

*OECD Clean Energy Finance and Investment Mobilisation Programme in Thailand*

**Second Stakeholder Consultation Workshop: “Unlocking finance and investment for clean energy in Thailand”**

Organised by the OECD, in collaboration with the Department of Alternative Energy Development and Efficiency (DEDE)

**WORKSHOP SUMMARY**

**Date:** Friday 24 November 2023

**Time:** 8:30 – 12:30, followed by lunch

**Venue:** Banyan Tree Bangkok (Sathon Road)

**Background**

The Organisation for Economic Co-operation Development (OECD) [Clean Energy Finance & Investment Mobilisation \(CEFIM\) Programme](#) aims to strengthen domestic enabling conditions to attract finance and investment in renewable energy, energy efficiency and decarbonisation of industry in emerging economies. Taking an integrated approach to policy, regulation, and investment mobilisation, the CEFIM programme is designed to help strengthen policies that enable a robust pipeline of clean energy projects whilst mobilising private sector finance and investments in clean energy.

In complementing the upcoming release of the new National Energy Plan (NEP) of Thailand, along with sub-plans especially the Alternative Energy Development Plan (AEDP) and Energy Efficiency Plan (EEP), the programme will support Thailand's Ministry of Energy in operationalising their implementation. One of the core outcomes under the OECD CEFIM activities in Thailand is the Clean Energy Finance and Investment (CEFI) Roadmap of Thailand, which focuses on (i) supply of renewable power from small-scale systems, and (ii) improving energy efficiency of cooling applications in large-scale commercial and public buildings.

On 24 November 2023, the OECD, in collaboration with the Department of Alternative Energy Development and Efficiency (DEDE) of the Ministry of Energy of the Government of Thailand organised a stakeholder consultation workshop in Bangkok. The workshop aimed to present the draft modelling results, case studies and emerging policy recommendations of the CEFI Roadmap of Thailand to stakeholders from the energy and financial sectors as well as project developers, think tanks, and other stakeholders that are involved in its development. Stakeholder engagement is a crucial element to the recognition and implementation of the plan. This will also ensure an alignment of mandates and responsibilities of stakeholders with the actions under the Roadmap. 60 participants from different ministries, regulators, banks, academia, business associations and development partners attended the workshop.

**Contacts**

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- Preechaya Rassadanukul, The Creagy, [preechaya@thecreagy.com](mailto:preechaya@thecreagy.com)

## **Session 1: Presentation and group discussion on the draft modelling results on financing and investment for clean energy**

The Creagy (local consultant) presented the modelling results on the estimates of investment needed and economic impact of the Alternative Energy Development Plan 2018 (AEDP 2018) and the Draft Energy Efficiency Development Plan (EEP) 2022 (the version for public hearing). This analysis is divided into three main parts:

- Part 1 involves an assessment of annual investment requirements according to the AEDP 2018 and the Draft EEP 2022. This assessment considers technology cost reductions that will likely occur at increased speed in the future. It also estimates the proportion of needed public investment, taking into consideration that in cases where technology readiness is low and risks are high, the government's support structure will be more robust.
- Part 2 consists of an assessment of the economic impact of promoting renewable energy (RE) and energy efficiency (EE), namely estimated job creation and added value of future investments.
- Part 3 is a supply chain analysis for two selected technologies - solar photovoltaic (PV) rooftop systems and cooling applications. The study will evaluate how the overall investment is allocated to equipment manufacturers and installers. It will also estimate the share of local content, providing insights into opportunities for Thailand to enhance its local content development.

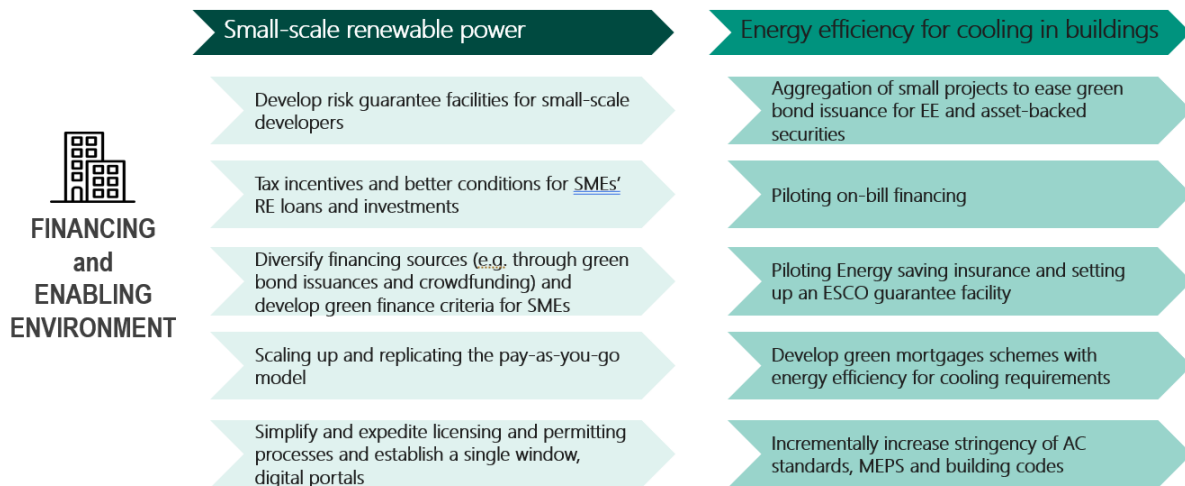
Feedback received from participants included the following:

- Tax benefits could be integrated in the model.
- Concerns were raised regarding the local content share of equipment production and development.
- A question arose as to whether the model integrates the expected RE cost decline over time resulting from the increase in deployment rate, which the model does integrate.
- It is important to take into account private financial institutions' expected rate of return on RE investments. The expected internal rate of return (IRR) for the power sector ranges from 8% to 10% with variation across technologies. The average investment payback period in the private sector is around 5 years in Thailand.
- A question arose about the estimated split of needed public and private finance. Concerns focused on the feasibility of mobilising private investment at the required scale. Banks are concerned of potentially high sectoral concentration risks of their loan portfolios if they are to reorient their lending portfolios towards the RE sector.
- It was highlighted that Thailand's electricity generation capacity exceeds demand significantly and reserve margins are high, which can increase electricity costs. Meanwhile, there is a need to increase RE for electricity generation.
- Investments in RE have experienced fast growth in Thailand, especially for solar PV rooftop systems. Risk perceptions changed rapidly and there is now much more confidence when investing in solar rooftops. The model should take this into account.

## **Session 2: Presentation and group discussion on the draft policy recommendations of the Clean Energy Finance and Investment Roadmap for Thailand**

The OECD presented draft policy recommendations emerging from the analysis and stakeholder engagement conducted to develop the CEFI Roadmap of Thailand. Three sets of policy recommendations were presented, namely on: (i) financing for small-scale renewable power; (ii) energy efficiency for cooling appliances in buildings; and (iii) cross-cutting financing issues. Recommendations focused on financing, regulatory environment, capacity building and governance.

The Figure below summarises some key policy recommendations on (i) and (ii) above, that were presented at the workshop.



Feedback received from participants included the following:

- Thailand's official SME definition does not differentiate between micro and small enterprises, which might make it difficult for policy interventions to specifically target firms in one of the two categories.
- The government could devise policies for electricity access in remote areas and encourage private sector investment through market incentives and community business development with the private sector.
- The Pay-as-you-go model is emerging as a robust business model for remote, off-grid areas.
- A question arose on how to identify the best and most cost-effective way to deploy scarce public resources, especially grants. In the past, the government adopted a trial-and-error approach as it did not have any experience or data to estimate outputs and impacts.
- One bank shared that they consider households and SMEs similarly from a risk perspective, as their credit risk profiles greatly depends on the collateral they can offer. Community-based projects should be presented to banks by community enterprises or small companies with a legal status, which can help mitigate credit risks for banks.
- The secondary loan market should be further developed.
- Enterprises have greater incentives for installing solar systems, as compared to households. The government should enhance incentives for installing solar rooftops at household level.
- SMEs are not yet ready to fully transition to cleaner sources of energy.
- A recent survey on SMEs' readiness to transition found that a key issue for SMEs is lack of knowledge. SMEs still require individuals or organisations to assist them in decision-making for the transition to the use of alternative energy. One policy recommended could be to support the availability of consultants to help SMEs in transitioning to the use of alternative energy, specifying which sectors of SMEs should initiate changes for future development.
- Some SMEs have invested in using alternative energy, but they often face legal limitations, particularly related to regulations regarding selling excess energy. Adjusting these regulations would significantly stimulate SMEs' use of alternative energy.

### Session 3: Presentation and group discussion on the draft financing case studies

The Creagy presented five case studies that showcase financing models aimed to overcome the difficulties that small and medium-sized enterprises (SMEs) face when investing in RE and EE projects.

Each case study describes the financing model in detail, identifies key players involved, and illustrates successful examples of the model being implemented in other countries. Additionally, potential stakeholders and the challenges they may face while implementing this model in Thailand are identified. The five case studies presented include:

- **On-bill financing (OBF):** OBF is a funding mechanism where utilities or private lenders provide customers with capital for energy-efficient, renewable, or other power-related projects, with repayment being made through the customer's regular utility bill payments.
- **Demand aggregation:** The aggregation of demand can significantly contribute to a swift decrease in innovative technologies and equipment prices, making them more accessible and promoting widespread adoption.
- **Energy Saving Insurance (ESI):** ESI provides a guarantee to energy users that the projected energy savings from efficiency projects will be achieved.
- **Risk Guarantee:** Risk guarantee mechanisms mitigate the perceived risks of energy efficiency projects for financial institutions by offering partial risk coverage on loans.
- **Pay as You Go (PAYG):** PAYG model offers an opportunity to make renewable energy accessible to off-grid communities at an affordable cost. This approach leverages existing technologies to enable payment in instalments, ensuring that residents can access sustainable energy solutions.

	On-Bill Financing	Demand Aggregation	Energy Saving Insurance	Risk Guarantee	Pay-as-you-go
<b>SMEs</b>					
Lack access to finance	X			X	X
Lack the in-house technical expertise	X	X	X		X
Lack of confidence in the reliability and performance of energy efficiency technologies		X	X		
<b>Financial institutions</b>					
Higher perceived risks for small-scale RE & EE	X	X	X	X	X
Lack of expertise in RE and EE	X	X			X
Lower profitability	X	X			X

Feedback received from participants included the following:

#### *On-bill financing (OBF)*

- The Thai ESCO Association has experience in a similar context but with state-owned buildings.
- There could be challenges with electricity authorities because OBF would involve tracking both electricity costs and energy-saving service fees.
- There could be regulatory challenges if and when OBF is applied to SMEs.
- OBF need to be tailored to suit characteristics of different customers.
- Pay-back periods differ across types of buildings. Sub-contracting might be needed.
- The case study should differentiate between on-bill financing (where the investor is the utility) and on-bill repayment (where there is a third-party lender and the utility acts as a repayment intermediary). Implications for banks differ in these two cases.

#### *Demand Aggregation*

- Financial sustainability of the aggregator needs to be ensured.

- It may be necessary to explore policies similar to the ERC sandbox, which involves electricity trading between industrial estates.
- Anticipated demand for aggregators in Thailand is expected to be at nascent stage.
- It is possible that there may be additional costs incurred by the aggregator who needs to generate revenues from its operations. This can lead to an overall increase in project costs. However, at the same time, aggregation can result in a substantial reduction in the overall equipment costs. This equipment cost reduction should ideally outweigh the costs required by the aggregator. As a result, the overall project costs can decrease. Furthermore, having an aggregator can help address technical knowledge gaps in selecting RE or EE technologies.
- USAID has a project on demand aggregation for energy efficiency.

#### *Energy Saving Insurance (ESI)*

- ESI would benefit end-users the most.
- ESI can enhance confidence in a project's feasibility. However, the primary determinant for banks' lending decisions remains the quality of collateral. Banks typically do not offer project finance without adequate collateral.

#### *Risk Guarantee*

- There is a need for extra risk guarantees when pursuing shared savings projects to ensure project feasibility.
- There could be different models for different types of borrowers:
  - Shared saving model with end-users/project owners.
  - Guarantee saving (more suited than insurance) with ESCOs.
- Based on the model from Malaysia, the government will compensate for the [credit guarantee] fee to cover losses, and the bank will find it easier to release loans.

#### *Pay-as-You-Go (PAYG)*

- In the past, providing electricity to off-grid areas was mainly dependent on the government's budget. However, when the system failed, people had to wait in long queues to receive support from the government for reparations or installation of a new system. This inconsistency in electricity supply created challenges for the local community.
- To address this issue, the Ministry of Energy partnered with the Recharge project to develop a new model. The goal of this model is to build the capacity of local communities and help them establish legal entities. This will enable them to access finance from financial institutions or investors to set up their own electricity infrastructure.
- To ensure the success of the project, it is important to specify key success factors. Additionally, the structure of electricity costs should accurately reflect the actual incurred expenses. To further support the project, the government could subsidise the overhead costs that residents have to pay to private companies investing in the electricity infrastructure. This will help provide the local community with electricity at a cost that is reasonable and fair.

## List of workshop participants

- Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy, Government of Thailand
- Energy Policy and Planning Office (EPPO), Ministry of Energy, Government of Thailand
- Provincial Energy Promotion and Development Division, Office of the Permanent Secretary, Ministry of Energy, Government of Thailand
- Office of the Permanent Secretary, Ministry of Energy, Government of Thailand
- Fiscal Policy Office, Ministry of Finance, Government of Thailand
- Office of Natural Resources and Environmental Policy and Planning, Ministry of Natural Resources and Environment (MNRE), Government of Thailand
- Office of the National Economic and Social Development Council (NESDC), Government of Thailand
- Department of Industrial Promotion, Ministry of Industry, Government of Thailand
- Office of SME Promotion
- Thailand Board of Investment (BOI)
- The Securities and Exchange Commission (SEC), Thailand
- Electricity Generating Authority of Thailand (EGAT)
- Metropolitan Electricity Authority (MEA)
- Provincial Electricity Authority (PEA)
- Bangkok Bank
- Kasikornbank
- Export-Import Bank of Thailand
- Thai ESCO Association
- The Thai Bankers' Association (TBA)
- The Thai Bond Market Association
- International Institute for Energy Conservation (IIEC)
- USAID SEA Smart Power Program
- Thailand Development Research Institute
- Asia Clean Energy Partners
- Greenergy Thailand



## Agenda

Time (ICT)	Agenda
08:30 – 09:00	Registration
09:00 – 09:10	<b>Opening remarks and keynote speech on the direction of the AEDP and EPP development and implementation</b> <ul style="list-style-type: none"> <li>▪ Apiradee Thammanomai, Director of Strategy and Planning Division, Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy of Thailand</li> <li>▪ Deger Saygin, Industry Decarbonisation Programme Lead, Clean Energy Finance and Investment Mobilisation Programme (CEFIM), OECD</li> </ul>
09:10 – 10:05	<b>Presentation and discussion: Draft of the Clean Energy Finance and Investment Roadmap for Thailand – modelling results (investments &amp; financing, supply chain impacts, socio-economic impacts)</b> <ul style="list-style-type: none"> <li>▪ Kannikar Koi, Director and Chief of Operation, The Creagy</li> </ul>
10:05 – 10:20	Coffee break
10:20 – 11:20	<b>Presentation and discussion: Draft of the Clean Energy Finance and Investment Roadmap for Thailand – financing case studies</b> <ul style="list-style-type: none"> <li>▪ Kannikar Koi, Director and Chief of Operation, The Creagy</li> </ul>
11:20 – 12:15	<b>Presentation and discussion: Draft of the Clean Energy Finance and Investment Roadmap for Thailand – policy recommendations</b> <ul style="list-style-type: none"> <li>▪ Valentina Bellesi, Policy Analyst, Clean Energy Finance and Investment Mobilisation (CEFIM), OECD</li> </ul>
12:15 – 12:30	<b>Wrap-up and next steps</b> <ul style="list-style-type: none"> <li>▪ Deger Saygin, Industry Decarbonisation Programme Lead, Clean Energy Finance and Investment Mobilisation Programme (CEFIM), OECD</li> <li>▪ Apiradee Thammanomai, Director of Strategy and Planning Division, Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy of Thailand</li> </ul>
12:30 – 2:30	<b>Lunch</b>

## Photos



