




**Validation report form for renewal of CDM programme of activities period  
(Version 02.0)**

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

**BASIC INFORMATION**

<b>Title and UNFCCC reference number of the programme of activities (PoA)</b>	Small-Scale Renewable Energy PoA in Thailand (6222)
<b>Number and duration of the next period</b>	2 <sup>nd</sup> , 15/05/2019 – 14/05/2026
<b>Version number of the validation report</b>	1.1
<b>Completion date of the validation report</b>	25/06/2020
<b>Version number of PoA-DD to which this report applies</b>	3.0
<b>Coordinating/managing entity (CME)</b>	Carbon Coordinating Managing Entity Limited
<b>Host Parties</b>	Thailand
<b>Applied methodologies and standardized baselines</b>	AMS-I.D Grid connected renewable electricity generation (Version 18.0)
<b>Mandatory sectoral scopes</b>	Sectoral Scope : 1 – Energy industries (renewable / non-renewable sources)
<b>Conditional sectoral scopes, if applicable</b>	-
<b>Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next programme of activities period</b>	-
<b>Name and UNFCCC reference number of the DOE</b>	Foundation for Industrial Development - Management System Certification Institute (Thailand) (FID-MASCI) / E-0058
<b>Name, position and signature of the approver of the validation report</b>	 Mr.Thanit Piyasirisilp, Vice President of System Certification Department

**SECTION A. Executive summary**

FID-MASCI has performed the validation of renewal of PoA period of the CDM PoA “Small-Scale Renewable Energy PoA in Thailand”. The validation is based on the currently valid documentation of the United Nations Framework Convention on Climate Change (UNFCCC).

The validation process includes three phases:

- Desk review of documents;
- Follow-up interviews with the relevant personnel;
- Resolution of outstanding issues and the issuance of final inclusion report and opinion.

The PoA is a voluntary initiative by Carbon Coordinating Managing Entity Limited (Hereafter called CCME), to promote small scale renewable energy geographically located in Thailand through Clean Development Mechanism and to reduce GHG emissions. The PoA is geographically located in Thailand. The generated electricity will be supplied to the national grid owned by Electricity Generating Authority of Thailand (Hereafter called EGAT), the national utility. In renewal of PoA period, the emission factor has been calculated based on the “Tool to calculate the emission factor for an electricity system” following the requirement of the applied methodology AMS I-D Version. 18, which was published by TGO (Thai DNA) on 28 September 2017. The first PoA period (7years) started on 15/05/2012. Second PoA period will be started from 15/05/2019. Corrective Action Request (CAR) 7 items were raised during the course of validation process of renewal of PoA period and has been closed. Forward Action Request (FAR) 1 item was raised.

**SECTION B. Validation team, technical reviewer and approver****B.1. Validation team member**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader	IR	Ngeimvijawat	Atchada	FID-MASCI	Yes	N/A	Yes	Yes
2.	Validator	IR	Boonyong	Teerakul	FID-MASCI	Yes	N/A	N/A	Yes
3.	Validator	IR	Lapsunthornp hitak	Naris	FID-MASCI	Yes	N/A	N/A	Yes
4.	Technical Expert	IR	Seanglert	Parinya	FID-MASCI	Yes	N/A	Yes	Yes
5.	Trainee	IR	Khemthong	Mattana	FID-MASCI	Yes	N/A	Yes	Yes

**B.2. Technical reviewer and approver of the validation report for renewal of PoA period**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Smolders	Johannes	FID-MASCI
2.	Approver	EI	Piyasirisilp	Thanit	FID-MASCI

**SECTION C. Means of validation****C.1. Desk/document review**

The information presented in the PoA-DD on the technical design has been assessed for accuracy and completeness using standard auditing techniques including:

- (a) Document review, including a review of data and information, cross checks between information provided in the PoA-DD and information from sources other than those used, the DOE's sectoral or local expertise, and independent background investigations.
- (b) Follow-up actions, including interviews with relevant stakeholders in the host country, such as personnel with knowledge of the PoA design and implementation, cross checks between the information provided by interviewed personnel to ensure that no relevant information has been omitted.
- (c) Reference to available information relating to programme, projects or technologies similar to the proposed CDM PoA under validation.
- (d) Review, based on the selected methodologies, the selected standardized baselines and the other applied methodological regulatory documents, of the appropriateness of formulae and accuracy of calculations.

A complete list of all documents reviewed is attached as Appendix 3 to this report.

**C.2. On-site inspection**

On-site visit has not been performed for the validation of the renewal of crediting period, in accordance with CDM VVS for PoA, version 02.0, paragraph 183, as the estimated annual average of GHG emission reductions of the CPA is less than 100,000 tCO<sub>2</sub>e. Representatives from CME have been interviewed by telephone and e-mail, publicly available authentic sources were reviewed for cross checking necessary information. There is no change in the eligibility of PoA or operation and monitoring practices as mentioned in the registered PoA of 1<sup>st</sup> crediting period which can alter the applicability or additionality of the methodology applied i.e. AMS.I.D version 18.

Duration of on-site inspection:				
No.	Activity performed on-site	Site location	Date	Team member
N/A	N/A	N/A	N/A	N/A

**C.3. Interviews**

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Rukwongtrakool	Suwipa	Project Manager - CCME	14/04/2020	<ul style="list-style-type: none"> <li>• Overview of CDM PoA and generic CPA</li> <li>• Any modifications with respect to the registered CDM PoA and generic CPA</li> <li>• Technologies</li> <li>• Methodologies and standardized baselines</li> <li>• Estimation of emission reductions</li> <li>• Data, parameters and monitoring plan</li> </ul>	Ms. Atchada Ngeimvijawat Mr. Parinya Seanglert Ms. Mattana Khemthong

					<ul style="list-style-type: none"> <li>• Eligibility criteria for inclusion of CPAs</li> <li>• Management system</li> </ul>	
2.	Rukwongtrakool	Suwipa	Project Manager - CCME	30/04/2020	<ul style="list-style-type: none"> <li>• Overview of CPA No.1 (JKR and RPV)</li> </ul>	Ms. Atchada Ngeimvijawat Mr. Parinya Seanglert Ms. Mattana Khemthong
	Asawakul	Koravit	Project Manager - CPA No. 1: IFEC Solar PV			

**C.4. Sampling approach**

Not Applicable.

**C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised**

Area of validation findings	No. of CL	No. of CAR	No. of FAR
<b>Programme of activities</b>			
Compliance with PoA-DD form		1	
Programme of activities period			
Coordinating/managing entity and the project participants		1	1
Post-registration changes			
<b>Generic component project activities</b>			
Application and selection of methodologies and standardized baselines		2	
Validity of original baseline or its update		1	
Estimated emission reductions or net anthropogenic removals		1	
Validity of monitoring plan		1	
Eligibility criteria for inclusion of CPAs			
Others (please specify)			
<b>Total</b>		<b>7</b>	<b>1</b>

**SECTION D. Validation findings****D.1. Programme of activities****D.1.1. Compliance with PoA-DD form**

<b>Means of validation</b>	The PoA-DD form used is CDM-PoA-DD-FORM version 09.0, which is the appropriate valid form, and the latest version available at the time of validation. All the sections of PoA-DD form were filled as per the guidelines and gave all the relevant details.
<b>Findings</b>	CAR 01 was raised during the validation process. The updated PoA-DD (version 1, date 05/03/2020) was prepared by using the valid version of the applicable PoA-DD form (CDM-PoA-DD-FORM version 09.0) but the alteration to the form was found and the detail is not in line with the instructions therein for filling out the PoA-DD form as provided by UNFCCC. Then, the revised PoA-DD (version 3, date 16/06/2020) was corrected in line with the instructions therein for filling out the PoA-DD form as provided by UNFCCC. The referred Appendix has been corrected. Thus, CAR 01 was closed successfully.
<b>Conclusion</b>	In line with the paragraph 381, 390(a)(i)(ii) of VVS PoA version 02.0, the validation team confirmed that the revised PoA-DD (version 3, date 16/06/2020) was completed correctly using the applicable and valid version of PoA-DD form (CDM-PoA-DD-FORM version 09.0) and instructions therein. The CME used a later valid version of the PoA-DD form for the revised PoA-DD (version 3, date 16/06/2020)

	than the version of the PoA-DD form of the registered PoA-DD, information transferred to the later valid version of the PoA-DD form is materially the same as that in the registered PoA-DD.
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### D.1.2. Programme of activities period

<b>Means of validation</b>	The duration of registered PoA is 28 years starting from 14/09/2011 to 13/09/2039 and the renewal of the crediting period is every 7 years. The PoA has been registered on 15/05/2012. The 1 <sup>st</sup> crediting period has been started on 15/05/2012 and end date is 14/05/2019, then the 2 <sup>nd</sup> crediting period is starting on 15/05/2019 and end date is 14/05/2026. It is also been confirmed that the next crediting period of the registered PoA commences on the day immediately after the expiration of the current crediting period.
<b>Findings</b>	There are no CARs/CLs raised in this section.
<b>Conclusion</b>	In line with the paragraph 390(a)(v) of VVS PoA version 02.0, the validation team confirmed that the renewed PoA period commences on the day immediately after the expiration of the current PoA period.

### D.1.3. Coordinating/managing entity and the project participants

<b>Means of validation</b>	<p>The names of the CME and the project participants were checked from UN homepage.  <a href="https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/TRXICK8M93E2LBY1UWPVZ05O6ADJHS/view">https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/TRXICK8M93E2LBY1UWPVZ05O6ADJHS/view</a></p> <p>The names of the CME in the PoA-DD is Carbon Coordinating Managing Entity Limited (CCME) as it was stated in the latest MoC, letter of approval by TGO (the DNA of Thailand) and with registered PoA-DD for previous crediting period.</p>
<b>Findings</b>	<p>CAR 02 was raised during the validation process. There are inconsistencies related to the names of the CME and the project participants and the modalities of the communication (MoC) statement in UN homepage and the updated PoA-DD (version 1, date 05/03/2020).</p> <p>Then, the revised PoA-DD (version 3, date 16/06/2020) was corrected as per the latest CDM-MOC-FORM: ANNEX 2 submitted.</p> <ul style="list-style-type: none"> <li>The revised PoA-DD (version 3, date 16/06/2020) specify the information of Asian Development Bank as Trustee of the Future Carbon Fund and Swedish Energy Agency as per the latest CDM-MOC-FORM: ANNEX 2 submitted on 07/11/2018.</li> <li>The revised PoA-DD (version 3, date 16/06/2020) specify the information of Carbon Coordinating Managing Entity Limited and South Pole Carbon Asset Management Ltd. as per the latest CDM-MOC-FORM: ANNEX 2 submitted on 03/09/2015. The E-mail &lt;registration@southpolecarbon.com&gt; is used for communication with UNFCCC.</li> </ul> <p>At present, the address of CME (<i>Carbon Coordinating Managing Entity Limited</i>) have been changed to 318 Evergreen Place, 3rd Floor Unit 3A, Thanon Petchaburi, Ratchthewi, Bangkok. Under situation of COVID19 pandemic, the process of request change for the MOC including the process to acquire the physical signatures from different countries (Thailand and Switzerland) is in progress with the expected timeline to upload the request for changes of the MOC shall be done within October 2020. The CDM-MOC-FORM to request changes to the modalities of communication as per paragraph 183 of CDM PCP PoA (version 2) shall be confirmed during next verification. Thus, CAR 02 was closed but FAR 01 was raised.</p>
<b>Conclusion</b>	<p>In line with the paragraph 390(a)(vi) of VVS PoA version 02.0, the validation team confirmed that the names of the CME (<i>Carbon Coordinating Managing Entity Limited</i>) and the project participants (<i>South Pole Carbon Asset Management Ltd. , Asian Development Bank as Trustee of the Future Carbon Fund and Swedish Energy Agency</i>) in the revised PoA-DD (version 3, date 16/06/2020) are consistent with the names of the CME and the project participants in the latest version of the MoC statement.</p> <p>At present, the address of CME (<i>Carbon Coordinating Managing Entity Limited</i>) have been changed, the process of request change for the MOC is in progress, CDM-MOC-FORM shall be confirmed during next verification as per FAR 01.</p>

**D.1.4. Post-registration changes**

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Corrections	N	N/A	N/A
Inclusion of monitoring plan	N	N/A	N/A
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	N	N/A	N/A
Changes to the programme design	N	N/A	N/A
Addition of CPA inclusion template	N	N/A	N/A
Changes specific to afforestation and reforestation activities	N	N/A	N/A
Change of coordinating/managing entity	N	N/A	N/A

**D.2. Generic component project activities****D.2.1. Application and selection of methodologies and standardized baselines**

<b>Means of validation</b>	The CME has applied the valid version of the methodology (AMS-I.D. version 18) and methodological tools, that is, the latest version at the time of the submission of the request for renewal of PoA period as per paragraph 284 of PS for PoA version 02.0. The references to methodologies and standardized baselines are detailed in section I.1 of the PoA-DD. The applicability criteria and project activity eligibility are detailed in section I.2 of the PoA-DD. Moreover, interviewing with the responsible person of CME and PPs to confirm the detail as mentioned in the PoA-DD.
<b>Findings</b>	<p>CAR 03 was raised during the validation process. The updated PoA-DD (version 1, date 05/03/2020) refer to the expired version of methodologies and methodological tools.</p> <p>Then, the revised PoA-DD (version 3, date 16/06/2020) was corrected by referring to the valid version of methodologies and methodological tools, which is in line with the paragraph 284 of PS for PoA version 02.0. Thus, CAR 03 was closed successfully.</p> <p>CAR 04 was raised during the validation process. The applicability of methodologies and standardized baselines described in section I.2. of the updated PoA-DD (version 1, date 05/03/2020) was not explain the Illustration of respective situations under which each of the methodology (AMS-I.D., AMS-I.F. and AMS-I.A.) and the case of biomass is sourced from dedicated plantations as specified in "AMS-I.D, version 18".</p> <p>Then, the revised PoA-DD was completely corrected in line with the applied methodology (AMS-I.D, Version 18).</p> <ul style="list-style-type: none"> <li>• <i>Illustration of respective situations under which each of the methodology (AMS-I.D., AMS-I.F. and AMS-I.A.) was explained. 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. This applicability criteria and project activity eligibility as depicted in the PoA-DD is checked during the validation process and also during the interview with the responsible person of CME and PPs. Only AMS-I.D is applicable and other methodologies (AMS-I.F. and AMS-I.A.) are not applicable.</i></li> <li>• <i>The applicability criteria cover the case of "biomass is sourced from dedicated plantations" and the applicability criteria in the tool "Project emissions from cultivation of biomass" as specified in "AMS-I.D, version 18". In case of CPAs under technology type 1 (Wind power), type 2 (Solar photovoltaic power generation), type 3 (Concentrated solar power), type 4 (Run-of-the-river hydropower) as depicted in the PoA-DD, this applicability criteria is not applicable. In case of CPAs under technology type 5 Renewable Biomass (biomass combustion and gasification of biomass residues) as depicted in the PoA-DD, biomass sourced from dedicated plantations will not be included in CPAs under Technology Types 5,</i></li> </ul>

	<p><i>therefore, the mentioned project emissions from cultivation of biomass are not eligible under the PoA. In case of CPAs under technology type 6 (biogas) as depicted in the PoA-DD, the project emissions from cultivation of biomass is not relevant.</i></p> <p>Thus, CAR 04 was closed successfully.</p>
<b>Conclusion</b>	<p>In line with the paragraph 385, 386, 388, 390(a)(iii) of VVS PoA version 02.0, the validation team confirmed that the generic component project activity stated in the revised PoA-DD (version 3, date 16/06/2020) complies with all the requirements of the applied methodology (AMS-I.D. version 18), standardized baselines and the other methodological regulatory documents except for additionality demonstration. The applicability condition of the selected methodologies, the selected standardized baselines and the other applied methodological regulatory documents is fulfilled by each generic CPA.</p>

### D.2.2. Validity of original baseline or its update

<b>Means of validation</b>	<p>The CME has demonstrated the validity of the original baseline or updated it for each of the corresponding CPAs as per paragraph 288-291 of PS for PoA version 02.0. The baseline scenario as depicted in the PoA-DD is checked during the validation process and also during the interview with the responsible person of CME and PPs.</p>
<b>Findings</b>	<p>CAR 05 were raised during the validation process. Explanation of methodological choices described in section I.6.1 and modalities for ex ante calculation of emission reductions described in section I.6.3 of the updated PoA-DD (version 1, date 05/03/2020) was not updated in line with paragraph 41 and 42 of AMS-I.D, version 18.</p> <p>Then, the revised PoA-DD (version 3, date 16/06/2020) was completely corrected in line with the applied methodology (AMS-I.D, Version 18). Thus, CAR 05 was closed successfully.</p>
<b>Conclusion</b>	<p>In line with the paragraph 382, 383, 390(a)(iv) of VVS PoA version 02.0, the validation team confirmed that the validity of the baseline complies with all the requirements of the application of the applied methodology (AMS-I.D. version 18), standardized baselines and the other methodological regulatory documents.</p>

### D.2.3. Estimated emission reductions or net anthropogenic removals

<b>Means of validation</b>	<p>The CME has demonstrated the estimated emission reductions for 6 following Project Types:</p> <ol style="list-style-type: none"> <li>1. Wind power</li> <li>2. Solar photovoltaic power generation</li> <li>3. Concentrated solar power</li> <li>4. Run-of-the-River hydropower</li> <li>5. Renewable biomass based power generation</li> <li>6. Biogas based power generation</li> </ol> <p>The CME has demonstrated the project boundary, baseline scenario, baseline emissions, project emissions, leakage and estimated emission reductions in line with the applied methodology AMS-I.D (Version 18).</p> <p>The combined margin CO<sub>2</sub> emission factor for grid connected power generation (<math>EF_{grid,y}</math>) has been calculated in line with tool to calculate the emission factor for an electricity system (Version 07.0).</p> <p>The project Emissions, in the cases where fossil fuels are used in the CPA of PoA, CO<sub>2</sub> emissions from on-site consumption of fossil fuels shall be calculated in line with tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion (Version 03.0).</p> <p>The project boundary, baseline scenario, baseline emissions, project emissions, leakage and estimated emission reductions for 6 Project Types as depicted in the PoA-DD is checked during the validation process and also during the interview with</p>
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	the responsible person of CME and PPs.
<b>Findings</b>	<p>CAR 07 was raised during the validation process. The grid emission factor shall be calculated by using tool to calculate the emission factor for an electricity system (Version 07.0). Nevertheless, "Appendix 4. Further background information on ex ante calculation of emission reductions" provide information of EFgrid,y which was published by TGO (Thai DNA) on 28 September 2017 and calculated by using tool to calculate the emission factor for an electricity system (Version 05.0).</p> <p>Then, Appendix 4 has been updated by using tool to calculate the emission factor for an electricity system (Version 07.0) for determination of combined margin emission factor for second crediting period based on information of grid emission factor of Thailand which was latest published by TGO (Thai DNA) on 28 September 2017. Thus, CAR 07 was closed successfully.</p>
<b>Conclusion</b>	In line with the paragraph 390(a)(iv) of VVS PoA version 02.0, the validation team confirmed that the validity of the estimation of emission reductions complies with all the requirements of the application of the applied methodology (AMS-I.D. version 18) and standardized baselines.

#### D.2.4. Validity of monitoring plan

<b>Means of validation</b>	<p>The generic CPA of the revised PoA-DD (version 3, date 16/06/2020) indicate the data and parameters to be monitored for each following project types:</p> <ol style="list-style-type: none"> <li>1. Wind power</li> <li>2. Solar photovoltaic power generation</li> <li>3. Concentrated solar power</li> <li>4. Run-of-the-River hydropower</li> <li>5. Renewable biomass based power generation</li> <li>6. Biogas based power generation</li> </ol> <p>The monitoring plan following the requirements of the CDM methodology was updated based on requirements of the applied methodology AMS I-D. version 18. The monitoring plan presented in the generic CPA complies with the requirements of the applicable methodology. The validation team has verified all parameters in the monitoring plan against the requirements of the methodology and no deviations have been found. The CME has appropriately mentioned the maintenance and calibration frequency of monitoring equipment and monitoring frequency against each monitoring parameter.</p> <p>Other elements of monitoring plan i.e. monitoring plan objective and organization, monitoring data and archiving, quality assurance and quality control has been reviewed by the validation team through document review and interviews with the relevant personnel. The information provided has allowed the validation team to confirm that the monitoring plan is in line with AMS-I.D, version 18. The monitoring plan and relevant information in the context of the PoA and procedures of CPA inclusions have been discussed with the CME and PPs.</p>
<b>Findings</b>	<p>CAR 06 was raised during the validation process. Some acronym of parameters for determination of baseline emissions and monitoring procedure identified in the updated PoA-DD (version 1, date 05/03/2020) was not in line with AMS-I.D, version 18.</p> <p>Then, Then, the revised PoA-DD was completely corrected in line with the applied methodology (AMS-I.D, Version 18). Thus, CAR 06 was closed successfully.</p>
<b>Conclusion</b>	In line with the paragraph 390(a)(iv) of VVS PoA version 02.0, the validation team confirmed that the monitoring plan in each generic component project activity stated in the revised PoA-DD (version 3, date 16/06/2020) complies with all the requirements of the applied methodology (AMS-I.D. version 18), the applied standardized baselines and the other applied methodological regulatory documents.



## D.2.5. Eligibility criteria for inclusion of CPAs

Means of validation	The CME has defined the eligibility criteria for inclusion of CPAs in the proposed CDM PoA, setting out required conditions for a proposed CPA to be included in the PoA, and has demonstrated the usability of the eligibility criteria for assessing the inclusion of CPAs in the PoA. This PoA establishes 6 type of generic CPAs, the CME has developed a distinct set of eligibility criteria for each generic CPA as per paragraph 123 of PS for PoA Version 02.0. The eligibility criteria for inclusion of CPAs as depicted in the PoA-DD is checked during the validation process and also during the interview with the responsible person of CME and PPs.		
	No.	Eligibility Criteria	Means of validation
	1.	The Project Activity is a voluntary initiative and not implemented due to mandatory policies or regulations.	The CPA is a voluntary activity, which is not enforced by any mandatory policies or national/local regulations. The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.
	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 eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(d) of PS for PoA Version 02.0. The specification of the technology/measure of the CPA are sufficiently verifiable at the CPA level using documents listed by the CME i.e. <ul style="list-style-type: none"><li>• Legally binding contract between the Project Entity and a third party related to the implementation or construction of the Project Activity containing a clear project design description;</li><li>• Purchase order(s) of the Project Activity's equipment/technology;</li><li>• Feasibility study or technical-commercial proposal by technology provider.</li></ul> The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.
	2.a	Additional requirement for Run-of-River hydropower plants (Project Type 4): Hydropower plants with reservoirs (only if applicable) satisfy conditions as per AMS-I.D, Version 18, Paragraph 5.	The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(f)(h) of PS for PoA Version 02.0. The applicability and other requirements of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents mentioned in the revised PoA-DD (version 3, date 16/06/2020) are sufficiently verifiable at the CPA level using documents listed by the CME. The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.
2.b	Additional requirements for renewable biomass energy and biogas projects (Technology Types 5 and 6):	The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(f)(h) of PS for PoA Version 02.0. The applicability and other requirements	

		<ul style="list-style-type: none"> <li>• Biomass and biogas based electricity generation projects use only domestic biomass residues from renewable biomass sources (in line with AMS-I.D, Version 18, Paragraphs 2 and 47); AND</li> <li>• Information on biomass availability in the region of the CPA is available (for determination of leakage at CPA level; in line with AMS-I.D, Version 18, Paragraph 42)</li> </ul>	<p>of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents mentioned in the revised PoA-DD (version 3, date 16/06/2020) are sufficiently verifiable at the CPA level using documents listed by the CME.</p> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.</p>
	3.	<p>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.</p>	<p>The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(f)(h) of PS for PoA Version 02.0.</p> <p>The applicability and other requirements of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents mentioned in the revised PoA-DD (version 3, date 16/06/2020) are sufficiently verifiable at the CPA level using documents listed by the CME i.e.</p> <ul style="list-style-type: none"> <li>• Legally binding contract 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;</li> <li>• Purchase order(s) of the Project Activity's equipment/technology.</li> </ul> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.</p>
	3.a	<p>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 eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(f)(h) of PS for PoA Version 02.0.</p> <p>The applicability and other requirements of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents mentioned in the revised PoA-DD (version 3, date 16/06/2020) are sufficiently verifiable at the CPA level using documents listed by the CME i.e.</p> <ul style="list-style-type: none"> <li>• Legally binding contract 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;</li> <li>• Purchase order(s) of the Project</li> </ul>

			<p>Activity's equipment/technology.</p> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.</p>
	3.b	<p>Additional requirements for Project Activities that co-fires fossil fuel.</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>	<p>The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(f)(h) of PS for PoA Version 02.0.</p> <p>The applicability and other requirements of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents mentioned in the revised PoA-DD (version 3, date 16/06/2020) are sufficiently verifiable at the CPA level using documents listed by the CME i.e.</p> <ul style="list-style-type: none"> <li>• Legally binding contract 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);</li> <li>• Purchase order(s) of the Project Activity's equipment/technology.</li> </ul> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.</p>
	4.	<p>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).</p>	<p>The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(i)(k) of PS for PoA Version 02.0.</p> <p>Regulations for Very Small Power Producers (VSPPs) in Thailand are include requirements related to undertaking local stakeholder consultation and environmental impact analysis as follow</p> <p>1) Fuel combustion technology :</p> <ul style="list-style-type: none"> <li>• Code of Practices (CoP) for total installed capacity &lt; 5 MW</li> <li>• Environmental Safety Assessment (ESA) for total installed capacity 5 to 10 MW</li> <li>• Environmental Impact Assessment (EIA) or Environmental Health Impact Assessment (EHIA) for total installed capacity ≥ 10 MW</li> </ul> <p>2) Other technology (i.e. solar power, wind power, hydro power and etc.) :</p> <ul style="list-style-type: none"> <li>• Code of Practices (CoP)</li> <li>• Initial Environmental Examination (IEE)</li> </ul> <p>The target group for each CPA will be national grid only, which will be verified at the time of CPA inclusion from power purchase agreement or approval from concerned statutory body.</p> <p>The specific requirements related to undertaking local stakeholder consultation</p>

			and environmental impact analysis are sufficiently verifiable at the CPA level. The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.
	5.	The Project Activity is implemented under a Greenfield scenario (in line with AMS-I-D, Version 18, Paragraph 4).	<p>The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(f)(h) of PS for PoA Version 02.0.</p> <p>The applicability and other requirements of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents mentioned in the revised PoA-DD (version 3, date 16/06/2020) are sufficiently verifiable at the CPA level using documents listed by the CME i.e.</p> <ul style="list-style-type: none"> <li>• Legally binding contract between the Project Entity and a third party related to the implementation or construction of the Project Activity containing a clear project design description.</li> <li>• Operation license</li> </ul> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.</p>
	6.	The Project Activity is not a combined heat and power (co-generation) project (in line with AMS-I-D, Version 18, Paragraph 7).	<p>The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(f)(h) of PS for PoA Version 02.0.</p> <p>The applicability and other requirements of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents mentioned in the revised PoA-DD (version 3, date 16/06/2020) are sufficiently verifiable at the CPA level using documents listed by the CME i.e.</p> <ul style="list-style-type: none"> <li>• Legally binding contract between the Project Entity and a third party related to the implementation or construction of the Project Activity containing a clear project design description.</li> <li>• Purchase order(s) of the Project Activity's equipment/technology.</li> <li>• Signed PPA.</li> </ul> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.</p>
	7.	The proposed Project Activity meets the Assessment of debundling for small-scale project activities, Version 04.0.	<p>The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(n) of PS for PoA Version 02.0.</p> <p>The debundling conditions of the CPA can be verified at CPA level by checking the documents listed by the CME, at the time of CPA inclusion.</p> <p>The criteria was found to be in accordance with validation requirements related to</p>

			renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.
	8.	The Project Activity's boundary is within the geographical territory of Thailand.	<p>The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(a) of PS for PoA Version 02.0.</p> <p>The geographical boundary of the CPA is Thailand which is sufficiently verifiable at the CPA level.</p> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.</p>
	9.	<p>The additionality for each Project Activity is demonstrated by any one of the following approaches:</p> <p>Approach 1:</p> <ul style="list-style-type: none"> <li>Demonstration of additionality of microscale project activities ;</li> </ul> <p>Approach 2:</p> <ul style="list-style-type: none"> <li>As per Demonstration of additionality of small-scale project activities, Paragraph 10, additionality is demonstrated based on the investment barrier analysis.</li> <li>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.</li> </ul> <p>Approach 3:</p> <ul style="list-style-type: none"> <li>As per Demonstration of additionality of small-scale project activities, Paragraph 11, Project Activities based on solar technologies (i.e. Technology Types 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</li> </ul>	<p>The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(g)(m) of PS for PoA Version 02.0.</p> <p>The CME has included conditions that would systematically demonstrate additionality of CPAs under the proposed CDM PoA in the eligibility criteria for inclusion of CPAs in the registered PoA. For renewal of the PoA period of a registered CDM PoA, the CME is not required to reassess the additionality of the PoA nor update the section of the PoA-DD relating to additionality as per paragraph 285 of PS for PoA version 02.0.</p> <p>The information related to additionality stated in the revised PoA-DD (version 3, date 16/06/2020) was found to be in line with the registered PoA-DD.</p> <p>The CPA will be checked to be in line with guidelines for demonstrating additionality of microscale project activities (EB 63, Annex 23) or guidelines for demonstrating additionality of small-scale project activities (EB 63, Annex 24) at the time of CPA inclusion to ensure that CPAs meet the additionality demonstration requirements as defined in Section C of the revised PoA-DD (version 3, date 16/06/2020).</p> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.</p>

		compliance with Eligibility Criteria No. 3) are automatically defined as additional.	
	10.	The proposed Project Activity does not lead to double counting of emission reductions.	<p>The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(b)(c) of PS for PoA Version 02.0.</p> <p>The double counting will be avoided and verified at CPA level by cross checking the unique identification number of standalone CDM Project activity, the part of a bundled CDM Project activity, another registered CDM PoA, project activity under another emission reduction crediting scheme (e.g. voluntary carbon markets).</p> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.</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).	<p>The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined as per paragraph 124(e) of PS for PoA Version 02.0.</p> <p>The start date of the CPA will be considered as any date after the date of commencement of validation of the PoA, when the CME or project implementer has committed to expenditures related to the CPA implementation.</p> <p>The start date of the CPA is sufficiently verifiable at the CPA level using documents listed by the CME i.e.</p> <ul style="list-style-type: none"> <li>• Legally binding contract between the Project Entity and a third party related to the implementation or construction of the Project Activity;</li> <li>• Purchase order(s) of the Project Activity's equipment/technology;</li> <li>• Any other significant purchase order, contract or payment evidence related to the construction of the Project Activity.</li> </ul> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA and is therefore accepted by the validation team.</p>
<p>The revised PoA-DD (version 3, date 16/06/2020) indicate that, no public funding is used to implement this PoA. Furthermore, the CME will ensure that at the time of inclusion of a CPA there is no public funding from foreign countries that might lead to a diversion of Official Development Assistance (ODA) as part of the project finance for the underlying Project Activities by declaration given from the chartered accountant of the Project Entity. Thus, eligibility criterion related to funding from Annex I Parties as per paragraph 124(j) of PS for PoA Version 02.0 is accepted by the validation team.</p> <p>The generic CPA of the revised PoA-DD (version 3, date 16/06/2020) indicate that, there is no sampling plan applied for the monitoring procedure. Thus, eligibility criterion related to sampling requirements for inclusion of corresponding CPAs in the CDM PoA as per paragraph 124(l) of PS for PoA Version 02.0 is not applicable</p>			

	and is therefore accepted by the validation team.
<b>Findings</b>	There are no CARs/CLs raised in this section.
<b>Conclusion</b>	In line with the paragraph 378 and 395 of VVS PoA version 02.0, the validation team confirmed that the eligibility criteria for inclusion of CPAs stated in the revised PoA-DD (version 3, date 16/06/2020) complies with all the requirements of the applied methodology (AMS-I.D. version 18) and PS for PoA Version 02.0.

### SECTION E. Internal quality control

This process is implemented in line with the procedure for internal quality control prescribed by FID-MASCI Quality Manual and relevant procedures.

Before the submission of the final validation report a technical review of the whole validation procedure was carried out. The technical reviewer is competent GHG auditors being appointed for the scope of this project. The technical reviewer is not considered to be part of the validation team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may have been confirmed or revised. Furthermore, reporting improvements might have been achieved.

After the successful technical review, an overall assessment of the complete validation has to be carried out by the Vice President of System Certification Department or the Manager of Climate Change Service section of FID-MASCI. This final approval has to be carried out prior to request for renewal of PoA period.

### SECTION F. Validation opinion

FID-MASCI has performed a validation for renewal of the PoA period of the aforementioned existing Programme of Activities. Standard auditing techniques have been used for the validation process. The validation has been performed following the requirements of the latest version of the CDM VVS for PoA version 2.0. The review of the PoA-DD, subsequent follow-up interviews, and further validation of references have provided validation team with sufficient evidence to determine the validity of the original baseline and the update of data & parameters. The findings raised during this validation have been closed satisfactorily. In our opinion, the PoA meets all relevant UNFCCC requirements and hence the validation team recommends the renewal of the PoA period of this PoA.

## Appendix 1. Abbreviations

Abbreviations	Full texts
AMS	Approved Small Scale Methodologies
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification Request
CM	Combined Margin
CME	Coordinating/Managing Entity
CPA	Component Project Activity
CPA DD	Component Project Activity Design Document
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
EPC	Engineering, Procurement and Construction
FAR	Forward Action Request
GHG	Green House Gas
IPCC	Intergovernmental Panel on Climate Change
MoC	Modalities of Communication
ODA	Official Development Assistance
OM	Operating Margin
PCP	Project Cycle Procedure
PCP for PoA	CDM Project Cycle Procedure for Programme of Activities
PE	Project Emission
PoA	Programme of Activities
PoA DD	Programme of Activities Design Document
PP	Project Participant
PS	Project Standard
PS for PoA	Project Standard for Programme of Activities
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VVS for PoA	Validation and Verification Standard for Programme of Activities



## Appendix 2. Competence of team members and technical reviewers

### 1) Ms.Atchada Ngeimvijawat (Team Leader)

	Management System Certification Institute (Thailand) : Climate Change Service Section (CCS)
	Form : Statement of Competence and Appointment
	Document Number : CCS-FM-009-05
	Revision : 1
	Effective Date: 29 June 2016

#### Statement of Competence and Appointment

Title: Ms. Name: Atchada Last name: Ngeimvijawat  
He/She satisfied the qualification requirements as specified in CCS-DP-009 and is hereby appointed as

- ☒ Lead validator / Lead verifier
 ☒ Validator / Verifier
 ☒ Technical reviewer  
☐ Financial expert
 ☒ Technical expert
 ☒ Local expert (Thailand)

#### Qualification:

Education background	Master of Engineering (Environmental Engineering)
Work experiences	<ul style="list-style-type: none"> <li>Total 20 years               <ul style="list-style-type: none"> <li>Environmental Engineering at consulting firm</li> <li>&gt; 20 man-days as Lead auditor at MASCI</li> </ul> </li> </ul>
Training	<ul style="list-style-type: none"> <li>Successfully passed CDM validation and verification/certification training course from KFQ</li> <li>Successfully passed practical training and examination on CDM validation and verification/certification training course</li> </ul>
CDM experiences	<ul style="list-style-type: none"> <li>Participated as a team member in 5 projects of practical training on CDM validation and verification/certification</li> <li>Participated as a team leader in 3 projects of practical training on CDM validation/verification</li> <li>Acting as team leader in 1 project of CDM verification (CDM project no. 1558)</li> </ul>

#### Competence in specific technical areas within CDM sectoral scopes:

Sectoral Scope	Technical Area	Result of competence analysis
SS1 Energy industries (renewable - / non-renewable sources)	TA1.1 Thermal energy generation	<input checked="" type="checkbox"/>
	TA1.2 Renewables	<input checked="" type="checkbox"/>
SS13 Waste handling and disposal	TA13.1 Solid waste and wastewater	<input checked="" type="checkbox"/>
	TA13.2 Manure	<input checked="" type="checkbox"/>

Evaluated by Name: Mr. Teerakul B. Signature:  Position: Senior Manager of CCS Date: 16/03/2020	Reviewed by Name: Mr. Teerakul B. Signature:  Position: Senior Manager of CCS Date: 16/03/2020	Approved by Name: Mr. Thanit P. Signature:  Position: Vice President of SCD Date: 16/03/2020
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This statement is valid until 16/03/2020 to 15/03/2022 (2 years).

## 2) Mr. Teerakul Boonyong (Validator)

	Management System Certification Institute (Thailand) : Climate Change Service Section (CCS)
	Form : <b>Statement of Competence and Appointment</b>
	Document Number : CCS-FM-009-05
	Revision : 1
Effective Date: 29 June 2016	

## Statement of Competence and Appointment

Title: Mr. Name: Teerakul Last name: Boonyong  
He/She satisfied the qualification requirements as specified in CCS-DP-009 and is hereby appointed as

- ☐ Lead validator / Lead verifier
 ☒ Validator / Verifier
 ☐ Technical reviewer  
☐ Financial expert
 ☒ Technical expert
 ☒ Local expert (Thailand)

## Qualification:

Education background	B. Eng. (Mechanical Engineering) M.B.A. (International Programme)
Work experiences	<ul style="list-style-type: none"> <li>Total 20 years</li> <li>&gt; 20 man-days as Lead auditor at MASCI</li> </ul>
Training	Successfully passed CDM accreditation and requirement, GHG validation or verification, and GHG Measuring and Calculation
CDM experiences	<ul style="list-style-type: none"> <li>Participated as a team member in 3 projects of practical training on CDM validation/verification</li> <li>Acting as team member in 1 project of CDM verification (CDM project no. 1558)</li> </ul>

## Competence in specific technical areas within CDM sectoral scopes:

Sectoral Scope	Technical Area	Result of competence analysis
SS1 Energy industries (renewable - / non-renewable sources)	TA1.1 Thermal energy generation	<input checked="" type="checkbox"/>
	TA1.2 Renewables	<input checked="" type="checkbox"/>
SS13 Waste handling and disposal	TA13.1 Solid waste and wastewater	<input checked="" type="checkbox"/>
	TA13.2 Manure	<input type="checkbox"/>

Evaluated by Name: Mr. Teerakul B. Signature:  Position: Senior Manager of CCS Date: 16/03/2020	Reviewed by Name: Mr. Teerakul B. Signature:  Position: Senior Manager of CCS Date: 16/03/2020	Approved by Name: Mr. Thanit P. Signature:  Position: Vice President of SCD Date: 16/03/2020
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This statement is valid until 16/03/2020 to 15/03/2022 (2 years).

## 3) Mr.Naris Lapsunthornphitak (Validator)

	Management System Certification Institute (Thailand) : Climate Change Service Section (CCS)
	Form : <b>Statement of Competence and Appointment</b>
	Document Number : CCS-FM-009-05
	Revision : 1
Effective Date: 29 June 2016	

**Statement of Competence and Appointment**

Title: Mr.      Name: Naris      Last name: Lapsunthornphitak  
 He/She satisfied the qualification requirements as specified in CCS-DP-009 and is hereby appointed as

- ☐ Lead validator / Lead verifier      ☒ Validator / Verifier      ☐ Technical reviewer  
☐ Financial expert      ☒ Technical expert      ☒ Local expert (Thailand)

**Qualification:**

Education background	Master of Engineering (Industrial Engineering)
Work experiences	<ul style="list-style-type: none"> <li>Total 14 years               <ul style="list-style-type: none"> <li>Accredited Consultant, Energy Engineer/Project engineer</li> <li>&gt; 20 man-days as Lead auditor at MASCI</li> </ul> </li> </ul>
Training	<ul style="list-style-type: none"> <li>Successfully passed CDM accreditation and requirement, GHG validation or verification, and GHG Measuring and Calculation</li> </ul>
CDM experiences	<ul style="list-style-type: none"> <li>Participated as a team member in 3 projects of practical training on CDM validation/verification</li> <li>Acting as a team member in 1 project of CDM verification (CDM project no. 1558)</li> </ul>

**Competence in specific technical areas within CDM sectoral scopes:**

Sectoral Scope	Technical Area	Result of competence analysis
SS1 Energy industries (renewable - / non-renewable sources)	TA1.1 Thermal energy generation	<input checked="" type="checkbox"/>
	TA1.2 Renewables	<input checked="" type="checkbox"/>
SS13 Waste handling and disposal	TA13.1 Solid waste and wastewater	<input checked="" type="checkbox"/>
	TA13.2 Manure	<input type="checkbox"/>

Evaluated by Name: Mr. Teerakul B. Signature:  Position: Senior Manager of CCS Date: 16/03/2020	Reviewed by Name: Mr. Teerakul B. Signature:  Position: Senior Manager of CCS Date: 16/03/2020	Approved by Name: Mr. Thanit P. Signature:  Position: Vice President of SCD Date: 16/03/2020
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This statement is valid until 16/03/2020 to 15/03/2022 (2 years).

## 4) Mr.Parinya Seanglert (Technical Expert)

	Management System Certification Institute (Thailand) : Climate Change Service Section (CCS)
	Form : <b>Statement of Competence and Appointment</b>
	Document Number : CCS-FM-009-05
	Revision : 1
	Effective Date: 29 June 2016

## Statement of Competence and Appointment

Title: Mr. Name: Parinya Last name: Seanglert

He/She satisfied the qualification requirements as specified in CCS-DP-009 and is hereby appointed as



- ☐ Lead validator / Lead verifier
 ☐ Validator / Verifier
 ☐ Technical reviewer
- ☐ Financial expert
 ☒ Technical expert
 ☐ Local expert (Thailand)

## Qualification:

Education background	B. Eng, Electrical engineer (Power)
Work experiences	<ul style="list-style-type: none"> <li>Total 7 years               <ul style="list-style-type: none"> <li>Electrical Engineer 6 years</li> <li>&gt; 20 man-days as Auditor at MASCI</li> </ul> </li> </ul>
Training	<ul style="list-style-type: none"> <li>Electrical installation in thai standard (ISBN-2545)</li> <li>PEA medium voltage Substation design</li> <li>PEA Electrical installation standard</li> <li>E-GAT Specification design and standard</li> <li>Maintenance of High voltage Substation equipment</li> <li>230 kV GIS substation by Siemens</li> <li>IRCA Certified ISO 9001 : 2015 Lead Auditor Training Course</li> </ul>
CDM experiences	N/A

## Competence in specific technical areas within CDM sectoral scopes:

Sectoral Scope	Technical Area	Result of competence analysis
SS1 Energy industries (renewable - / non-renewable sources)	TA1.1 Thermal energy generation	<input checked="" type="checkbox"/>
	TA1.2 Renewables	<input checked="" type="checkbox"/>
SS13 Waste handling and disposal	TA13.1 Solid waste and wastewater	<input type="checkbox"/>
	TA13.2 Manure	<input type="checkbox"/>

Evaluated by Name: Mr. Teerakul B. Signature:  Position: Senior Manager of CCS Date: 16/03/2020	Reviewed by Name: Mr. Teerakul B. Signature:  Position: Senior Manager of CCS Date: 16/03/2020	Approved by Name: Mr. Thanit P. Signature:  Position: Vice President of SCD Date: 16/03/2020
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This statement is valid until 16/03/2020 to 15/03/2022 (2 years).

## 5) Ms.Mattana Khemthong (Trainee)

Ms. Mattana Khemthong performs as trainee in the validation team, therefore the statement of competence and appointment was not issued.



## 6) Mr.Johannes Smolders (Technical reviewer)

	Management System Certification Institute (Thailand) : Climate Change Service Section (CCS)
	Form : <b>Statement of Competence and Appointment</b>
	Document Number : CCS-FM-009-05
	Revision : 1
Effective Date: 29 June 2016	

## Statement of Competence and Appointment

Title: MR. Name: Johannes Last name: Smolders  
 He/She satisfied the qualification requirements as specified in CCS-DP-009 and is hereby appointed as

- ☒ Lead validator / Lead verifier
 ☒ Validator / Verifier
 ☒ Technical reviewer  
☐ Financial expert
 ☒ Technical expert
 ☐ Local expert (Thailand)

## Qualification:

Education background	BSc Environmental Sciences (Hons) BSc Analytical Chemistry MSc Biology (Environmental Sciences)
Work experiences	<ul style="list-style-type: none"> <li>Total 37 years               <ul style="list-style-type: none"> <li>CDM Lead Auditor and Technical Reviewer</li> <li>&gt; 20 man-days as Lead Auditor</li> </ul> </li> </ul>
Training	CDM validation and Verification/Certification
CDM experiences	Acting as Team Leader in more than 13 CDM projects and technical reviewer for CDM project

## Competence in specific technical areas within CDM sectoral scopes:

Sectoral Scope	Technical Area	Result of competence analysis
SS1 Energy industries (renewable - / non-renewable sources)	TA1.1 Thermal energy generation	<input checked="" type="checkbox"/>
	TA1.2 Renewables	<input checked="" type="checkbox"/>
SS13 Waste handling and disposal	TA13.1 Solid waste and wastewater	<input checked="" type="checkbox"/>
	TA13.2 Manure	<input checked="" type="checkbox"/>

Evaluated by Name: Mr. Teerakul B. Signature:  Position: Senior Manager of CCS Date: 16/03/2020	Reviewed by Name: Mr. Teerakul B. Signature:  Position: Senior Manager of CCS Date: 16/03/2020	Approved by Name: Mr. Thanit P. Signature:  Position: Vice President of SCD Date: 16/03/2020
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This statement is valid until 16/03/2020 to 15/03/2022 (2 years).

### Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	Carbon Coordinating Managing Entity Limited	Initially updated POA-DD version 1, the revised POA-DD version 2 and the revised POA-DD version 3	The updated PoA-DD (version 1, date 05/03/2020), The revised PoA-DD (version 2, date 19/05/2020), and The revised PoA-DD (version 3, date 16/06/2020)	CME
2	UNFCCC	Registered POA-DD (Version 2.4 Date 12 March 2012) and Appendix 1 – PDD form revised part II Generic component project activity (CPA)	-	UNFCCC
3	UNFCCC	CDM project standard for programmes of activities (Version 02.0 Date 29 November 2018)	EB 101, Annex 3	UNFCCC
4	UNFCCC	CDM validation and verification standard for programmes of activities (Version 02.0 Date 29 November 2018)	EB 101, Annex 4	UNFCCC
5	UNFCCC	CDM project cycle procedure for programmes of activities (Version 02.0 Date 29 November 2018)	EB 101, Annex 17	UNFCCC
6	UNFCCC	Methodology AMS-I.D. Grid connected renewable electricity generation (Version 18.0 Date 28 November 2014)	EB 81, Annex 24	UNFCCC
7	UNFCCC	TOOL03 : Tool to calculate project or leakage CO2 emissions from fossil fuel combustion (Version 03.0 Date 22 September 2017)	EB 96, Annex 4	UNFCCC
8	UNFCCC	TOOL04 : Emissions from solid waste disposal sites (Version 8.0 Date 4 May 2017)	EB 94 , Annex 7	UNFCCC
9	UNFCCC	TOOL06 : Project emissions from flaring (Version 3.0 Date 28 March 2019)	EB 102 , Annex 6	UNFCCC
10	UNFCCC	TOOL07 : Tool to calculate the emission factor for an electricity system (Version 07.0 Date 31 August 2018)	EB 100, Annex 4	UNFCCC
11	UNFCCC	TOOL10 : Tool to determine the remaining lifetime of equipment (Version 01 Date 16 October 2009)	EB 50, Annex 15	UNFCCC
12	UNFCCC	TOOL11 : Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period (Version 03.0.1 Date 2 March 2012)	EB 66, Annex 47	UNFCCC
13	UNFCCC	TOOL16 : Project and leakage emissions from biomass (Version 04.0 Date 22 September 2017)	EB 96, Annex 8	UNFCCC

No.	Author	Title	References to the document	Provider
14	UNFCCC	TOOL19 : Demonstration of additionality of microscale project activities (Version 09.0 Date 29 November 2018)	EB 101, Annex 15	UNFCCC
15	UNFCCC	TOOL20 : Assessment of debundling for small-scale project activities (Version 04.0 Date 16 April 2015)	EB 83, Annex 13	UNFCCC
16	UNFCCC	TOOL21 : Demonstration of additionality of small-scale project activities (Version 13.0 Date 29 November 2018)	EB 105 annex 04	UNFCCC
17	UNFCCC	TOOL22 : Leakage in biomass small-scale project activities (Version 04.0 Date 16 April 2015)	EB 83, Annex 15	UNFCCC
18	UNFCCC	TOOL27 : Investment analysis (Version 10.0 Date 28 November 2019)	EB 105, Annex 6	UNFCCC
19	UNFCCC	TOOL32 : Positive lists of technologies (Version 02.0 Date 28 November 2019)	EB 105, Annex 5	UNFCCC
20	UNFCCC	General guidelines for SSC CDM methodologies (Version 23.0 Date 12 September 2019)	EB 104, Annex 5	UNFCCC
21	UNFCCC	Non-binding best practice examples to demonstrate additionality for SSC project activities (Version 01.0)	EB35, Annex 34	UNFCCC
22	UNFCCC	Definition of renewable biomass (Version 01.0)	EB 23, Annex 18	UNFCCC
23	UNFCCC	Application of small-scale CDM project activity thresholds at the renewal of the crediting period of a small-scale project activity or a CPA (Version 01.0 , Date 4 October 2013)	EB 75, Annex 16	UNFCCC

## Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CL from this validation

CL ID	xx	Section no.	Date: DD/MM/YYYY
Description of CL			
Project participant response			Date: DD/MM/YYYY
Documentation provided by project participant			
DOE assessment			Date: DD/MM/YYYY

Table 2. CAR from this validation

CAR ID	CAR 01	Section no.	D.1.1	Date: 30/04/2020
Description of CAR				
<p>The updated PoA-DD (version 1, date 05/03/2020) was prepared by using the valid version of the applicable PoA-DD form (CDM-PoA-DD-FORM version 09.0) but the alteration to the form was found as follows:</p> <ul style="list-style-type: none"> <li>• I.7.4. Data and parameters to be monitored</li> <li>• I.7.5. Sampling plan</li> <li>• I.7.6. Other elements of monitoring plan</li> <li>• Appendix 8. Project Emissions Calculation for Biogas Projects</li> <li>• Appendix 9. Power Density Calculation</li> </ul> <p>The updated PoA-DD (version 1, date 05/03/2020) is not in line with the instructions therein for filling out the PoA-DD form as provided by UNFCCC.</p>				
Project participant response				Date: 19/05/2020
<p>The following sections have been revised in the PoA-DD, Version 2 in line with the valid PoA-DD form and instructions for completing the form.</p> <ul style="list-style-type: none"> <li>• I.7.1 Data and parameters to be monitored</li> <li>• I.7.2 Sampling plan</li> <li>• I.7.3 Other elements of monitoring plan</li> </ul> <p>Appendix 8 and 9 has been removed as it was inconsistent with the PoA-DD form. The additional information on Project Emissions Calculation for Biogas Projects (previously under Appendix 8) and Power Density Calculation (previously under Appendix 9) has been inserted under Appendix 4 in line with the instructions for completing the PoA-DD form.</p>				
Documentation provided by project participant				
PoA-DD, Version 2 date 19/05/2020				
DOE assessment				Date: 14/06/2020
<p>The revised PoA-DD (version 2, date 19/05/2020) is in line with the instructions therein for filling out the PoA-DD form as provided by UNFCCC. Nevertheless, "Appendix 9" still was referred in additional comment of A<sub>BL</sub> (page 108).</p>				
Project participant response (2 <sup>nd</sup> round)				Date: 16/06/2020
<p>The referred Appendix in additional comment of the parameter A<sub>BL</sub> has been revised from Appendix 9 to Appendix 4.</p>				
Documentation provided by project participant (2 <sup>nd</sup> round)				
PoA-DD, Version 3 date 16/06/2020				
DOE assessment (2 <sup>nd</sup> round)				Date: 16/06/2020
<p>The revised PoA-DD (version 3, date 16/06/2020) was prepared by using the valid version of the applicable PoA-DD form (CDM-PoA-DD-FORM version 09.0) and in line with the instructions therein for filling out the PoA-DD form as provided by UNFCCC. The referred Appendix has been corrected.</p> <p>CAR 01 was closed successfully.</p>				



<b>CAR ID</b>	<b>CAR 02</b>	<b>Section no.</b>	<b>D.1.3</b>	<b>Date: 30/04/2020</b>
<b>Description of CAR</b>				
<p>The names of the CME and the project participants and the modalities of the communication (MoC) statement were checked from UN homepage.  (<a href="https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/TRXICK8M93E2LBY1UWPVZ05O6ADJHS/view">https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/TRXICK8M93E2LBY1UWPVZ05O6ADJHS/view</a>)  The inconsistencies was found as follows:</p> <ul style="list-style-type: none"> <li>MoC statement of Asian Development Bank as Trustee of the Future Carbon Fund and Swedish Energy Agency was added on 21/08/2013 and the authorized signatory, name or contact details were changed on 07/11/2018 was not stated in the updated PoA-DD (version 1, date 05/03/2020).</li> <li>The address of CME in the updated PoA-DD (version 1, date 05/03/2020) have been changed.</li> </ul>				
<b>Project participant response</b>				<b>Date: 19/05/2020</b>
<ul style="list-style-type: none"> <li>The PoA-DD has been revised to include the Asian Development Bank as Trustee of the Future Carbon Fund and Swedish Energy Agency in accordance with the available MoC on the UN homepage.</li> <li>Regarding the address of CME, the CME entity has changed the location of head office. Therefore, the new address has been provided in the PoA-DD and the valid company affidavit of Carbon Coordinating Managing Entity Ltd. has been provided to the DOE as evidence.</li> </ul>				
<b>Documentation provided by project participant</b>				
PoA-DD, Version 2 date 19/05/2020 Company affidavit of Carbon Coordinating Managing Entity Ltd., issued on 27/09/2019				
<b>DOE assessment</b>				<b>Date: 14/06/2020</b>
<p>The names of the CME and the project participants and the modalities of the communication (MoC) statement were checked from UN homepage.  (<a href="https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/TRXICK8M93E2LBY1UWPVZ05O6ADJHS/view">https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/TRXICK8M93E2LBY1UWPVZ05O6ADJHS/view</a>)  The inconsistencies was found as follows:</p> <ul style="list-style-type: none"> <li>MoC statement of Asian Development Bank as Trustee of the Future Carbon Fund and Swedish Energy Agency was added on 21/08/2013 and the authorized signatory, name or contact details were changed on 07/11/2018 was not stated in the revised PoA-DD (version 2, date 19/05/2020).</li> <li>The address and E-mail of CME stated in the revised PoA-DD (version 2, date 19/05/2020) have been changed.</li> <li>The E-mail and contact person of PP stated in the revised PoA-DD (version 2, date 19/05/2020) have been changed.</li> </ul> <p>Nevertheless, CDM-MOC-FORM to request changes to the modalities of communication was not submitted to the secretariat through a dedicated interface on the UNFCCC CDM website as per paragraph 183 of CDM PCP PoA (version 2)</p>				
<b>Project participant response (2<sup>nd</sup> round)</b>				<b>Date: 16/06/2020</b>
<p>The PoA-DD has been revised to included the following details.</p> <ul style="list-style-type: none"> <li>The details of Asian Development Bank as Trustee of the Future Carbon Fund and Swedish Energy Agency as per the latest MoC Annex 2 in 2018</li> <li>The details of address of the CME as per the registered PoA DD</li> </ul> <p>Regarding the change of CME head office location, the CME shall prepare and submit the CDM-MOC-FORM to request changes as per paragraph 183 of CDM PCP PoA. However, as per the timeline for renewal of PoA crediting period and its first CPA crediting period, the process for change request for the MOC will not be able to complete within timeline as the process to acquire the physical signatures from different countries (Thailand and Switzerland) shall not be conducted smoothly during the COVID19 pandemic. Therefore, the expected timeline to upload the request for changes of the MOC shall be done within October 2020.</p> <p>In addition to the E-mail and representatives' name for CME provided under Appendix 1 of the PoA DD, the evidence of the electronic MOC date 03/09/2015 and the E-mail communication from UNFCCC during latest issuance process has been provided to the DOE.</p>				
<b>Documentation provided by project participant (2<sup>nd</sup> round)</b>				
PoA-DD, Version 3 date 16/06/2020 E-mail communication from UNFCCC date 04/07/2019 CDM-MOC-FORM: ANNEX 2 date 03/09/2015				
<b>DOE assessment (2<sup>nd</sup> round)</b>				<b>Date: 16/06/2020</b>

Comparing the revised PoA-DD (version 3, date 16/06/2020) : Appendix 1 and the names of the CME and the project participants and the modalities of the communication (MoC) statement in UN homepage ([https://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/TRXICK8M93E2LBY1UWPVZ05O6ADJHS/view](https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/TRXICK8M93E2LBY1UWPVZ05O6ADJHS/view)) including other information provided by CME.

- The revised PoA-DD (version 3, date 16/06/2020) specify the information of Asian Development Bank as Trustee of the Future Carbon Fund and Swedish Energy Agency as per the latest CDM-MOC-FORM: ANNEX 2 submitted on 07/11/2018.
- The revised PoA-DD (version 3, date 16/06/2020) specify the information of Carbon Coordinating Managing Entity Limited and South Pole Carbon Asset Management Ltd. as per the latest CDM-MOC-FORM: ANNEX 2 submitted on 03/09/2015. The E-mail <registration@southpolecarbon.com> is used for communication with UNFCCC.

At present, the address of CME (Carbon Coordinating Managing Entity Limited) have been changed to 318 Evergreen Place, 3<sup>rd</sup> Floor Unit 3A, Thanon Petchaburi, Ratchthewi, Bangkok. Under situation of COVID19 pandemic, the process of request change for the MOC including the process to acquire the physical signatures from different countries (Thailand and Switzerland) is in progress with the expected timeline to upload the request for changes of the MOC shall be done within October 2020. Therefore, CDM-MOC-FORM to request changes to the modalities of communication as per paragraph 183 of CDM PCP PoA (version 2) shall be confirmed during next verification.

CAR 02 was closed but FAR 01 was raised.

CAR ID	CAR 03	Section no.	D.2.1	Date: 30/04/2020
<b>Description of CAR</b>				
The updated PoA-DD (version 1, date 05/03/2020) still refer to the expired version of methodologies and methodological tools, which is not in line with the paragraph 284 of PS for PoA version 02.0.				
<ul style="list-style-type: none"> <li>• AMS-I.D, version 17</li> <li>• Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site, Version 5.1</li> <li>• General guidance on leakage in biomass project activities (EB 47, Annex 28)</li> <li>• Guidelines on assessment of debundling for SSC project activities (EB 54, Annex 13)</li> <li>• General Guidelines to SSC CDM Methodologies, Version 17 (EB 61, Annex 21)</li> <li>• Guidelines on the assessment of investment analysis (EB 62, Annex 5)</li> <li>• Guidelines for demonstrating additionality of microscale project activities (EB 63, Annex 23)</li> <li>• Guidelines for demonstrating additionality of small-scale project activities (EB 63, Annex 24)</li> </ul>				
<b>Project participant response</b>				<b>Date: 19/05/2020</b>
The version of the following methodology and methodological tools has been updated in the PoA-DD, Version 2.				
<ul style="list-style-type: none"> <li>• AMS-I.D, Version 18</li> <li>• Emissions from solid waste disposal site, Version 08.0</li> <li>• Leakage in biomass small-scale project activities, Version 04.0</li> <li>• Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, Version 03.0</li> <li>• Assessment of debundling for small-scale project activities, Version 04.0</li> <li>• Investment analysis, Version 10.0</li> <li>• Demonstration of additionality of microscale project activities, Version 09.0</li> <li>• Demonstration of additionality of small-scale project activities, Version 13.0</li> </ul>				
However, as per paragraph 285 of the CDM project standard for PoAs, the CME is not required to reassess the additionality of the PoA nor update the section of the PoA-DD relating to additionality. Thus, the same description as per the registered PoA-DD has been provided under Section C of the PoA-DD, Version 2.				
<b>Documentation provided by project participant</b>				
PoA-DD, Version 2 date 19/05/2020				
<b>DOE assessment</b>				<b>Date: 14/06/2020</b>

The version of methodologies and methodological tools stated in PoA-DD was changed as shown in the table

PoA-DD (version 1, date 05/03/2020)	PoA-DD (version 2, date 19/05/2020)
• AMS-I.D, version 17	• AMS-I.D, Version 18
• Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site, Version 5.1	• Emissions from solid waste disposal site, Version 08.0
• General guidance on leakage in biomass project activities (EB 47, Annex 28)	• Leakage in biomass small-scale project activities, Version 04.0
• Guidelines on assessment of debundling for SSC project activities (EB 54, Annex 13)	• Assessment of debundling for small-scale project activities, Version 04.0
• General Guidelines to SSC CDM Methodologies, Version 17 (EB 61, Annex 21)	
• Guidelines on the assessment of investment analysis (EB 62, Annex 5)	• Investment analysis, Version 10.0
• Guidelines for demonstrating additionality of microscale project activities (EB 63, Annex 23)	• Demonstration of additionality of microscale project activities, Version 09.0
• Guidelines for demonstrating additionality of small-scale project activities (EB 63, Annex 24)	• Demonstration of additionality of small-scale project activities, Version 13.0

Noted: For renewal of the PoA period of a registered CDM PoA, the CME is not required to reassess the additionality of the PoA nor update the section of the PoA-DD relating to additionality. Thus, Section C of the revised PoA-DD (version 2, date 19/05/2020) is the same description as the registered PoA-DD, which is in line with the paragraph 285 of PS for PoA version 02.0.

Nevertheless, some page of the revised PoA-DD (version 2, date 19/05/2020) still refer to the expired version of methodologies and methodological tools as follow

- AMS-I.D, version 17 (page 102 , 104)
- Guidelines on assessment of debundling for SSC project activities (EB 54, Annex 13) (page 10 , 70 , 124)
- General Guidelines to SSC CDM Methodologies, Version 17 (EB 61, Annex 21) (page 144)

#### Project participant response (2<sup>nd</sup> round)

Date: 16/06/2020

The version of following methodology and methodological tools has been updated in the revised PoA-DD, Version 3.

- AMS-I.D, Version 18 on page 102 and 104
- Assessment of debundling for small-scale project activities, Version 04.0 on page 10, 70 and 124

Regarding the General Guidelines to SSC CDM Methodologies, Version 17 (EB 61, Annex 21) on page 144, it has been removed since the referral data collection was not valid in the latest version of the guidelines. It is important to note that though the referred condition was not valid, still such a measurement procedure for data collection can be applied for the project implementation for a conservative approach.

#### Documentation provided by project participant (2<sup>nd</sup> round)

PoA-DD, Version 3 date 16/06/2020

#### DOE assessment (2<sup>nd</sup> round)

Date: 16/06/2020

The revised PoA-DD (version 3, date 16/06/2020) refer to the valid version of methodologies and methodological tools, which is in line with the paragraph 284 of PS for PoA version 02.0. CAR 03 was closed successfully.

CAR ID	CAR 04	Section no.	D.2.1	Date: 30/04/2020
Description of CAR				

<p>The applicability of methodologies and standardized baselines described in section I.2. of the updated PoA-DD (version 1, date 05/03/2020)</p> <ul style="list-style-type: none"> <li>• Illustration of respective situations under which each of the methodology (AMS-I.D., AMS-I.F. and AMS-I.A.) was not explained.</li> <li>• The applicability criteria was not cover the case of “biomass is sourced from dedicated plantations” and the applicability criteria in the tool “Project emissions from cultivation of biomass” as specified in “AMS-I.D, version 18”.</li> </ul>	
<b>Project participant response</b>	<b>Date: 19/05/2020</b>
<p>The following details as described in section I.2 of the PoA-DD, Version 2 have been revised in line with the applied methodology (AMS-I.D, Version 18).</p> <ul style="list-style-type: none"> <li>• Illustration of respective situations under which each of the methodology is referred to the appendix of the applied methodology</li> <li>• The applicability criteria 10 as specified in the applied methodology is included.</li> </ul>	
<b>Documentation provided by project participant</b>	
PoA-DD, Version 2 date 19/05/2020	
<b>DOE assessment</b>	<b>Date: 14/06/2020</b>
<p>The Applicability Criteria and Project Activity Eligibility stated in section I.2. of the revised PoA-DD (version 2, date 19/05/2020) was revised in line with the applied methodology (AMS-I.D, Version 18).</p> <ul style="list-style-type: none"> <li>• Illustration of respective situations under which each of the methodology (AMS-I.D., AMS-I.F. and AMS-I.A.) was explained. 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. This applicability criteria and project activity eligibility as depicted in the PoA-DD is checked during the validation process and also during the interview with the responsible person of CME and PPs. Only AMS-I.D is applicable and other methodologies (AMS-I.F. and AMS-I.A.) are not applicable.</li> <li>• The applicability criteria cover the case of “biomass is sourced from dedicated plantations” and the applicability criteria in the tool “Project emissions from cultivation of biomass” as specified in “AMS-I.D, version 18”. In case of CPAs under technology type 1 (Wind power), type 2 (Solar photovoltaic power generation), type 3 (Concentrated solar power), type 4 (Run-of-the-river hydropower) as depicted in the PoA-DD, this applicability criteria is not applicable. In case of CPAs under technology type 5 Renewable Biomass (biomass combustion and gasification of biomass residues) as depicted in the PoA-DD, biomass sourced from dedicated plantations will not be included in CPAs under Technology Types 5, therefore, the mentioned project emissions from cultivation of biomass are not eligible under the PoA. In case of CPAs under technology type 6 (biogas) as depicted in the PoA-DD, the project emissions from cultivation of biomass is not relevant.</li> </ul> <p>CAR 04 was closed successfully.</p>	

<b>CAR ID</b>	<b>CAR 05</b>	<b>Section no.</b>	<b>D.2.2</b>	<b>Date: 30/04/2020</b>
<b>Description of CAR</b>				
<p>Explanation of methodological choices described in section I.6.1 and modalities for ex ante calculation of emission reductions described in section I.6.3 of the updated PoA-DD (version 1, date 05/03/2020) was not updated in line with AMS-I.D, version 18.</p> <ul style="list-style-type: none"> <li>• “Project emissions for CPAs that apply Technology Types 5 (Renewable biomass based power generation)” was not detailed regarding biomass from dedicated plantations as specified in paragraph 41 of AMS-I.D, version 18.</li> <li>• “Determination of leakage emissions” and “Calculation of leakage emissions” were not updated in line with paragraph 42 of AMS-I.D, version 18.</li> </ul>				
<b>Project participant response</b>				<b>Date: 19/05/2020</b>
<ul style="list-style-type: none"> <li>• The project emissions from the use of biomass from dedicated plantations has not been provided since the project emissions for all CPAs applying Technology Type 5 are considered as zero as per the explanation provided in Section I.6.1 of the Generic CPA No. 5.</li> <li>• The explanation of determination of leakage emissions in section I.6.1 and calculation of leakage emissions in section I.6.3 has been updated in line with paragraph 42 of the AMS-I.D, Version 18.</li> </ul>				
<b>Documentation provided by project participant</b>				
PoA-DD, Version 2 date 19/05/2020				
<b>DOE assessment</b>				<b>Date: 14/06/2020</b>

<p>The revised PoA-DD (version 2, date 19/05/2020) indicates the explanation of determination of leakage emissions in section I.6.1 and calculation of leakage emissions in section I.6.3, which were in line with paragraph 42 of the AMS-I.D, Version 18.</p> <p>The revised PoA-DD (version 2, date 19/05/2020) indicate that, project emissions for all CPAs applying Technology Types 5 (Renewable biomass based power generation) are considered to be zero. Nevertheless, there is no explanation related to the case of biomass is sourced from dedicated plantations and the procedures in the tool "Project emissions from cultivation of biomass" as paragraph 41 of AMS-I.D, version 18.</p>	
<b>Project participant response (2<sup>nd</sup> round)</b>	<b>Date: 16/06/2020</b>
<p>The detail for the project activity eligibility has been revised under section I.2 of the Generic CPA Technology Types 5. Since the biomass sourced from dedicated plantations will not be part of CPAs involving Technology Types 5 under the PoA, the project emissions from cultivation of biomass are considered as zero.</p>	
<b>Documentation provided by project participant (2<sup>nd</sup> round)</b>	
PoA-DD, Version 3 date 16/06/2020	
<b>DOE assessment (2<sup>nd</sup> round)</b>	<b>Date: 16/06/2020</b>
<p>The applicability of methodologies and standardized baselines described in section I.2, the explanation of methodological choices described in section I.6.1 and modalities for ex ante calculation of emission reductions described in section I.6.3 of the revised PoA-DD (version 3, date 16/06/2020) was revised in line with paragraph 41 and 42 of AMS-I.D, version 18 as follow</p> <ul style="list-style-type: none"> <li>As per paragraph 41 of AMS-I.D, version 18, in case biomass is sourced from dedicated plantations, the procedures in the tool "Project emissions from cultivation of biomass" shall be used. Therefore, biomass sourced from dedicated plantations will not be included in CPAs under Technology Types 5, therefore, the mentioned project emissions from cultivation of biomass are not eligible under the PoA.</li> <li>As per paragraph 42 of AMS-I.D, version 18, general guidance on leakage in biomass project activities shall be followed to quantify leakages pertaining to the use of biomass residues. Therefore, the determination of leakage of CPAs under Technology Type 5 (Renewable Biomass) or Type 6 (Biogas) shall be done following the tool "Leakage in biomass small-scale project activities". Since only biomass and biogas based electricity generation projects that use domestic biomass residues from renewable biomass sources are eligible under the PoA, emission sources due to competing use of biomass is the only potential leakage emission source.</li> </ul> <p>CAR 05 was closed successfully.</p>	

<b>CAR ID</b>	<b>CAR 06</b>	<b>Section no.</b>	<b>D.2.4</b>	<b>Date: 30/04/2020</b>
<b>Description of CAR</b>				
<p>Comparing the information provided in the updated PoA-DD (version 1, date 05/03/2020) and AMS-I.D, version 18.</p> <ul style="list-style-type: none"> <li>Referring to AMS-I.D version 18, <math>EF_{grid,y}</math> is using for CO<sub>2</sub> emission factor of the grid electricity in year y. Nevertheless, the updated PoA-DD (version 1, date 05/03/2020) indicates 2 names of same parameter (<math>EF_{CO_2,grid}</math> and <math>EF_{grid,y}</math>) which are inconsistency.</li> <li>Referring to AMS-I.D version 18, <math>EG_{PJ,y}</math> is using for quantity of net electricity generation supplied by the project plant/unit to the grid in year y. The source of data "<math>EG_{PJ,y}</math>" is electricity meter(s). Nevertheless, the updated PoA-DD (version 1, date 05/03/2020) indicate 2 names of same parameter (<math>EG_{BL,y}</math> and <math>EG_{PJ,y}</math>) which are inconsistency. The source of data "<math>EG_{PJ,y}</math>" provided in section I.7.1 was not identified as electricity meter(s).</li> </ul>				
<b>Project participant response</b>				<b>Date: 19/05/2020</b>
<p>The following parameters for determination of baseline emissions have been revised in the PoA-DD, Version 2 in line with the applied methodology and the same acronym has applied consistently within the PoA-DD.</p> <ul style="list-style-type: none"> <li>CO<sub>2</sub> emission factor of the grid electricity as <math>EF_{grid,y}</math></li> <li>Quantity of net electricity generation supplied by the project to the grid as <math>EG_{PJ,y}</math></li> </ul> <p>In addition, the equipment as electricity meter(s) has been clearly addressed under the source of data <math>EG_{PJ,y}</math> in section I.7.1 as per the monitoring procedure of the applied methodology.</p>				
<b>Documentation provided by project participant</b>				

PoA-DD, Version 2 date 19/05/2020	
<b>DOE assessment</b>	<b>Date: 14/06/2020</b>
<p>The revised PoA-DD (version 2, date 19/05/2020) indicates the parameters for determination of baseline emissions as follow</p> <ul style="list-style-type: none"> <li>• CO<sub>2</sub> emission factor of the grid electricity as <math>EF_{grid,y}</math></li> <li>• Quantity of net electricity generation supplied by the project to the grid as <math>EG_{PJ,y}</math></li> </ul> <p>In addition, the equipment as electricity meter(s) has been clearly addressed under the source of data <math>EG_{PJ,y}</math> in section I.7.1 as per the monitoring procedure of the applied methodology.</p> <p>Thus, the parameters for determination of baseline emissions indicated in the revised PoA-DD (version 2, date 19/05/2020) and monitoring procedure are in line with AMS-I.D, version 18.</p> <p>CAR 06 was closed successfully.</p>	

<b>CAR ID</b>	<b>CAR 07</b>	<b>Section no.</b>	<b>D.2.3</b>	<b>Date: 30/04/2020</b>
<b>Description of CAR</b>				
<p>The updated PoA-DD (version 1, date 05/03/2020) indicates that, the grid emission factor shall be calculated in a transparent and conservative manner based on the combined margin (CM) approach, according to the procedures prescribed in the "Tool to calculate the emission factor for an electricity system, Version 07.0". In case the official DNA publication of the grid emission factor is discontinued, CPAs shall calculate the grid emission factor based on the "Tool to calculate the emission factor for an electricity system" using official energy statistics by the Ministry of Energy in Thailand (e.g. DEDE and/or EGAT reports) and IPCC factors. Nevertheless, "Appendix 4. Further background information on ex ante calculation of emission reductions" provide information of <math>EF_{grid,y}</math> which was published by TGO (Thai DNA) on 28 September 2017 and calculated by using tool to calculate the emission factor for an electricity system (Version 05.0), which is not the same version as specified in PoA-DD.</p>				
<b>Project participant response</b>				<b>Date: 19/05/2020</b>
<p>The grid emission factor of 0.5637 for general project and 0.5692 for wind and solar project as indicated in Appendix 4 has been updated using the "Tool to calculate the emission factor for an electricity system, version 07.0 for determination of combined margin emission factor for second crediting period. As provided detail for calculation of the grid emission factor of Thailand, though, the emission factor published by the Thai DNA was calculated as per Version 05.0 of the applied tool, there have been no updated details related to the Project Activities from Version 05.0 to Version 07.0. Thus, the values of Thai DNA are applicable. In addition, the same value and approach can be referred the CDM projects under the same host country in which the second crediting period has been recently renewed (i.e. CDM Reference number 4867 and 5098).</p>				
<b>Documentation provided by project participant</b>				
<p>Tool to calculate the emission factor for an electricity system, version 05.0, 06.0, 07.0 CDM Reference number 4867 and 5098</p>				
<b>DOE assessment</b>				<b>Date: 14/06/2020</b>

Tool to calculate the emission factor for an electricity system version 05.0 was published on 27 November 2015. Tool version 06.0 was published on 1 November 2017 to include simplified approaches on small isolated grids in SIDS and LDC and enhance the clarity of the requirements related to determine transmission constraints. Tool version 07.0 was published on 31 August 2018 to include monitoring requirements for parameters used to determine the emission factor of the isolated grid. Thus, the emission factor calculated by using tool version 05.0 is accepted to use as a background information.

“Appendix 4. Further background information on ex ante calculation of emission reductions” provide information of  $EF_{grid,y}$  which was published by TGO (Thai DNA) on 28 September 2017 and calculated by using tool to calculate the emission factor for an electricity system (Version 05.0). The results of calculation as shown in the table.

Tool	Weight	Emission Factor	Unit
Operating Margin: OM	0.5	0.5719	tCO <sub>2</sub> /MWh
Build Margin: BM	0.5	0.5609	tCO <sub>2</sub> /MWh
Combined Margin: CM – General Project		0.5664	tCO <sub>2</sub> /MWh

and

Tool	Weight	Emission Factor	Unit
Operating Margin: OM	0.75	0.5719	tCO <sub>2</sub> /MWh
Build Margin: BM	0.25	0.5609	tCO <sub>2</sub> /MWh
Combined Margin: CM – Wind and Solar		0.5692	tCO <sub>2</sub> /MWh

As per paragraph 86 of tool to calculate the emission factor for an electricity system (Version 07.0).

- (a) Wind and solar power generation project activities:  $w_{OM} = 0.75$  and  $w_{BM} = 0.25$  (owing to their intermittent and non-dispatchable nature) for the first crediting period and for subsequent crediting periods;
- (b) All other projects:  $w_{OM} = 0.5$  and  $w_{BM} = 0.5$  for the first crediting period, and  $w_{OM} = 0.25$  and  $w_{BM} = 0.75$  for the second and third crediting period. The results of calculation as shown in the table.

Tool	TGO (28 September 2017)		The second crediting period		Unit
	Weight	Emission Factor	Weight	Emission Factor	
Operating Margin: OM	0.5	0.5719	0.25		tCO <sub>2</sub> /MWh
Build Margin: BM	0.5	0.5609	0.75		tCO <sub>2</sub> /MWh
Combined Margin: CM – General Project		0.5664		0.5637	tCO <sub>2</sub> /MWh

Therefore, the combined margin emissions factor for second crediting periods shall be calculated as follows:

- For the Project Activities applying Technology Type 1, 2 and 3, the combined margin emissions factor for second crediting periods remains the same;  $EF_{CO_2} = EF_{grid,y} = 0.5692$  tCO<sub>2</sub>/MWh
- For the Project Activities applying Technology Type 4, 5 and 6, the combined margin emissions factor for second crediting periods is  $EF_{CO_2} = EF_{grid,y} = 0.5637$  tCO<sub>2</sub>/MWh

In addition, the same value and approach of  $EF_{grid,y}$  can be referred the other CDM projects under the same host country (Thailand) in which the second crediting period has been recently renewed (i.e. CDM Reference number 4867 and 5098).

CAR 07 was closed successfully.

**Table 3. FAR from this validation**

FAR ID	01	Section no.	D.1.3	Date:	16/06/2020
<b>Description of FAR</b>					
The address of CME (Carbon Coordinating Managing Entity Limited) have been changed to 318 Evergreen Place, 3 <sup>rd</sup> Floor Unit 3A, Thanon Petchaburi, Ratchthewi, Bangkok. Therefore, CDM-MOC-FORM to request changes to the modalities of communication as per paragraph 183 of CDM PCP PoA (version 2) shall be confirmed during next verification.					
<b>Project participant response</b>					<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>					
<b>DOE assessment</b>					
					<b>Date:</b> DD/MM/YYYY

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
02.0	31 May 2019	Revision to: <ul style="list-style-type: none"><li>• Ensure consistency with version 02.0 of the “CDM validation and verification standard for programmes of activities” (CDM-EB93-A08-STAN) and version 02.0 of the “CDM project cycle procedure for programmes of activities” (CDM-EB93-A09-PROC);</li><li>• Make editorial improvements.</li></ul>
01.0	29 December 2017	Initial publication.

Decision Class: Regulatory  
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Business Function: Renewal of crediting period  
Keywords: crediting period, programme of activities, validation report