

# Experience with Energy Efficiency Financing Mechanisms: Overcoming the Implementation Barriers

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# Singapore's industrial energy efficiency imperative

- Singapore's EE performance is characterised by improving energy intensity (3.5% per year for a total of 30% since 2005), but rising absolute emissions.
- NDC pledge on intensity is weak and already met under BAU, though intention is for emissions to peak at 65 MtCO<sub>2</sub>e in 2030 by 2030: this will require significant ramp-up and EE is a key strategy
- Industrial energy use by industry in Singapore is growing rapidly, and growing as a percentage of total energy use (65%). Dominated by petroleum, chemicals and semiconductor industries
- Carbon tax imposition from 2019 will incentivise activities to reduce emissions and provide additional funds for further energy efficiency deployment: however, proposed initial tax level is low
- Public EE measures put in place since 2012 have not released the desired level of private sector investment

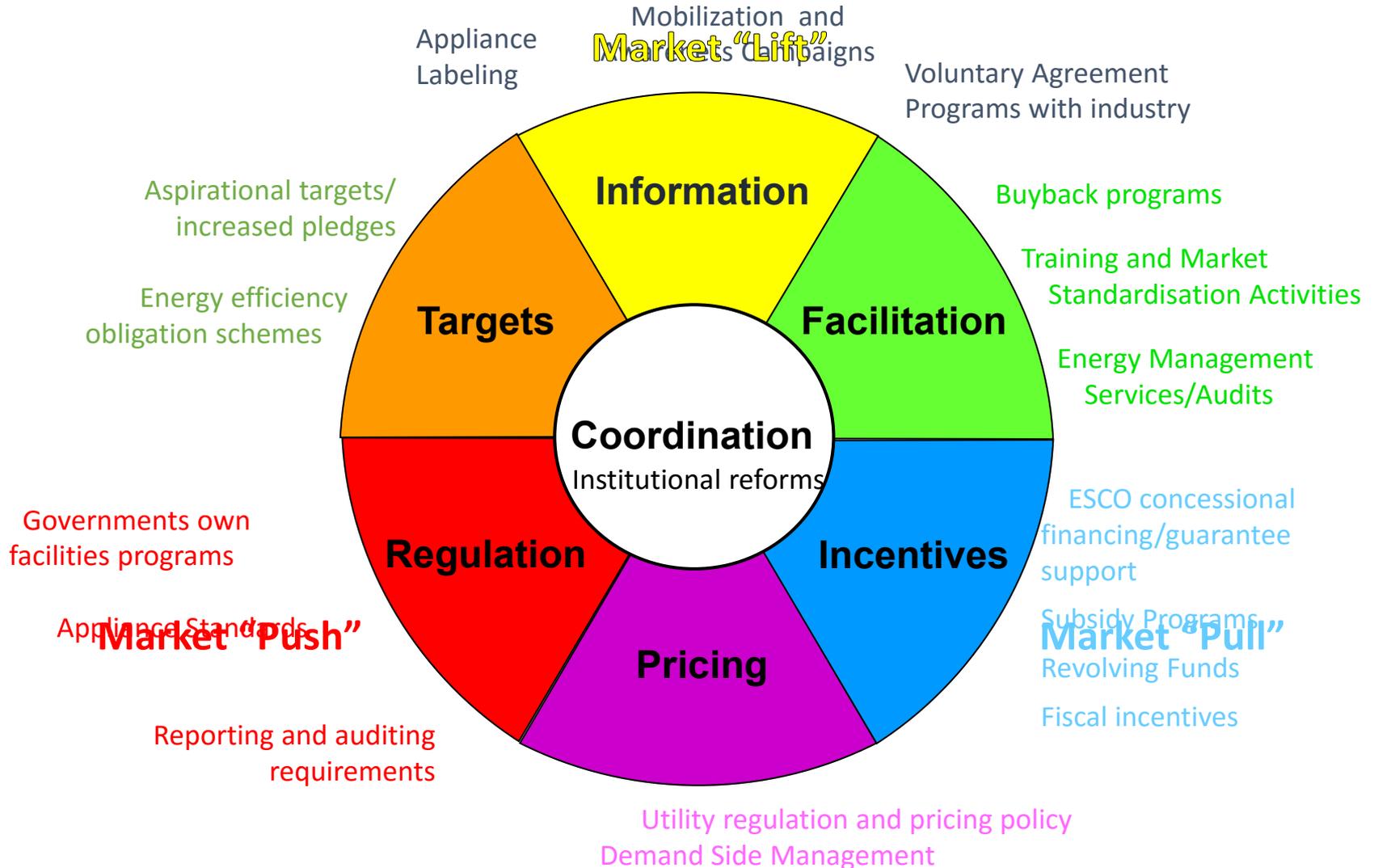
# Discussion Paper Barriers: The Big Picture

A range of support initiatives have been put in place to improve energy efficiency, though barriers persist:

- low CEO awareness and priority for energy efficiency
- slow uptake and uncertainty about longevity of government programs
- small and diffuse projects
- reluctance to tackle process operations or more complicated projects to release full EE potential
- perceived riskiness of EE project cashflow coupled with limited bank capacity to assess performance risk
- perceived lack of ESCO stability, creditworthiness and experience - resultant low confidence in delivery capabilities and reduced finance appetite
- lack of enforceability of existing programs, and lack of certainty about their longevity

***It is not just the existence of finance mechanisms themselves - but the industrial support ecosystems around them - that will overcome these barriers***

# The Policy 'Palette': Options for Singapore to improve EE



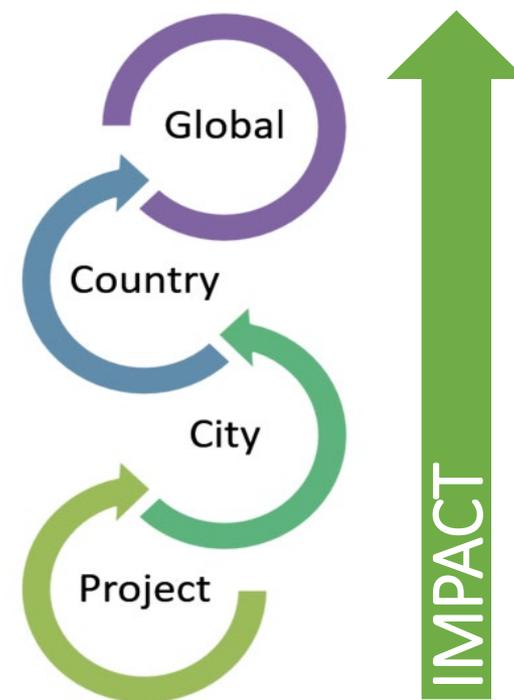
# Overcoming the Barriers: three pathways to unlocking private finance for EE implementation at scale



- Low EE profile and awareness
- Small scale fragmented projects
- Insufficient local project capacity
- Issues with access to finance



Need for structures which concertedly bring together several relatively small-scale energy efficiency projects or activities to form a single thematic portfolio above a certain investment threshold which can attract attention and be procured, administered and financed under a well understood framework



**Advocacy**

**| Aggregation**

**| Market Building**

# Advocacy: the role of industry convenors

Beyond SEAS, industry organisations need to be mobilised to convene industry groupings, amplify the EE opportunity, and encourage policymakers



Advocacy and awareness raising of the opportunities and issues in boardrooms and national/international political fora



Facilitation of industry capability and cooperation for aggregated project development



Consistency in accreditation, monitoring and verification, and training regimes



Standard legal contracting and procurement guidelines



Assisting to implement investment and finance schemes

# Aggregation: Creating energy efficiency projects that are attractive to investors



Industrial Site A  
Industrial Site B  
Industrial Site C  
Industrial Site D  
Industrial Site E  
Industrial Site F  
Industrial Site G  
Industrial Site H

n Sites

## Potential aggregated projects:

- motor and drive replacement
- retrofit of process heat/boilers
- space cooling including district cooling
- lighting
- industry-specific processes

## On-going assistance and facilitation work required:

- Data collection methodology and analytical process for streamlined technical assessment
- Active engagement with government and policy/public sector funding processes
- Financial structures for borrowing

# Market Building - some examples

## **ESCO Sector Support and Capacity Building**

- M&V training and requirements (e.g. EVO)
- Standardised project design and procurement models
- targeted information and awareness raising

## **Finance Sector Support**

- Concessional finance via financial intermediaries (e.g. Indonesia Eximbank)
- Operational risk reduction and insurance products (e.g. IDB)

# About Asia Clean Energy Partners

## Who are we?

An international consulting firm that supports the design and scale-up of effective clean energy initiatives, with a focus on Asia and the Pacific.

## What need do we serve?

Governments and businesses increasingly recognize the need to overhaul their energy policies and practices, to take account of new carbon constraints and new technologies. However, they do not always have the capacity or expertise to implement.



### Our Services

Create insights through research and analytics

Design programs and projects

Connect stakeholders with knowledge, technologies, and finance

Build communities of practice through targeted communications and events



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