Scaling up industrial energy efficiency market with innovative solutions: Implications on Singapore

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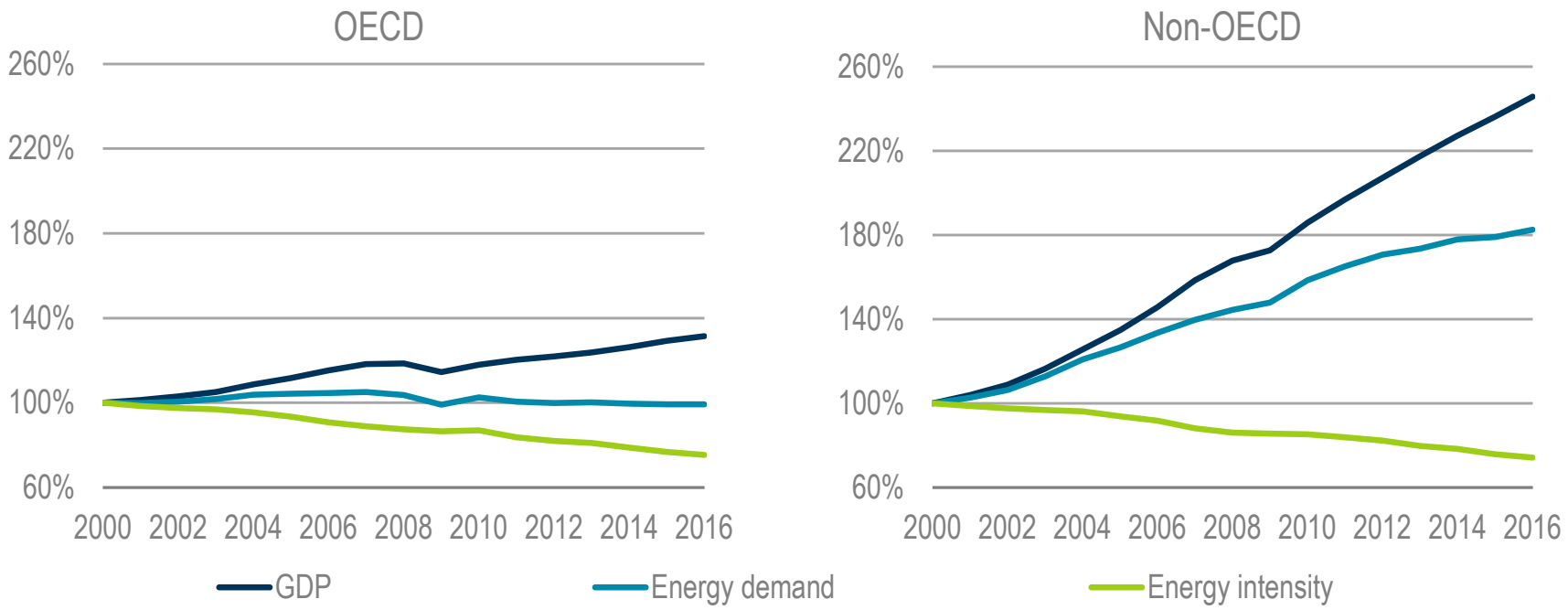
The rate of intensity improvement OECD vs non-OECD economies

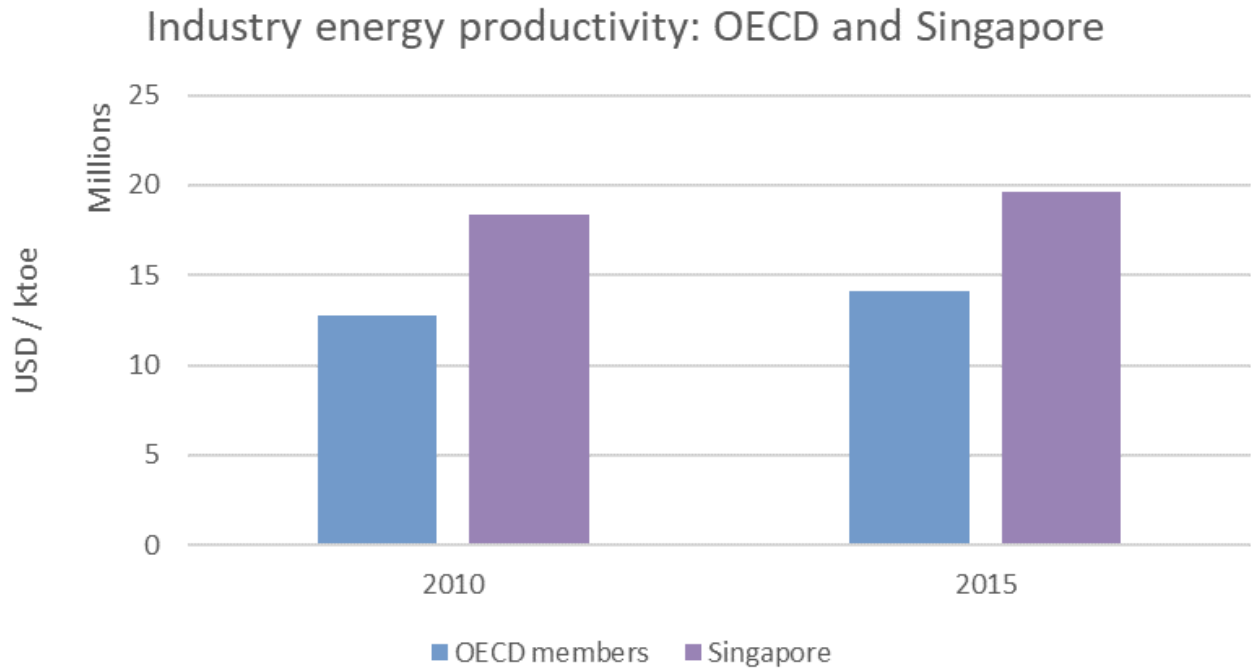
Changes in energy demand, GDP and energy intensity by region, 2000-16



Source: IEA (2016).

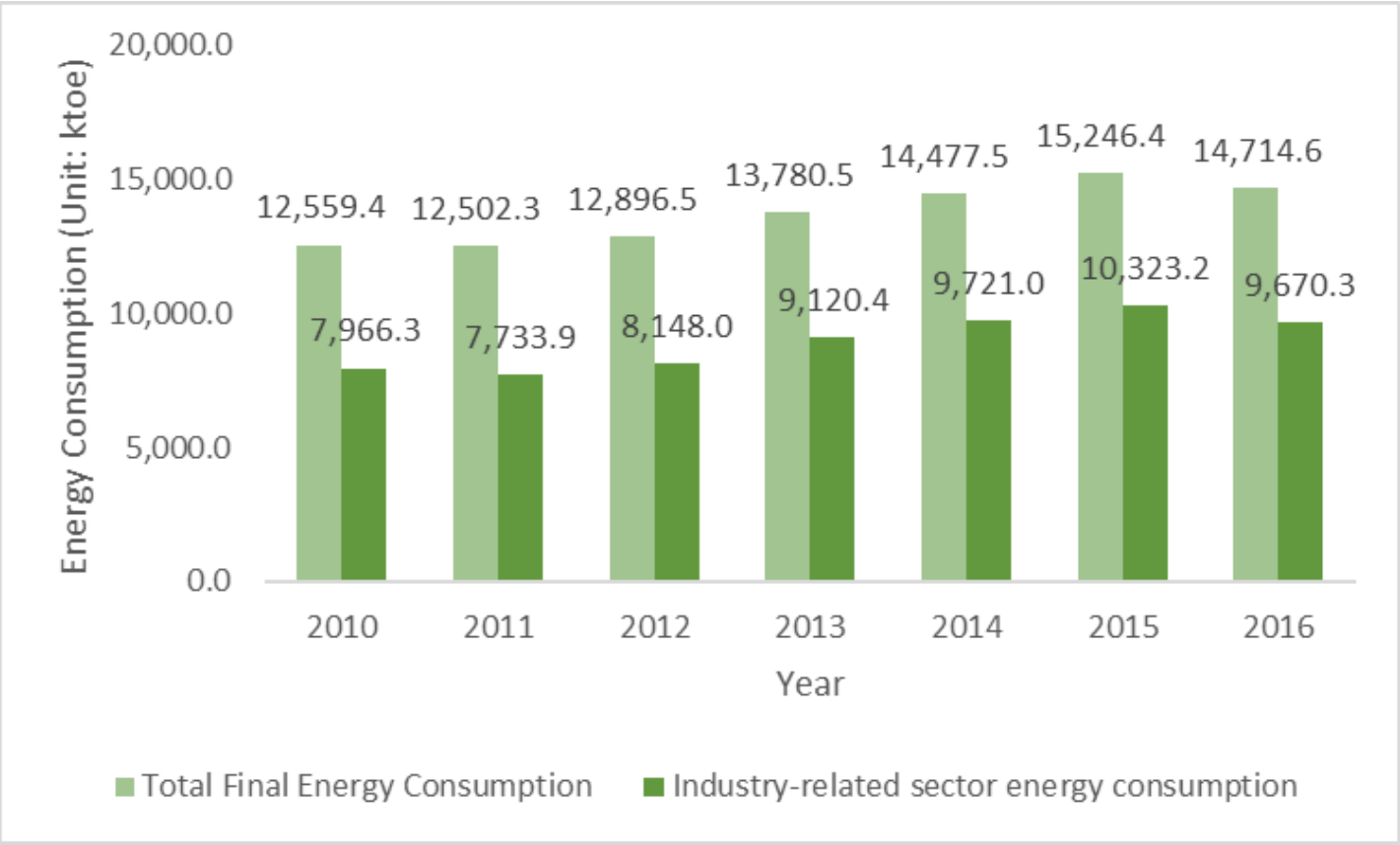
Energy Productivity

- Improving energy productivity is about getting more value from the energy we use
- Industrial energy productivity in Singapore has increased by 7% over 2010-2015, and 39% higher than OECD average in 2016



Data source: World Bank and IEA

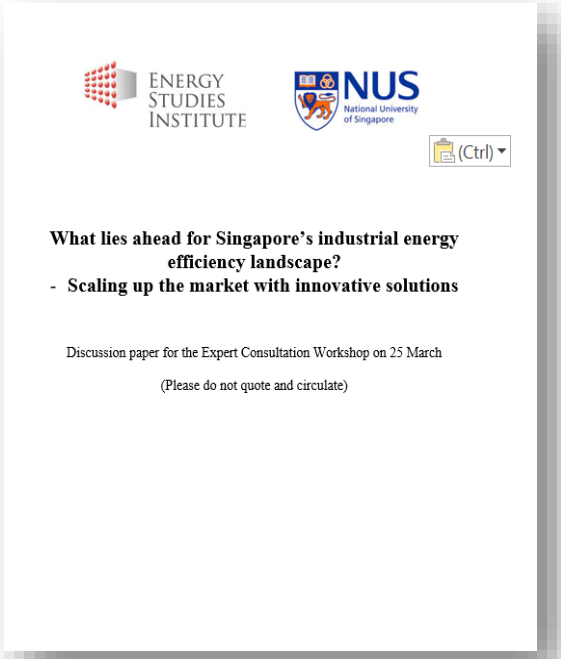
Final energy consumption increased by 21.4% in the industry sector of Singapore over 2010-16



Source: EMA 2018

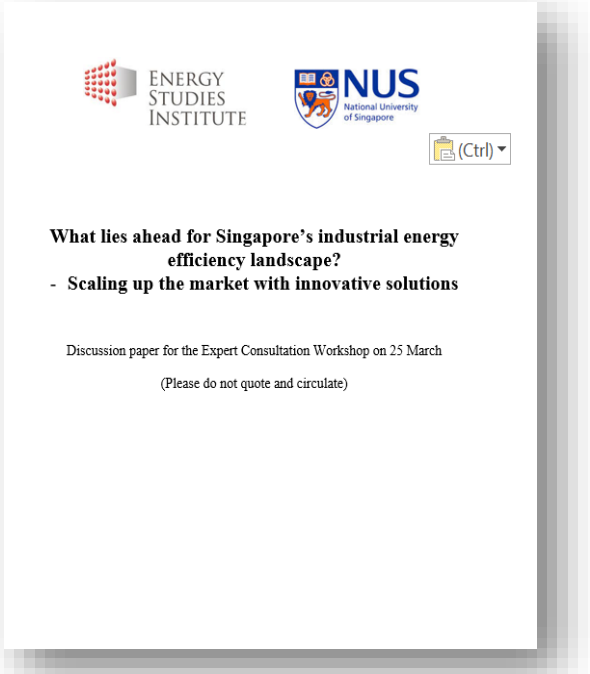
Discussion paper

- Better communication and understanding among public and private sector institutions
- Clearer view of strengths and challenges for energy efficiency policies in place
- Outline of possible future options



Where do we need help?

- Are our market findings appropriate? Have we missed anything?
- Do you recommend any potential solutions and policy mix applicable to Singapore's context?
- Do you recommend any jurisdictions to learn from different designs under implementation?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What lies ahead for Singapore's industrial energy efficiency landscape?
- Scaling up the market with innovative solutions

Discussion paper for the Expert Consultation Workshop on 25 March

(Please do not quote and circulate)

Institutional barriers to industrial energy efficiency in Singapore

- CEOs' top-down push for energy efficiency is effective, but rarely done
- Project sizes are smaller compared to those of other markets
- Uncertainty about the stability of the individual companies and paybacks are major reasons projects are not pursued
- ESCOs lack EPCs and technical capabilities
- Industrial scope limited to non-process operations

Financial barriers to industrial energy efficiency in Singapore

- Lack of collaterals and the small scale of energy efficiency projects
- ESCOs have limited credit worthiness
- Debt finance works, but too few loans
- Banks need to de-risk to gain a higher exposure to energy efficiency projects
- Financial institutions associate third-party financing with high risk
- Companies may not have a need for third-party financing
- Companies are concerned about the high cost involved in third-party financing

Policy & Regulation barriers to industrial energy efficiency in Singapore

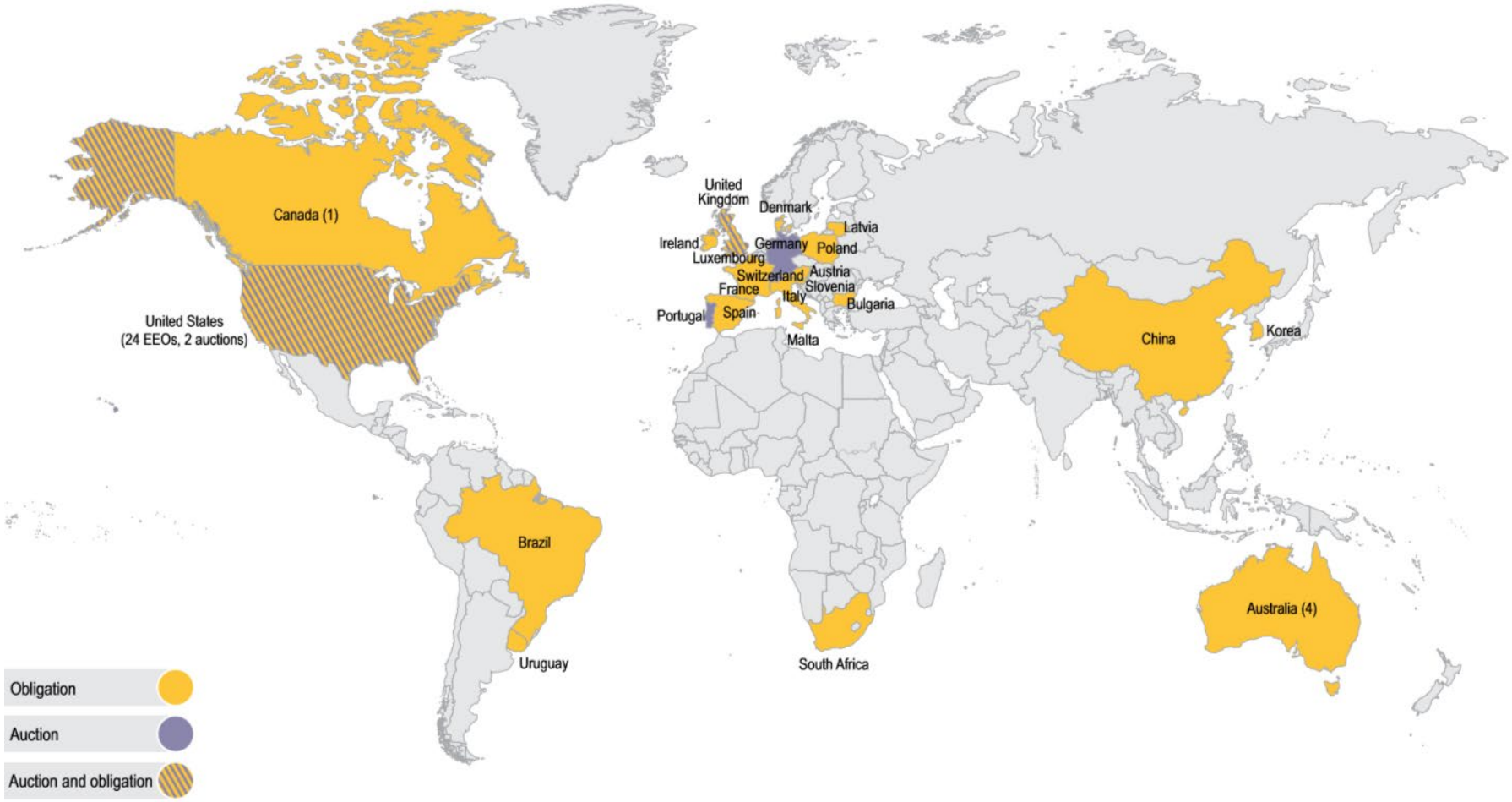
- Singapore's energy efficiency regulation may be ineffective in generating project pipeline
- Need for strengthening the standardization of the measurement and verification for energy savings

What lies ahead for Singapore's industrial energy efficiency?

- Building on existing programmes

- Possibility to learn from market-based instruments (MBIs: auctions, tenders, white certificate and obligation programmes) under implementation

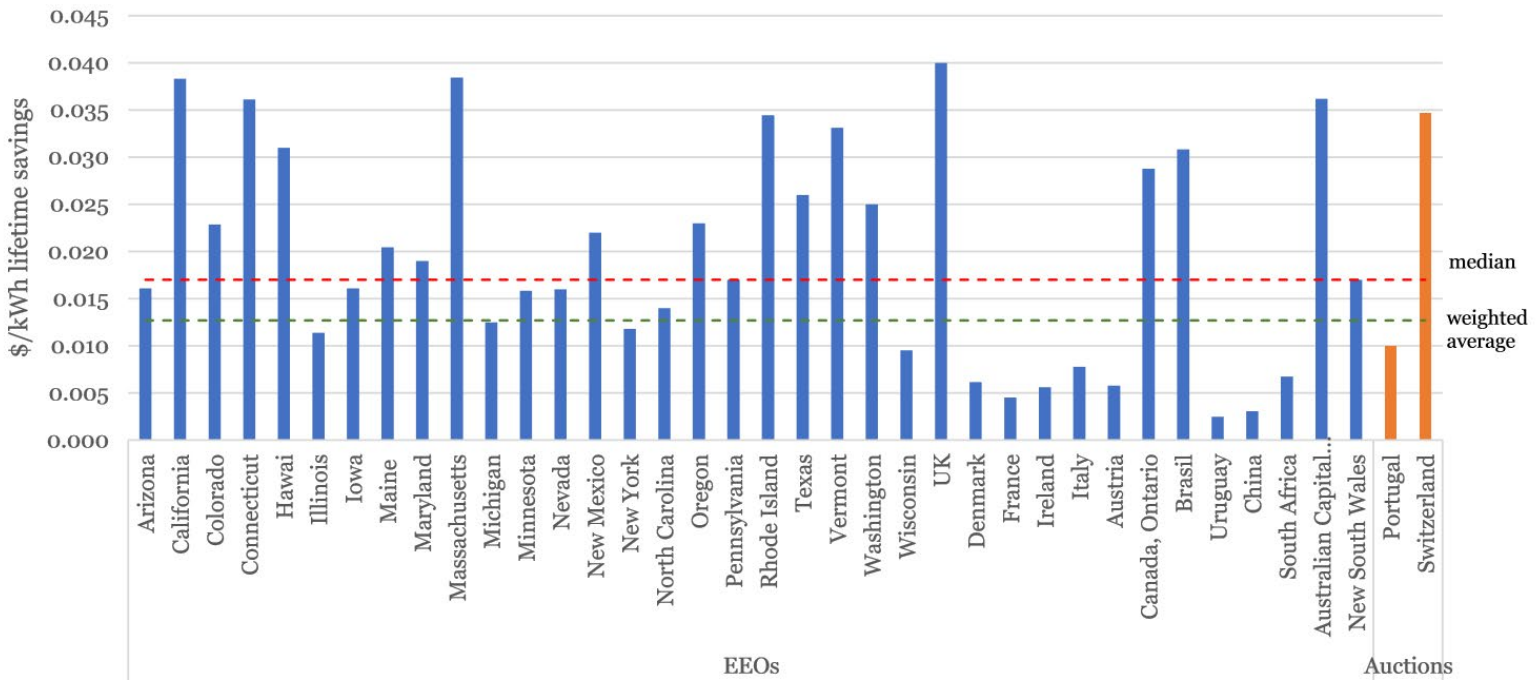
MBIs identified



Source: Rosenow et al. 2018

First analysis indicates that MBIs are highly cost-effective

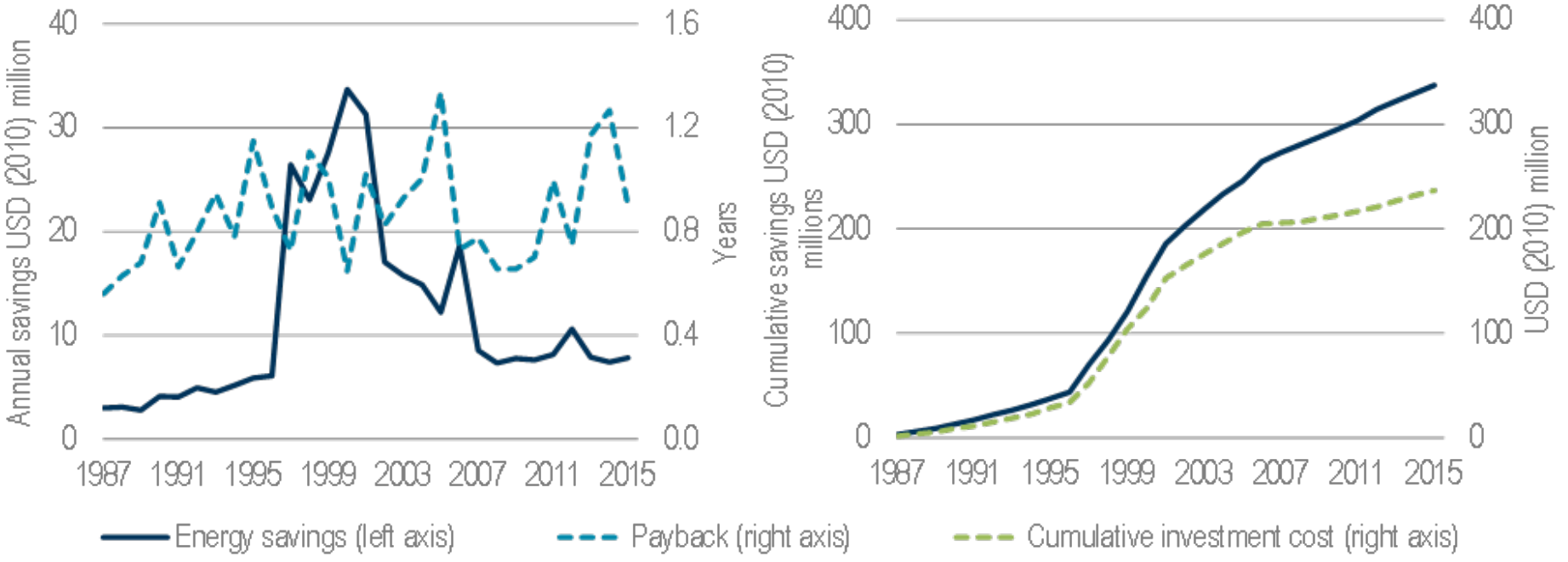
- Market-based Instruments have the potential to deliver energy efficiency outcomes cost-effectively



Source: Rosenow et al. 2018

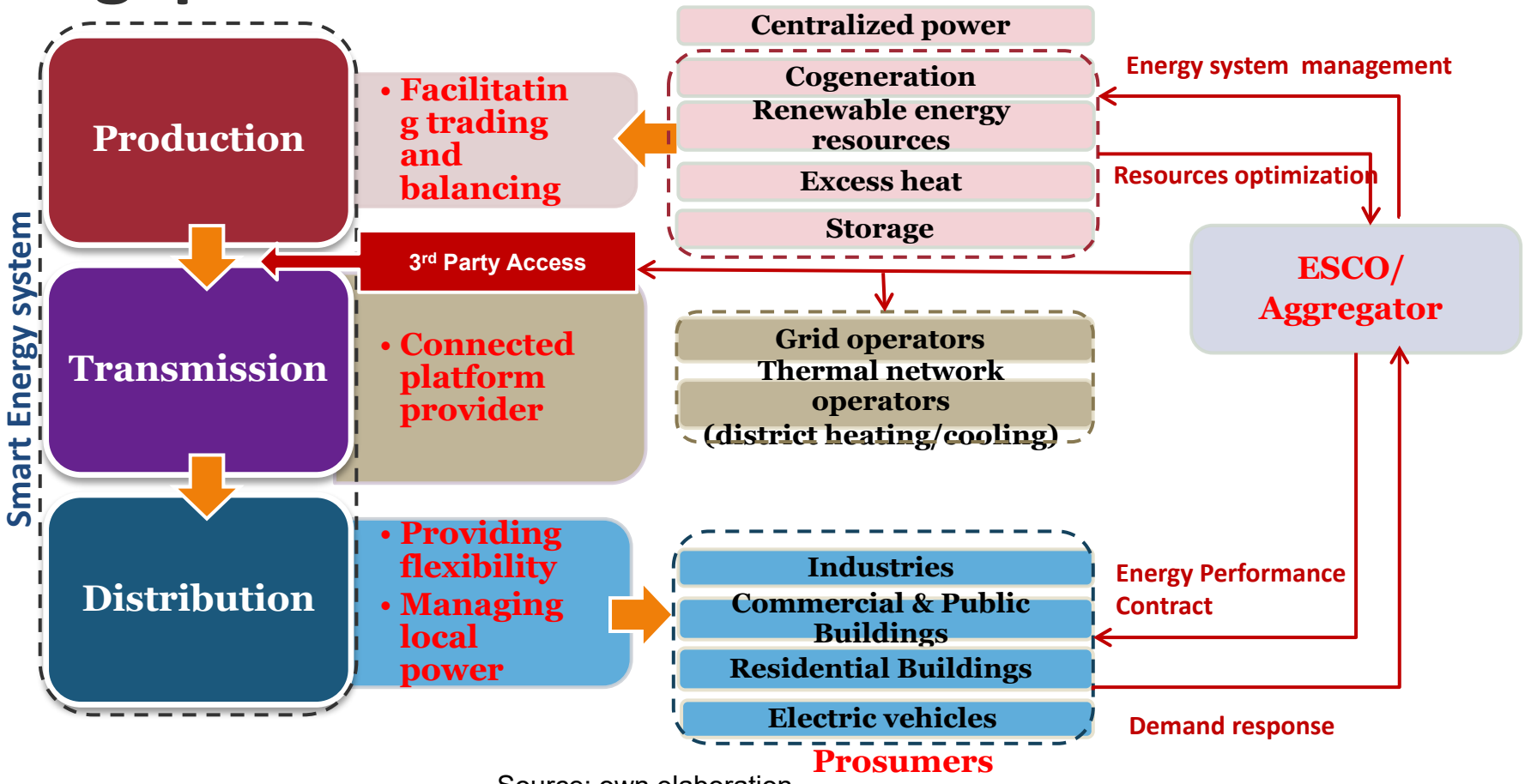
Efficiency in the digital age

Energy savings, payback and investment costs for identified energy efficiency measures related to the optimisation of process control in the US, 1987-2015



Source: Industrial Assessment Centers, 2016

Provide energy services beyond electricity as a commodity : Which policy mix for Singapore?



Source: own elaboration

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