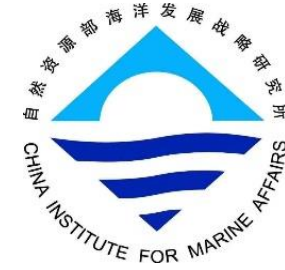




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Policies and Best Practices on Low-Carbon Ocean Economy Development of Singapore

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**Workshop on Low-Carbon Ocean Economy Policies of APEC
Economies (OFWG 07 2024S)**

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Policies and Best Practices on Low-Carbon Ocean Economy Development of Singapore

Outline

- Nationally Determined Contributions and Long-Term Low-Emissions Development Strategy
- Singapore's key strategies in its decarbonisation process
- Carbon pricing
- Singapore Green Plan 2030
- Maritime Singapore Decarbonisation Blueprint
- Blue carbon projects in progress



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NDC and LEDS

On 25 October 2022, Singapore announced that it would raise the climate target to achieve net zero emissions by 2050 as part of the Long-term Low-emissions Development Strategy (LEDS)

Also to reduce emissions to around 60 MtCO₂e in 2030 after peaking emissions, as part of the revised 2030 Nationally Determined Contribution (NDC)

Progress check: In 2009, Singapore pledged to reduce its emissions by 16% below business-as-usual levels by 2020 ahead of the Copenhagen Summit; Singapore has achieved this pledge with a 32% reduction below business-as-usual levels in 2020.



Singapore's key strategies in its decarbonisation process

- alternative energy disadvantaged
 - a low-lying island state of 734.3 km² with one of the highest population densities globally (8,058 persons per km²)
- urban density and limited land area, relatively flat land, low wind speeds and lack of high-quality hydrothermal
 - difficult for alternative energy options



Singapore's key strategies in its decarbonisation process

Singapore's triple transitions for decarbonisation:

1. A carbon transition to reduce emissions across all sectors
2. An energy transition to achieve a resilient net-zero electricity grid
3. An economic transition to remain competitive in a low-carbon future and to seize new green economy opportunities

To fundamentally change how Singapore thinks about production and consumption



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Singapore 2030 Nationally Determined Contribution (NDC) and Long-Term Low Emissions Development Strategy (LEDS)

Carbon pricing

In 2019, Singapore was the first country in SEA to introduce a carbon pricing scheme (Carbon Pricing Act 2018 with 2020 revision and 2022 amendment), to incentivise emission reduction across all sectors; transition to a low-carbon economy

The tax was set at \$5/tCO₂e from 2019 to 2023
a transition period for industries to adjust

Further to support Singapore's net zero target, the carbon tax will be raised progressively to
\$25/tCO₂e in 2024 and 2025,
\$45/tCO₂e in 2026 and 2027
with a view to reaching \$50-80 tCO₂e by 2030

To provide a strong price signal and impetus for businesses and individuals to reduce their carbon footprint in line with climate goals.



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<https://www.mse.gov.sg/policies/climate-change/cpa>; <https://www.nccs.gov.sg/singapores-climate-action/mitigation-efforts/carbontax/>

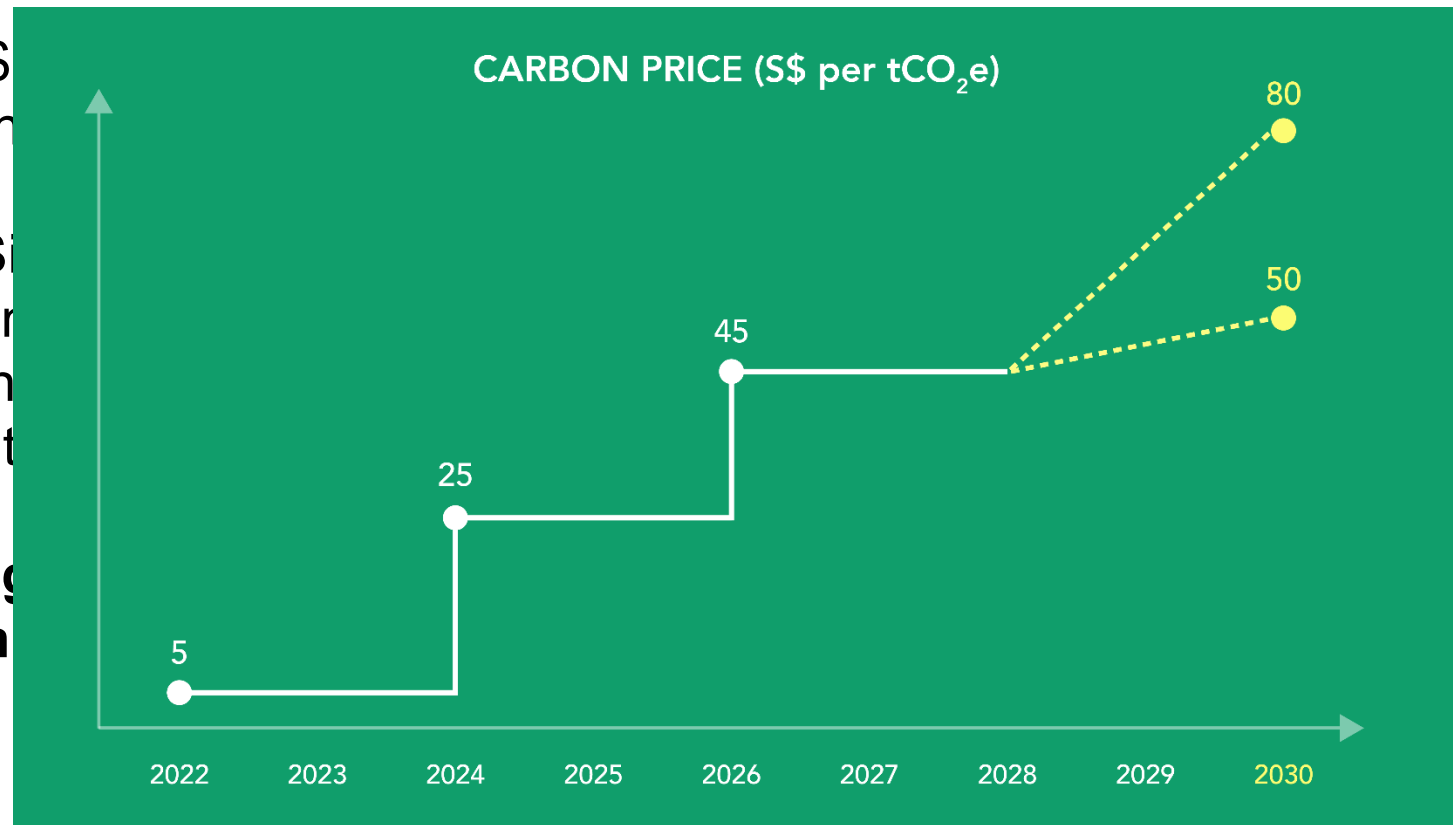
Carbon pricing

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The tax was set at \$5/tCO₂e in 2022 - a transition

Further to support Singapore's net-zero target, the carbon price will increase to \$25/tCO₂e in 2024, \$45/tCO₂e in 2026, and \$80/tCO₂e in 2030, with a view to

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Singapore Green Plan 2030

To advance Singapore's domestic agenda on sustainable development

Focusing on Singapore's commitments under the 2030 Sustainable Development Agenda and Paris Agreement, aiming to achieve the long-term net zero emissions by 2050

- Plant 1 million more trees
- Quadruple solar energy deployment by 2025
- Reduce the waste sent to landfill by 30% by 2030
- At least 20% of schools to be carbon neutral by 2030
- All newly registered cars to be cleaner-energy models from 2030



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

Singapore Green Plan 2030

To advance Singapore's domestic agenda on sustainable development

- City in Nature: expand nature into urban landscape
- Energy Reset: green energy
- Sustainable Living: zero waste, consume less, recycle more
- Green Economy: industry transformation to reduce emissions
- Resilient Future: resilience towards climate change

Across all sectors, as spearheaded by five ministries:

- Ministry of Education
- Ministry of National Development
- Ministry of Sustainability and the Environment
- Ministry of Trade and Industry
- Ministry of Transport



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

Maritime Singapore Decarbonisation Blueprint

- Port terminals: the use of cleaner energy, automation, and digitalisation
- Domestic harbour craft: full electric propulsion and net zero fuels by 2050
- Future marine fuels, bunkering standards and infrastructure: multi-fuel bunkering
- Singapore Registry of Ships: incentivise green ships
- Efforts at IMO and other international platforms
- Research & development and talent
- Carbon awareness, carbon accounting and green financing



Maritime Singapore Decarbonisation Blueprint

Both port terminal operators (PSAC and JPPL) at Changi Port and Jurong Port aim to collectively reduce total emissions from port operations by at least 60% by 2030 (compared to 2005) and achieve net-zero emissions by 2050.

By 2050, the Tuas Port (under construction) container handling operations will be powered by electricity and supplemented by other low–or zero-carbon energy sources, including hydrogen and solar panels.

2023 MPA Annual Report highlighted:

Sustainability Initiatives: Efforts to enhance environmental sustainability, such as reducing carbon emissions and promoting green port initiatives;

Innovation and Technology: Developments in maritime technology, digitalisation, and automation to improve port operations and safety.



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[https://www.mpa.gov.sg/media-centre/details/cos-2022---media-factsheet---maritime-singapore-decarbonisation-blueprint-working-towards-2050:](https://www.mpa.gov.sg/media-centre/details/cos-2022---media-factsheet---maritime-singapore-decarbonisation-blueprint-working-towards-2050)
[https://www.mot.gov.sg/what-we-do/green-transport/maritime-environment-responsibility;](https://www.mot.gov.sg/what-we-do/green-transport/maritime-environment-responsibility) <https://www.mpa.gov.sg/staticfile/Cwp/assets/AR/2023/index.html>

Blue carbon projects in Singapore

NUS Centre for Nature-based Climate Solutions (CNCS) embarks on a five-year research programme funded by a 3 million-gift from Temasek (Singaporean state-owned multinational investment firm) on improving the quality of carbon credits. This is one of the biggest and most comprehensive blue carbon monitoring academic projects in the region. It addresses research gaps in blue carbon science, with a focus on mangroves and seagrass.

This project is expected to develop a knowledge database of blue carbon stocks in Southeast Asia, for potential investment in natural climate solutions, to help governments and companies to identify the most important blue carbon sites for their protection to achieve climate mitigation goals. This research also develops new models and techniques for carbon monitoring, reporting and verification.



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<https://news.nus.edu.sg/sustainability-nus-boost-from-temasek/>; <https://www.nus.edu.sg/cnccs/>

Blue carbon projects in Singapore

Oversea-Chinese Banking Corporation collaborates with National Parks Board (NParks) for Singapore's first seagrass restoration project

This project explores how seagrass can improve water quality, coastal protection and carbon sequestration.

This is in response to the fact that more than 45% of seagrass meadows in Singapore have disappeared over the last five decades.

Considering the key role that seagrass can play in mitigating climate change impacts, it is important to understand and restore these plants in Singapore.



Blue carbon projects in Singapore

A Blue Carbon Framework for Singapore's Climate Change Policy (BlueCarbonSG) is led by NUS Geography and funded by the National Research Foundation – National Parks Board Marine Climate Change Science Programme from 2023 to 2026. This Programme undertakes blue carbon accounting to show the potential for blue carbon to contribute to Singapore's greenhouse gas reporting and climate change targets, under the Paris Agreement.

Mangroves in Singapore are of high potential in carbon storage – even though its size is almost 16 times smaller than its secondary rainforests, mangroves store 10% of all the carbon stored in secondary rainforest. This capacity is worth noting for countries with small landmass.



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Blue carbon projects in Singapore

The International Blue Carbon Institute (IBCI), based in Singapore, is the leading institute in advancing the use of blue carbon to address climate change impacts, protect biodiversity and support threatened coastal communities.

IBCI applies a cross-sectoral approach, by partnering with governments, scientists, research institutes, NGOs and local communities, and inform policy, finance and implementation strategies for blue carbon ecosystems.

IBCI's geographic focus is Southeast Asia and the Pacific Islands, as they are the home to over 1/3 of the world's mangroves, and more than 40% of the world's seagrass.



Observations

- Based in Singapore, looking at Southeast Asia and Beyond
- Small landmass + urban coastline
- Mobilisation of both public and private sectors
- Combination of conservation and sustainable use



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Thank you for your attention!

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