



ESCO Market assessments in ASEAN: An example from Thailand

Presented by:

Verena Streitferdt

v.streitferdt@pertiwi-consulting.com

Co-author:

Rio Jon Piter Silitonga

riosilitonga@aseanenergy.org



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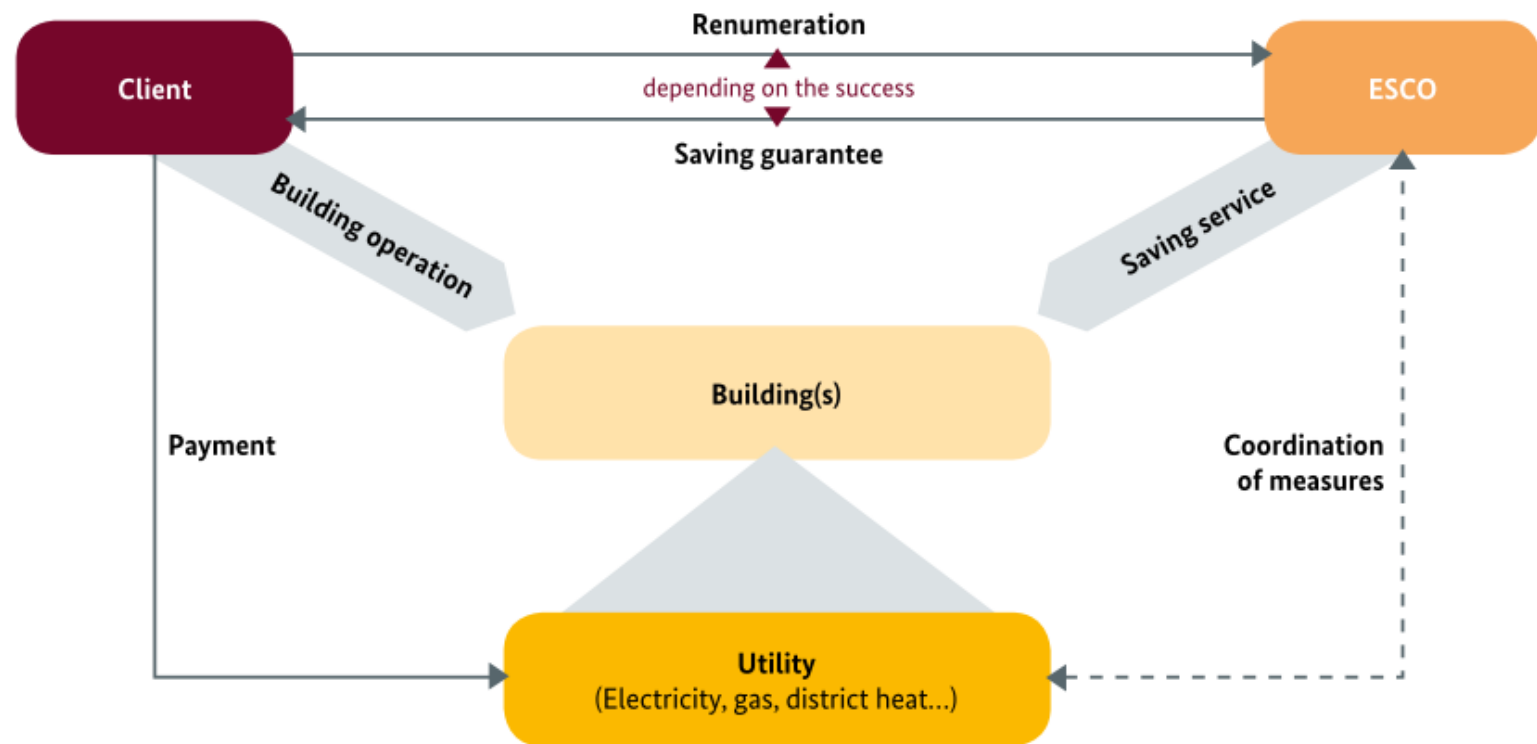
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Rationale for Energy Efficiency in ASEAN

- EE is the most cost-effective way of enhancing energy security, promote competitiveness and mitigate climate change
- Energy consumption in the commercial building and industry sector will grow by 7.3% and 5.3% respectively until 2035
- Under an Alternative Policy Scenario (APS), the energy savings potential of the commercial building sector can be 12% and in the industry even 25% by the year 2035.
- ASEAN itself aspires to reduce its Energy Intensity (EI) by 20% in 2020 and 30% by 2025 based on 2005 levels

ESCO market as a possible solution

- Energy Service Companies (ESCO) as a possible mechanism to achieve EE&C promotion (ASEAN, 2009).
- Energy Performance Contracts are the main characteristics of ESCO business model.





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ASEAN ESCO Market

| | Brunei Darussalam | Cambodia | Indonesia | Lao PDR | Malaysia | Myanmar | The Philippines | Singapore | Thailand | Vietnam |
|----------------------|-------------------|----------|-----------|---------|----------|---------|-----------------|-----------|----------|---------|
| EE Policy Document | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| EE Target | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| ESCO Development | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Regulatory Support | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Financial Incentives | ✓ | ✓ - | ✓ | - | ✓ | - | - | ✓ | ✓ | ✓ |
| ESCOs | ✓ | ✓ - | ✓ | - | ✓ | - | ✓ | ✓ | ✓ | ✓ |
| ESCO Association | ✓ | ✓ - | ✓ | - | ✓ | - | - | - | ✓ | ✓ |

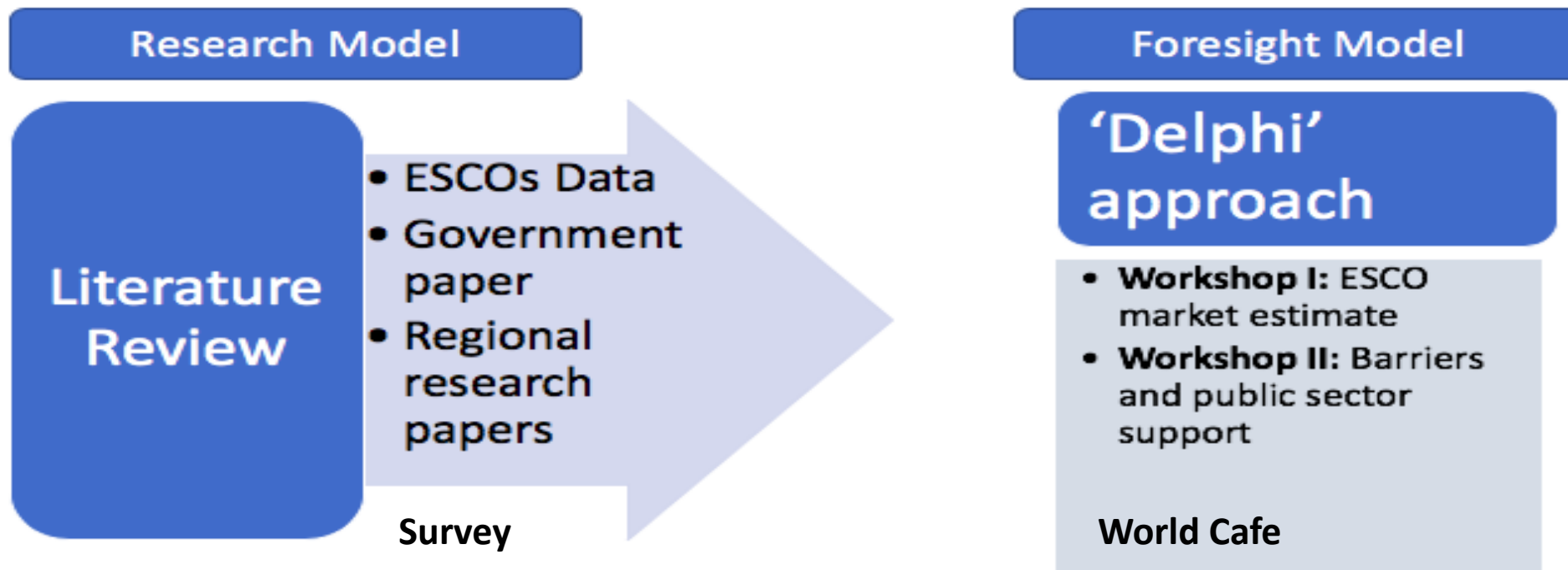


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ASEAN ESCO Market

| No | State | Number of ESCO registered |
|----|-------------|--|
| 1. | Indonesia | 3 ESCOS are registered with Ministry of Energy and Mineral Resources |
| 2. | Malaysia | 101 ESCOs registered at Suruhanjaya Tenaga |
| 3. | Philippines | 24 accredited ESCOs in October 2016 |
| 4. | Singapore | 19 Accredited ESCO and 27 Qualified Energy Services Specialists (QESS) |
| 5. | Thailand | 60 registered ESCOs: 34 of type S (possessing the authorised capital from THB 1-5 million), 6 of type M (THB of 5-20 million), 8 of type L (THB20-50 million), and 12 of type XL (THB 50 million or higher) |
| 6. | Vietnam | less than 20 and most of them are supporting the in-house service projects |

Methodologies to assess ESCO markets: Surveys or Expert assessments?





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Case study: Thailand

- Vast experience with public sector support for EE (since 1992)
- Financial mechanisms such as the Energy Efficiency revolving Fund and ESCO Fund
- Rapid growing emerging economy
- Thai government seeks to share experiences with ASEAN

Acknowledgement: The study was conducted in 2015, by the Energy Research Centre of the Netherlands and received funding from the Thai German Programme to support the energy efficiency development plan (TGP-EEDP)

Methodology used

Research Model

Literature Review

- Data from Federal Thai Industries
- Policy documents and academic reports
- Regional ESCO market
- Research on available project information

Foresight Model

'Delphi' approach

- **Workshop I:** ESCO market verification and estimate
- **Workshop II:** Discuss barriers and challenge of the ESCO market and possible support mechanisms



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Framework conditions

- The high import dependence on energy imports (which accounted for a 50.4% share of energy consumption in 2011)
- Energy Efficiency Development Plan (EEDP), 2011:
 - Designed as a 20 years plan (2011-2030) by the Thai government
 - Reduce energy intensity (EI) up to 25% by 2025
 - Reduce approximately 38,200 ktoe from business as usual (BAU) by 2030;
 - Save energy-related expenses of approximately 23.57 billion US dollars and;
 - Reduce about 130 million tons of CO2 emissions nationwide



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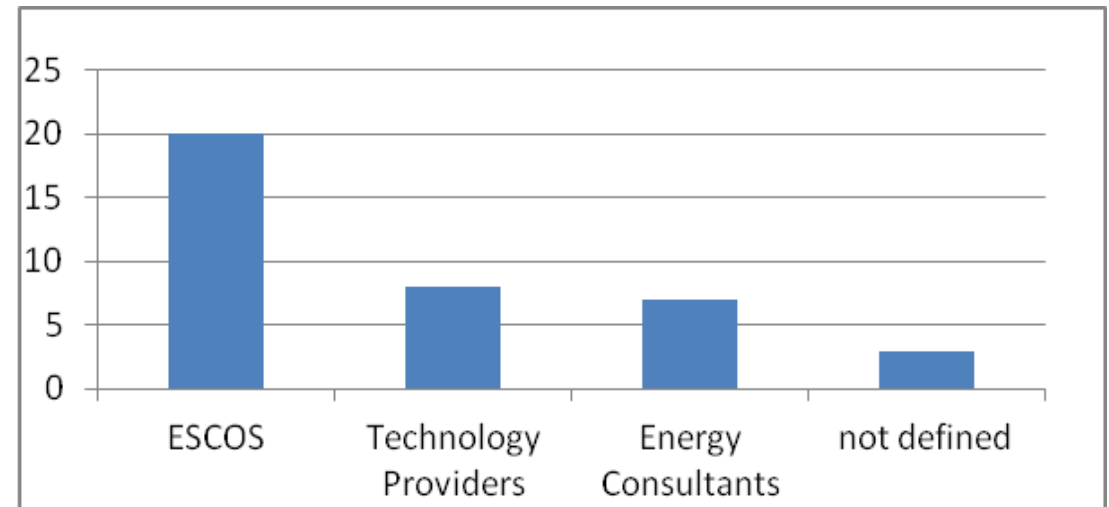
ESCO Supportive Regulations

- Financing mechanisms
 - Energy Efficiency Revolving Fund (EERF) ESCO Fund
 - ESCO Fund

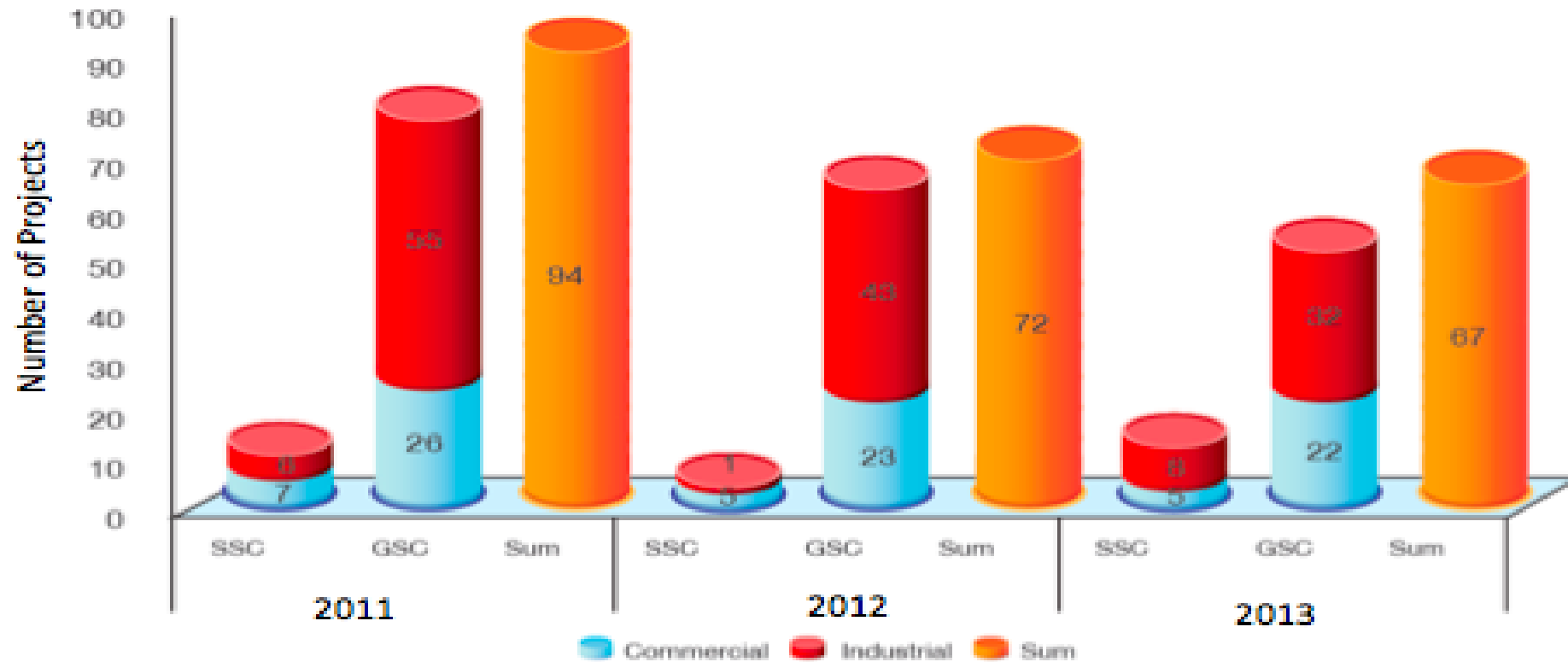
⇒ Only marginal support for ESCOs
- Tax Incentive
 - tax break on income tax (max 8 years)/ import duty.

ESCO Market Assessment

- **20-40 Thai ESCO** companies and 10 international ESCOs active in Thailand
- ESCO market in 2013: **US\$80-150 Mio** with industry and commercial
- Most Energy Performance Contracts (EPCs) are **Guaranteed Saving Contracts** compared to **Shared Saving Contracts**



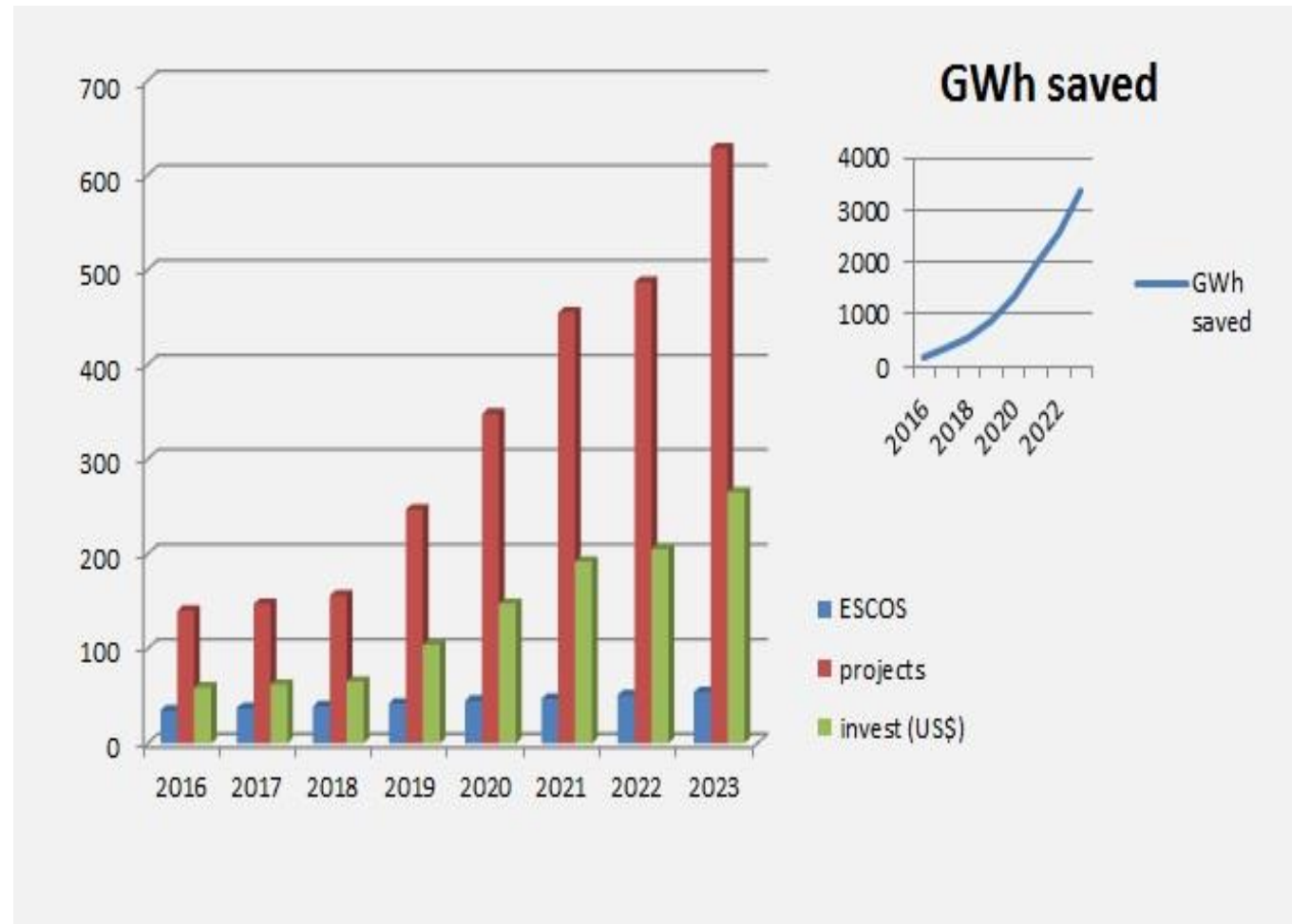
Shared Saving vs. Guaranteed saving contracts



Source: (FTI 2014)

ESCO Market Forecasting

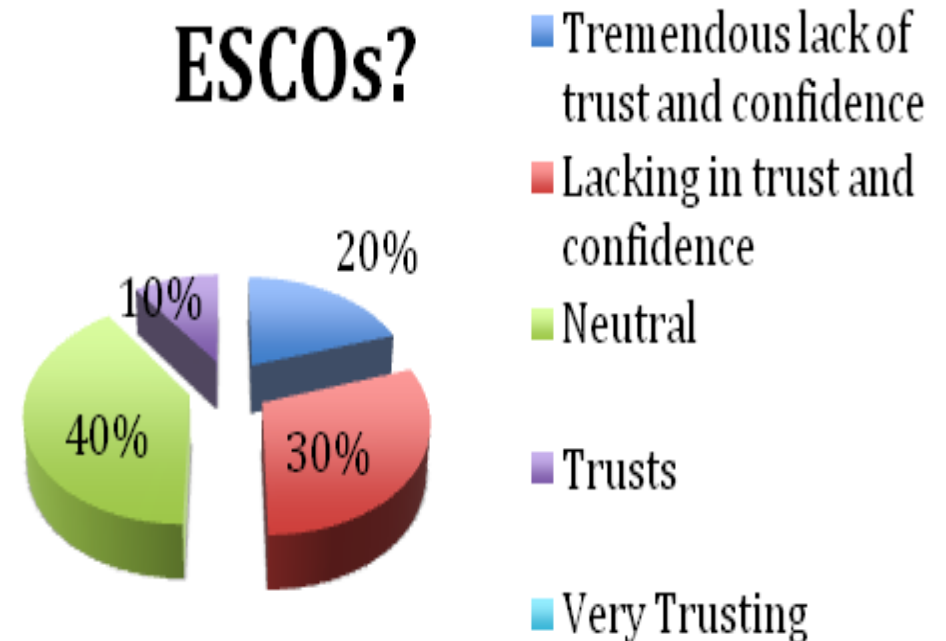
- The total number of projects will increase from 140 in 2016 to 628 in 2023
- Generate energy savings of 3400GWh until 2023



Barriers to ESCO market development

- Financing limitations for ESCOs
 - limit to provide these guarantees and also limits to provide funds for shared savings
- Lack of Confidence in ESCOs Companies

How Trustworthy are ESCOs?





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Policy Recommendations

- Provide additional tax incentives
- Introduce financial risk management programs
- Introduce a government managed 'green building' certification program similar to Green Mark program in Singapore.
- Continue existing government programmes towards ESCOs
- Promote the use of ESCOs through the retrofitting of government-owned buildings
- Run additional ESCO pilot projects in both the private and public sectors



Methodological discussions

- Clear definition of what will be included in the ESCO market survey
- Avoiding overestimation of the market size by only relying on industry representative
- Applying mixed methods



Opportunities for Collaboration

ACE would like to conduct an ASEAN wide ESCO assessment

- Do you have any recommendations?
- Want to collaborate?
- Sources of funding?



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THANK YOU