

PARTNERSHIP FOR MARKET READINESS- Thailand

(Ref. No. CS-9) Terms of Reference for Energy data verification of selected DF&Bs.

1. Background and Overview of the Partnership for Market Readiness

The World Bank established a Partnership for Market Readiness (PMR) programme, which is supported by a grant-based capacity building trust fund.¹ The PMR aims to provide financial and technical support to developing countries to build their capacity and pilot market instruments that would allow them to scale up their mitigation efforts. In addition, the PMR will provide a platform for technical discussions, and collective innovation on new market instruments. The PMR will also create and share, including with the UNFCCC, a body of knowledge on market instruments and lessons learned.

Thailand Greenhouse Gas Management Organization (Public Organization) (TGO)- under the Ministry of Natural Resources and Environment, the Royal Thai Government - as an Implementing Country Participant has proposed to the PMR to explore potential new domestic market mechanisms on four main components that cover several activities for the preparation and implementation phases. These components include:

- 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.

In this connection, **Component 1** which has a focus on planning for establishing the voluntary EPC scheme brings to the objective of this Terms of Reference. The EPC is planned to be a “voluntary target-and-reward scheme” targeting the *Designated Factories and Buildings* (DF&Bs) of the intensive energy consumption sectors which in turn leading to intensive GHG emissions.

The PMR’s support for **Component 1** will focus on activities including:

- Activity 1* Reviewing and analyzing policies, laws, regulations and institutional arrangement required in order to implement the EPC;
- Activity 2* Developing the MRV system for the EPC in Thailand;
- Activity 3* Assessing the DF&Bs energy management system and updating Specific Energy Consumption (SEC) for 11 sectors²;
- Activity 4* Verifying energy data of participating DF&Bs and setting up the baseline;
- Activity 5* Analyzing target setting methods for different industrial sectors and buildings; and
- Activity 6* Analyzing potential performance-based incentive and pricing mechanism for EPC.

This term of reference (ToR) therefore aims at Activity 4 to verify energy data, analyze Specific Energy Consumption (SEC) of participating DF&Bs from targeted sectors and setting up the baseline for EPC implementation.

¹More information on the PMR is online available at: <http://www.thepmr.org>

²(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.

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2. Objective of consultancy

The objectives of the consultancy assignment are

2.1 To verify energy data of participating DF&Bs in order to establish a baseline and setting the target for EPC implementation and also pilot test the MRV guidelines and EPC data template.

2.2 To study on potential improvement to reduce energy consumption, greenhouse gas Emission and cost effectiveness of the EPC implementation for the participating DF&Bs in selected sectors.

3. Scope of Work

- 3.1 The consultant must review the conceptual design of the EPC scheme and Thailand Market Readiness Proposal (MRP) and design the system/process based on the principles/concepts provided in the MRP.
- 3.2 Organize a kick off meeting for participating DF&Bs as mentioned in task 4.2.
- 3.3 Organize stakeholder consultations, preparations of meeting materials as well as documenting the outcomes and next steps of the work.
- 3.4 Prepare concise minutes of the meetings of the different stakeholder consultations carried under this work.
- 3.5 Provide a comprehensive report as outlined in tasks 4.1-4.7
- 3.6 Coordinate with the key stakeholders, such as DF&Bs and the other consultants, to ensure seamless coordination and data/information sharing between all stakeholders under the EPC project.
- 3.7 Hire DEDE accredited energy auditors to conduct energy audit of participating DF&Bs' energy management report and verify all data in EPC template.
- 3.8 Provide response to comments of EPC Working Group and PMR Steering Committee then revise study report accordingly.
- 3.9 Present progress of works to TGO once every two (2) months including active consultation and data sharing with other relative consultants.
- 3.10 Organize training/knowledge sharing for the TGO staff and relevant agencies at least once as shown below. The seminar will be held in Bangkok.

Indicative training/knowledge sharing	Participant	Number of participant (at least)
Dissemination seminar	TGO staff and relevant agencies	60

4. Specific tasks to be carried out

4.1 Selecting the potential participating sectors

In Market Readiness Proposal (MRP), there are 11 sectors proposed to be focused in the EPC scheme out of which 6 are manufacturing sectors, thermal power plant and 4 types of commercial building.

Designated Factories		Designated Buildings
Manufacturing sector	Power plant	Commercial Building
Cement	Thermal power plant	Department store

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Designated Factories		Designated Buildings
Ceramic		Office
Iron & Steel		Hotel
Petro-chemical		Hospital
Paper		
Food & Beverage		

Based on existing studies, official statistics, and meetings with relevant stakeholders on the public and private sectors and review of experiences in other countries from operationalizing similar schemes, the consultant will set up the criteria for target sector selection to participate in this pilot phase. The target sectors should include 2 sectors of Designated Factories and 2 types of commercial building. The list of criteria should include but not be limited to the number of DF&Bs in each sector, current situation of energy management report submission of each targeted sectors to DEDE, readiness of each sector as well as the existing technology used in each sector and potential improvement to reduce energy consumption and GHG emission. The consultant will also review EPC or similar scheme that already implemented in other countries. Furthermore, the consultant will propose targeted sector for inviting to participate in the project and indicate the rationale behind this. The targeted sectors will be finalized after the consultation with DEDE and TGO.

4.2 Inviting DF&Bs to participate in the project

The consultant will organize consultation meetings with industry associations. Consultant will take necessary steps to ensure participation of the DF&Bs in the project that reflects sufficient representation of that sector. The number of participating designated factories should be at least 50% of total energy consumption of that sector. For the designated building, the number of participant should be at least 20 buildings. After the selection process, the consultant will inform the selected DF&Bs for participating confirmation and organize a kick off meeting.

4.3 Checking the information required for EPC scheme

Based on the result of the study from Activity 2 (Development of data template in the context of EPC), the consultant will fill in the template of the EPC scheme by using the data from energy management report which is developed by DF&Bs for submitting to DEDE. If data from energy management report are incomplete, the consultant will collect the data to complete the EPC template. The EPC template will be filled in separately for data of the year 2015 and 2016 and ensure that all the information required for the EPC scheme is complete.

4.4 Auditing and verifying energy data

- Provide energy auditors who accredited by DEDE to conduct energy audit of participating DF&Bs' energy management report that also lists different energy saving measures/activities and verify all data in the EPC data template.
- Prepare audit report for all participating DF&Bs.

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- Coordinate closely with TGO, energy auditors and consultant of Activity 2 to ensure that the verification comply with the verification guideline proposed from Activity 2's study.

4.5 Analyzing collected data

- Calculate the achievable energy saving and GHG emission reductions from implementing the proposed eligible measures/activities in energy management report. Compare data between the year 2016 and 2015.
- Prepare verification report for all participating DF&Bs.
- Based on verified data of participating DF&Bs, analyze sector-specific energy usage pattern and bandwidth of specific energy consumption among the factories or building across the sector.
- 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.

4.6 Setting baseline

The consultant will propose the methodology of baseline setting and set up the suitable baseline for each participating DF&Bs and discuss with stakeholders through a consultation process. The consultant is required to review various baseline setting documentation, procedures and methodologies that are available and huge research already done for setting baseline for these selected sectors. The baseline setting methodology should take into consideration of all differences and variations in energy consumption patterns, production variants, associated technology selection choices and DF&B monitoring and reporting capabilities.

4.7 Improving data quality and MRV system

Assess the result of the pilot test of MRV guideline in participating DF&Bs, propose how to improve data quality and MRV system and revise the EPC data template and MRV guideline taking into account the experiences from the pilot test.

5. Contract Supervision

The consultant will work under the overall oversight of the Thailand Greenhouse Gas Management Organization (Public Organization: TGO), and in close cooperation with The World Bank.

6. Timeline and Key Deliverables

The Consultant shall prepare the reports as following:

- 6.1 Inception report 10 copies and CD recording 3copies within **1 month** from the date of the contract. This report should include the work plan and timeline.
- 6.2 Progress report (1) 10 copies and CD recording 3copies within **2 months** from the date of the contract. This report should cover tasks 4.1-4.2.

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- 6.3 Audit report for all participating DF&Bs (3 copies for each DF&B) which will be used to submit to DEDE and CD recording 3 copies within 15 March 2017.
- 6.4 Progress report (2) 10 copies and CD recording 3 copies within **13 months** from the date of the contract. This report should cover tasks 4.1-4.4.
- 6.5 Progress report (3) 10 copies, verification report for all participating DF&Bs (3 copies for each DF&B) and CD recording 3 copies within **16 months** from the date of the contract. This report should cover tasks 4.5-4.6.
- 6.6 Draft final report 10 copies, MRV guideline 10 copies, EPC template 10 copies and CD recording 3 copies within **19 months** from the date of the contract. This report should cover tasks 4.1-4.7
- 6.7 Final report 10 copies, MRV guideline 10 copies, EPC template 10 copies and CD recording 3 copies within **21 months** from the date of the contract.

All reports should be submitted both in Thai and English.

- Reports as mentioned in 6.1-6.5 should be full report in Thai and summary in English.
- Draft final report and final report should be submitted both in Thai and English.

7. Minimum Qualifications Requirement

The consultants will be selected through Quality- and Cost-based Selection (QCBS) process. The consulting firm is expected to meet the following minimum qualifications:

- Minimum five (5) years of substantive experience in energy data management, energy audit and energy efficiency technology;
- Experience in implementing data verification and baseline setting;
- Familiar with Thai industry, energy management system, energy legal and regulations, energy policies and strategies, and or related issues;
- Experience in consultation process, stakeholders analysis and engagement.; and

Key staff: (The qualifications of the proposed key staff will be evaluated at the proposals stage)

- Key staff of consultant and their committed availability to have experience in similar projects.
- Team Leader's minimum requirement:
 - (i) Master's Degree in Engineering (Electrical, Mechanical, Energy, Environment) or related field;
 - (ii) Minimum 10 years of substantive experiences in energy data management, energy audit, energy policy, energy efficiency technology and energy project management;
 - (iii) Experience in implementing data verification and baseline setting;
 - (iv) Good command of written and spoken English.
- Energy specialist's minimum requirement:
 - (i) Master's Degree in Energy or Mechanical Engineering;
 - (ii) Minimum 10 years of substantive experiences in energy data management, energy audit and energy efficiency technology.
- Technical officer's minimum requirement:
 - (i) Bachelor's Degree in Mechanical Engineering, Energy Engineering, Energy Science, or related fields;
 - (ii) Minimum 5 years of substantive experiences in energy data management and energy audit.

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- Coordinator's minimum requirement:
 - (i) Bachelor's Degree in Engineering, Science, Environmental Science or related fields;
 - (ii) Minimum 2 years of substantive experiences in project coordination, data management, computer literacy and administration.