# Climate Change and Energy Efficiency in Singapore

15 October 2019

### Singapore's Climate Change Commitments



• Singapore's GHG emissions totaled 50.9 MT CO<sub>2</sub>e. The industry sector forms the bulk of our emissions ( $\sim$ 60%).

### **SINGAPORE'S PLEDGE**

To reduce our Emissions Intensity by 36% from 2005 levels, and stabilise and peak emissions around 2030.

### **A Whole-of-Government Effort to Mitigation**



# Key Strategy: Improving Industry EE



- Energy Efficiency National Partnership (EENP)
- Singapore Certified Energy Manager (SCEM) Programme
- Energy Services Companies (ESCO) Accreditation
- Energy Efficiency Opportunities Assessor (EEOA) Framework

### **Carbon Pricing Act (CPA)**

### SINGAPORE'S CLIMATE ACTION PLAN



#### HOW A CARBON TAX WORKS

#### INTRODUCE A TAX ON EMISSIONS

- Carbon tax will generally be applied upstream, for example, on power stations and other large direct emitters.
- Businesses can choose to reduce emissions or pay a carbon tax.

#### ENCOURAGE ENERGY EFFICIENCY & SUPPORT MORE GREEN ACTIONS

- Businesses are motivated to improve their energy efficiency.
- Consumers are encouraged to use less electricity and save energy.
- Carbon tax revenue will help to fund measures by industry to reduce emissions and provide appropriate measures to ease the transition.

#### **3** LOWER CARBON, GREENER ECONOMY

- Lower emissions lead to a greener planet.
- Businesses become more resource-efficient and sustainable.
- More opportunities in green growth sectors, such as clean technology.



Regulations and Standards

# **Carbon Pricing Act (CPA)**

### **THRESHOLD AND PRICE LEVEL**

- 25 ktCO<sub>2</sub>e threshold covers around 40 companies that contribute about 80% of total emissions.
- Tax applies uniformly to all sectors, without exemption, to provide transparent, fair and consistent carbon price signal across the economy.
- Carbon tax rate set at \$5/tCO<sub>2</sub>e (~US\$4/tCO<sub>2</sub>e) in the first instance, as a transition period for companies to adopt EE projects.
- Tax rate to be reviewed by 2023. The intent is to increase the rate to between \$10- $15/tCO_2$ e by 2030.

#### **MECHANISM**

- Carbon tax is simple to implement, minimises administrative burden on companies.
- Fixed-Price Credit-Based (FPCB) mechanism -Puts in place key building blocks (e.g. credit registry infrastructure) to facilitate future use of carbon credits.
- Open to explore linking the carbon tax framework to external carbon markets where feasible.





# **Energy Conservation Act (ECA)**

The EC (Amendment) Act was gazetted on 2 Jun 2017



#### New facilities & major expansions

- Review facility design for EE<sup>1</sup>
- Report measured energy data<sup>1</sup>



#### **Existing facilities**

- Implement structured energy management system<sup>2</sup>
- Conduct regular EE opportunities assessments (EEOAs)<sup>2</sup>



#### Common industrial equipment & systems

 Introduce minimum energy performance standards, starting with motors<sup>1</sup>



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# **Capability Development**



#### **EENP Learning Network and Conference**

- Promotes adoption of in-house energy management systems
- Provides partners with opportunities to learn and share best practices and technologies



Module-based training for Singapore Certified Energy Managers (SCEM)

- Training and certification system in energy management
- Training grant to encourage companies to train their employees



#### **Energy Services Company (ESCO) Accreditation Scheme**

- Enhances professionalism and quality of services offered by ESCOs
- Enhances confidence in the energy services sector and helps to promote the growth of industry



#### Energy Efficiency Opportunities Assessment (EEOA) Framework

 Certify qualified EE professionals with expertise in assessing energy efficiency opportunities of energy-consuming and industrial processes/systems



### Incentives

### **NEA'S ENERGY EFFICIENCY FUND (E2F)**

- E2F provides up to 50% co-funding for the following:
  - Resource efficiency design of new facilities and major expansions
  - > Adoption of energy-efficiency technologies
  - > Energy assessments of existing facilities

# (NEW!) Energy Management Information Systems > Help companies in the digitalisation of their energy management systems



## Incentives

### **NEA'S ENERGY EFFICIENCY FUND (E2F)**

**Professional services** 

Software and IT services:

Up to 50% of qualifying costs, capped at

- \$250K per energyintensive facility (i.e. consuming ≥ 54 TJ of energy annually) and;
- i) \$125K per facility for other facilities.



Include engineering and design, programming,

guidance on use, training, commissioning support

Include software licensing, cloud-based services

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Incentives

### Incentives

### EDB'S ENERGY EFFICIENCY SCHEMES AND INCENTIVES

### Resource Efficiency Grant for Energy ((REG(E))

- Supports EE improvement and removal of non-CO<sub>2</sub> GHG projects
- Grant support will correspond to the amount of carbon abatement achieved, with minimum carbon abatement of 0.5 ktpa

#### Investment Allowance for Energy Efficiency (IA-EE)

- Supports EE improvement projects
- Provides capital allowance of 30% of more of approved fixed capital expenditure, on top of normal capital allowance

### **EE Financing Programme**

- Provides 3<sup>rd</sup> party financing for upfront costs of EE improvement projects
- Investment return can typically be 'paid from savings', based on a share of energy savings for an agreed contractual term



