

Singapore's Energy Efficiency Update

53rd Meeting of APEC Expert Group on
Energy Efficiency and Conservation
20 March 2019, Hong Kong, China

Agenda

1	Singapore's Energy Efficiency Approach
2	Industrial Sector EE Efforts
3	Building Sector EE Efforts

Approach to Energy Efficiency Efforts

- Whole-of-government approach to implement mitigation measures



Industrial Sector Energy Efficiency Efforts



Industry Energy Efficiency Efforts

- Aim to achieve **energy efficiency improvement** rates of 1-2% p.a. for manufacturing sector

Capability Development & Regulation

- Energy Conservation Act
- Singapore Certified Energy Manager
- Energy Efficiency National Partnership

Financing

- Energy Efficiency Financing Pilot Programme

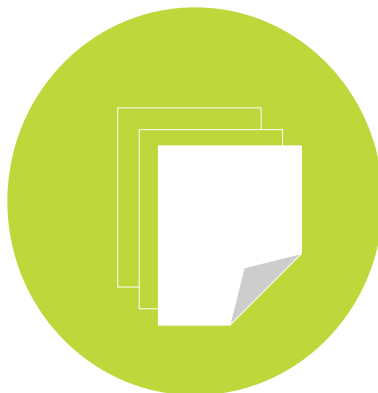
Incentives

- Grants to promote Energy Efficiency
- Investment Allowance for Energy Efficiency

Mandating Energy Management Practices under the Energy Conservation Act



- Appoint energy manager (SCEM-certified)



- Monitor and report energy use and GHG emissions



- Submit energy efficiency improvement

Energy sectors covered



1. Manufacturing & related services
2. Supply of electricity, gas, steam, compressed air & chilled water
3. Water supply & sewage & waste management

Energy-intensive consumers



≥ 54 TJ/yr

Incentive & Financing Schemes



Energy Efficiency Fund (E2F)

- Co-funds up to 50% of:
 - ✓ Fees for design workshops,
 - ✓ Fees for energy audits,
 - ✓ Investment cost for adoption of EE technologies

Resource Efficiency Grant for Energy

- Co-funds up to 50% of qualifying costs to implement EE improvement projects.



Investment Allowance (IA) for EE

- Capital allowances of up to 30% of qualifying costs, to be used against taxable income

Energy Efficiency Financing

- 3rd Party financier provides capital to finance installation of EE measures
- Allows investment to be paid from savings



Singapore Certified Energy Manager (SCEM) Training Grant

- Co-funds about 35% of training cost of SCEM Professional Level course

Energy Efficiency Fund (E2F)

Co-funds up to 50% of qualifying costs (equipment/technology, professional services, external manpower cost)

For Singapore-registered owner/operator of manufacturing company (SSIC code 10XXX to 32XXX) sited in SG with annual group sales turnover \leq S\$500mil*

Co-funds up to 50% of qualifying cost capped at \$600,000 for design workshops for new facilities or major expansion

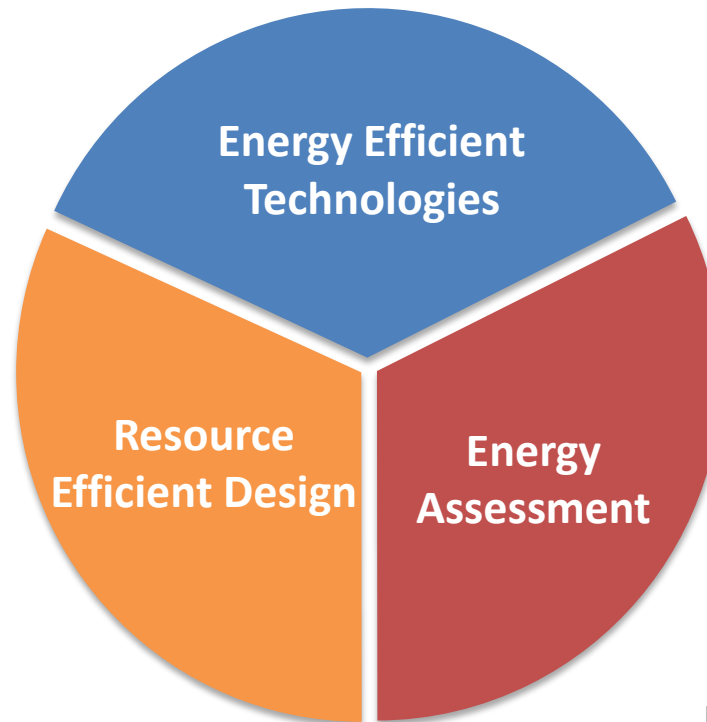
Co-funds up to 50% of qualifying costs, capped at \$200,000 over a 5-year period

Qualifying cost:

- Consultancy fees
- Transport & accommodation for consultants
- Venue & logistical costs for workshop

Qualifying cost:

- Consultancy fees
- Instrument & Evaluation Tools



Resource Efficiency Grant for Energy

- The Industry sector* is the largest contributor of carbon emissions in Singapore, and can play its part through measures such as improving energy efficiency.
- The grant will support Singapore-registered owners / operators of industrial facilities in the sector to implement projects that present measureable and verifiable carbon abatement, or equivalent energy savings.
- Support is outcome-based: grant amount is tied to the amount of carbon abatement achieved by the project.

Grant Support =

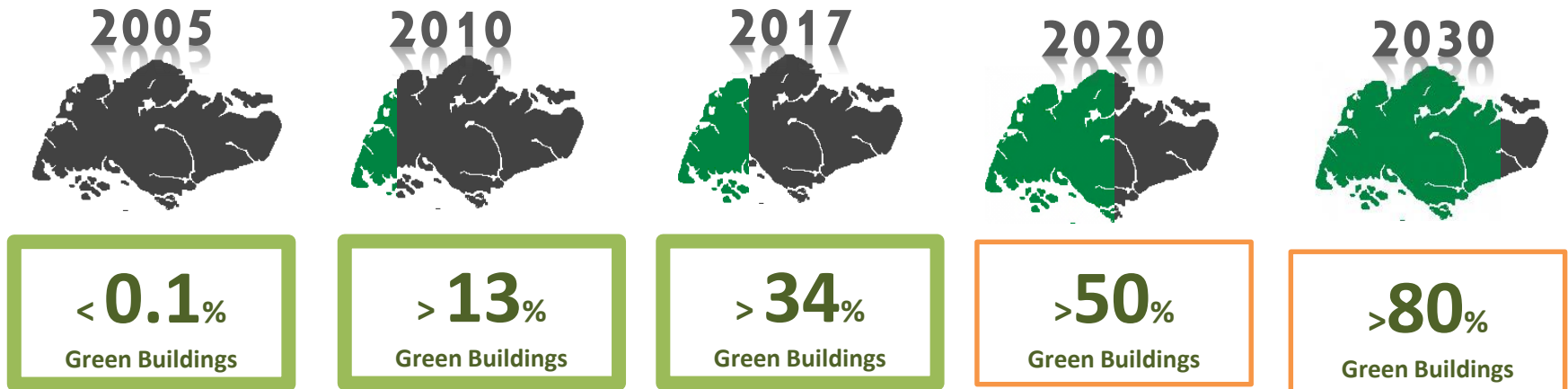
Carbon abated in tonnes per annum (tpa) X Grant \$/tonne awarded X 15 years of project useful life,

Subject to (1) a minimum of 0.5 ktpa of abatement, and (2) a cap of 50% of incurred qualifying costs.

Building Sector Energy Efficiency Efforts

GreenMark Scheme

- Green building rating system to evaluate building for its environmental impact and performance
- Specially designed for our tropical context
- Energy-centric and emphasises on post-completion building performance verification



Current Status:

> 3,200 Green Building projects
> 94 million square metres of green GFA

Better Building Design with EE Features



NUS Net-Zero Energy Building

Features a hybrid cooling system, a mixed-ventilation design that combines air-conditioning and fresh air. It also has more than 1,200 PV panels to power the building.



Tampines Hub

Singapore's first integrated community and lifestyle hub with a vision to foster an active, creative and green heartland. This project won the ASEAN Energy Awards for its energy efficient building design.

ASEAN Green Building Codes

Background

- ASEAN Energy Ministers endorsed a set of key recommendations for the development of Green Building Codes for ASEAN Member States at the 36th AMEM in Singapore in Oct 2018, to drive the region's green building industry
 - Improving coordination within the government
 - Improving coordination between public and private stakeholders
 - Incorporating energy efficiency measures and passive design concepts in the initial stages of building design
 - Establishing a central institution to handle green building code certification, monitoring and verification in each implementing country
 - Developing skilled manpower in the building sector

Useful links

- Energy Efficient Singapore

<https://www.e2singapore.gov.sg>

- Energy Market Authority (Energy Efficiency Programmes and Incentives)

https://www.ema.gov.sg/Residential_Energy_Efficiency_Programmes_and_Incentives.aspx

Thank you