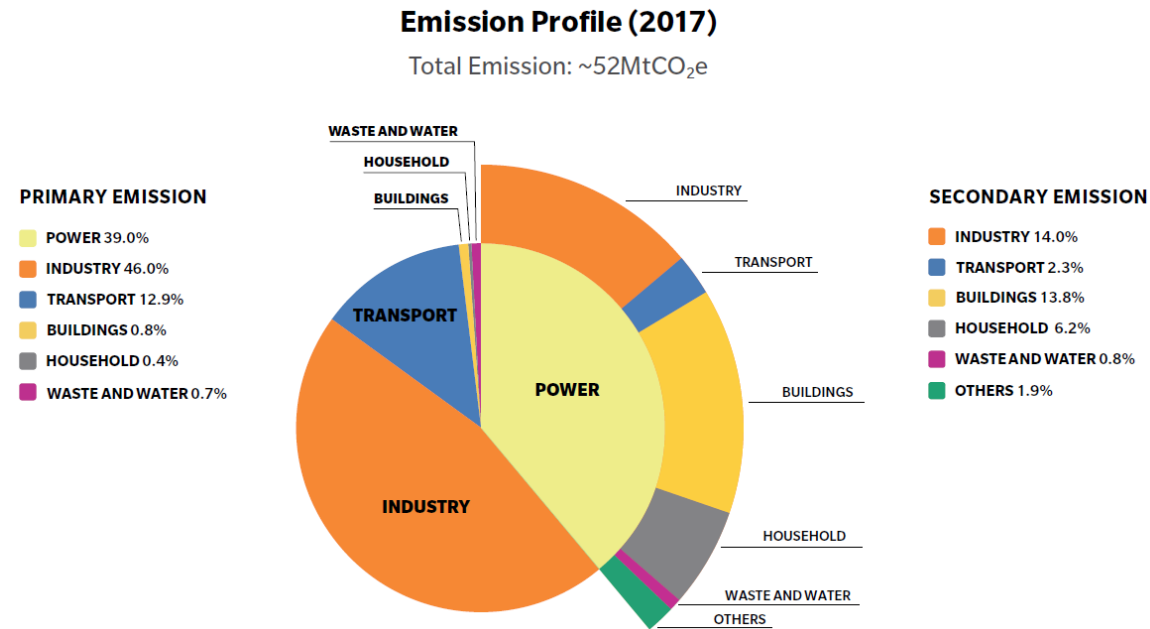


Climate Change Challenges and Singapore's Plans



Singapore's approach to Climate Change

Mitigation: Work towards a low-carbon future

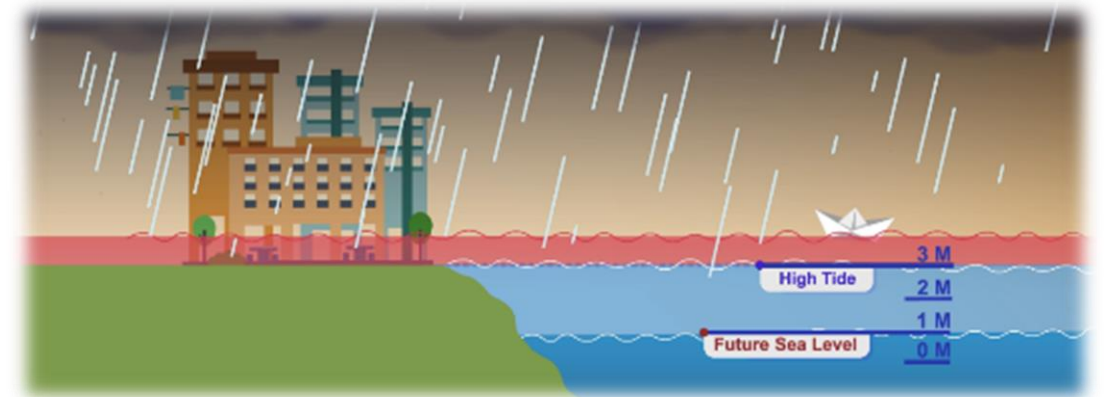


Total emissions in 2017: ~52 MtCO₂e

Emissions intensity in 2017: 0.09 kgCO₂/USD

Adaptation: Build up climate resilience to have a liveable island-city-state

- Rising sea levels
- Water security and drought
- Food security
- Floods
- Vector-borne diseases
- Urban heat island effect



Source: Ministry of Communications and Information

Climate action

Latest developments

Looking ahead

Our national circumstances limit our solution space...



Dense Urban Landscape

- High population density of 7,800 per sq km
- Low-lying, highly urbanised island-state
- Accommodate housing, commercial centres, air/sea ports, etc.



Limited Alternative Energy Options

- Geography not suitable for hydro, wind and geothermal
- Solar energy limited by intermittency and land constraints
- 95% electricity generated from natural gas (switching from fuel oil since early 2000s)

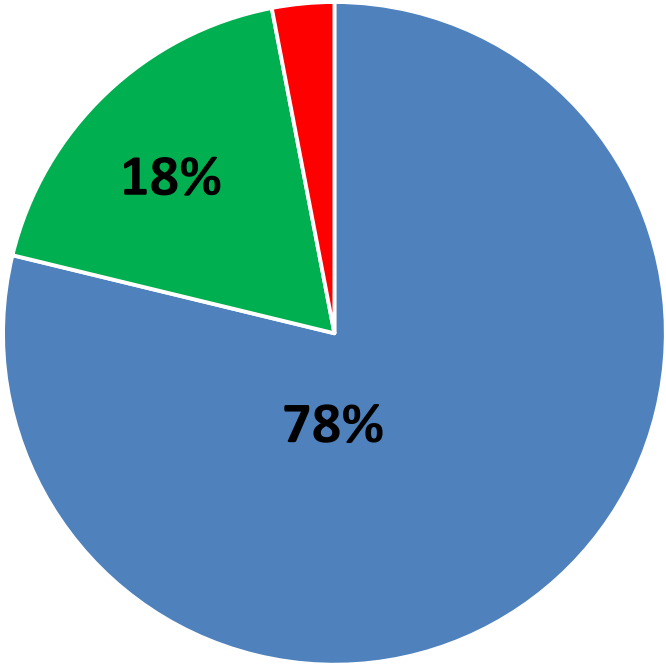


Export-oriented and Open Economy

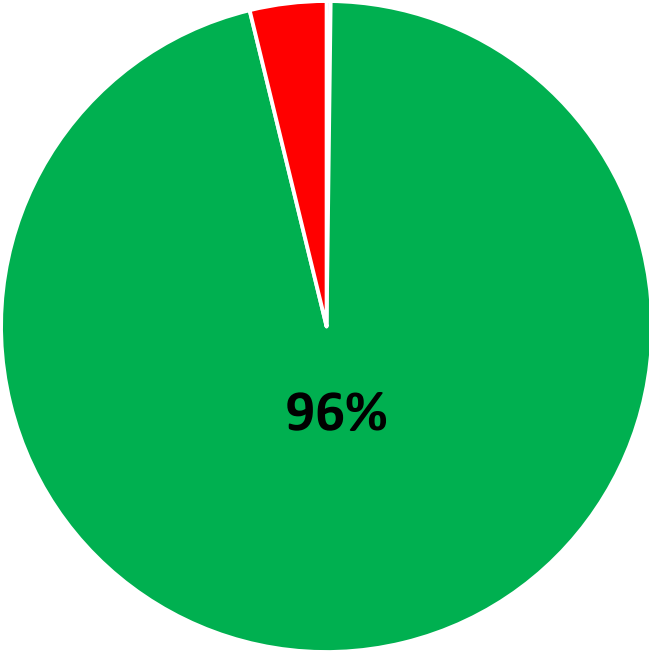
- Lack of natural resources and hinterland

and we have taken early action...

Fuel Mix for Electricity Generation, 2000



Fuel Mix for Electricity Generation, 2020



- Petroleum Products
- Natural Gas
- Others

Climate action

Latest developments

Collaborations

... but we remain committed to doing our part ...



Climate action

Latest developments

Collaborations

... while building our climate resilience

Coastal Protection, Water Resources and Drainage



Protecting our coastline from sea level rise
Ensuring water resilience, holistic stormwater management and flood protection

Buildings & Infrastructure



Keeping our buildings and infrastructure safe

Biodiversity & Greenery



Strengthening the resilience of our biodiversity and ecosystems

Public Health & Food Security



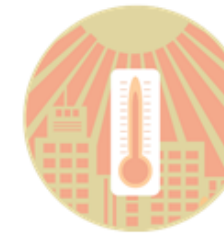
Strengthening resilience in public health and our food supply

Network Infrastructure



Keeping our essential services, including transport and network infrastructure, running well

Urban Heat Island Effect



Mitigate the UHI effect to strengthen our resilience in face of rising temperatures

Power Sector Case Study 1: Solar



Longest solar-paneled walkway at the Singapore Discovery Centre



Solar panels on HDB apartment rooftops



Floating photovoltaic cells test-bed at Tengeh Reservoir

Power Sector Case Study 2: Piloting electricity imports

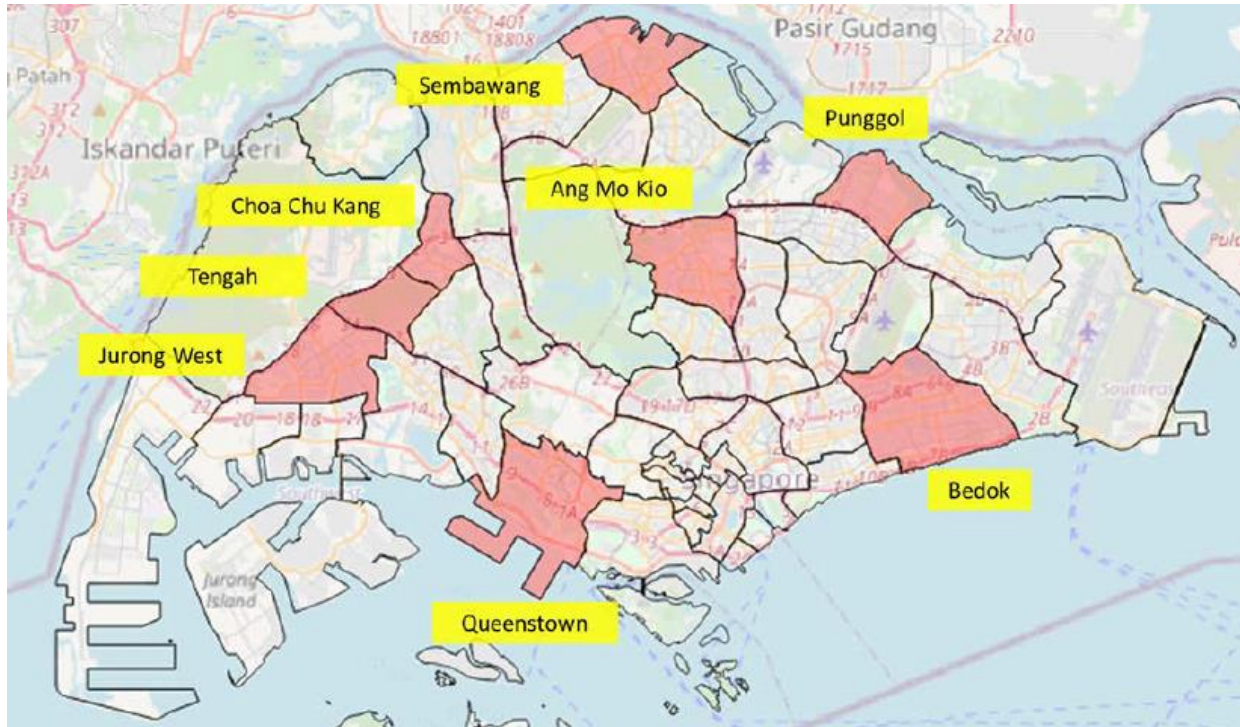


Two-year pilot for 100MW of electricity imports from Peninsular Malaysia to Singapore, which makes up about 1.5% of peak demand



Laos-Thailand-Malaysia-Singapore Power Integration Project as a solution to decarbonisation in the region

Transport Sector Case Study: Electric Vehicles



8 EV-ready Towns by 2025



60,000 charging points nationwide by 2030, including 40,000 in public carparks and 20,000 in private premises

Climate Resilience Case Study: Coastal Defences



Mangroves as a natural coastal defence



Sloping revetment to prevent coastal erosion



Polder development at Pulau Tekong by Dutch company Royal Boskalis and Japanese company Penta-Ocean Construction

A national sustainability movement to rally bold and collective climate action

SG GREEN PLAN

A living plan that will evolve as Singaporeans and partners from all sectors co-create solutions for sustainability, to make Singapore a green and liveable home

A CITY IN NATURE

- Plant one million more trees
- 50% more land for nature parks
- Every household within a 10-minute walk from a park

B ENERGY RESET

- Greening our energy through solar deployment and low carbon tech
- Greener infrastructure
- Sustainable towns and districts
- Cleaner-energy vehicles

C SUSTAINABLE LIVING

- Reduction of consumption and waste
- Walk-Cycle-Ride
- Enhance education in environmental sustainability

D GREEN ECONOMY

- Sustainability as new engine for jobs and growth
- Develop Singapore to be a carbon services hub and a leading centre for green finance
- Strengthen R&D ecosystem to develop new solutions

E RESILIENT FUTURE

- Building Singapore's coastal defences
- Keeping Singapore cool
- Safeguarding food security

CARBON TAX

Initial rate of **S\$5/tCO₂e**

Trajectory and level after 2023 to be reviewed

Climate action

Latest developments

Collaborations

Supported by a robust R&D plan

5-year Research, Innovation and Enterprise
2025 Plan worth S\$25 billion includes
Urban Solutions and Sustainability domain



Understand, mitigate and adapt
to climate change



Building a healthy, safe and
resilient city



Transform the built environment
sector

Climate action

Latest developments

Collaborations

Collaborations in CCUS & Low-Carbon Hydrogen

International partnerships needed to develop global value chains

Working with industry partners to develop business models



Signing of Chile-Singapore MOU on low-carbon hydrogen

Consortium to develop carbon capture tech to curb Singapore's emissions

The group includes oil giant Chevron and concrete producer Pan-United – it aims to shrink the carbon intensity of heavy industries such as energy, chemicals and construction



Dimitris Mavrokefalidis

More Articles

Monday 6 July 2021



MOU to explore hydrogen as a low-carbon alternative for Singapore

Enabling a Green Recovery

Measures in Budgets to support Singapore's transition to a low-carbon and sustainable future



S\$5bil Coastal and Flood Protection Fund



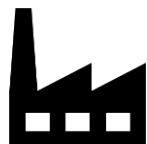
Green bonds on select public infrastructure projects worth up to S\$19bil



Incentives to help lower-income households with cost of energy efficient appliances



EV Early Adoption Incentive and expansion of public charging infrastructure for EVs

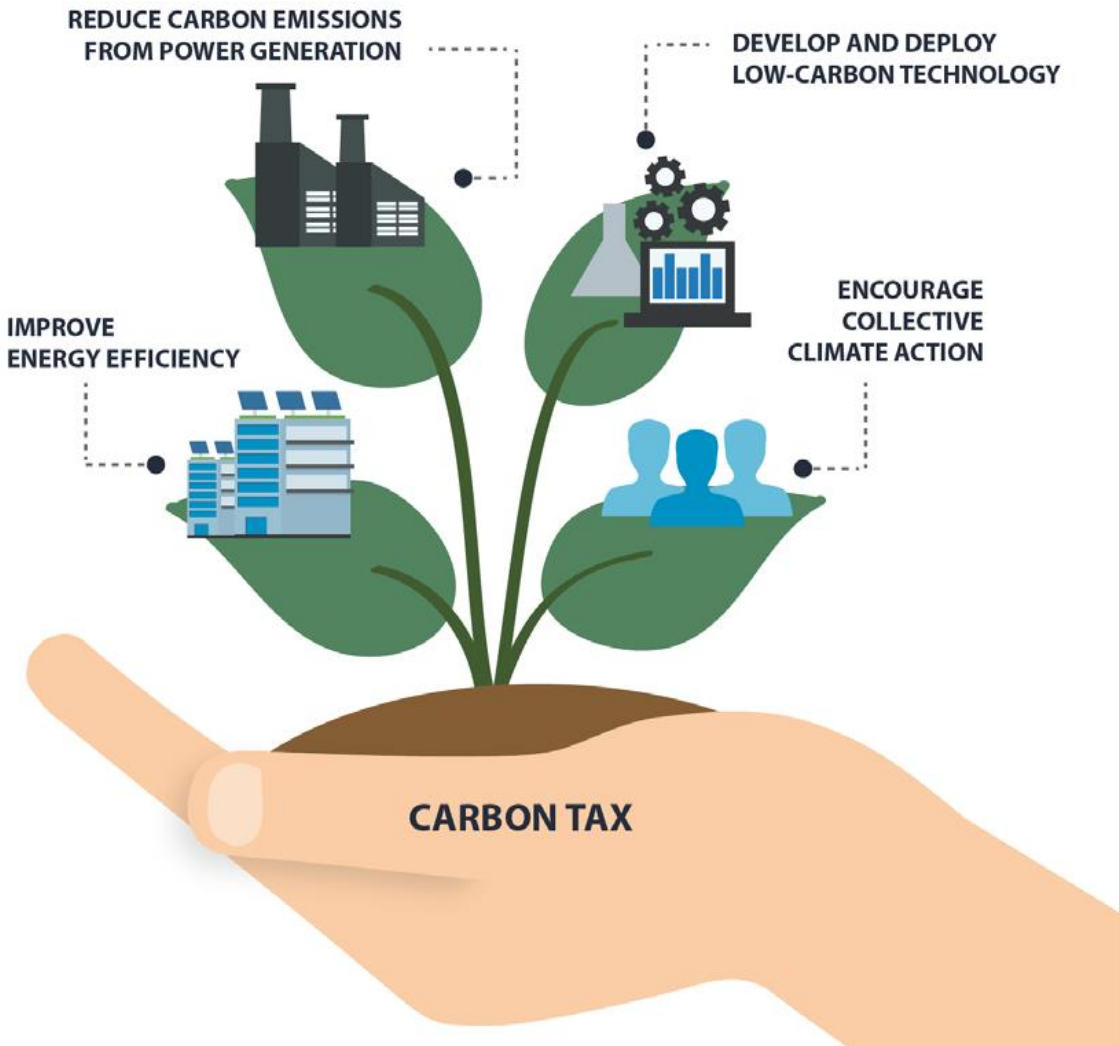


Enterprise Sustainability Programme to help enterprises seize opportunities in green economy



S\$60mil for Agri-Food Cluster Transformation Fund

Carbon Tax Review



Carbon tax provides price signal to shape behaviour

- Not a standalone measure; complements existing mitigation measures

Ongoing review of post-2023 carbon tax trajectory and level

- Consult industry and expert groups
- Determine carbon tax level that:
 - Spurs emissions reductions
 - Promotes industry innovation and green growth
 - Maintains Singapore's overall economic competitiveness

Announce outcome of review at Budget 2022

- Carbon tax level will be maintained at \$5/tCO₂e up until 2023 to provide business certainty
- Give time for businesses to adjust to post-2023 carbon tax level

Thank you

