underdeveloped region, which would rarely occur in the absence of the Project Activity implemented under the CPA. The Project Activity 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

¹ A Project Entity is the entity that owns the underlying assets and is ultimately responsible for the Project Activity towards local authorities.

² A Project Implementer is the entity responsible for implementation/operation of the Project Activity.

renewable energy development policy and make better use of Thailand's natural resources. The Project Activity provides also 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, environmentally safe and sound technology. The Project Activity contributes to technology transfer, the promotion of clean energy technologies and fosters the creation of a local renewable energy industry in Thailand.

A.2. Location of CPA

The following information is used as means of identification of the Project Activity implemented under the CPA:

Project Activity level parameters	Project Activity specific details
Project Activity No. 1	
Serial number of the Project Activity under the CPA ³	1
Address of the Project Activity	Moo 1
City/town/village	Khok Phutsa
District	Pho Thong
Province	Ang Thong
Geographic coordinates (latitude/longitude)	N14.68115 E100.38888

A.3. Technologies/measures

The Project Activity consists of modules from three manufacturers with different capacity, amounting to a total installed capacity of 9.66 MW. Further details about the technology components employed under the Project Activity are provided in the table below.

Equipment	Manufacturer	Model	Capacity (W)	Amount of installed equipment	Total capacity (W)
Modules					
Photovoltaic module Type: Thin film module	Solar Frontier	SP140-L	140	17,000	2,380,000
		SP155-L	155	16,000	2,480,000
Photovoltaic module Type: Mono-crystalline silicon	Hyundai	HiS-S295MI	295	8,496	2,506,320
Photovoltaic module Type: Thin film module	Sharp	NA-F135(G5)	135	17,024	2,298,240

The expected operational lifetime of the equipment is 25 years as per the lifetime warranty issued by the manufacturers.

The Project Activity is connected to the 22kV PEA distribution line close to the project's location and electricity meter maintained by PEA.

³ One running number starting from 1 for each Project Activity under the CPA (e.g. Project Activity No. 1, Project Activity No. 2, etc.)

The Project Activity is implemented in a greenfield location. In the baseline scenario, the electricity would have been generated mainly by fossil fuel based grid-connected power plants in which the emissions would have been emitted into the atmosphere. More details of the baseline scenario are described in Section B.3.

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 (host)	Private entity: Siam Solar Power Co.,Ltd.	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 activity⁴ 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

⁴ 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.

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 activity⁵ where its boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closet point?
☐ Yes ☒ No

There is no other activity (as per definition of activity above) within 1 km at the closet point of this proposed CPA.

Conclusion

The CPA does not satisfy both conditions above and is therefore not deemed to be a de-bundled 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 Entity(ies) have provided a declaration to CCME confirming that the Project Activity(ies) under the CPA is/are not a de-bundled component of large-scale activity. CCME also confirms that the Project Activity(ies) under the CPA complies/comply with Tool20 "Assessment of debundling for SSC project activities" (Version 4.0) and the Project Activity(ies) is/are not a de-bundled 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

The methodology and tools area available on the UNFCCC website under following link:

<http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXCSA7BDQ7FU1X>

Table 1: Applicability conditions for AMS-I.D, Version 18

Applicability Criteria	Project Activity Eligibility
1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	In line with Eligibility Criterion 2 defined in Section SECTION F, CPAs implemented under the PoA comprise following applicable technologies as per Technology Type definition provided in Section A.3 of the PoA-DD: 1. Wind Power 2. Solar Photovoltaic (PV) 3. Concentrated Solar Power (CSP) 4. Run-of-the-river Hydropower 5. Renewable Biomass (biomass combustion and gasification of biomass residues) 6. Biogas

⁵ 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.

Applicability Criteria	Project Activity Eligibility
	This CPA involves technology Type 2: Solar photovoltaic power generation (PV) and exports electricity to the Thai national grid and therefore is applicable under the methodology.
2. Illustration of respective situations under which each of the methodology (i.e. AMS-I.D.: Grid connected renewable electricity generation", AMS-I.F.: Renewable electricity generation for captive use and mini-grid" and AMS-I.A.: Electricity generation by the user) applies is included in appendix of the applied methodology.	According to Table 1 in AMS-I.D, Version 18, AMS-I.D is applicable since all CPAs implemented under the PoA supply electricity to the Thai national grid.
3. This methodology is applicable to project activities that (a) Install a Greenfield plant; (b) Involve a capacity addition; (c) Involve a retrofit of (an) existing plant(s); (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or Involve a replacement of (an) existing plant(s).	In line with Eligibility Criterion 5 defined in Section SECTION F, CPAs implemented under the PoA comprise only Greenfield plants.
4. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: (a) The project activity is implemented in an existing reservoir with no change in the volume of reservoir; (b) The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m ² ; (c) The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m ² .	This CPA uses Technology Type 2: Solar photovoltaic power generation (PV) and therefore, this condition is not applicable.
5. If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	In line with Eligibility Criterion 3.a defined in Section SECTION F, for Project Activities with both renewable and non-renewable components, the installed electricity generation capacity of the renewable component shall be equal to or less than 15 MW.
6. Combined heat and power (co-generation) systems are not eligible under this category.	In line with Eligibility Criterion 6 defined in Section SECTION F, combined heat and power Project Activities are not eligible under the PoA.
7. In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct ⁶ from the existing units.	In line with Eligibility Criterion 5 defined in Section SECTION F, capacity addition Project Activities are not eligible under the PoA.
8. In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.	In line with Eligibility Criterion 5 defined in Section SECTION F, retrofit or replacement Project Activities are not eligible under the PoA.

⁶ Physically distinct units are those that are capable of generating electricity without the operation of existing units, and that do not directly affect the mechanical, thermal, or electrical characteristics of the existing facility. For example, the addition of a steam turbine to an existing combustion turbine to create a combined cycle unit would not be considered "physically distinct".

Applicability Criteria	Project Activity Eligibility
9. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored.	This CPA uses Technology Type 2: Solar photovoltaic power generation (PV) and therefore, this condition is not applicable.
10. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	This CPA uses Technology Type 2: Solar photovoltaic power generation (PV) and therefore, this condition is not applicable.

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

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

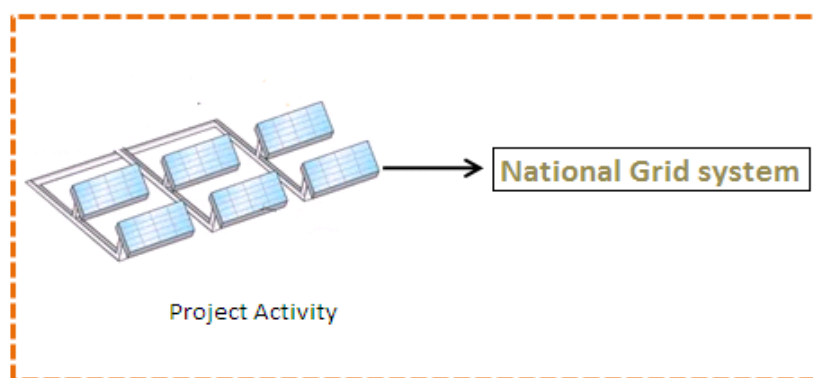


Figure 1: Project Boundary

The description of the sources and gases included in Technology Type 2 Project Activity is given below:

GHG sources and gases included in baseline emission calculations:

Source		GHG	Included?	Justification/Explanation
Baseline	Electricity grid	CO ₂	Included	CO ₂ 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 ₄	Excluded	CH ₄ 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 ₂ O	Excluded	N ₂ 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 Activity implemented under the CPA does neither 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 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 baseline ($EG_{BL,y}$) expressed in MWh and based on the electricity produced by the renewable generating unit multiplied by the grid emission factor ($EF_{CO_2,grid,y}$) 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)

In accordance with paragraph 291 of CDM project standard for programmes of activities, Version 3.0, at the renewal of crediting period, the data and parameters used for determining ex ante and not monitored during the crediting period shall be updated in accordance with the methodological tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of a crediting period", Version 3.0.1.

The applied tool consists of two steps; to evaluate whether the current baseline is still valid and to update the baseline in case that the current baseline is not valid anymore for the next crediting period. The assessment is detailed as follows:

Step 1: Assess the validity of the current baseline for the next crediting period

The Procedure for the renewal of the crediting period of a registered CDM project activity approved by the CDM Executive Board require assessing the impact of new relevant national and/or sectoral policies and circumstances on the baseline.

The validity of the current baseline is assessed using the following Sub-steps:

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

In Thailand, there are no mandatory national and/or sectoral policies required for the implementation of power generation⁷. The electricity generated in the project would have been generated in the grid, which is primarily based on fossil fuel. Therefore, it is assessed that the current baseline for the electricity generation component is in compliance with the regulation.

Step 1.2: Assess the impact of circumstances

It is assessed that there are no circumstances existing at the time of requesting renewal of the crediting period which would impact the current baselines. The conditions used to determine the baseline emissions in the previous crediting period are still valid, except for some updated parameters which have been assessed further stepwise.

Step 1.3: Access whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

As per the lifetime warranty issued by technology manufacturers of the component⁸, the technical lifetime of current baseline equipment is confirmed that exceeds the crediting period for which renewal is requested. Therefore, there is no requirement to update the current baseline for the next crediting period.

Step 1.4: Assessment of the validity of the data and parameters

As per the methodological tool, some data and parameters, which were only determined at the start of the crediting period and not monitored during the crediting period following parameters are updated for the second crediting period, are not valid and should be updated for application for the second crediting period. Such updated data and parameters are addressed as follows.

Cases	Determination
<ul style="list-style-type: none"> Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity. 	<p>Since there is an updated value for combined margin CO₂ emission factor for grid connected power generation available, which is recently studied by Thai DNA, the updated value shall be applied for the second crediting period. Please refer to Section B.4.1 for more details.</p>

Although the application of Steps 1.1, 1.2 and 1.3 confirms that the current baseline is still valid for the second crediting period, the data and parameters as mentioned in Step 1.4 above need to be updated. Thus, Step 2 proceeded.

⁷ There is no law and regulation to require the implementation of power generation.

⁸ The lifetime warranty has been submitted during the validation assessment.

Step 2: Update the current baseline and the data and parameters**Step 2.1: Update the current baseline**

The current baseline emissions for the second crediting period are updated with the use of the valid data and parameters as mentioned in Step 1.4, without reassessing the baseline scenario, based on the latest approved version of the methodologies applicable to the project activity. Please refer to the following determination of the baseline emission and Section B.4.1 and B.4.3 for more details.

Step 2.2: Update the data and parameters

As per the result of the assessment in Step 1.4 above, all applicable data and parameters for the second crediting period are updated based on the latest version of the methodologies applied in the project activity. Please refer to Section B.4.2 and B.5.1 for the updated data and parameters for the second crediting period.

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 the Project Activity:

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.

$$BE_y = EG_{PJ,y} \times EF_{grid,y}$$

Where:

BE_y	Baseline emission in year y (t CO ₂)
$EG_{PJ,y}$	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 ₂ emission factor for grid connected power generation in year y 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" (t CO ₂ /MWh)

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.

Determination of leakage emissions

Leakage emissions shall be considered only when energy generating equipment is transferred from another activity. Since the CPA employs a new set of equipment, leakage emissions can be neglected.

B.4.2. Data and parameters fixed ex ante

(Copy this table for each piece of data or parameter.)

Data/Parameter	Technology Type applied in the CPA
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 ⁹ between the Project Entity and a third party related to the implementation or construction of the Project Activity containing a clear project design description; OR <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; OR <input type="checkbox"/> Feasibility study or technical-commercial proposal by technology provider; OR <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

Data/Parameter	Installed capacity
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 ¹⁰ 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; OR <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; OR <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	9.66 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

Data/Parameter	EF _{grid,y}
Data unit	t CO ₂ /MWh

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

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

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 ¹¹
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).
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 renewal of crediting period 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 equations and parameters described under Section B.4.3 of the CPA DD. The baseline grid emission factor of the Thai national grid is fixed ex-ante and described under Section B.4.2 of the present CPA DD.

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 (t CO ₂ /y)
BE_y	Baseline emissions in year y (t CO ₂ /y)
PE_y	Project emissions in year y (t CO ₂ /y)
LE_y	Leakage emissions in year y (t CO ₂ /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 (t CO ₂)
$EG_{PJ,y}$	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 ₂ 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” (t CO ₂ /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

¹¹ http://ghgreduction.tgo.or.th/th/download-tver/120-gwp-emission-factor/2374-2557_2374.html

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:

$$\begin{aligned} BE_y &= EG_{P,J,y} \times EF_{grid,y} \\ &= 17,520 \text{ MWh/y} \times 0.5692 \text{ t CO}_2\text{e/MWh} \\ &= 9,971 \text{ t CO}_2\text{e} \end{aligned}$$

Calculation of project emissions

There are no relevant project emissions in the particular case of the 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:

$$ER_y = BE_y - PE_y - LE_y = 9,971 - 0 - 0 = 9,971 \text{ t CO}_2\text{e}$$

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

Year	Baseline emissions (t CO ₂ e)	Project emissions (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions (t CO ₂ e)
Year 1	9,971	0	0	9,971
Year 2	9,971	0	0	9,971
Year 3	9,971	0	0	9,971
Year 4	9,971	0	0	9,971
Year 5	9,971	0	0	9,971
Year 6	9,971	0	0	9,971
Year 7	9,971	0	0	9,971
Total	69,797	0	0	69,797
Total number of crediting years	7			
Annual average over the crediting period	9,971	0	0	9,971

B.5. Monitoring plan**B.5.1. Data and parameters to be monitored**

The parameter to be monitored at Project Activity level are listed below.

Data/Parameter	EG_{PJ,y}
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	17,520 MWh/year
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 monitoring, hourly measurement and 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 Provincial Electricity Authority (PEA) regulation on an annual basis.
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	9.66 MW
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	-

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.

Detail of the meters

Electricity meter	Manufacturer	Model	Serial no.	Accuracy Class
Export	EDMI	Mk6N	212607287	0.5S
Import	EDMI	GENIUS	203326518	0.5S

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 08/06/2012, which is the date of signed Engineering Procurement and Construction (EPC) contract¹².

¹² Evidence related to the starting date of the Project Activity under this CPA is in accordance with the assessment for the eligibility criteria no.11 in Section B.2. of the registered PoA. The same evidence can be also proven that the starting date of the Project Activity is not before the date of commencement of validation of the PoA.

C.2. Expected operational lifetime of CPA

The expected operational lifetime of Project Activity 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

04/03/2021 – 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**

According to Thai regulations, very few electricity generation activities that qualify under the VSPP scheme are required to conduct an Environmental Impact Assessment (EIA)¹³. However, a simplified version called Initial Environmental Evaluation (IEE) is required for approval of CDM Project Activities by the DNA in Thailand. Therefore, in most cases the environmental analysis at CPA level will be conducted as per IEE requirements of the Thai DNA.

The environmental analysis of the Project Activity shall be conducted as per the sustainable development framework (SD Framework) or environmental analysis checklist approved by the Thai DNA. Such the approved SD Framework was provided by CCME for submission to Thai DNA during the process of request for Letter of Approval (LoA) for the PoA, which was approved on 25 January 2012. As per procedure of the Thai DNA, the environmental analysis shall be conducted and submitted to the Thai DNA when the CPA is already included in the registered PoA or every 12 months, whichever is later.

Following details are general environmental impacts for the Project Activity.

Air quality

Since there is no combustion unit whatsoever in the Project Activity under the proposed CPA, there are also no on-site emission sources of air pollutants such as PM-10, NO_x, SO_x. In this regard the Project Activity performs much better than business-as-usual fossil-fuel-based technologies applied for electricity generation in Thailand.

Effluent quality

¹³ As per “Notice of the Ministry of Natural Resources and Environment on specification of criteria, procedures, code of practice, guidelines, types and sizes of operation which are subject to the Environmental Impact Assessment (EIA)” issued by the Office of Natural Resources and Environmental Policy and Planning (ONEP) on 31 August 2009.

The Project Activity under the proposed CPA does not generate any liquid or solid wastes during its operational phase. Hence, also in this regard, the Project Activity performs 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 Activity should be kept within 70 dBA for average noise levels and 115 dBA maximum noise levels. The Project Activity under the CPA is not expected to generate any significant noise levels, which is also a clear improvement in comparison business-as-usual fossil-fuel-based technologies.

Furthermore, given the nature and location of the proposed Project Activity under the CPA, this project is not expected to result in any transboundary impact affecting a neighbouring country of Thailand.

D.2. Environmental impact assessment

The Project Activity under the CPA does 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***

The invitation letters were handed to local stakeholders living in the vicinity of the Project Activity as well as local authorities and independent organisations. The consultation was conducted in Thai and focussed on a set of topics related to environmental and socio-economic aspects. The stakeholder consultation took place on 11 October 2013 at Siam Solar Power Company meeting room. There were 30 attendants who participated in the meeting

The stakeholder comments have been invited through a stakeholder consultation meeting and feedback from the meeting has been compiled in the form of Minutes of Meeting.

E.2. Summary of comments received

The overall response to the project was positive as most of the stakeholders were satisfied due to the use of clean technology in the project and no adverse comments were raised. Questions were openly invited and the stakeholders were active in giving their comments and asking questions, which were of more general nature and resulted in the action items summarized in Section E.3 below.

E.3. Consideration of comments received

As per the Minutes of Meeting, the following questions were posed by the stakeholders with the answers provided by the project.

Question by Ms.Papai Yujiem, Member of the Municipal Council of Moo 3:

What is the lifetime of solar panel?

Answer by the project owner:

Expected 25 years based on manufacturers' specification.

Question by Ms.Wannisa Chucherd, villager of Moo 1, Khok Phutsa sub-district:

What are the disadvantages of solar power plant?

Answer by the project:

Unstable power generation, high investment cost and need for large area for setting up the plant.

Question by Ms.Suparat Rangart, villager of Moo 3, Khok Phutsa sub-district:

What can solar panels be used for in case of end-of-life panels?

Answer by the project:

Panels will be sent back to manufacturers for recycling purposes.

It is evident that no adverse comments in relation to the implementation of the Project Activity were received during the stakeholder consultation process.

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
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 Activity is eligible for inclusion under the PoA

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion	Description of this CPA in relation to the criterion and supporting evidence
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: <input checked="" type="checkbox"/> Confirmation by CME regarding eligibility of the technology type applied in a Project Activity; AND any of the following: <input checked="" type="checkbox"/> Legally binding contract ¹⁴ between the Project Entity and a third party related to the implementation or construction of the Project Activity containing a clear project design description; OR <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; OR <input type="checkbox"/> Feasibility study or technical-commercial proposal by technology provider; OR <input checked="" 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 one Project Activity with a total installed capacity of 9.66 MW. The supporting evidence is confirmation by CME and the signed Engineering, Procurement and Construction Agreement dated 08/06/2012, which is a legally binding contract ¹⁵ between the Project Entity and a third party related to the construction of the Project Activity. Thus, the Project Activity is eligible for inclusion under the PoA.

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

¹⁵ "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 1 Project Activity with a total installed capacity of 9.66 MW of each Project Activity under the CPA. The CPA is below the 15 MW threshold.	<input checked="" type="checkbox"/> Legally binding contract ¹⁶ 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; OR <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; OR <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)	<p>As described in Section A.1 and A.3 of the CPA-DD, the CPA entails application of solar PV technology, which consists of one Project Activity with a total installed capacity of 9.66 MW.</p> <p>The supporting evidence is confirmation by CME and the signed Engineering, Procurement and Construction Agreement dated 08/06/2012, which is a legally binding contract¹⁷ between the Project Entity and a third party related to the construction of the Project Activity.</p> <p>Thus, the Project Activity is eligible for inclusion under the PoA.</p>

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

¹⁷ "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><input checked="" type="checkbox"/> Declaration by Project Entity to CME regarding availability of non-renewable components within the Project Boundary; AND</p> <p>Any of the following: <input checked="" type="checkbox"/> Legally binding contract¹⁸ 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; OR <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; OR <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 to the description under Eligibility Criteria No. 3.</p>

¹⁸ "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-fires fossil fuel¹⁹:</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><input checked="" type="checkbox"/> Declaration by Project Entity to CME whether Project Activity envisages to co-fire fossil fuels; AND</p> <p>Any of the following:</p> <p><input checked="" type="checkbox"/> Legally binding contract²⁰ 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); OR</p> <p><input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; OR</p> <p><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 to the description under Eligibility Criteria No. 3.

¹⁹ 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.

²⁰ "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
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.	<input checked="" type="checkbox"/> Single-line diagram of the Project Activity provided by Project Entity to CME; AND <input checked="" type="checkbox"/> Signed PPA between the Project Entity and the Distribution Utility confirming that the Project Activity falls under the VSPP scheme.	<p>The Project Activity generates and supplies 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 Entity and the Provincial Electricity Authority (PEA) dated 30/12/2011 and single line diagram of the Project Entities.</p> <p>Thus, the Project Activity is eligible for inclusion under the PoA.</p>
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".	<input checked="" type="checkbox"/> Declaration by Project Entity to CME confirming that the Project Activity is a Greenfield plant; AND Option 3: For Project Activities that are already operational by the time of the CPA inclusion: <input checked="" type="checkbox"/> Operation license AND <input checked="" type="checkbox"/> Legally binding contract ²¹ between the Project Entity and a third party related to the implementation or construction of the Project Activity containing a clear project design description; AND <input checked="" type="checkbox"/> Assessment by DOE following a site visit (by comparison of the actual project design versus planned design as per construction/implementation contract mentioned above and crosschecking this information with the operation license).	<p>The implementation of the Project Activity under Greenfield scenario was confirmed during DOE site visit for validation for inclusion. The declaration by the Project Entity to CME confirming that the Project Activity is a Greenfield plant is available as evidence.</p> <p>Thus, the Project Activity is eligible for inclusion under the PoA.</p>

²¹ "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
6	The Project Activity is not a combined heat and power (co-generation ²²) project (in line with AMS-I.D., version 18, paragraph 7).	The Project Activity is not a combined heat and power (co-generation) project.	<input checked="" type="checkbox"/> Legally binding contract ²³ between the Project Entity and a third party related to the implementation or construction of the Project Activity containing a clear project design description; OR <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; OR <input checked="" type="checkbox"/> Signed PPA ²⁴	Please refer to 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> .	<input checked="" type="checkbox"/> Confirmation by CME on debundling check as per <i>Assessment of debundling for small-scale project activities, version 04.0</i> ; AND <input checked="" type="checkbox"/> Declaration by Project Entity that the Project Activity is not a debundled component of a large-scale activity.	<p>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).</p> <p>Thus, the Project Activity is eligible for inclusion under the PoA.</p>

²² Defined as the simultaneous generation of thermal energy and electrical energy in one process.

²³ "Engineering Procurement and Construction" (EPC), "Turnkey" or "Build Own Operate Transfer" (BOOT) are typical examples of such contracts.

²⁴ 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.	The Project Activity's location is at Ang Thong province in Thailand.	<p><input checked="" type="checkbox"/> 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>AND any of the following: <input checked="" type="checkbox"/> Signed PPA; OR <input checked="" 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>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 Activity is 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>Approach 1: Demonstration of additionality of microscale project activities, version 12.0; OR</p> <p>Approach 2: 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.²⁵ OR</p> <p>Approach 3: 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>Approach 3: All of the following: <input checked="" type="checkbox"/> Confirmation by CME regarding eligibility of the technology type applied in a Project Activity;</p> <p>AND any of the following: <input checked="" type="checkbox"/> Legally binding contract²⁶ 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; OR <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/technology; OR <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 Activity under the CPA is 9.66 MW. Hence, the Project Activity as a whole is below the 15 MW threshold.</p> <p>Furthermore, as confirmed under Eligibility Criteria No. 2, the Project Activity under the CPA falls 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>

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; OR 2. Part of a bundled CDM project activity; OR 3. Another registered CDM PoA; OR 4. Project activity under another emission reduction crediting scheme (e.g. voluntary carbon markets) during the same crediting period.</p>	<p><input checked="" type="checkbox"/> Declaration by Project Entity to CME that the Project Activity does not and will not lead to double counting of emission reductions; AND <input checked="" type="checkbox"/> Contract assigning the right to claim and manage emission reduction certificates related to the Project Activity from the Project Entity to the CME; AND <input checked="" type="checkbox"/> 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 Activity does not lead to double counting of emission reductions.</p> <p>Thus, the Project Activity is eligible for inclusion under the PoA.</p>

²⁵ 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.

²⁶ "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
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 08/06/2012, which is after the date of commencement of validation of the PoA.	<input checked="" type="checkbox"/> Legally binding contract ²⁷ between the Project Entity and a third party with a commitment by the Project Entity to expenditures ²⁸ related to the implementation or construction of the Project Activity; OR <input type="checkbox"/> Purchase order(s) of the Project Activity's equipment/ technology; OR <input type="checkbox"/> Any other significant ²⁹ purchase order, contract or payment evidence related to the construction of the Project Activity; OR <input checked="" type="checkbox"/> 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>As described in Section C.1 of the CPA-DD, the start date of the Project Activity is 08/06/2012 in line with the supporting evidence as signed Engineering, Procurement and Construction Agreement dated 08/06/2012 and the confirmation by DOE during the site visit for validation for inclusion (refer to approved Validation Report date 25/02/2014).</p> <p>Thus, the Project Activities are eligible for inclusion under the PoA.</p>

²⁷ “Engineering Procurement and Construction” (EPC), “Turnkey” or “Build Own Operate Transfer” (BOOT) are typical examples of such contracts.

²⁸ 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.

²⁹ 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

Organization name	Siam Solar Power Public Company Limited
Country	Thailand
Address	725 Metropolis Tower 19 th Floor, Sukhumvit Road, KlongtanNua, Wattana, Bangkok 10110, Thailand
Telephone	+66-2-258-4530
Fax	+66-2-258-4534
E-mail	-
Website	-
Contact person	Ms. Cathleen Maleenont

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 the 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 the details provided in Section E.2 of the CPA-DD.

Appendix 6. Summary of post-registration changes

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

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
10.0	8 October 2021	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 03.0 of the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN).
09.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN); • Make editorial improvements.
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"> • Remove appendix “Applicability of methodologies and standardized baselines” as the appendix is not relevant at the CPA level; • Make editorial improvement.
07.0	7 June 2017	Revision to: <ul style="list-style-type: none"> • Improve consistency with the “CDM project standard for programmes of activities” and with the PDD and PoA-DD forms; • Make editorial improvement.
06.0	24 May 2017	Revision to: <ul style="list-style-type: none"> • Ensure consistency with the “Standard: CDM project standard for programme of activities” (CDM-EB93-A07-STAN) (version 01.0); • Incorporate the “Component project activity design document form for small-scale component project activities” (CDM-SSC-CPA-DD-FORM); • Make editorial improvement.
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"> • Include provisions related to statement on erroneous inclusion of a CPA; • Include provisions related to delayed submission of a monitoring plan; • Provisions related to local stakeholder consultation; • Provisions related to the Host Party; • Make editorial improvement.
03.0	25 June 2014	Revisions to:

<i>Version</i>	<i>Date</i>	<i>Description</i>
		<ul style="list-style-type: none"> • 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)); • Include provisions related to standardized baselines; • Add contact information on a CPA implementer and/or responsible person/ entity for completing the CDM-CPA-DD-FORM in A.13. and Appendix 1; • Add general instructions on post-registration changes in paragraph 4 and 5 of general instructions and Appendix 6; • Change the reference number from F-CDM-CPA-DD to CDM-CPA-DD-FORM; • Make editorial improvement.
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		