Energy Efficiency Training Week

Financing Energy Efficiency – Guest Speaker

Industry Stream
Patrick Crittenden, Energy Efficiency in Emerging Economies, IEA
Bangkok, 3 April 2019

IEA #energyefficientworld
Toolkit: Financing Energy Efficiency

Scaling up Energy efficiency with Innovative Financial Instruments

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What are the best options to assist industrial businesses with finance for energy efficiency?

IEA Energy Efficiency in Emerging Economies
Southeast Asia Training Week Program
1-4 April 2019, Bangkok, Thailand
Scaling Up Private Sector Investment in Energy Efficiency

1. Policy, Regulatory Framework and Contracts
   - Existing Contracts
   - Regulation
   - Policy
   - Financing & Risk products, instruments

2. Commercially Viable Projects
   - Feasibility Study
   - Capacity Development
   - Investment opportunities

3. Access-to-Finance
Pipeline of EE project development

- Ideas
- Pre-feasibility Study
- Investment Grade Audit (IGA)
- Project Development & Approval
- Financing
- Installation Operation

Highly likely bankable projects

Energy Saving $
Available EE Financing Options and Instruments

EE Financing Options

1. **Self-Financing**
   (on-balance sheet financing)
   1. Corporate Financing
   2. SME Financing

2. **Third-Party financing**
   (off-balance sheet financing)
   1. Energy Service Company (ESCO) Financing
   2. On-bill Financing
   3. Project Aggregation Financing

EE Financial Instruments

1. Grant / Subsidy
2. Loan
3. Credit Guarantee
4. Equity

What are the best options to assist industrial businesses with finance for energy efficiency?
Business & Financing models for Energy Efficiency

**Self-Financing Model**

- On-Balance Sheet Financing
- Energy-as-an-**Asset** model

**Third-Party Financing Model**

- Off-Balance Sheet Financing
- Energy-as-a-**Service** model
Third Party Financing Models

ESCO Financing

Factory / Corporate → ESCO → Energy Efficiency Project

On-Bill Financing

Factory / Corporate → Utility → Energy Efficiency Project

Project Aggregation Financing

Factory / Corporate → Special Purpose Vehicle → EnergY Efficiency Project

......
Case Study
Thailand has introduced several financial instruments to promote energy efficiency for over 2 decades.
EE measures to stimulate private investment in Thailand

**Support from the Government**

- **DEDE**
  - Energy Management in Designated Factories & Designated Buildings
  - Building Energy Code & Standards (BEC, LEED, TREES)
  - Energy Efficiency Labeling

- **DEDE/EPPO/RD**
  - Standard Offer Program
  - DSM bidding
  - Tax incentive

- **DEDE**
  - Investment Grant/Subsidy
  - 20/80 campaign
  - Advanced tech demo (30/70)

- **DEDE**
  - Energy Soft Loan
    - Revolving fund for RE and energy conservation projects

- **DEDE**
  - ESCO Fund
    - Venture Capital, Equity Investment, Equipment leasing

- **EGAT/MEA/PEA/Energy Producers**
  - Energy Efficiency Resources Standard

**BOI- Investment Incentives**

**Private Investor**

**Enforcement & Technical support**

**Application**

**Promotion requesting**

**To raise a loan**

**Capital requesting**

**Registration for intent expression as per the time specified**

**Technical support**

Source: UNDP
Example: Thailand's Energy Efficiency Revolving Fund (EERF)

Governmen t

EERF

Soft loan with interest rate 0.5%

Commercial Banks

loan with interest rate up to 3.5%

Factory / Corporate

Factory / Corporate

Factory / Corporate

SME

SME

Energy Efficiency Project

Energy Efficiency Project

Energy Efficiency Project

Energy Efficiency Project

Energy Efficiency Project

saving

saving

saving

saving

saving

Subsidy 70/30

Subsidy 80/20

Source: the Creagy (2019)
Survey result on the main barriers on EE investment in Thailand*

*Remark: Based on the survey from Stakeholder Engagement Workshop, "Innovative Financial Mechanisms to scale up EE investment in Thailand" on 25th January 2019 (38 voters)

Source: the Creagy (2019)
### Energy Efficiency Financing Landscape in Thailand

<table>
<thead>
<tr>
<th>Existing financial instruments have been accessed mostly by large factories &amp; buildings</th>
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<td>Subsidized financing for those who already have access-to-finance may be a poor use of public funds and may even increase access to finance for the underserved groups</td>
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<th>EE Finance is Nascent</th>
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<td>Commercial financing is not widely available for EE projects</td>
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<th>Small &amp; Medium Enterprises (SME) / ESCOs still face significant challenges accessing to capital</th>
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<td>Due to its nature, EE financing is mostly evaluated against the creditworthiness of the borrowers</td>
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<th>Energy efficiency is still not seen as a top business priority</th>
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<td>EE related investments continue to be overshadowed by other investments deemed more critical to the company’s core business operation</td>
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<th>Expectations mismatch among stakeholders &amp; Quality of the projects</th>
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<td>Mistrust among end-users VS ESCOs/Suppliers is created and spread across the industry. The market dominated by fee-for-service rather than EPC.</td>
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<th>Perceived Risk is a Major Factor</th>
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<td>Risk mitigation and track record are key to financing decisions for the conservative lending culture. De-risk mechanism (e.g. credit enhancement, guarantee, insurance) and lower transaction cost mechanism is needed for stimulating smaller EE projects</td>
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<th>Conservative Banks &amp; Timid Investors</th>
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<td>The lending conditions are suboptimal for smaller-scale energy efficiency projects</td>
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<th>Low Energy Prices</th>
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<td>become a challenge to various financing schemes</td>
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Source: the Creagy (2019)
Example of Solutions
Example: EERF + Credit Guarantee Facility

Government

EERF

Soft loan with interest rate 0.5%

Guarantee Facility for SME

Commercial Banks

Factory / Corporate

Factory / Corporate

Factory / Corporate

SME

SME

loan with interest rate upto 3.5%

loan with interest rate upto 3.5% & guarantee fee upto 1.75%

saving $ saving $ saving $ saving $ saving $

Energy Efficiency Project

Energy Efficiency Project

Energy Efficiency Project

Energy Efficiency Project

Energy Efficiency Project

Source: the Creagy (2019)
Example: Scaling Up EE for Industrial Enterprises in Vietnam (Green Climate Fund)

Risk Sharing Facility (RSF) Sub-guarantee Structure

- GCF provides US$3 million as grants to capitalize RSF and USD$75 million as guarantees to be issued by the IBRD; US$10 million on technical assistance
- RSF facility will issue loan-specific sub-guarantees to private financial institutions (PFIs) who will then extend these RSF-guaranteed loans to industrial enterprises (IEs)
Example: Green Technology Financing Scheme (GTFS) in Malaysia

Result - As 31 December 2017, the participating FIs have approved financing of more than RM3.5 billion spread over 319 projects across different sectors.

Green Tech Malaysia
(Application approval, issue green project certification)

Financial Institutions
(Credit assessment & loan evaluation)

Project Company
(Green-tech producers & users)

Credit Guarantee Corporation - CGC
(Administer guarantee & rebates)

4 sectors supported

Building

Energy

Transport

Water & Waste

Source: https://www.gtfs.my/

- CGC guarantees 60% of the green financing amount
- Government bears 2% of the total interest rate
In all, financing of energy efficiency still faces several barriers:

- Due to its nature (e.g. small scale, non-core activity), **EE financing is mostly evaluated against the creditworthiness of the borrowers**;
- Most previous/existing financial instruments are **available for only to large corporates**.
- SME and ESCO still have difficulty to access to financing.
- Financing of energy efficiency projects, **needs to consider interactions with existing finance, interactions with existing leases and balance sheet issues**.
- Benefits are in the form of savings rather than revenues;
- **De-risk mechanism (e.g. credit enhancement, guarantee, insurance) and lower transaction cost mechanism** are needed for stimulating smaller EE projects.
Creative Energy
Energy and Emission Management
Renewable Energy, Energy Efficiency & Climate Finance Advisory
Policy Design, Analysis, Monitoring and Evaluation
Transaction Due Diligence & Management

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