

PARTNERSHIP FOR MARKET READINESS- Thailand

(Ref. No. CS-7) Terms of Reference for Development of MRV system for EPC scheme

1. Background and Overview of the Partnership for Market Readiness

The World Bank established a Partnership for Market Readiness (PMR) program, 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 2 to propose and develop the appropriate MRV system for EPC scheme

¹ More 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

Development of the appropriate MRV guideline to support EPC scheme implementation together with development of appropriate IT platform and electronic data interchange between Department of Alternative Energy Development and Efficiency (DEDE) and TGO.

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 stakeholder consultations, preparations of meeting materials as well as documenting the outcomes and next steps of the work. The stakeholder consultations should be organized at least 3 times for task 4.1, 4.3 and 4.4. For task 4.4, the consultation should be organized as internal discussion among project counterparts e.g. TGO, DEDE and/or World Bank.
- 3.3 Prepare concise minutes of the meetings of the different stakeholder consultations carried under this work.
- 3.4 Provide a comprehensive report as outlined in tasks 4.1 – 4.5.
- 3.5 Coordinate with the key stakeholders, such as DEDE and the other consultants, to ensure seamless coordination and data/information sharing between all stakeholders under the EPC project.
- 3.6 Provide response to comments of EPC Working Group and PMR Steering Committee then revise study report accordingly.
- 3.7 Present progress of works to TGO once every two (2) months including active consultation and data sharing with other relative consultants.
- 3.8 Organize training/knowledge sharing for the TGO staff and relevant agencies at least 3 times as shown below. All trainings will be held in Bangkok.

Indicative training	Participant	Number of participant (at least)
MRV guideline (Task 4.3)	TGO staff and relevant agencies	30
Software application (Task 4.5)	Administrative user	5
	General user	30

4. Specific tasks to be carried out

4.1 Development of data reporting format for EPC scheme

The consultant shall develop the data reporting format based on the current annual energy reporting system of DEDE for the EPC scheme. The data reporting format will require to cover 11 selected sectors which consisted of (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 (xi) Hospital. The development of data reporting format for the sectors identified above should include, but not limited to, the identification of relevant data needed, the principle and classification to help the data collection and processing, propose the data collection and measuring methods and procedures to assure the quality control,

data accuracy and verification process, methods to deal with cases involve no data availability and poor quality of data and provide emissions calculation methodologies for each particular section of activity. The data report format shall address the important data elements to provide enough information for data analysis in terms of the calculation of normalization in ToR of Activity 5 (Analyzing target setting methods for different industrial sectors and buildings.) In addition, the consultant shall propose the calculation methodology for converting the amount of energy used to the amount of GHG emission together with suggestion of the appropriate emission factors with comprehensive justification for various approaches/methodologies considered.

4.2 Review existing MRV system

Based on the current annual energy reporting system of DEDE as an existing MRV system on energy consumption, the consultant will review the existing system in order to suggest the improvement or addition of data elements from existing system to support the EPC scheme and future ETS. The suggestion should consist of, but not limited to, (i) the improvement of existing energy reporting format in context of the EPC, (ii) identify additional data elements to expand the energy MRV to meet all requirements of MRV under the future ETS, (iii) procedures and systems required to ensure data accuracy and quality control; and (iv) the management of data scoping and classification which are important to avoid data incompleteness or double counting.

4.3 Propose MRV guidelines for supporting implementation of EPC scheme

The consultant will propose the MRV guidelines appropriate to support implementation of the EPC scheme and that could be used for the future ETS. This guideline should include, but not limited to, data collection methods in measurement framework, the monitoring plan, quality control, and the verification framework.

4.4 Propose the electronic data interchange between DEDE and TGO

The consultant will propose the methodologies and tools required for data exchange between the DEDE's annual energy report system and TGO's system which will be developed in this project. The data interchange could be electronic data interchange or other methods subject to agreement between DEDE and TGO which will be required to be concluded during the project. The data interchange should preserve the data confidentiality and security of data transmission over network or other form of data interchange. The consultant will provide the system architecture design for the complete application system (*section 4.5*).

4.5 Develop the electronic reporting platform

The consultant will develop the electronic reporting platform based on TGO data report format, DEDE's annual energy report and to support additional data elements, QA/QC methods, calculation methodologies which will be required to fulfill the EPC data management needs. The application should develop a web based application to facilitate data reporting from DF&Bs and the software will assure efficiency of data storage and retrieval along with data security. The application will

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include the data export for data analysis in various file formats which will support the usage of the data in TOR of Activity 4 (Verifying energy data of participating DF&Bs and setting up the baseline). The consultant shall organize training for TGO staff and relevant agencies on the electronic reporting platform.

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 cover conceptual idea of MRV design, study approach and project planning.
- 6.2 Progress report (1) 10 copies and CD recording 3 copies within **4 months** from the date of the contract. This report should cover tasks 4.1.
- 6.3 Progress report (2) 10 copies, MRV guideline 10 copies and CD recording 3 copies within **8 months** from the date of the contract. This report should cover tasks 4.1-4.3.
- 6.4 Progress report (3) 10 copies and CD recording 3copies within **12 months** from the date of the contract. This report should cover tasks 4.1-4.4.
- 6.5 Deploy the application software and application testing report 5 copies, draft application handbook 10 copies, and CD recording of all design architecture and source code 3copies within **16 months** from the date of the contract. This report should cover task 4.5.
- 6.6 Draft final report 10 copies, handbook of software 10 copies and CD recording 3copies within **18 months** from the date of the contract. This report should cover tasks 4.1 - 4.4.
- 6.7 Final report 10 copies and CD recording 3 copies within **20 months** from the date of the contract.

All reports should be submitted both in Thai and English.

- Reports as mentioned in 6.1-6.4 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 Consultant's Qualifications Selection (CQS) 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 benchmarking;
- Minimum three (3) years of substantive experience in application software development, electronic data interchange, data analysis service through business intelligent (BI) tools;

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- Familiar with Thai industry, energy management system, energy legal and regulations, policies and strategies, and or related issues;
- Experience in consultation and need assessment; 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) Advance degree in engineering, computer engineering/science, Information Technology or other related field
 - (ii) At least 10 years experience in energy data management
 - (iii) Experience in management of engineering research or IT project
 - (iv) Proved coordination skill in project management.
 - (v) Good command of written and spoken English.
- Energy audit or MRV specialist's minimum requirement:
 - (i) Advance degree in engineering;
 - (ii) Experience at least 5 years and expertise in energy audit or M&E processes
 - (iii) Experience in ISO 14064-1/2/3, 50001 and ETS MRV would be advantage.
- Application system architecture's minimum requirement:
 - (i) Advance degree in computer engineering or computer science, information technology, or other related fields;
 - (ii) At least 5 years experience in system architecture design;
 - (iii) Experience in design of reporting and analysis service system would be advantage.
- System analyst's minimum requirement:
 - (i) Advance degree in computer engineering or computer science, information technology, or other related fields;
 - (ii) At least 5 years experience in system analysis and design especially in data transaction management;
 - (iii) Experience in data analysis and develop benchmarking index with BI tool would be great benefit
- Application programmer's minimum requirement:
 - (i) Advance degree in computer engineering or computer science, information technology, or other related fields;
 - (ii) At least 3 years experience and strong skill in web base application development;
 - (iii) Strong skill in data analysis programming
- Information security specialist's minimum requirement:
 - (i) Advance degree in computer engineering or computer science, information technology, or other related fields;
 - (ii) At least 5 years experience in design and implement of data communication, network system architecture and security.