Singapore's legislation framework and policy on climate change

10-11 June 2019

Teanna Tan
National Environment Agency, Singapore

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Singapore's national circumstances

Dense Urban Landscape

- Low-lying, highly urbanised island-state
- Accommodate housing, commercial centres, air/sea ports

Limited Alternative Energy Options

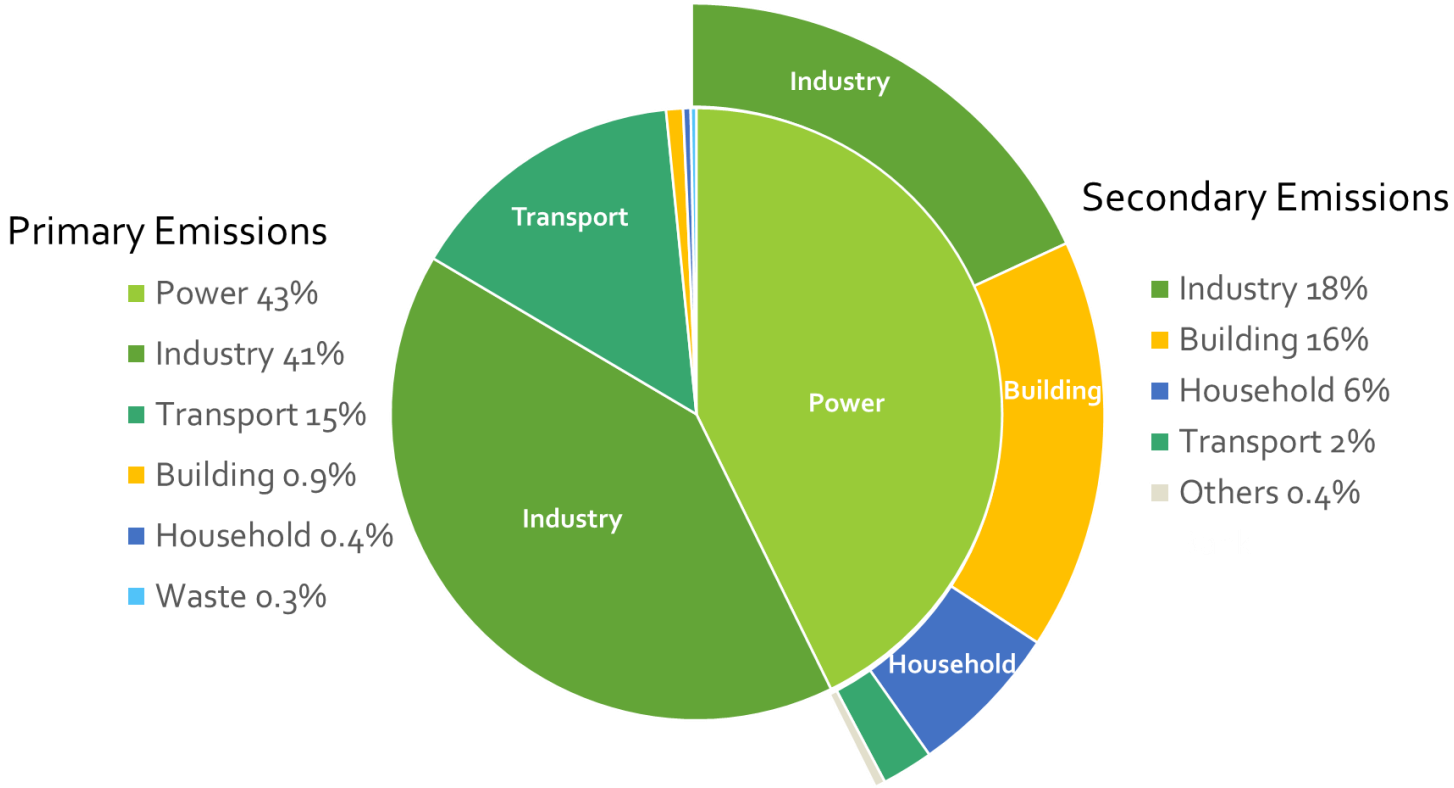
- Unfavourable climatic conditions for large scale deployment of hydro, wind and geothermal
- Solar energy is the best option but limited by intermittency and land constraints
- 95% electricity generated from natural gas

Export-oriented and Open Economy

- Lack of natural resources and hinterland
- Manufacturing as one of our twin engines of growth

Breakdown of Singapore's GHG emissions

Combustion of fossil fuels to generate energy is the major source of primary GHG emissions



Based on data in 2nd BUR

Singapore's Climate Change Pledge

"As a responsible global citizen, Singapore is committed to play our part in the global fight against climate change. Our INDC pledges to **reduce our Emissions Intensity by 36% from 2005 levels by 2030, and stabilise our emissions with the aim of peaking around the same time.**"

(Paris, COP-21,

Singapore ratifies Paris Agreement

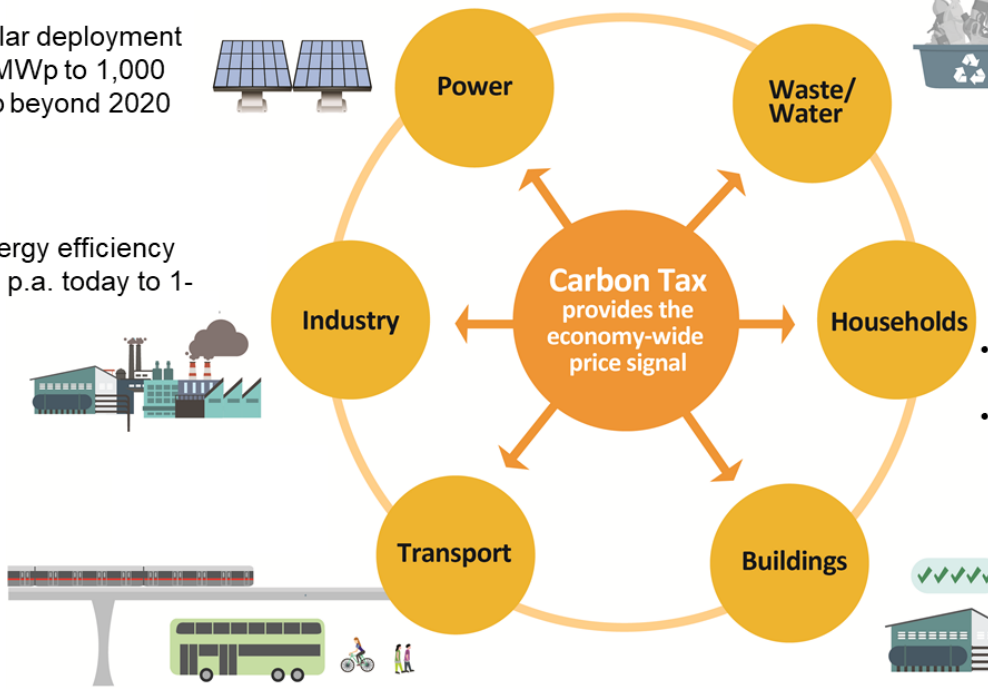
Dr Balakrishnan with UN Secretary-General Ban Ki Moon. Singapore's instrument of ratification was submitted yesterday. PHOTO: MINISTRY OF FOREIGN AFFAIRS

*Emission intensity refers the amount of greenhouse gas emitted per dollar of GDP.

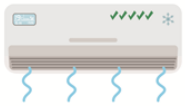
Key mitigation actions for 2030 – Climate Action Plan

- Increase solar deployment
  - 183 MWp to 1,000 MWp beyond 2020

- Double water supply without using more energy
- Increase overall recycling rate from 61% to 70% by 2030



- Improve energy efficiency from ~0.8% p.a. today to 1-2% p.a.



- Mandatory Energy Labelling Scheme
- Minimum Energy Performance Standards

- Increase public transport share from 67% to 75% by 2030
- Doubling of rail network to 360 km by 2030
- Increase cycling path from 240 km to 700 km by 2030
- Quadrupled sheltered walkway network to 200km

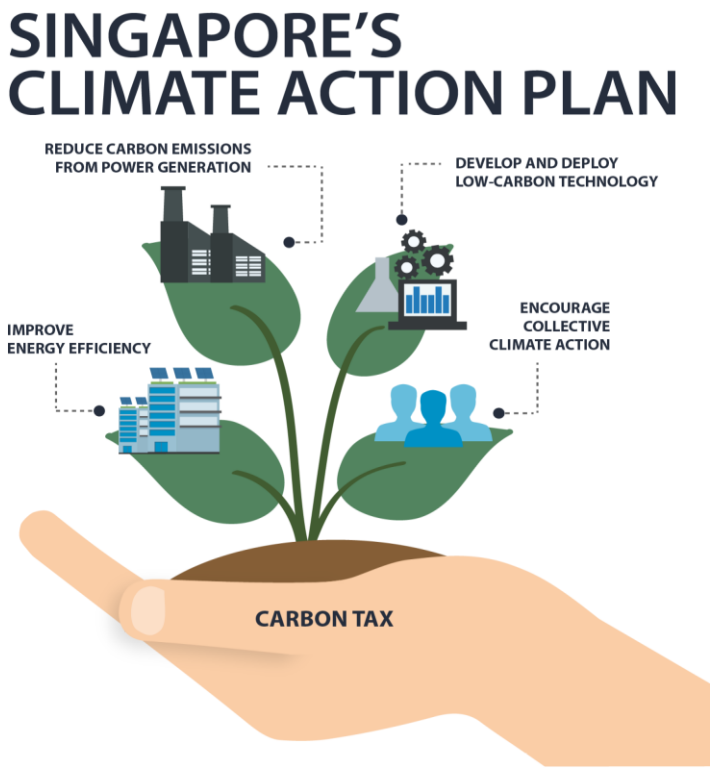
- Green Mark Certification for 80% of buildings by 2030
- Long-term aspiration of Positive Low-rise, Zero-Energy Medium-rise, Super-low Energy High-rise buildings for the tropics

Introduction of Carbon Tax from 2019

In Feb 2017, the Singapore Government announced the intention to implement a carbon tax from **2019**

- Complement incentives and regulations, in encouraging the adoption of energy efficiency (EE) measures and clean energy across all sectors of the economy.

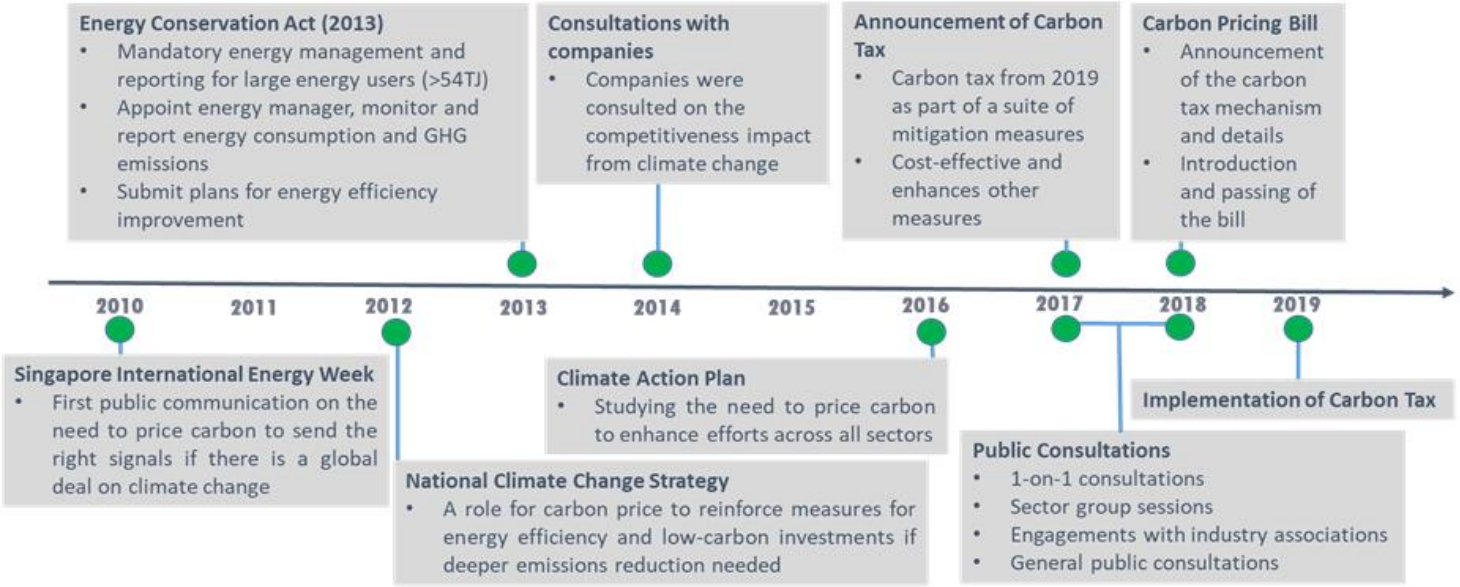
- Achieve Singapore's climate change pledge under the Paris Agreement



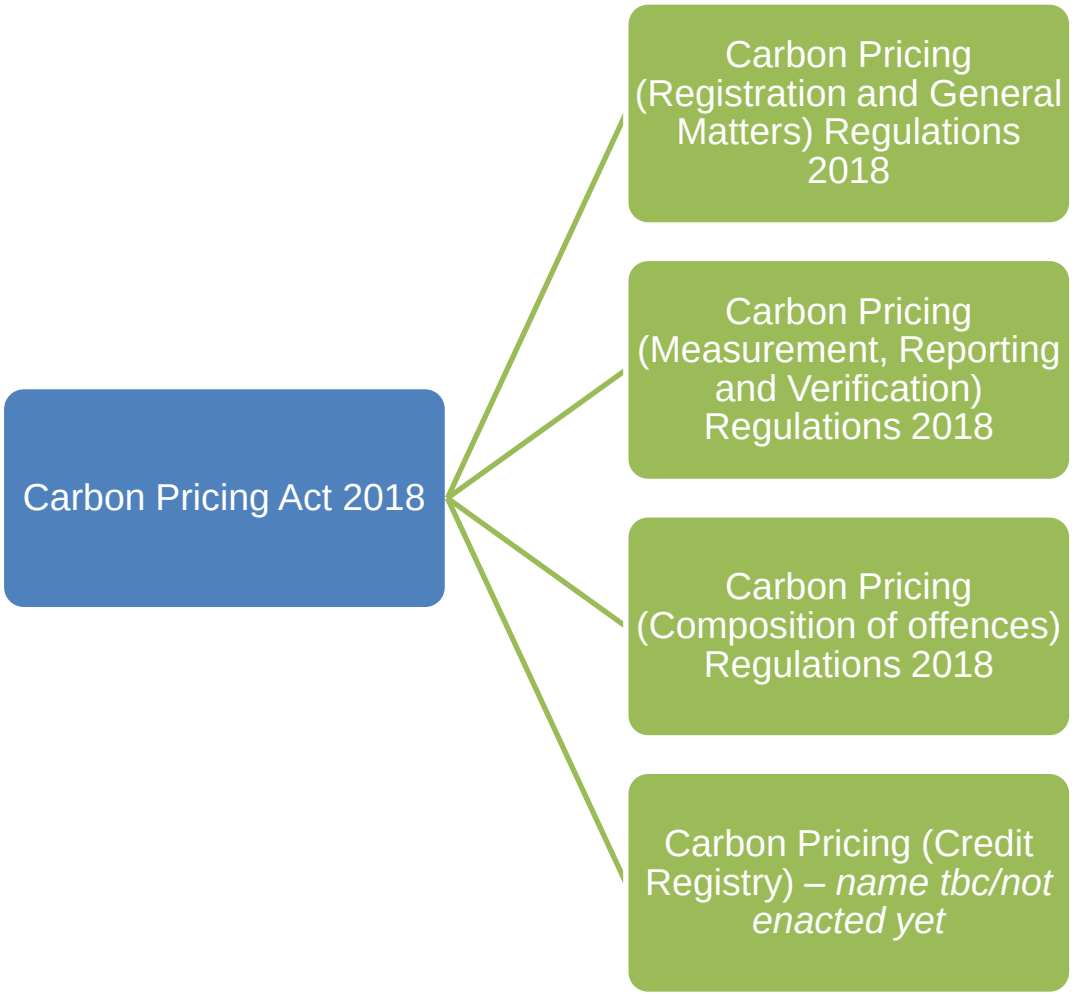
Long history of preparation for carbon pricing

Conversations on pricing carbon started early

- Regular engagement gives advance notice and reduces regulatory risks
  - Started studying carbon pricing early in 2007
  - Yearly conversations with large emitters, and regular consultation with broader public on the role of carbon pricing in our climate strategy
  - Emissions reduction projects take time to plan and execute
- Introduced Energy Conservation Act in 2013



Legislation framework – Carbon Pricing Act



- Registration requirements
- Deregistration requirements
- Appointment of GHG Manager

- Monitoring Plan/Emissions Report submission requirements
- Verification requirements
- Accreditation of third party verifiers

- Compoundable offences under the CPA and the subsidiary legislations

- Credits registry requirements and timelines

Carbon Pricing Act

To be implemented from 1 January 2019.

Tax rate

- S$5/tCO2e (~US$3.70/tCO2e) from 2019 to 2023, as a transition period for companies to adopt energy efficient projects
- To be reviewed by 2023, intend to increase to between S$10/tCO2e and S$15/tCO2e (~US$7.30-10.90/tCO2e) by 2030

Coverage and threshold

- Tax applies uniformly to all sectors, without exemption, to provide transparent, fair and consistent carbon price signal across the economy
- 25 ktCO2e threshold covers around 40 companies that contributes about 80% of our total emissions.

Key design considerations

No exemptions, to ensure a transparent, uniform and consistent price signal across the economy

- Most of our sectors are trade-exposed, so providing exemptions to many sectors will severely erode the price signal and make the price signal less transparent

Transition period to help companies adjust and improve energy and carbon efficiency

- Low tax rate for initial 5 years for companies to implement energy and carbon efficiency improvement measures
- Carbon tax review by 2023 to take into consideration of consideration international climate change developments, the progress of our domestic emissions mitigation effort and our economic competitiveness
- Carbon pricing more cost-effective compared to regulations or mandates
- Improving resource efficiency also improves competitiveness, especially for carbon intensive companies

Key design considerations

Carbon tax revenue supports the implementation of our NDC

- Recycle an expected revenue of S$1 billion (~US$0.73 billion) in the first five years to support worthwhile emissions reduction projects; prepared to spend more than revenue collected

- Funds set aside to enhance support for energy efficiency through existing grants such as the Resource Efficiency Grant for Energy and Energy Efficiency Fund
  - Projects receive up to 50% of qualifying costs (i.e. manpower, equipment/technology, and professional services), an increase from up to 30% previously

Transitional assistance for Lower- and middle-income households

- S$20 (US$15) per year, from 2019 to 2021 to offset part of their utilities bill

Key design considerations

Carbon tax mechanism future-ready to accept the use of carbon credits

- Start with a fixed-price credit-based mechanism that is simple to implement and will minimise burden on companies
- Building blocks (e.g. credit registry infrastructure) to facilitate use of carbon credits in future
- Open to linking our carbon tax framework to external carbon markets where feasible
  - A sensible approach while the rules and framework of international carbon market is being finalised and established

Measurement, Reporting and Verification (MRV) requirements

- Covered facilities need to have their emissions third-party verified
- Government to ensure a competitive pool of competent verifiers to keep moderate compliance cost for companies

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Singapore's institutional arrangement for climate change

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Climate change – cross cutting issue

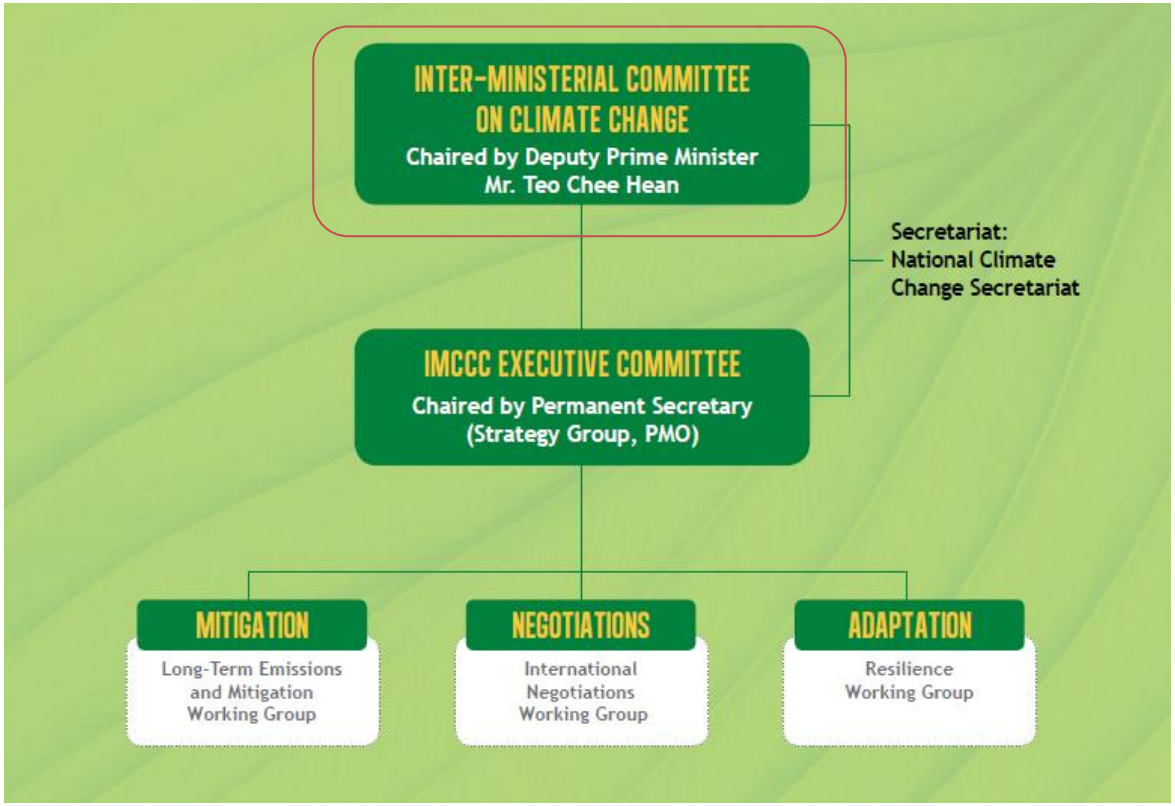
- Climate change is an issue with many dimensions that cut across the responsibilities of several ministries/domains.

- Inter-Ministerial Committee on Climate Change (IMCCC) was set up to ensure coordination on Singapore's approach to climate change
  - Chaired by Deputy Prime Minister and Coordinating Minister for National Security

National Climate Change Secretariat (NCCS)

- To ensure effective coordination on Singapore's domestic and international policies, plans and actions on climate change, the National Climate Change Secretariat (NCCS) was established as a dedicated unit in 2010 under the Prime minister's Office
    - NCCS is part of the Strategy Group which supports the Cabinet to establish priorities and strengthen strategic alignment across government

Institutional arrangement - IMCCC



Inter-Ministerial Committee on Climate Change (**IMCCC**)

- Chaired by Deputy Prime Minister
- Members:
  - Minister for the Environment and Water Resources,
  - Minister for Finance,
  - Minister for Foreign Affairs,
  - Minister for National Development,
  - Minister for Trade and Industry (Trade),
  - Minister for Trade and Industry (Industry),
  - Minister for Transport

- IMCCC Executive Committee – made up of Permanent Secretaries of the various ministries

Institutional arrangement – Working groups

International Negotiations Working Group (INWG)

- Develops Singapore's international climate change negotiations strategy under UNFCCC

Resilience Working Group (RWG)

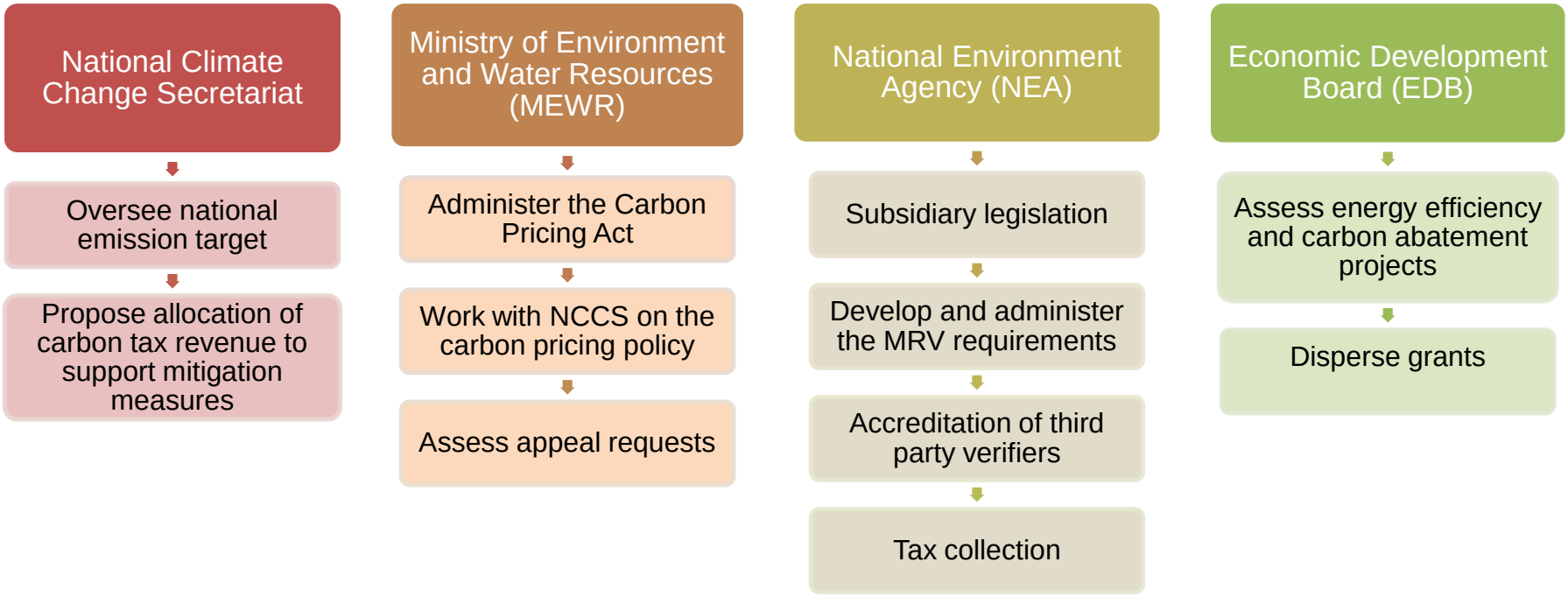
- Studies Singapore's vulnerability to the effects of climate change and recommends long term plans to build Singapore's resilience

Long Term Emissions and Mitigation Working Group (LWG)

- Studies options for emission reduction and identifies the capabilities, infrastructure and policies needed for long-term mitigation

Carbon pricing falls under the purview of LWG

Role of the different agencies in carbon pricing



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Role and obligations of the reportable/taxable facilities

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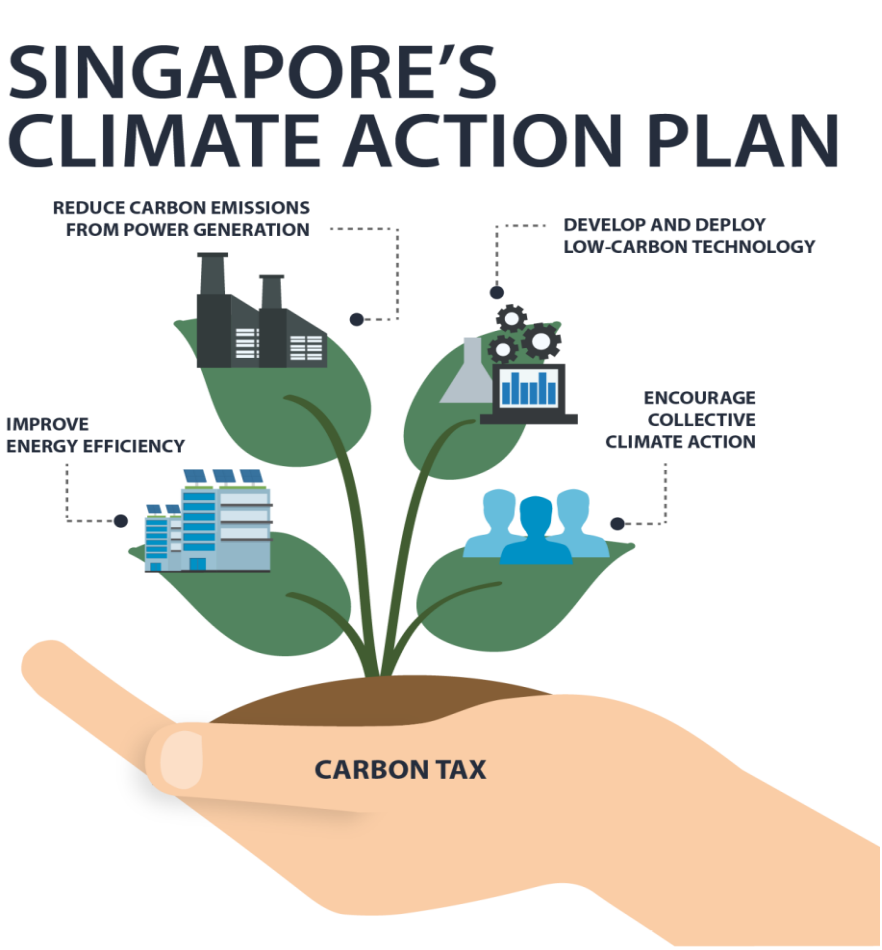


Carbon Tax coverage and threshold

- Coverage
  - Covers all six GHGs reported in Singapore's GHG inventory (CO_2, CH_4, N_2O, SF_6, HFCs, PFCs)
  - Covers about 80% of Singapore's GHG inventory
  - Sectors affected: Power generation, refineries, petrochemicals, wafer fabrication and semiconductor, chemicals, electronics etc.

- Threshold of direct emissions (scope 1)
  - Reporting threshold – 2,000 tCO_2e annually
  - Taxable threshold – 25,000 tCO_2e annually

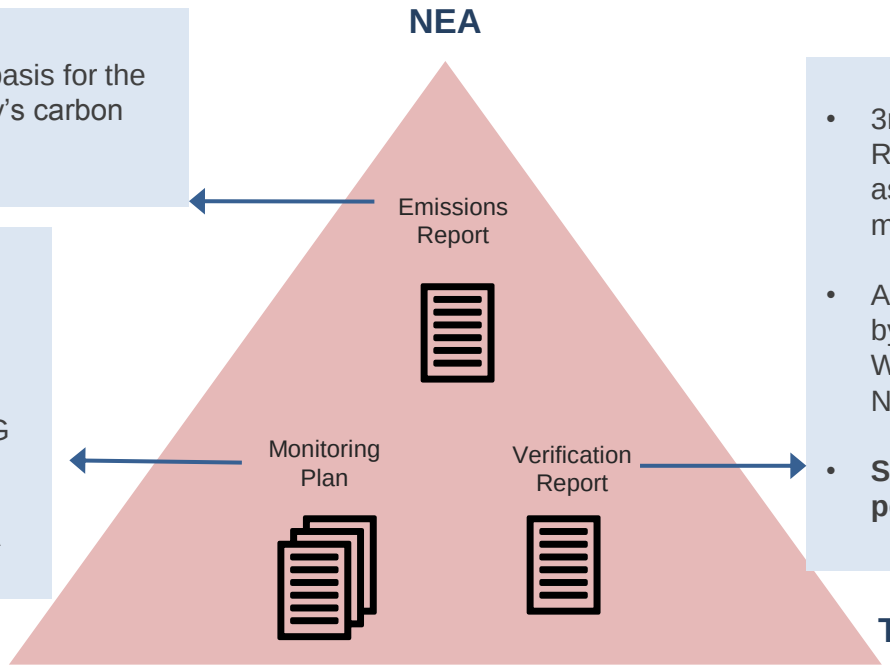
Obligations of a reportable facility vs taxable facility

Reportable facility (emits >2ktCO2e annually)	Taxable facility (emits >25ktCO2e annually)
• Appoint a GHG Manager and a Designated Representative • Submit an Emissions Report annually	• Appoint a GHG Manager and a Designated Representative • Submit a Monitoring Plan to be validated by NEA • Submit a third party verified Emissions Report annually • To pay the carbon tax

Measurement, Reporting and Verification (MRV) Framework

Emissions Report (ER) forms basis for the assessment of a taxable facility's carbon tax liability

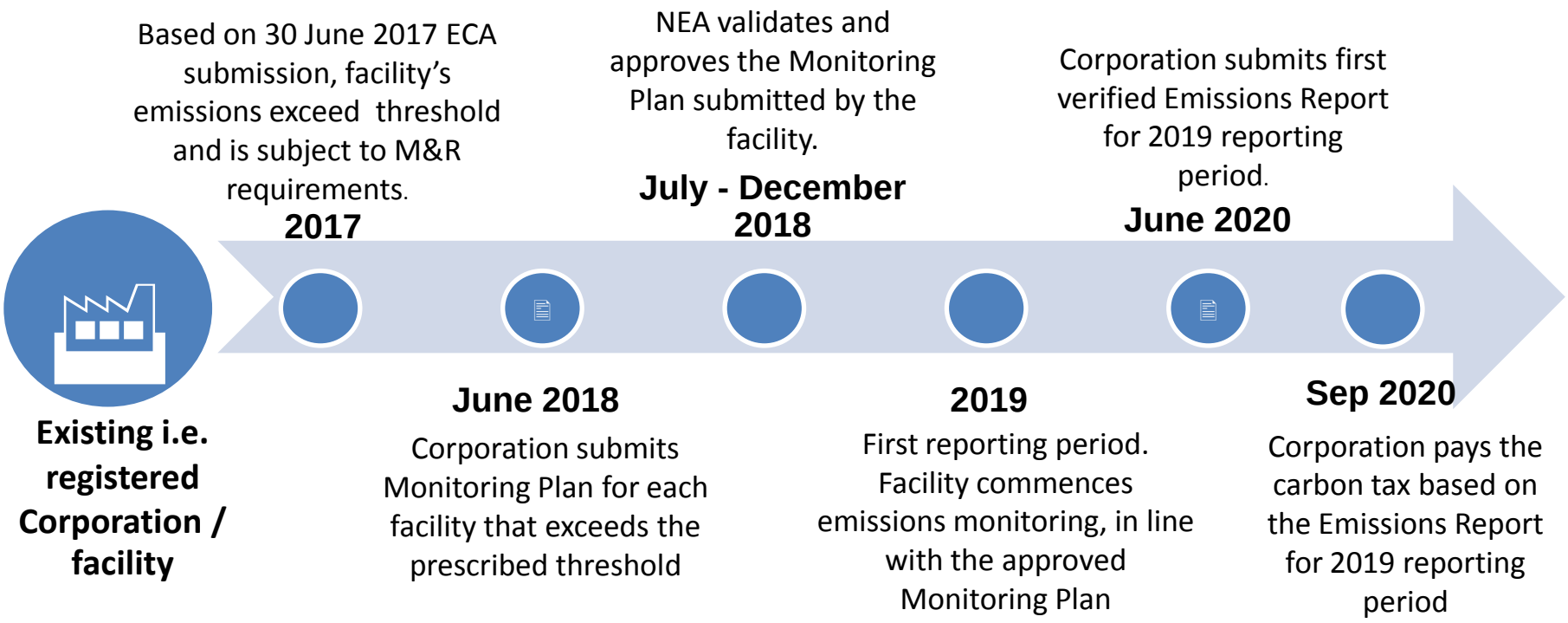
- Monitoring Plan (MPs) documents the facility's methods, steps and procedures to accurately measure and report all GHG emissions
- **MPs are validated by NEA**



- 3rd-party verification of Emissions Report (ER) ensures independent assurance that the GHG emissions measured & reported are accurate
- Accreditation of verifiers conducted by an inter-agency Accreditation Working Committee (AWC) led by NEA
- **Surveillance of verifier performance done by NEA**

Emissions Data Monitoring and Analysis (EDMA) system functions as an official submission portal, document repository, notification platform for registrations/approvals and credit registry

Implementation timeline



Fixed-Price Credit Based System

- Companies purchase a number of fixed-price credits (FPCs) equal to their verified emissions for the reporting year and surrender the FPCs by 30 Sep each year

FPCB mechanism

If the facility emits 68,000 tCO_2e, facility owner buys 68,000 credits from NEA.

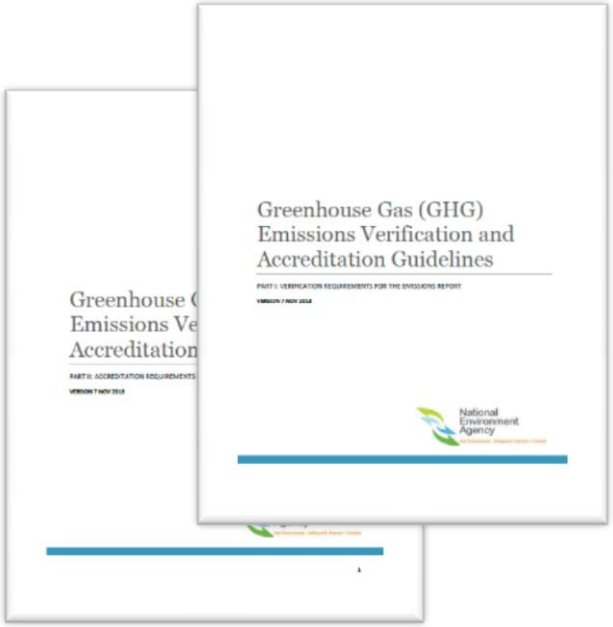
1 credit = 1 tonne CO2e = $5

Facility will then surrender the 68,000 credits to NEA.

- The FPC approach
  - Helps companies build up experience in dealing with carbon credits
  - Lays the ground for potentially allowing companies to use properly MRV-ed international offsets to pay part of their carbon tax liability

Guidance materials

NEA developed a series of guidance materials to guide companies and third party verifiers for compliance



- Monitoring Plan template
- GHG Measurement and Reporting Guidelines
- GHG Verification and Accreditation Guidelines
- Frequently asked questions
- EDMA system guides

Summary of early lessons

Regular engagements with companies and stakeholders helped give advance notice and reduce regulatory risks (transitional risks)

Transitional period for companies as improvement to energy and carbon efficiency take times

Clear objectives and roles for carbon pricing for NDC implementation

Upfront communications and consultations with public for the needs of carbon pricing

Forward-looking mechanism to future-proof the mechanism

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