Mobilizing Private Sector Capital toward Green Finance in Developing Asia

Reinventing Energy Efficiency Finance in Southeast Asian Markets

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Green Finance: Opportunities and Challenges
GHG “abatement efficiency”: Energy efficiency (EE) clearly outperforms most renewable energy (RE) and other mitigation options.


Source: IEA World Energy Outlook Special Report: Redrawing the Energy Climate Map, 10 June 2013
$8 trillion in EE investments needed by 2035

IEA reports: “Increasing annual efficiency spending from $130 billion today to $550 billion by 2035 will require new models & sources of financing from banks and capital markets”

Source: IEA, World Energy Investment Outlook, 3 June 2014
EE finance-technology nexus in developing Asia is weak, and the gap continues to widen...

2012-2035
$ 4.5 T EE
$ 2.4 T RE

57 EJ EE (by 2020)
47 EJ RE (by 2035)

### $11 B in EE investments needed in SE Asia by 2020

<table>
<thead>
<tr>
<th>Country</th>
<th>Energy Efficiency Strategy/Action Plan</th>
<th>Required Investment ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>Attain 25% reduction of energy intensity from 2005 level by 2030</td>
<td>48</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Reduce final energy consumption by 10% in all sectors</td>
<td>126</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Decrease energy intensity by 1% annually and decrease energy–GDP elasticity to below 1% by 2025</td>
<td>6,019</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>Reduce final energy consumption by 10% in all sectors</td>
<td>29</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Reduce final energy consumption in the industry, commercial, and residential sectors by 10% from 2011 to 2030, and reduce final energy consumption of the transport sector by 1.4 ktoe by 2030</td>
<td>901</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Reduce primary energy consumption by 5% by 2020 and by 8% by 2030 compared to BAU, and improve EE in all end-use by 16% by 2030</td>
<td>165</td>
</tr>
<tr>
<td>Philippines</td>
<td>Reduce final energy consumption by 10% in all sectors from 2007 to 2014</td>
<td>601</td>
</tr>
<tr>
<td>Singapore</td>
<td>Reduce energy intensity by 20% by 2020 and by 35% by 2030 from 2005 level; cap CO2 emissions from fuel combustion at 63 Mt-CO2 by 2020</td>
<td>97</td>
</tr>
<tr>
<td>Thailand</td>
<td>Reduce the energy intensity of GDP by 25% by 2030 relative to BAU</td>
<td>2,006</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Reduce energy consumption by 3%–5% by 2010 and by 5%–8% by 2010–2015</td>
<td>649</td>
</tr>
<tr>
<td>Southeast Asia Total</td>
<td></td>
<td>10,641</td>
</tr>
</tbody>
</table>

Source: IEA WEO Special Report, Southeast Asia Energy Outlook, 2014

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Three-quarters of ASEAN’s EE potential by 2035 would be unexploited in the New Policies Scenario

2035 Efficient ASEAN Scenario: understanding the magnitude of the demand-side EE potential

The Efficient ASEAN Scenario targets 250 TWh electricity savings by 2035, a 15% reduction from the New Policies Scenario

Source: IEA WEO Special Report: Southeast Asia Energy Outlook, Oct 2013
Business-as-usual EE finance: EE credit facilities through local FIs (largely asset-based lending)

Local Bank/FI

Debt, Equity, Guarantee Investment or TA

Loan repayments (often not based on energy savings)

Loan collateral/guarantee (typically fixed assets)

Provide asset-based loan

Customer (or ESCO)

Portfolio Investor

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Pioneering SE Asian FIs investing in sustainable energy: How mainstream is EEF?

**THAILAND**
- Kasikorn Bank
- Bangkok Bank PCL
- Sri Ayutthaya Bank
- TMB Bank
- Siam City Bank
- Siam Commercial Bank
- CIMB Thai
- EXIM Thailand
- SME Bank Thailand
- UOB Bank Thailand
- Krungthai Bank (KTR)
- Bangkok MUL*

**PHILIPPINES**
- Bank of the Philippine Islands
- BPI Leasing*
- BPI Globe Banko
- BDO UniBank
- BDO Leasing & Finance*
- Chinabank
- LandBank*
- Development Bank of the Philippines*

**VIETNAM**
- Techcombank
- Vietin Bank

**MYANMAR**
- ACLEDA MFI

**INDONESIA**
- Deutsche Bank
- Standard Chartered Bank
- Permata Bank
- Bank Mandiri*
- Indonesia Eximbank*

**CAMBODIA**
- ACLEDA Bank

**SINGAPORE**
- Standard Chartered Bank
- United Overseas Bank
- Orix Leasing Singapore Ltd*
- IFS Capital Ltd*
- SDCL Asia*

**MALAYSIA**
- Maybank Berhad
- SME Bank
- OCBC
- MDV
- Bank Pembangunan
- UOB Bank
- Standard Chartered Bank
- AmBank
- HSBC Bank
- HSBC Amanah
- Affin Islamic Bank
- Affin Bank
- RHB Bank
- Hong Leong Bank
- AmlIslamic Bank Berhad
- CIMB Bank
- Public Bank
- Kuwait FH
- Maybank Islamic
- Bank Rakyat
- CIMB Islamic
- Alliance Bank
- Agro Bank

* This PARTIAL List includes privately-owned leasing cos., specialized FIs and state-owned banks & export credit agencies.
Interest buy-down through Government fund: Thailand EERF

Fund Tranches
- Phase I (2003-06): $60M
- Phase II (2006-09): $60M
- Phase III (2007-10): $60M
- Phase III+ (2009-10): $28M
- Phase IV (2009-12): $12M
- Phase V (2010-13): $15M

Transformational Outcomes:
• Stimulated the investment appetite of the banking sector in EE (and RE) projects
• Bank’s own resources mobilized even outside EERF
• ESCO partnerships

Challenge:
• Deeper SME penetration with credit enhancement calls for new model

Sources: Frankfurt School - UNEP Collaborating Centre for Climate & Sustainable Energy Finance (2012); and, Institute for Industrial Productivity (2012)
Risk sharing facilities (RSF), portfolio loans and FI capacity building to enable and mainstream EE and RE lending: IFC Sustainable Energy Finance (SEF) in SE Asia

Senior loss 90-95%

1st loss 5-10%

IFC 40-50%

FI 50-60%

FL Sponsor 4-5%

FI 5-6%

**Financial Institution, Country (partial list)** | **IFC SEF Intervention**
---|---
BPI, Philippines | RSF + FI capacity building
BDO, Philippines | RSF + FI capacity building
Techcombank, Vietnam | Senior Loan + FI capacity building
Vietin Bank, Vietnam | FI capacity building
Permata Bank, Indonesia | FI capacity building
Bangkok Mitsubishi UFJ Lease, Thailand | RSF

Sources: IFC, ESMAP
Tucking EE under a green facility offering guarantee + interest rebates: Malaysia Green Technology Financing Scheme (GTFS)

**Policy Direction**
- Ministry of Finance Malaysia
- Central Bank of Malaysia (Bank Negara Malaysia)

**Implementation**
- Malaysian Green Technology Corporation (GreenTech Malaysia)
- Credit Guarantee Corporation Malaysia Berhad (CGC)

**USD 1.11 B**
(56% committed as of Aug 2014)

- 60% guarantee of the financing amount
- Plus
- Rebate of 2% on the interest rate charged by participating FIs

**Participating FIs**
(as of Aug 2014)
- Maybank Berhad
- SME Bank
- OCBC
- MDV
- Bank Pembangunan
- UOB Bank
- Standard Chartered
- AmBank
- HSBC Bank
- HSBC Amanah
- Affin Islamic Bank
- Affin Bank
- RHB Bank
- Hong Leong Bank
- AmIslamic Bank Berhad
- CIMB Bank
- Public Bank
- Kuwait FH
- Maybank Islamic
- Bank Rakyat
- CIMB Islamic
- Alliance Bank
- Agro Bank

**Borrowers**
(Users or Producers of RE, EE, Green Products, Water & Waste Recycling, Health & Environment Technologies)
- Energy Sector
- Building & Township Sector
- Transport Sector
- Water & Waste Management Sector

**Eligible Projects**
- Minimize degradation of environment
- Zero or low green house gas emission
- Safe for use and promotes healthy and improved environment for inhabitants
- Conserve the use of energy and natural resources
- Promote the use of renewable energy resource
Government-led EE investment fund: SDCL Singapore Energy Efficiency Finance Program

Sustainable Development Capital (Asia) Limited (SDCL Asia) has been selected by the Singapore Economic Development Board (EDB) to establish a finance-led pilot program for up to SGD200M (USD160M) in EE projects in the Singapore manufacturing sector.

The SGD200M Singapore fund follows two SDCL-managed EE funds:
・ UK EE Investment Fund, GBP 104 M, Closed 2014
・ Ireland EE Investments PLC, EUR 70 M, First Close March 2014

SDCL Asia / Singapore EE Investments Group Ltd will finance projects up to 100% upfront on a “paid from savings” basis.

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Bridging the market gaps to achieve meaningful scale

Gaps

- Financial products do not meet needs of ESCOs and EE supply chain
- Commercial funders have not mainstreamed EE financial products and services
- Available green facilities crowd out EE with RE and non-CC mitigation
- Development investors are unable to achieve scale, especially in end-use EE
- SME access to EE finance remains limited
- Finance sector remains fixated on larger EE technologies
- EE investment decisions by end-user cannot compete with business priorities
- Energy supply and demand-side policies and targets are still often decoupled

Solutions

- Design and roll out innovative financial products and services that address the credit gaps, tenor mismatches and risk profiles of SMEs, ESCOs and others in the EE supply chain
- Create a new class of project aggregators which are able to attract portfolio investors and funds targeted at EE and GHG impacts
- Design portfolios that capture the higher inefficiencies of smaller EE technologies widely used by low credit-risk sectors
- Governments scale up catalytic investments in EEF (fund equity, first loss cover, interest buy-down, etc.) and bolster EE regulation toward accelerated investment decisions and integrated energy supply-demand strategies
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Growth model 1: EE risk-sharing facilities with governments, climate funds (or even private sector) providing first loss cover

- 2.5-5% RSF First Loss Guarantee Cover
- 40-45% RSF Senior Loss Guarantee Cover

Local Bank/FI

- Loan repayments (structured against energy savings)
- Loan collateral/guarantee (energy performance contracts)
- Provide EE loan

First Loss Sponsor

Senior Loss Sponsor

Customer (or ESCO)
Growth model 2: ESCO - leasing company partnerships can rapidly grow the market for savings-based equipment leases.
Design, procure and install EE technology solutions through shared-savings performance contracts

ESCO

Customer

Guaranteed Monthly Savings

Accounts Receivable (Monthly Invoices)

Monthly payments to Factor

Portfolio Investor

Purchase of Receivables

Assign ESCO receivables

Factor (FI) or Fund

Growth Model 3: Factoring of ESCO receivables can quickly recapitalize smaller ESCOs

Debt, Equity or Guarantee Investment or TA

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Growth Model 4
Establish a dual-role Super ESCO
- specialized FI for private sector ESCOs
- dedicated ESCO for public facility EE

Concept: Country or SEA-wide EE Investment Fund as regional ESCO financing platform
- Super-ESCO/SPV/Fund
- ESCO Factor/Leasing
- ESCO Guarantee
- RSF First Loss Cover

- EE Supplier Finance
- EE Distributor Finance
- EE Vendor Finance

EE Financial Services Co

EE Supply Chain Finance

EE Project Finance

EE Trade Finance

EE Trade Guarantees
- EE Trade Liquidity Support
- EE Trade Pricing Incentives

ESCO EPC Bridge Finance
- Long-term EE Finance
- Portfolio Aggregation EPC Receivables

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Government and/or development finance intervention needed initially to catalyze private sector investment flow.
Strategic partnerships with ESCO sector needed to roll out new EE financial products and services

EE Financial Services Co

EE Supply Chain Finance

EE Project Finance

EE Trade Finance

• Super-ESCO/SPV/Fund
• ESCO Factor/Leasing
• ESCO Guarantee
• RSF First Loss Cover

• EE Supplier Finance
• EE Distributor Finance
• EE Vendor Finance

• ESCO EPC Bridge Finance
• Long-term EE Finance
• Portfolio Aggregation EPC Receivables

• EE Trade Guarantees
• EE Trade Liquidity Support
• EE Trade Pricing Incentives
How can governments and development agencies step up policy reforms to catalyze private sector capital flow?

Policy Interventions

- Set more aggressive regulation shifting markets from voluntary to mandatory EE implementation across sectors
- Integrate energy supply, energy demand-side and climate change mitigation policy, strategies and targets
- Enable procurement of energy services and performance contracting, especially in the public sector
- Incentivize EE investment and consumer decisions
- Create specialized aggregation platforms, funds and financing schemes by policy
- Build technical and financial capacities in the ESCO sector
- Enable the finance sector to roll out new financial products (e.g. factoring of ESCO receivables, etc.)
- Continue to raise the bar and harmonize efficiency standards for end-use technologies, buildings and vehicles
  - Formulate more transformational strategies, including the systematic phase-out of low-efficiency technologies
- Removal of all forms of energy subsidies
How can governments, MDBs/development FIs and climate funds efficiently leverage private sector capital into EE finance?

### Catalytic Investments & Finance

- Provide first loss cover for FI risk sharing facilities
- Provide guarantee facilities to support:
  - SME loans
  - ESCO performance contracts
  - Trade finance
  - Supply chain / distributor finance
- Provide subsidy support for:
  - Interest rates for EE credit (in nascent markets)
  - Trade finance transactions related to EE products
- Provide long-term debt facilities for portfolio aggregators of longer-payback EE projects
- Provide equity for EE investment funds, Super ESCO and other SPVs
- Fund bulk procurement and distribution programs to drive down cost of pre-commercial EE technologies
- Design, finance and implement large-scale lighting and appliance replacement programs for the less reachable sectors – households, micro-enterprises, off-grid communities
How else can private sector players scale up EE finance?

**Market Innovation**

- Develop a steady demand for specialized EE financial products and services by generating a robust pipeline of ESCO-led and self-financed EE projects
- EE technology providers accelerate the deployment of pre-commercial, higher-efficiency technologies through bulk procurement transactions
- EE technology providers (and ESCOs) can play a more proactive marketing role in promoting SME/corporate EE loans, ESCO performance contracts, EE trade finance and EE supply chain finance through co-marketing agreements with financial institutions
- EE end-users optimize use of off-balance sheet financing for corporate-wide retrofit and upgrading programs
- EE end-users link procurement systems with long-term sustainability targets
- Develop more elaborate green procurement systems that evaluate NPVs of lifecycle costs and consider carbon footprints and other impacts
- Design, finance and implement global low-efficiency technology phase-out programs
- Provide international and government bodies with benchmark and reach standards for purposes of developing and regularly updating EE standards
Thank you

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