

PMR PROJECT IMPLEMENTATION STATUS REPORT (ISR)

1. SUMMARY INFORMATION

Implementing Country/Technical Partner:	Kingdom of Thailand
Reporting Period:	From 10/01/2017 to 09/30/2018
Report Date:	09/30/2018
Implementing Agency:	Thailand Greenhouse Gas Management Organization (Public Organization)
Contact Person:	Dr. Puttipar Rotkittikhun Dr. Muanjit Chamsilpa

Grant Executed By:	Kingdom of Thailand
Grant Effectiveness and Closing Dates:	02/16/2016 - 12/31/2019
Grant Amount (USD):	USD 3,000,000
Funding Mobilized (USD):	USD 2,956,031
Funding Committed (USD)	USD 2,669,896

2. OVERVIEW

Objective

The Project Development Objective (PDO) is to provide selected technical and analytical support to Thailand that informs policy decisions to develop readiness of market-based instruments to reduce greenhouse gas (GHG) emissions in Thailand.

The Thailand MRP's objectives are to design and initially implement a domestic market mechanism to reduce energy consumption and GHG emissions in energy sector with a view to transform to Emission Trading Scheme (ETS) in the future. In this phase, it will be focused on preparation for a demonstration of the Energy Performance Certificate Scheme (EPC), including supporting infrastructure such as database and MRV system and a study on legal framework for the ETS. Another objective is to promote and support municipalities and local communities to implement GHG mitigation actions while achieving sustainable development and low carbon society goals through domestic market mechanism named Low Carbon City Program (LCC).

Indicators

PDO level results indicators are as follows:

- i) Submission of the core EPC readiness components (target setting methodology and MRV system) for the policy consideration of DEDE (The Department of Alternative Energy Development and Efficiency, Ministry of Energy).
- ii) Local GHG Abatement Plans for 24 cities submitted to city management to inform city's priority abatement projects.

- iii) Submission of the policy recommendation on legal framework to establish the ETS for TGO Board's consideration.

The project comprises of four components:

- Component 1** Preparation of key market components of Energy Performance Certificate scheme (EPC);
Component 2 Development of Local Greenhouse Gas Abatement Plans and a study on pricing mechanism for Low Carbon City program (LCC);
Component 3 Policy recommendation on legal framework to establish the Emission Trading Scheme (ETS);
Component 4 Project Management Unit (PMU).

Component 1, 2 and 3 will each support a different domestic carbon market scheme which will together contribute to the overall future domestic carbon market development in Thailand.

For the progress made towards the PDO, firstly, the four project officers, as a support team for the PMU, have been on board. The three individual consultants, CS-1 Technical Officer for EPC, CS-2 Technical Officer for LCC, and CS-3 Assistant Technical Officer/Procurement, are dealing with the works, i.e. execute procurement processes, visit sites of participating factories and municipalities, coordinate with the key stakeholders, prepare periodic reports on progress of implementation, and follow up/monitor the operation in progress of the consultants. CS-4 Financial officer is responsible for the overall project financial management aspects.

Secondly, for the firm consultancy services, the ToR under Component 1 CS-10, Target setting for EPC scheme, CS-14, Study on Pricing Mechanism for EPC's surplus allowances and LCC-TVER credits, Development of EPC's Sink Fund and Incentives for LCC Program, and CS-6, A legal study to support the readiness preparation for the Energy Performance Certificate (EPC) scheme in Thailand, were signed in December 2017, January 2018 and August 2018 respectively. There are the last two ToRs in procurement processes, CS-15 Development of mobile application on City Carbon Footprint (CCF) and CS-16 Development of mobile application on GHG emissions in buildings.

Thirdly, the meetings with the project key stakeholders were organized periodically to inform the progress of the works and to seek for suggestions including;

- 1) **The PMU meetings** – 4 times in January, March, June and September 2018 to present overall progress of the project and consider the work plan and budget plan;
- 2) **The EPC Working Group** – 6 times in November, 2017, January, March, June, July and September 2018 to consider progress of the works under the EPC scheme;
- 3) **The LCC Working Group** – 5 times in October, 2017, February, April, June and August 2018 to consider progress of the works under the LCC program;
- 4) **The Carbon Market Working Group** – 4 times in November, 2017, January, May, and September, 2018 to present overall progress of the project;
- 5) **The Legal Framework Working Group** – 3 times in February, June and September, 2018 to present progress of the legal framework studies;
- 6) **The Meetings with Designated Factories and Buildings (DF&Bs) 11 sectors under the EPC scheme** – more than 20 times to present the analytical results of the studies and together the comments and suggestions from the DF&Bs.
- 7) **The Meetings with the 25 participating municipalities under the LCC program** – at least 2 times each to survey GHG emissions of the cities, to assess potential of GHG reduction and to consult for the abatement plans.

Finally, there were 9 seminars and trainings/workshops organized under the PMR support. Moreover, the

Implementation Support Mission Work Programs by the World Bank team were organized on 20-21 December, 2017 and 23 August, 2018.

3. IMPLEMENTATION REPORT BY COMPONENT

Differences between the Objectives/Activities in the Market Readiness Proposal and the Grant Agreement

<p>Are there any important and material differences between the objectives/activities proposed in the Market Readiness Proposal and endorsed by the Partnership Assembly of the PMR and those agreed to in the Grant Agreement with the Delivery Partner and described in the Project's Results Framework?</p>	<p>No</p>
<p>There are no substantive differences between the objectives/activities proposed in the Market Readiness Proposal endorsed by the PA of the PMR and those agreed to in the Grant Agreement with the World Bank as a Delivery Partner.</p>	

Implementation Progress by Component

<p>A. Component 1: Preparation of key market components of Energy Performance Certificate (EPC) scheme</p>	
<p>Status: Ongoing</p>	<p>This component focuses on planning for establishing the voluntary EPC scheme, which is planned to be a “voluntary target-and-reward scheme” targeting the DF&Bs of the intensive energy consumption sectors which in turn leading to intensive GHG emissions.</p> <p>The PMR's support for Component 1 focuses on 6 activities. The details are concluded as follows;</p> <ul style="list-style-type: none"> • Activity 1: Reviewing and analyzing policies, laws, regulations and institutional arrangement required in order to implement the EPC <p>The revised ToR for Activity 1 received NOL from the World Bank in May 2018. The procurement process and evaluation were executed from May to August, 2018. Finally, the contract was signed on 24 August, 2018 and the consultant submitted the inception report with the work plan on 24 September, 2018.</p> <ul style="list-style-type: none"> • Activity 2: Developing the MRV system for the EPC in Thailand <p>This activity aims to develop MRV Guideline and IT platform to support EPC scheme implementation, including electronic data interchange between DEDE and TGO. This work has been conducting since December 2016. The consultant submitted final report to TGO in August 2018 with the main results as follows:</p> <ol style="list-style-type: none"> 1. <u>Development of data reporting format for EPC scheme</u> <p>Data reporting templates for factories and buildings are in line with energy management report of DEDE. The data collection consists of three parts which are general information, Energy data and Greenhouse gas</p>

information (optional).

2. Review existing MRV system

Similar MRV systems, such as DEDE, and PAT scheme, were reviewed and then suggestions for improvement, identification for additional data elements and requirement of procedures and system were proposed.

3. Propose MRV guidelines for supporting implementation of EPC Scheme

MRV guidelines for each targeted sectors were outlined to ensure that the measurement, reporting and verification process is reliable and applicable for the implementer.

4. Propose the electronic data interchange between DEDE and TGO

Methodologies and tools for data interchange between the DEDE’s annual energy report system and TGO’s system were proposed including preservation of data confidentiality and security of data transmission over the network.

5. Develop the electronic reporting platform

The electronic platform was developed in form of a web based application to facilitate data reporting of the DF&Bs. The application software, application testing report and application handbook were delivered.

Stakeholder consultation meetings and training workshops were organized as listed in the table below.

Date	Indicative Meetings/Trainings
12 June 2018	Training for System Administration
29 June 2018	Consultation meetings on IT development for MRV system of EPC scheme

The meetings with DEDE were organized in July and August 2018 to discuss on the template, MRV system and data interchange.

• **Activity 3: Assessing the DF&Bs energy management system and updating Specific Energy Consumption (SEC) for 11 sectors¹**

This ToR aims to analyze sector-specific energy usage pattern, potential improvement to reduce energy consumption, energy profile, GHG emissions and Specific Energy Consumption (SEC) at product(s) level by review energy data from DEDE database and by modelling from data collection of DF&Bs. Activity 3 has been conducting since January 2017. The final report was submitted to TGO in August 2018 with the main results as follows:

1. Study and propose methodology for Specific Energy Consumption (SEC) analysis of the DF&Bs

The review of methodologies for SEC development from national and international papers was conducted. There are 2 approaches proposed to study, 1) development of average SEC from DEDE database and 2) development of SEC equations from data collection of DF&Bs.

2. Review and collect data of the DF&Bs from the energy databases of the DEDE

¹(i) Cement (ii) Ceramic (iii) Iron & Steel (iv) Petro-chemical (v) Paper (vi) Food & Beverage (vii) Thermal power plant (viii) Department store (iv) Office (x) Hotel and (xi) Hospital.

Data from the Energy Management Report of DF&Bs submitted to DEDE were gathered for review and analysis. However, some technical parameters were not completed. Therefore, the questionnaires were sent to the DF&Bs for deeper analysis.

3. Grouping of the DF&Bs – 11 Sectors

The target DF&Bs were classified based on Thailand Standard Industrial Classification (TSIC).

4. Analyze the energy data and SEC of the target DF&Bs

Analytical energy data and SEC results of the DF&Bs 11 sectors were presented including uncertainty evaluation.

5. Analyze potential improvement to reduce energy consumption

Potential of energy improvement/reduction of the products in each sector were analyzed by comparison between SEC results from this study with referenced SEC from International data.

6. Develop SEC Benchmarks of the DF&Bs – 11 sectors

The SEC benchmarks at product level of each sector were set up and compared to the International SEC benchmarks.

Seminars and meetings which took place under this activity are listed in the table below.

Date	Indicative Meetings/Trainings
30 March 2018 and 20-27 April 2018	Consultation meetings on SEC Benchmarking of DF&Bs 11sectors
6 July 2018	Seminar on Analytical results of SEC Benchmarking for DF&Bs 11 sectors

• **Activity 4: Verifying energy data of participating DF&Bs and setting up the baseline**

This activity aims to verify energy data of participating DF&Bs in order to establish baseline for EPC implementation, pilot test the MRV guidelines and EPC data template and also to study on potential improvement to reduce energy consumption and GHG Emissions. Activity 4 has been conducting since January 2017. The draft final report was submitted in August 2018, and the final report will be completed in October 2018. Progress of the project could be concluded as;

1. Select the potential participating sectors

The sectors for implementing data verification were selected based on the proposed criteria and discussion among DEDE, TGO and consultant. The criteria used for considering the eligible sector are as follows:

- Total energy consumption in each sector
- Average total energy consumption of participants in each sector
- Energy management report submission rate
- Amount of factory/building in each sector
- Specific Energy Consumption
- Average age of equipment
- The number of manufacturing process (only industrial sector)
- Benchmarking/Baseline/SEC study in the last 5 years

Two sectors of factories and two types of buildings were selected including

ceramic (sanitary ware), frozen seafood, hospital and department store. There were 38 DF&Bs participating in the project (10 department stores, 14 hospitals, 4 ceramic sanitary ware factories and 10 frozen food factories). In accordance with the ToR, energy data and related parameter for baseline setting was gathered for analysis.

2. Invite the DF&Bs to participate in the project

All target participants were invited to participate, including signing the MOU, organizing consultation meetings with industrial associations and kick off meeting for project explanation.

3. Check information required for the EPC scheme

The data reporting template for EPC scheme developed from the Activity 2 were test with the participants and proposed recommendation for adjustments

4. Audit and verify energy data of the participating DF&Bs

All participants were supported budget for energy audit by accredited energy auditor and prepared audit reports for submission to DEDE.

5. Analyze the collected data

All data from verification and audit reports were analyzed including:

- Compare existing technology used in targeted sectors and the best available technology.
- Evaluate potential improvement to reduce energy consumption and GHG emission.
- Evaluate the cost effectiveness of the implementation of EE measures in participating sectors.

6. Set up baselines

Baseline energy consumption of each participant was set up and consultation meetings to finalize the suitable baseline were also organized. These baselines will be a part of target setting for Thailand EPC scheme in Activity 5.

7. Improve data quality and MRV system

From the test of MRV system, proposal of how to improve data quality and MRV system and to revise the EPC data template and MRV Guideline was delivered to the consultant of Activity 2.

Seminar took place under this activity is listed in the table below.

Date	Indicative Meetings/Trainings
29 June 2018	Seminar on the study results of energy analysis and baseline setting

• **Activity 5: Analyzing target setting methods for different industrial sectors and buildings**

This activity aims to analyze target setting methods for different industrial sectors and commercial buildings, provide the most suitable methodology, collect all relevant data, and then set up of the target with the specific level and timeframe. Activity 5 has been conducting since December 2017. The consultant submitted the second progress report on 7 September, 2018 which includes;

1. Review of existing national and international energy policies related to the EPC scheme

The literature reviews of government policies and action plans on energy, energy efficiency measures, and related statistical databases of Thailand were conducted, including energy management schemes and energy target setting in other countries.

2. Study on energy target setting methodology

The energy saving target setting of the international schemes were studied and compared their pros. and cons. The 7 international schemes were concluded, such as Carbon Reduction Commitment (CRC) of the UK, EU ETS, Top-1000 Energy Consuming Enterprises Program of China.

3. Review and collect data for setting up the energy target

The energy data of Thailand were reviewed from the 5 long-term energy plans of Thailand were summarized, such as Power Development Plan (PDP), Energy Efficiency Plan (EEP), Alternative Energy Development Plan (AEDP). Three levels of separated data were proposed, (1) National Level (2) Sub-sector Level and (3) Specific Factory Level and there were three sets of energy efficiency indicators.

4. Setting up the energy target(s) under the EPC scheme

For Thailand EPC, setting up of energy saving target consists of 3 steps;

Step 1 :Setting of energy saving target for DF&Bs in the country

Step 2 :Setting of energy saving target for DF&Bs in the designated sectors

Step 3 :Setting of energy saving target for every DF&Bs

5. Finalisation of the targets

SWOT analysis was carried out to determine the optimal targets for improving energy efficiency under the Thailand EPC scheme.

The meeting which took place under this activity is listed in the table below.

Date	Indicative Meetings/Trainings
04 September 2018	Consultation meeting on Energy target setting of DF&Bs for Thailand EPC scheme

• **Activity 6: Analyzing potential performance-based incentive and pricing mechanism for EPC**

This activity aims to set up price of EPC’s surplus allowances as well as to develop EPC’s sink fund. Activity 6 has been conducting since January 2018. The study results of Development of a proposal on establishment of EPC’s Sink Fund in Thailand, including its institutional and legal framework, fund raising strategies and approaches, and administrative and operational structure will be presented in the progress report submitted in December, 2018.

Additional ToR proposed in the revised work plan in February, 2018

Development of Mobile application on GHG emissions in buildings.

The ToR received NOL from the World Bank in August, 2018. The REOI and EOI evaluation processes were conducted between August to September, 2018. Currently, it is in RFP process and the contract signing is expected to be in October, 2018.

Comments:	<ul style="list-style-type: none"> - One of the main challenges in SEC analysis of the DF&Bs is data quality consisting of accuracy and completeness of energy data. - Regarding activities under the component 1 which have 6 activities, the coordination and synergies among consultant teams is very important, in order to ensure smooth delivery of works, go in the same direction and avoid overlaps in engagement with DF&Bs and stakeholders. TGO is addressing this challenge by organizing the meetings with all consultant teams to update progress of the works and discuss the results every 2 months.
B. Component 2: Development of Local Greenhouse Gas Abatement Plans and a study on pricing mechanism for Low Carbon City (LCC) program	
Status: Ongoing	<p>LCC program aims to support municipalities and communities to shift towards a low carbon society by implementing GHG emission reduction activities. The projects developed by municipalities may apply the Thailand Voluntary Emission Reduction Program (T-VER) for certifying and issuing carbon credits. The T-VER program is a project-based mechanism.</p> <p>This component focuses on activities including study on GHG emission, identifies potential GHG emission reduction, and develops local GHG abatement plans and guidelines for municipalities. It shall also study on the pricing mechanism for LCC-TVERs (Thailand Voluntary Emission Reduction Program credits generated under LCC program) and incentive options for LCC-TVERs buyers respectively.</p> <p>The LCC program consists of four main activities for the preparation and operation phases including:</p> <ul style="list-style-type: none"> <i>Activity 1</i> Study on GHG emission and identify potential GHG emission reduction. Develop Local GHG Abatement Plans in 8 municipalities (Region 1); <i>Activity 2</i> Study on GHG emission and identify potential GHG emission reduction. Develop Local GHG Abatement Plans in 8 municipalities (Region 2); <i>Activity 3</i> Study on GHG emission and identify potential GHG emission reduction. Develop Local GHG Abatement Plans in 8 municipalities (Region 3). Develop GHG abatement plan guideline that include Environmental and Social Management Framework (ESMF) <i>Activity 4</i> Study on pricing mechanism for LCC-TVERs and incentive options for LCC-TVERs buyer. <p>Activity 3 has been conducting since April 2017 while Activities 1 and 2 have been conducting since July 2017. Progress of each Activity are concluded as follows;</p> <p>Activity 1: Study on GHG emission and identify potential GHG emission reduction. Develop Local GHG Abatement Plans in 8 municipalities (Region 1); City Carbon Footprint for 8 municipalities (Nonthaburi, Khu Khot, Si Sa Ket, Buriram, Ubon Ratchathani, Lamphun, Yasothon, and Maha Sarakham) were conducted including identification of the major of greenhouse gas emission activities within local context, estimation the emission amount of those activities and prediction the emission trend of Business as Usual (BAU), potential GHG emission reduction of each</p>

	<p>participating municipality or local community through consultation with local stakeholders. The potential abatement activities were suggested and screened for environmental and social benefits and impacts per guidance developed in the ESMF.</p> <p>Currently, the second consultation meetings on GHG abatement plan have been organizing for each municipality.</p> <p>Activity 2: Study on GHG emission and identify potential GHG emission reduction. Develop Local GHG Abatement Plans in 8 municipalities (Region 2); City Carbon Footprint for 8 municipalities (Songkhla, Hat Yai, Si Satchanalai, Roi Et, Loei, Nong Samrong, Chum Phae, and UdonThani) were conducted including identification of the major of greenhouse gas emission activities within local context, estimation the emission amount of those activities and prediction the emission trend of Business as Usual (BAU), potential GHG emission reduction of each participating municipality or local community through consultation with local stakeholders. The potential abatement activities were suggested and screened for environmental and social benefits and impacts per guidance developed in the ESMF.</p> <p>Currently, the second consultation meetings on GHG abatement plan have been organizing for each municipality.</p> <p>Activity 3: Study on GHG emission and identify potential GHG emission reduction. Develop Local GHG Abatement Plans in 8 municipalities (Region 3) Develop GHG abatement plan guideline that include Environmental and Social Management Framework (ESMF); City Carbon Footprint for 9 municipalities (Patong, Nakhon Sawan, Amnat Charoen, Hua Hin, Nan, Trang, Banchang, Sakon Nakhon, and Khaosamyod) were conducted including identification of the major of greenhouse gas emission activities within local context, estimation the emission amount of those activities and prediction the emission trend of Business as Usual (BAU), potential GHG emission reduction of each participating municipality or local community through consultation with local stakeholders. The potential abatement activities were suggested and screened for environmental and social benefits and impacts per guidance developed in the ESMF.</p> <p>Currently, the second consultation meetings on GHG abatement plan have been organizing for each municipality.</p> <p>At the same time, the three guidelines were developed as following;</p> <ol style="list-style-type: none"> 1. The guideline for developing the city carbon footprint including GHG inventory classification, standard of calculation methodology, and consolidation approach on emission boundary and scope with suggested methodology for emissions estimation and the prediction of emissions trend in Business as Usual (BAU) case for setting up emission baseline. 2. The guideline for developing the GHG abatement plan (including Environmental and Social Management Framework, ESMF) including the
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necessary steps to develop the GHG abatement plan and the selection criteria for abatement technology, taking into account the implementation feasibility and requirements of environment and social management framework.

3. The guideline for project evaluation including the methodology for evaluating the GHG emission reduction and evaluation criteria for assessing the benefits of project implementation such as co-benefit and sustainable development.

Currently, ESMF guideline has been revised according to World Bank and TGO comments.

- In 2014, TGO launched the City Carbon Footprint (CCF) project by using the government budget. The objectives of the project are to assess overall GHG emissions in cities and to identify GHG mitigation potential, hence leading these cities to develop their low-carbon policies and activities. In fiscal year 2018 (01 October 2017 – 30 September 2018), 23 municipalities are participating in the CCF project that makes the total number is 94 municipalities. Even though, the CCF project is not a part of Component 2 but this work is a good start and provides the useful information for the implementation of the LCC program. Recently, TGO has worked closely with Department of Local Administration (DLA) on the development of CCF. Since FY 2018, DLA has put the development of CCF as a Local Performance Assessment (LPA) of every municipality in country.
- TGO has organized trainings and workshops to develop numbers of independent validators and verifiers for T-VER program. As of September 2018, 18 organizations have been registered as validators and verifiers. A guideline to develop the T-VER project has been conducted and published on the T-VER website. LCC registry (T-VER registry) has been developed and the trainings on LCC registry have also been organized for the project developers, municipalities' staff and TGO staff.

Activity 4: Study on pricing mechanism for LCC-TVERs and incentive options for LCC-TVERs buyer.

Activity 4 of this component was merged with Activity 6 of the Component 1 to be one ToR since these activities are related to the study on pricing mechanism and also the incentives for the relevant stakeholders. The first progress report was submitted in August, 2018, which consisted of research literacy/review on international and domestic experiences regarding incentives, as well as price model used in voluntary GHG emission reductions schemes in other countries to create demand for voluntary carbon credits generated from LCC Program.

Seminar took place under this activity is listed in the table below.

Date	Indicative Meetings/Trainings
25 July 2018	Seminar on Guidelines of Carbon Pricing for Low Carbon City

	<p>Additional ToR proposed in the revised work plan in February, 2018 Development of mobile application on City Carbon Footprint (CCF) TGO has developed the ToR and submitted to the World Bank on September 28, 2018. The contract signing is expected to be in November, 2018.</p>
Comments:	The consultants should focus more on training municipality staff on guidelines for developing the City Carbon Footprint to ensure the continuation.

C. Component 3: Policy recommendation on legal framework to establish the ETS

<p>Status: Ongoing</p>	<p>The objective of this component is to support the Government’s effort in its consideration for the establishment of a sound and effective legal framework for the ETS in Thailand.</p> <p>There are two main parts of this activity including:</p> <ol style="list-style-type: none"> 1) Study on the legal and institutional framework, including preparation of the draft laws and regulations, for the establishment of an integrated reporting system and 2) Study on the legal and institutional framework, including preparation of the draft laws and regulations, for the establishment of the ETS in Thailand. <p>The work of this ToR started in August 2017. Progress could be described as follows;</p> <p>The study on the establishment of an integrated reporting system (Part I) for ETS was finalized by the revised final report of 12 September 2018, which included key findings and recommendations as follows:</p> <p>(1) Laws in the Trial and Readiness Phase</p> <p>The consultant found that the legal system regarding the reports and receiving of reports from the private sector under the Energy Conservation Promotion Act B.E. 2535 (1992) is suitable for the report of greenhouse gas emission in the Trial and Readiness Phase and thereby provided draft subordinate regulations under the Energy Conservation Act to be enforced in the Trial and Readiness phase.</p> <p>(2) Laws in the New Legislation and Implementation Phase</p> <p>The consultant provided draft law in the New Legislation and Implementation Phase, which is expected to be incorporated as a part of the draft Climate Change Act, currently being studied by the Office of Natural Resources and Environmental Policy and Planning (ONEP).</p> <p>Seminar and meetings which took place under this activity are listed in the table below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #0070C0; color: white;"> <th style="text-align: center;">Seminar/Meeting Date</th> <th style="text-align: center;">Description</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">20 September 2017</td> <td>Progress Meeting with the Legal Framework Working Group</td> </tr> <tr> <td style="text-align: center;">10 January 2018</td> <td>First Consultation Meeting with relevant government agencies and private sector</td> </tr> <tr> <td style="text-align: center;">21 February 2018</td> <td>Progress Meeting with the Legal Framework Working</td> </tr> </tbody> </table>	Seminar/Meeting Date	Description	20 September 2017	Progress Meeting with the Legal Framework Working Group	10 January 2018	First Consultation Meeting with relevant government agencies and private sector	21 February 2018	Progress Meeting with the Legal Framework Working
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20 September 2017	Progress Meeting with the Legal Framework Working Group								
10 January 2018	First Consultation Meeting with relevant government agencies and private sector								
21 February 2018	Progress Meeting with the Legal Framework Working								

		Group
	13 March 2018	Second Consultation Meeting with relevant government agencies and private sector
	19 April 2018	Progress Meeting with the Legal Framework Working Group
	19 July 2018	Third Consultation Meeting with relevant government agencies and private sector
	22 August 2018	Seminar on results of the study on the legal framework for an integrated reporting system
Comments:	N/A	

4. PROGRESS, CHALLENGES, AND LESSONS LEARNED

Important policy or regulatory developments related to the Grant's objectives and activities:

Developments:

1. Paris Agreement

Thailand signed the Paris Agreement on April 22, 2016 at a High-level Signature Ceremony convened by the Secretary General in New York and deposited its instrument of ratification at a High-level Event on the Entry into Force of the Paris Agreement on September 21, 2016 at the UN headquarters in New York.

2. Thailand Nationally Determined Contribution (NDC)

Thailand communicated its INDC to the UNFCCC on October 1st, 2015. Thailand intends to reduce greenhouse gas emissions economy-wide by 20 percent from the projected business-as-usual (BAU) level by 2030. The level of contribution could increase up to 25 percent, subject to adequate and enhanced access to technology development and transfer, financial resources and capacity building support through a balanced and ambitious global agreement under the United Nations Framework Convention on Climate Change (UNFCCC). The baseline emission is projected from BAU scenario from reference year 2005 in the absence of major climate change policies. The baseline emission in 2030 is projected to be 555 MtCO₂e. As indicated in NDC, Thailand will continue to explore the potentials of bilateral, regional and international market mechanisms as well as various approaches that can facilitate, expedite and enhance technology development and transfer, capacity building and access to financial resources that support Thailand's efforts towards achieving sustainable, low-carbon and climate-resilient growth, as appropriate.

In 2016, ONEP as the Thailand's national focal point to the UNFCCC developed the NDC roadmap in parallel with the study on mitigation potential in LULUCF sector. The NDC roadmap covers 3 sectors including energy and transport, waste and IPPU. To achieve the NDC, there are many sectoral plans and projects involved such as Energy Efficiency Plan (2015-2036), Alternative Energy Development Plan (2015-2036), Waste Management Plan (2016-2021) etc. The NDC roadmap² was approved by the National Committee on Climate Change Policy (NCCC) on February 10, 2017, then approved by the Cabinet on May 23, 2017. The

²<http://climate.onep.go.th/wp-content/uploads/2017/05/Thailand-NDC-Roadmap.pdf>

timeframe of preparation phase and implementation phase are 2017-2020 and 2021-2030, respectively.

3. Twelfth National Economic and Social Development Plan (2017-2021)³

The Cabinet approved the Twelfth National Economic and Social Development Plan (NESDP) (2017-2021) on September 13, 2016. Under the Twelfth NESDP, the development of GHG mitigation mechanisms and measures to support GHG reduction in all sectors is indicated. In addition, the revision of regulations and develop urban infrastructure to move towards the environmentally friendly and low carbon city is indicated.

4. National Reform Plan

On February 15, 2018, the National Strategy Committee which chaired by Prime Minister, approved the National Reform Plan in all 11 areas. This plan was published in the Royal Gazette on April 6, 2018. Under environment issue 3 (Encouraging all sectors to engage in addressing climate change), sub-issue 3.3 (Formulate appropriate mechanism[s] to provide economic incentives to reduce greenhouse gas emission by private sector), there are 2 activities which will be conducted including 1) Develop provisions under Climate Change Act B.E. concerning appropriate mechanism[s] to provide economic incentives. For instance, by setting overall greenhouse gas emissions threshold for each manufacturing sector, including allocation of emissions allowances for each place of business and allow for trading of such allowances (cap and trade system) and 2) Relevant agencies conduct study on appropriate approaches and modalities to develop a system to enable implementation by the private sector 5 years after the enactment of the Act.

5. Climate Change Act

The Office of Natural Resources and Environmental Policy and Planning is in the process of studying appropriate formulation of draft Climate Change Act B.E. Greenhouse Gas emission reporting is expected to include in the draft Climate Change Act B.E.

Challenges:

At the moment, there are no policy and regulation on mandatory carbon pricing instruments in the country. Under the PMR support, a study on the legal, policy and administrative landscape for establishing of a greenhouse gases reporting system to support the ETS and a study on legal, policy and administrative landscape for establishing the ETS in Thailand will be conducted. Furthermore, the results from the PMR Policy Analysis, which the PMR PA 16 endorsed in March 2017 will be critical and relied on to inform policy option regarding the role of carbon pricing in supporting the national GHG mitigation target and the suitability of carbon pricing instruments on the key sectors.

Lessons learned:

N/A

Important changes in the technical design or approach related to the Grant's activities:

Developments:

- From the first ISR, Component 2 was planned to provide support to 24 municipalities in Thailand to develop their local GHG abatement plans which will be used to guide mitigation actions and low-carbon investment. However, after the invitation of municipalities to participate in this project and discussion between TGO and the consultants, 25 municipalities were selected.
- In this ISR, there are two additional ToRs as the revised work plan in February, 2018. The first one is in Component 1, Development of mobile application on GHG emissions in buildings which aims to develop the mobile application and simplify the calculation of Specific Energy Consumption (SEC) in building sectors, including evaluation of GHG emissions and potential of reduction. And the last one

³http://www.nesdb.go.th/nesdb_en/ewt_dl_link.php?nid=4345

for Component 2, Development of mobile application on City Carbon Footprint (CCF) which aims to support implementation of LCC.

Challenges:

The above-mentioned minor change will not affect the implementation of the MRP. The budgets for the additional activities come from the remained budget after the revision of the work plan in February 2018.

Lessons learned:

- The willingness of the mayor is one of the key successes in LCC preparation.
- Development of the mobile application could be a modern and simple tool to support assessment of GHG emissions, potential of reduction and possible measure/technology.

Key capacity issues (implementation, technical, financial management, procurement) related to the Grant's activities:

Developments:

- Trainings on SEC development, baseline setting and energy target setting were organized for stakeholders and TGO staff. There were more than 150 participants attended.
- Kick off meetings and Trainings on Thailand Voluntary Emission Reduction Program (T-VER) were organized for all participating municipalities. 13 of 25 municipalities have already been registered as the T-VER project and have readiness to move forward to the carbon credit issuance step.

Challenges:

Regarding the procurement process which requires the country to submit the documents through the World Bank's online system named STEP, the system is still not stable and there are some technical problems. Therefore, it takes more time than expected.

Lessons learned:

N/A

Coordination with other carbon pricing initiatives, including those funded by other donors:

Developments:

- **Achieving Low Carbon Growth in Cities through Sustainable Urban Systems Management in Thailand**
This project funded by GEF and has UNDP as a delivery partner. This project aims to strengthen the capacities and processes at local level for bottom-up integrated low carbon development planning and the implementation & sustainable management of low carbon development projects. The 4-year project will focus on low carbon urban systems, in particular waste management and sustainable transport.
- **Asia-Pacific Carbon Market Roundtable**
Thailand is participating the carbon market roundtable of Asia-Pacific region to update the information on market development of the countries in this region and share experiences.

Challenges:

It is important to integrate different components from the activities under the MRP and other projects being done by TGO and relevant agencies to build the complete carbon pricing instrument.

Lessons learned:

Experiences shared from the experts and other countries are useful for the carbon pricing instruments development.

Stakeholder engagement related to the Grant's activities:
Developments:

- **Technical Training on Carbon Pricing** under the PMR support was organised on 25-26 September, 2018. The objectives are to: (a) increase understanding among the key ministries in Thailand on the basic concept and key design elements of different carbon pricing instruments (b) learn what are the role of carbon pricing instruments in supporting country to achieve GHG mitigation target and (c) share experience on carbon pricing implementation. The invited speakers come from the World Bank, and the representatives of China, Singapore, and Brazil. The presentations and knowledge sharing focus on both market mechanism, ETS, and non-market mechanism, carbon tax.
- **Training Workshop and Technical Visit to Support the Low Carbon City Development** was organized on 3-5 September, 2018 for the representatives from the 25 participating municipalities. This training aimed to enhance experience of the municipality teams who have been directly related to GHG emission reduction activities. The visit sites were Solar Farm, Biomass Research Centre, and Integrated Waste Management Centre.
- **Seminar on Cities and GHG Mitigation** was organized for municipality officials who participating in PMR project on January 18, 2018. The objective of this seminar was to raise awareness and build capacity for municipality officials. There were 76 participants attending the event. The speakers comprised of representatives from C40, Carbon Disclosure project (CDP), OECC, The Creagy company and TGO.
- EPC working group and LCC working group were organized every two months. The working groups considered progress of the works under the EPC scheme and LCC program and also discussed and commented on the result of the works.
- The meetings between DEDE and TGO were organized two times to discuss on the EPC scheme including the template for data reporting, MRV system etc.
- Consultation meetings with the 25 municipalities were organized at the municipality offices for the project explanation, exploration of the real interest of each municipality and set up the suitable GHG Abatement Plan, including for ensuring that the municipalities could continue the GHG reduction activities by themselves in the future.
- Focus group meetings with DF&Bs in 11 sectors on EPC scheme were organized to finalise the results of SEC analysis, baseline setting and energy target setting.
- Stakeholder consultation meetings on MRV guideline for EPC scheme were organized.

Challenges:

- Building capacities and raising awareness for the stakeholders are the key important issues.
- There are many projects which involve the DF&Bs implementing currently; therefore, it may increase the burden of the DF&Bs.

Lessons learned:

- Stakeholder consultation is one of the key factors for the successful implementation. TGO and consultants have organized the meetings at every municipality's office with the municipality's working group. Moreover, we organized stakeholder consultations with the municipalities and related agencies in the area to get the comments and their interest. Recently, TGO has worked closely with Department of Local Administration (DLA) on the development of CCF. Since FY 2018,

DLA has put the development of CCF as a Local Performance Assessment (LPA) of every municipality in country.

- The close collaboration between the government agencies will accelerate the implementation and lighten the burden of DF&Bs. Recently, an MoU on integration of GHG data reporting in industrial sector had been signed by ONEP, TGO (Ministry of Natural Resources and Environment), DEDE (Ministry of Energy) and Department of Industrial Work (Ministry of Industry). The results of this work will support the government on GHG database development, policy design and this reporting platform will lighten the burden of DF&Bs in data reporting.

Other issues related to the Grant's activities

N/A

5. ADDITIONAL INFORMATION

From the 16th meeting of the PA, Thailand received the additional funding to carry out the study on impact of carbon pricing instruments on national economy and contribution to NDC. This policy analysis will complement the ongoing MRP by filling in analytical gaps at the national policy level, in particular, aiming to understand the linkage between climate policy, carbon pricing and the economy. The policy analysis will help answer what role carbon pricing can play in helping country achieve NDC in the cost-effective manner and what is the impact on the economy if carbon pricing is adopted.

The ToR was drafted in cooperation between TGO and the World Bank as a delivery partner. This assignment comprises the following tasks:

- Activity 1** Economic modelling and scenario analysis of carbon pricing instruments
- Activity 2** Interaction and consistency between the country's ETS/carbon tax and national existing policies and regulations
- Activity 3** Support to cross-sectoral, inclusive policy development and dialogue for the carbon pricing instruments

The project was awarded to the consortium in which Cambridge Econometrics (CE) then lead a consortium with the partners Ricardo Energy and Environment (Ricardo E&E) and Creagy. The purposes of the assignment are to provide recommendations on the suitable policy options for carbon pricing instruments to support Thailand's NDC mitigation goals, and to evaluate the economic impacts of potential policies on stakeholders.

Progress of the Activity

Activity 1 Economic modelling and scenario analysis of carbon pricing instruments

- Time series database for Thailand was constructed
- Core model were constructed including;
 - Energy module: final energy demand by sectors and by fuel types, power generation submodule
 - Economic module: output, consumption, imports, exports, investment and prices all by detailed 70 sectors
 - Labour market and social impacts: employment, wages, participation rate and income distribution

- Emissions module: CO₂ emission from direct energy consumption and indirect consumption of electricity
- Econometrics estimations were carried out to provide key behavior relationships in the model
- Exogenous policy options introduced: ETS, carbon tax, energy tax, energy efficiency, revenue recycling, VAT, income tax, social security contributions, global oil price and many more
- Model interface for general users constructed to set up, run and displaying
- Application of the CPI scenario policies
- Finalise CPI scenario applications and formatting outputs for the report
- In total, there were 18 runs in four groups of scenarios:
 - Baseline vs existing policies (2 runs)
 - ETS (8 runs)
 - carbon tax (7 runs)
 - Hybrid (1 run)

Activity 2 Interaction and consistency between the country's ETS/carbon tax and national existing policies and regulations

- Developed a methodology for mapping of policy landscape for interactions and prioritization of interactions
- Carried out the policy interaction analysis
- Drafted policy recommendations
- Submitted final draft report

Activity 3 Support to cross-sectoral, inclusive policy development and dialogue for the carbon pricing instruments

- In process of planning to organize:
 - Model Training No. 1 & No. 2 during Oct 10-11, 2018
 - Policy Dialogue No. 1 & No. 2 during Oct 17-18, 2018

Seminars and meetings which took place under this activity are listed in the table below.

Date	Indicative Meetings/Trainings
26 January 2018 Kick off -Stakeholder meeting to define the Reference, CPIs scenarios, and scenario analyses Impact of Carbon pricing instruments on the Thai NDC and Economy project	<ul style="list-style-type: none"> • To introduce the economic assumptions and policies for scenario development • To agree in the scenario analysis including preliminary view on the number and composition of the model runs; • To identify the reference, CPIs scenarios, and scenario analyses
26 January 2018 Kick off- First stakeholder consultation on Impact of Carbon pricing instruments on the Thai NDC and Economy	<ul style="list-style-type: none"> • To introduce wider stakeholders to the objectives of the study and modelling approach • To present the interacting policies which will be studied under the project; • To identify gaps in the policies and consult with participants on the priority of the policies