

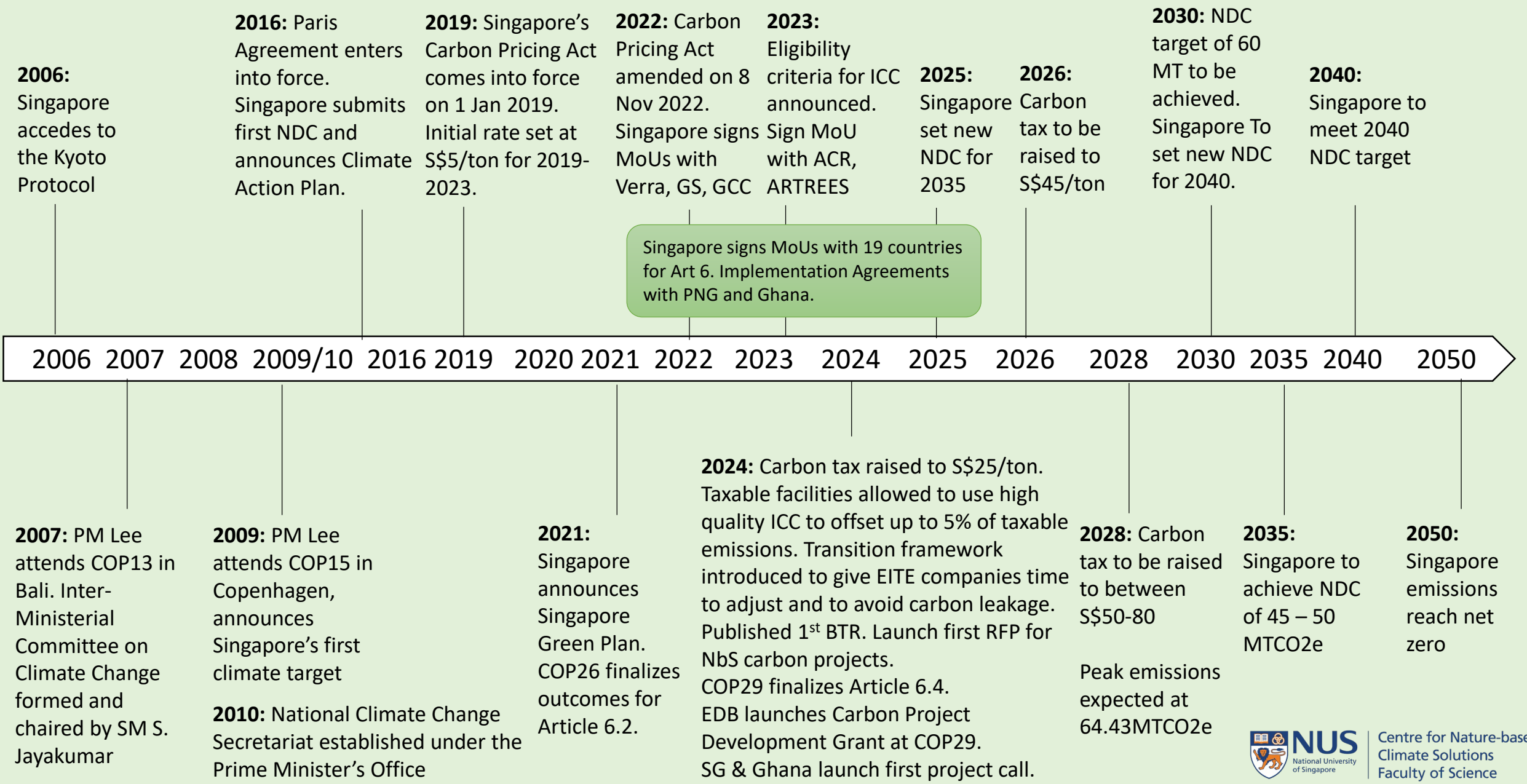


Shaping Singapore's Climate Future: Achieving NDCs with the Use of Carbon Markets

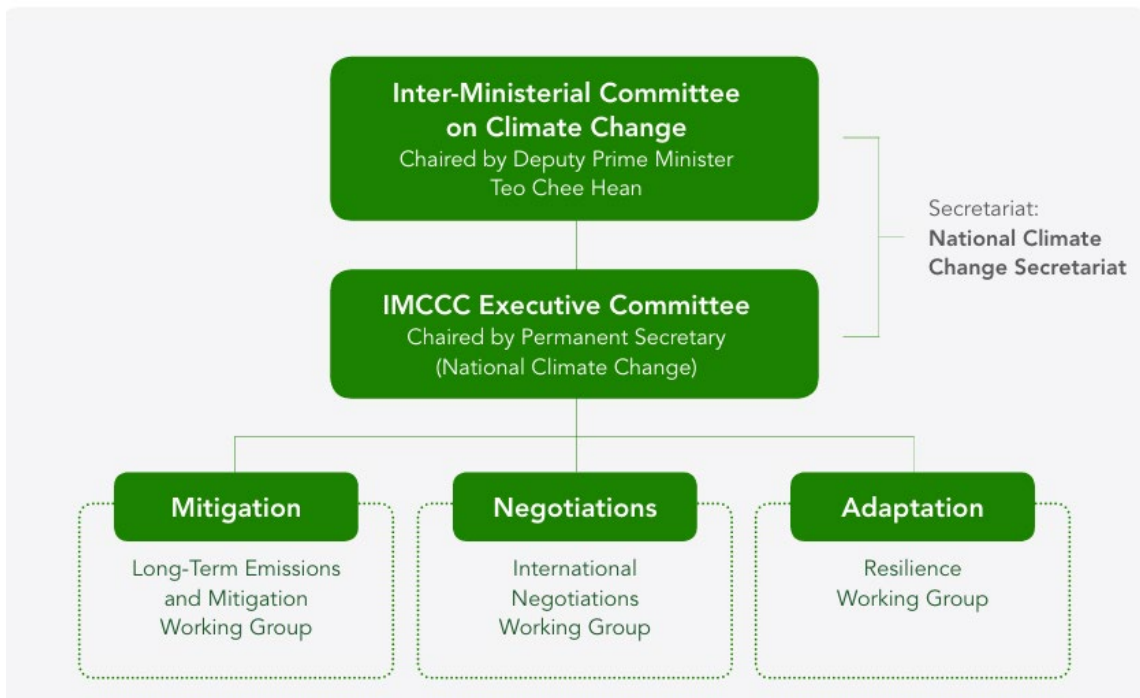
Melissa Low

*Inaugural SR Nathan Young Leaders Seminar
24 February 2025*

Timeline for Singapore's use of ICCs towards its NDC



Institutional Arrangements to address climate change: Then and Now



Institutional arrangement in 2014



Institutional arrangement in 2024

Sources: Singapore's first BUR (2014) <https://www.nccs.gov.sg/files/docs/default-source/default-document-library/singapores-third-national-communication-and-first-biennial-update-report.pdf> and Singapore's first BTR (2024) <https://unfccc.int/sites/default/files/resource/Singapore%20BTR1%202024.pdf>

Nations Unies

Conférence sur les Changements Climatiques 2015

COP21/CMP11

Paris France



Moment when Paris Agreement was adopted at COP21 in Paris, France, 2015

The Paris Agreement

- The landmark Paris Agreement (16 pages) & its accompanying Decision 1/CP.21 (20 pages) was adopted at COP21 on 13 December 2015, and entered into force on 4 November 2016
- Countries agreed to **“holding the increase in global temperature to 2 degrees Celsius above pre-industrial levels and pursue efforts to limit temperature increase to 1.5 degrees Celsius above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change”** (Art. 2, para 1)
- Covers ***ALL*** countries that are Party to the UN Framework Convention on Climate Change, and who are Party to the Paris Agreement
- ***Note that the Kyoto Protocol only required 37 developed countries to have quantifiable climate commitments***



Minister Vivian Balakrishnan & Ambassador Kwok Fook Seng of SG celebrating the moment



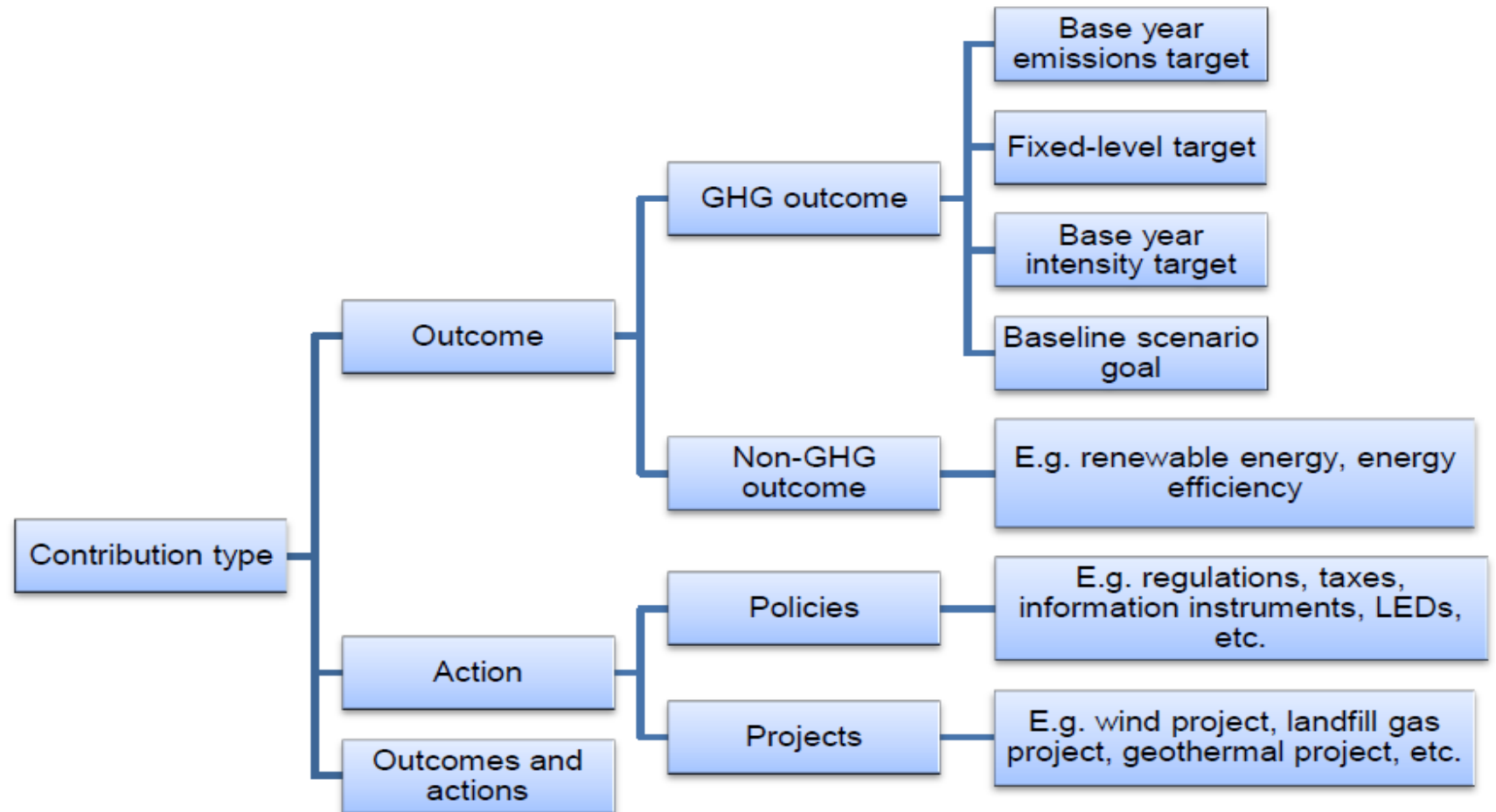
Image sources: Tobias Schwarz/AFP, Atlantic Council

Types of Nationally Determined Contributions (Mitigation focused)

Prior to Paris, Intended NDCs accounting for over 85.3% of global GHG emissions were pledged.

Nature and wide coverage of INDCs helped inspire confidence in the Paris Agreement, which led to its unprecedented early entry into force.

Note that several NDCs also include conditional and unconditional targets



(Source: UNFCCC INDC Submissions Page; World Resources Institute, 2014)

Singapore's Climate Commitments to the UNFCCC/Copenhagen Accord/Paris Agreement

Singapore's 2020 pledge – set in 2009

- Reduction of GHG emissions by 16% below Business-as-Usual (BAU) levels in 2020, contingent on a global legally binding agreement
- Unconditional pledge of 7 – 11% below 2020 BAU levels

Singapore's 2030 pledge – set in 2015 as an INDC, resubmitted as NDC in 2016

- Singapore intends to reduce its Emissions Intensity by 36% from 2005 levels
- Stabilize its emissions with the aim of peaking around 2030

Singapore's 2030 pledge – set in 2020, an update to NDC

- Singapore intends to peak emissions at 65 MtCO₂e around 2030

Glasgow Climate Pact for NDC review in 2022

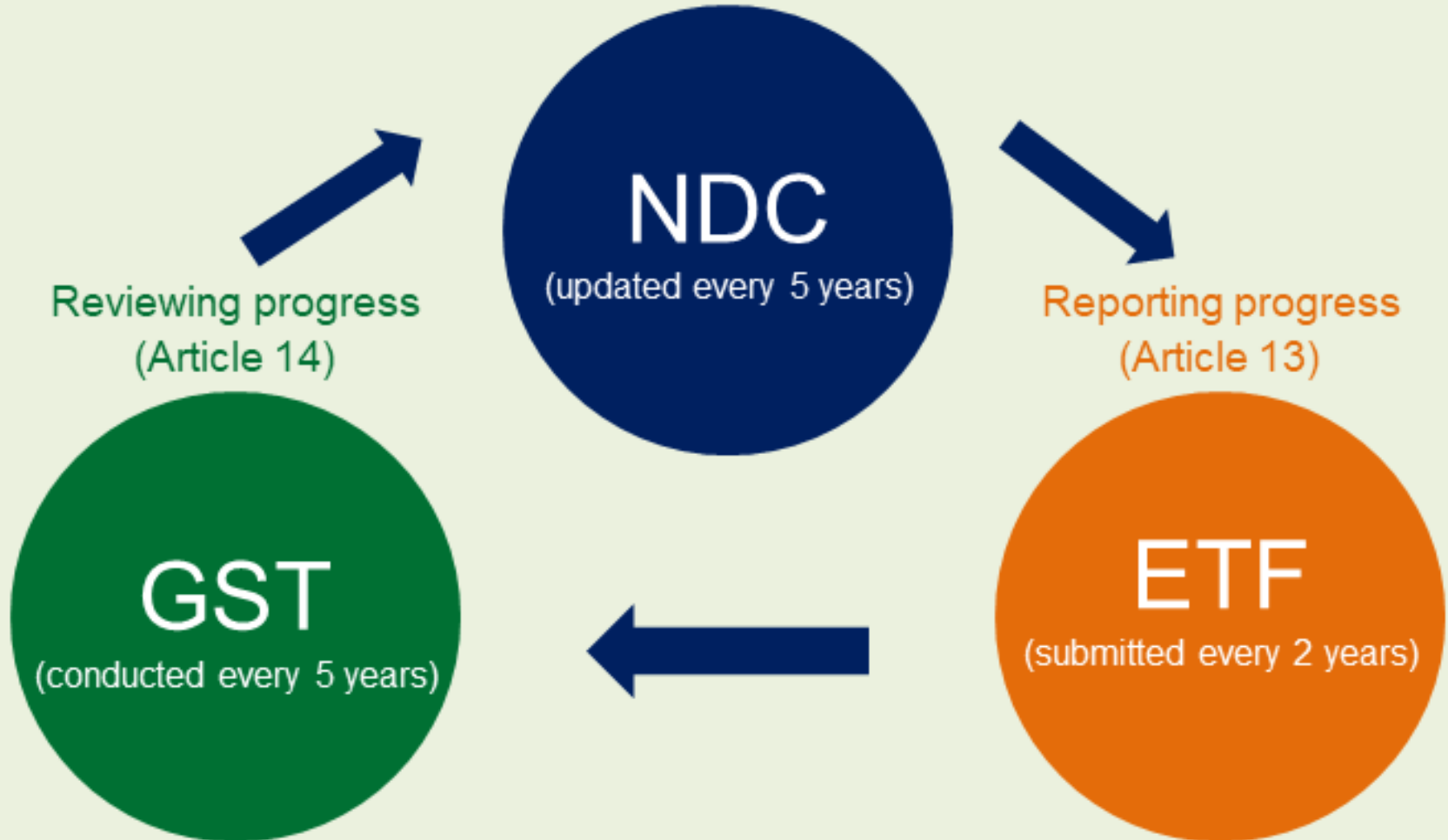
- On 25 October 2022, DPM Lawrence Wong announced Singapore will peak earlier and lower fixed target level to 60MT in 2030
- In Parliament on 8 November 2022, it was clarified that the Government's best estimate is for our emissions to peak between 2025 and 2028, which will be earlier than the previous 2030 target, at around 65 million tonnes. [Peak level announced in BTR at 64.43MT, in 2028]

Singapore's 2035 NDC (second NDC) was submitted in 2025

- On 10 February 2025, Singapore submitted its 2nd NDC to UNFCCC
- To achieve between 45 – 50MT of CO₂e in 2035
- First time that a downward emissions trajectory was announced, aligned with net-zero



Communicating goals (Article 4 of the Paris Agreement)



(Source: https://www.enecho.meti.go.jp/en/category/special/article/detail_192.html)

INFORMATION NECESSARY TO TRACK PROGRESS MADE IN IMPLEMENTING AND ACHIEVING NATIONALLY DETERMINED CONTRIBUTIONS UNDER ARTICLE 4 OF THE PARIS AGREEMENT

Table 25: Overall projected emissions (Mt CO₂ eq)

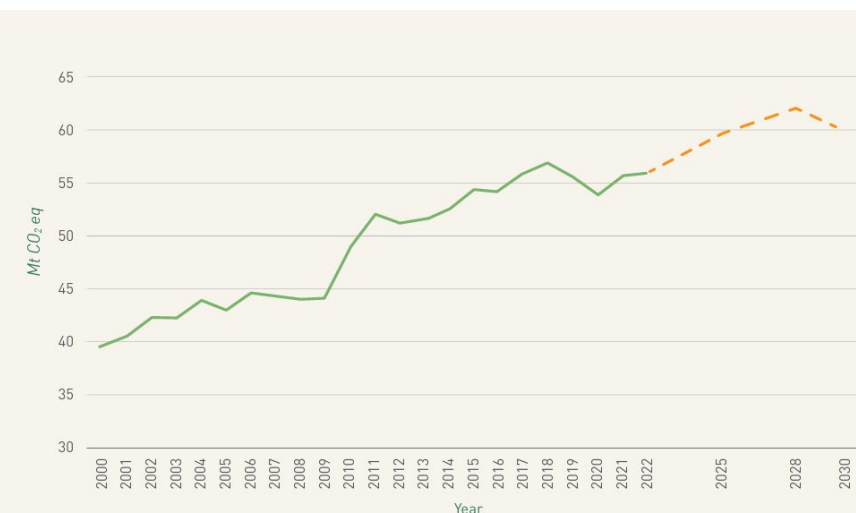
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total with Projected Use of ITMOs	39.69	40.58	42.34	42.32	43.89	43.11	44.63	44.47	44.07	44.24	48.90	52.10	51.26
Total without ITMOs	39.69	40.58	42.34	42.32	43.89	43.11	44.63	44.47	44.07	44.24	48.90	52.10	51.26
Energy	38.27	39.37	40.86	40.39	41.81	40.63	41.80	42.39	41.73	41.78	45.64	48.36	47.51
IPPU	1.20	1.06	1.27	1.75	1.90	2.37	2.64	1.88	2.09	2.23	3.00	3.43	3.52
Agriculture	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
LULUCF	0.00	-0.07	-0.03	-0.05	-0.06	-0.12	-0.08	-0.08	-0.04	-0.04	-0.06	-0.04	-0.06
Waste	0.21	0.23	0.23	0.23	0.24	0.22	0.26	0.27	0.28	0.26	0.31	0.33	0.28

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2025	2028	2030
Total with Projected Use of ITMOs	51.59	52.61	54.41	54.14	56.06	56.84	55.58	53.87	55.77	56.07	59.70	61.92	60.00
Total without ITMOs	51.59	52.61	54.41	54.14	56.06	56.84	55.58	53.87	58.28	58.59	62.21	64.43	62.51
Energy	47.51	48.15	49.76	49.43	50.24	50.51	48.69	46.40	49.76	49.07	52.60	53.80	52.03
IPPU	3.80	4.15	4.28	4.39	5.44	6.01	6.57	7.14	8.15	9.09	9.09	10.09	9.94
Agriculture	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02
LULUCF	0.00	0.02	0.09	-0.03	0.01	0.01	0.02	0.02	0.03	0.04	0.09	0.12	0.14
Waste	0.27	0.28	0.28	0.34	0.36	0.31	0.30	0.31	0.33	0.38	0.42	0.40	0.38

Overall Projected Emissions

Singapore's overall emissions in 2022 were 58.59 Mt CO₂ eq with LULUCF, and 58.55 Mt CO₂ eq without LULUCF. While Singapore has not participated in cooperative approaches that involve the use of ITMOs under Article 6 as of 2022, Singapore estimates the use of 2.51 Mt CO₂ eq²¹ per annum of ITMOs over the NDC implementation period (i.e., from 2021 to 2030). This would bring the total 2022 emissions to 56.07 Mt CO₂ eq. Under a 'with measures' scenario, including the projected use of ITMOs, Singapore's projected 2025 emissions are estimated to be 59.70 Mt CO₂ eq, which is 6.46% higher than 2022. Singapore projects that our emissions would peak around 2028, at around 61.92 Mt CO₂ eq, which is 3.73% higher than projected 2025 emissions, before reaching 60 Mt CO₂ eq in 2030.

Figure 6: Projections of Singapore's overall emissions, inclusive of projected use of ITMOs

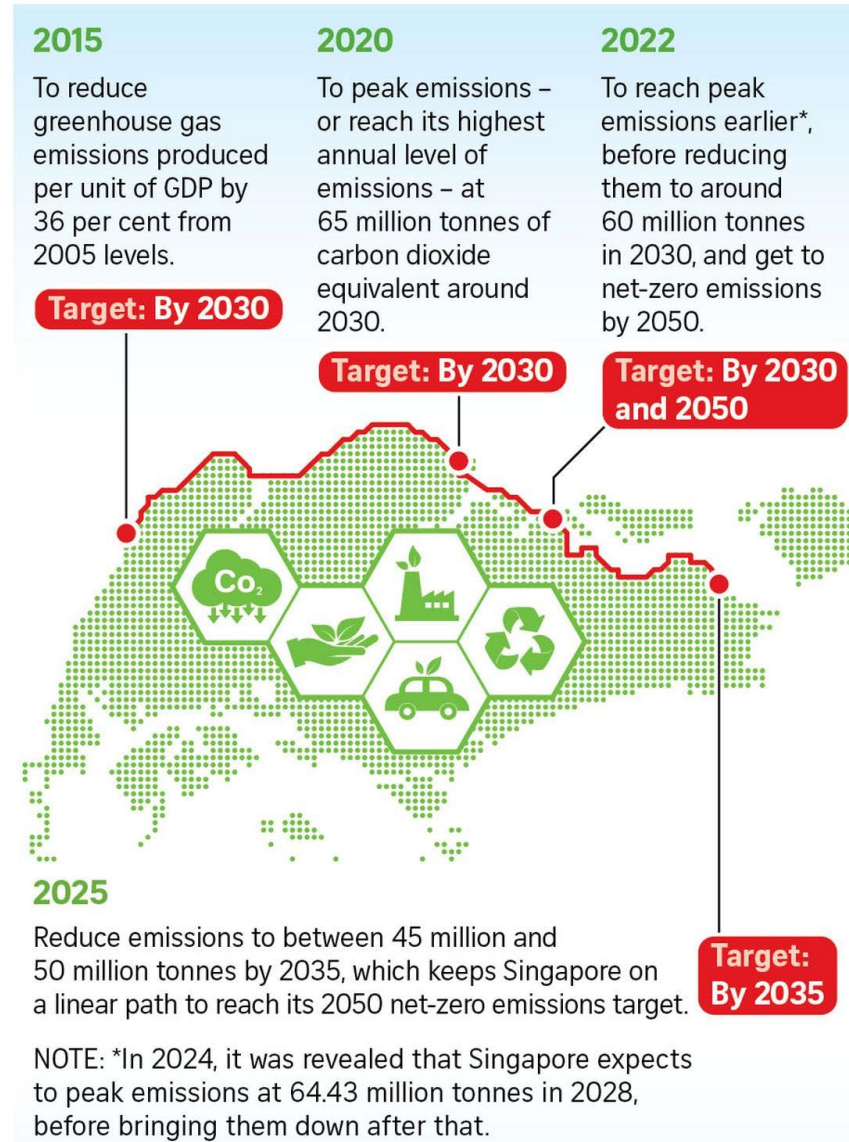


(Source: Singapore's first BTR (2024))

<https://unfccc.int/sites/default/files/resource/Singapore%20BTR1%202024.pdf>

10 years of climate pledges

Since 2015, nations must submit their climate targets – which are at the heart of the Paris Agreement – to the UN every five years. On Feb 10, Singapore submitted its next round of climate pledges to be met in 2035. **Shabana Begum** tracks Singapore's targets since 2015.



58.59
million tonnes

Singapore's greenhouse gas emissions in 2022

0.1%

Singapore's contribution to global planet-warming emissions

Source: MELISSA LOW, NATIONAL CLIMATE CHANGE SECRETARIAT
STRAITS TIMES GRAPHICS

(Source:

<https://www.straitstimes.com/singapore/singapore-releases-new-emissions-targets-for-2035-on-track-to-reaching-net-zero-by-2050>)

CONTRIBUTING TO MULTILATERAL NEGOTIATIONS

Singapore supports the multilateral negotiations under the UNFCCC, and has contributed proactively to the process. We were the 17th country to submit our pledge on July 3, 2015, well ahead of COP-21. Singapore played an active role in forging consensus on the Paris Agreement at COP-21. Minister for Foreign Affairs Dr Vivian Balakrishnan was invited by the French Presidency to co-facilitate discussions on differentiation, a contentious issue that could have scuttled the deal. Ultimately, the issue was about ensuring fairness – providing the necessary assurance

to all Parties that this agreement will account for the historical responsibilities of developed countries while also encouraging developing countries to contribute more as they achieve greater progress.

Singapore's Chief Negotiator for Climate Change Ambassador Kwok Fook Seng led negotiations on an enhanced transparency framework for the Paris Agreement to institute clear reporting and review processes in order to track the progress that countries have made towards achieving their pledges.



Legislation and accompanying Regulations for use of ICCs



THE STATUTES OF THE REPUBLIC OF SINGAPORE

CARBON PRICING ACT 2018

2020 REVISED EDITION

This revised edition incorporates all amendments up to and including 1 December 2021 and comes into operation on 31 December 2021.

Prepared and Published by
THE LAW REVISION COMMISSION
UNDER THE AUTHORITY OF
THE REVISED EDITION OF THE LAWS ACT 1983

Carbon Pricing (Amendment) Bill

Bill No. 27/2022.

Read the first time on 3 October 2022.

A BILL

intituled

An Act to amend the Carbon Pricing Act 2018.

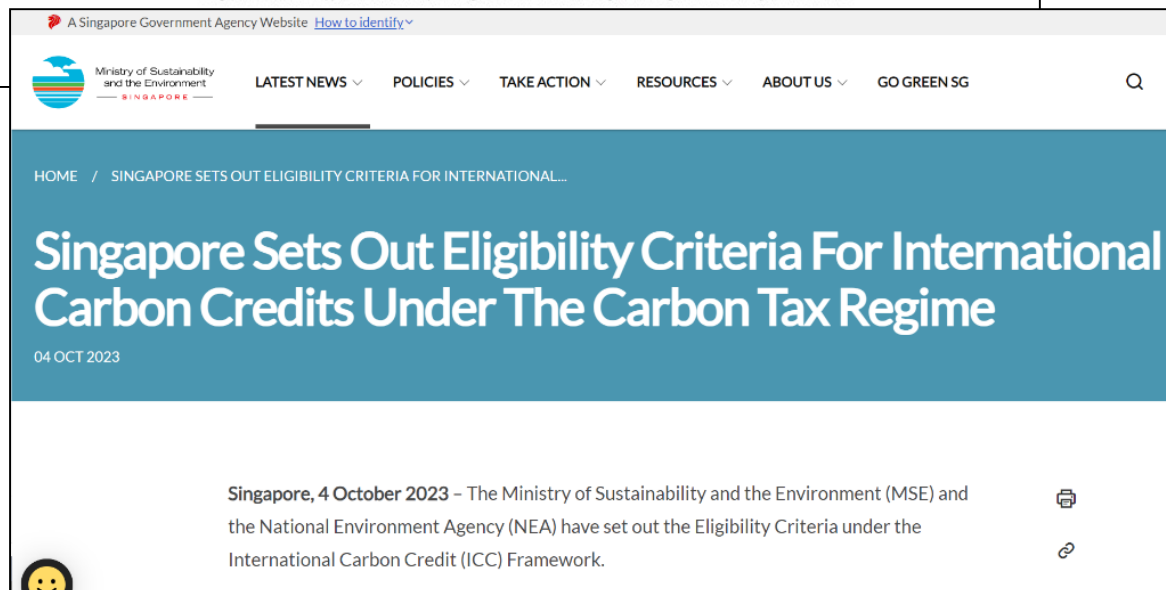
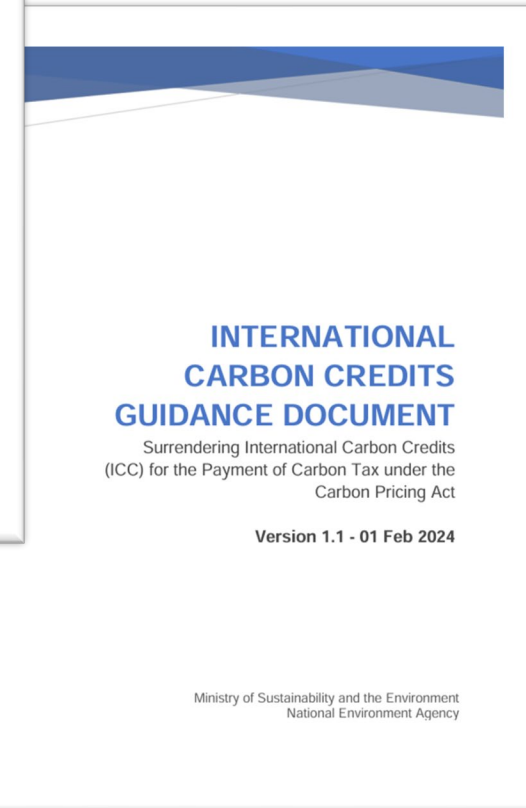
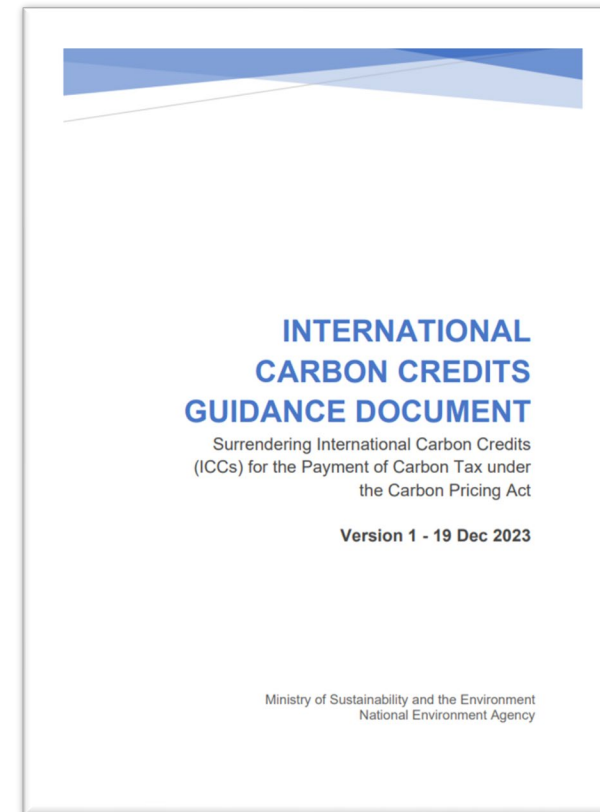
Be it enacted by the President with the advice and consent of the Parliament of Singapore, as follows:

To support Singapore's raised climate ambition of achieving net zero emissions by 2050, the CPA ([Carbon Pricing \(Amendment\) Act](#)) was amended and passed in Parliament on 8 Nov 22.

Legislative amendments to the accompanying Regulations are as follow:

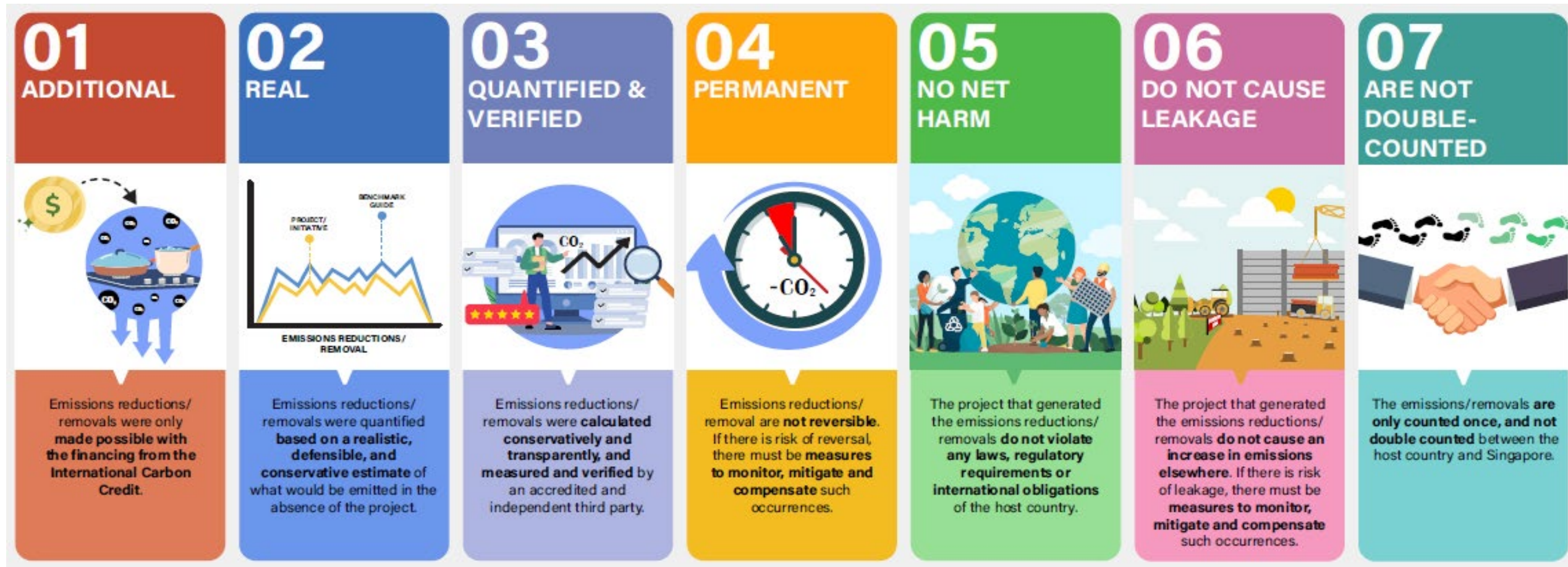
- a. [Carbon Pricing \(Registration and General Matters\) \(Amendment\) Regulations 2023](#)
- b. [Carbon Pricing \(Measurement, Reporting and Verification\) \(Amendment\) Regulations 2023](#)
- c. [Carbon Pricing \(Carbon Tax and Carbon Credits Registry\) \(Amendment\) Regulations 2023](#)

The legislative amendments came into effect on 1 January 2024.



Sources: <https://www.straitstimes.com/singapore/politics/list-of-eligible-international-carbon-credits-for-carbon-tax-offsets-in-singapore-to-be-released-in-2023-grace-fu> ; <https://www.mse.gov.sg/resource-room/category/2023-10-04-eligibility-criteria-for-international%20carbon%20credits>; <https://www.nea.gov.sg/docs/default-source/cmd-documents/climate-change/010224-icc-guidance-document---surrendering-of-icc-for-payment-of-carbon-tax-under-cpa-acrfee.pdf>

Environmental integrity is critical to ensure credibility and integrity of the Article 6.2 cooperation



- Environmental integrity principles central to Singapore's eligibility criteria
- Prevents greenwashing and ensures integrity of national carbon market framework ensured
- Volume of carbon credits be reduced

Environmental integrity is critical to ensure credibility and integrity of the Article 6.2 cooperation

- Singapore taking additional precautions around the type and quality of international carbon credits that it allows to be used towards its NDC.
- Singapore added guidance to the Article 6.2 set by stating its preference and taking additional precautions around the type of international carbon credits that it allows to be used towards its NDC.
- These principles appears to be drawn from CORSIA, and Article 6.4.
- But remains to be seen if projects can meet such strict criteria.



Participation in Article 6.2 involves reporting information

Type of Report/Info	Why they are important	How and Where to Submit
Initial Report	IR contains comprehensive information to demonstrate it fulfils its participating responsibilities, in particular, its ability to authorize use of ITMOs and has arrangements in place to track and report, as well as to apply corresponding adjustments. Such descriptions increases the trust between participating countries by reducing uncertainties and provides a roadmap to follow.	Centralized Accounting and Reporting Platform (if in between BTRs) or Biennial Transparency Report
Annual Information	AI includes information on authorization of ITMOs for use towards NDCs or other international mitigation purpose e.g. CORSIA, including first transfer, acquisition, holdings, cancellation, voluntary cancellation, voluntary cancellation of mitigation outcomes or ITMOs. Additionally, information on first transferring participating Party, using participating Party or authorized entity/entities, year in which mitigation occurred, sector and activity types and unique identifiers help reduce uncertainty.	Article 6 database via Agreed Electric Format no later than 15 April of the following year & as part of structured summary as part of Regular Information *Note Secretariat will perform consistency check on AI, and communicate outcome publicly (only non-confidential info) on the CARP and summary to Article 6 TERT
Regular Information	RI provides opportunity for participating Parties to update information submitted in IR or previous BTRs, and the information can be taken together with overall BTR information on tracking progress towards meeting NDCs	Annex to the BTR, every 2 years starting Dec 2024

For full details, see Article 6.2 Reference Manual:

https://unfccc.int/sites/default/files/resource/Article_6.2_Reference_Manual.pdf & also check Annex I of supplementary elements for IR and updated IR from decision-/CMA.6 on Article 6.2

Essential Pre-requisites for Governments to participate in Article 6.2

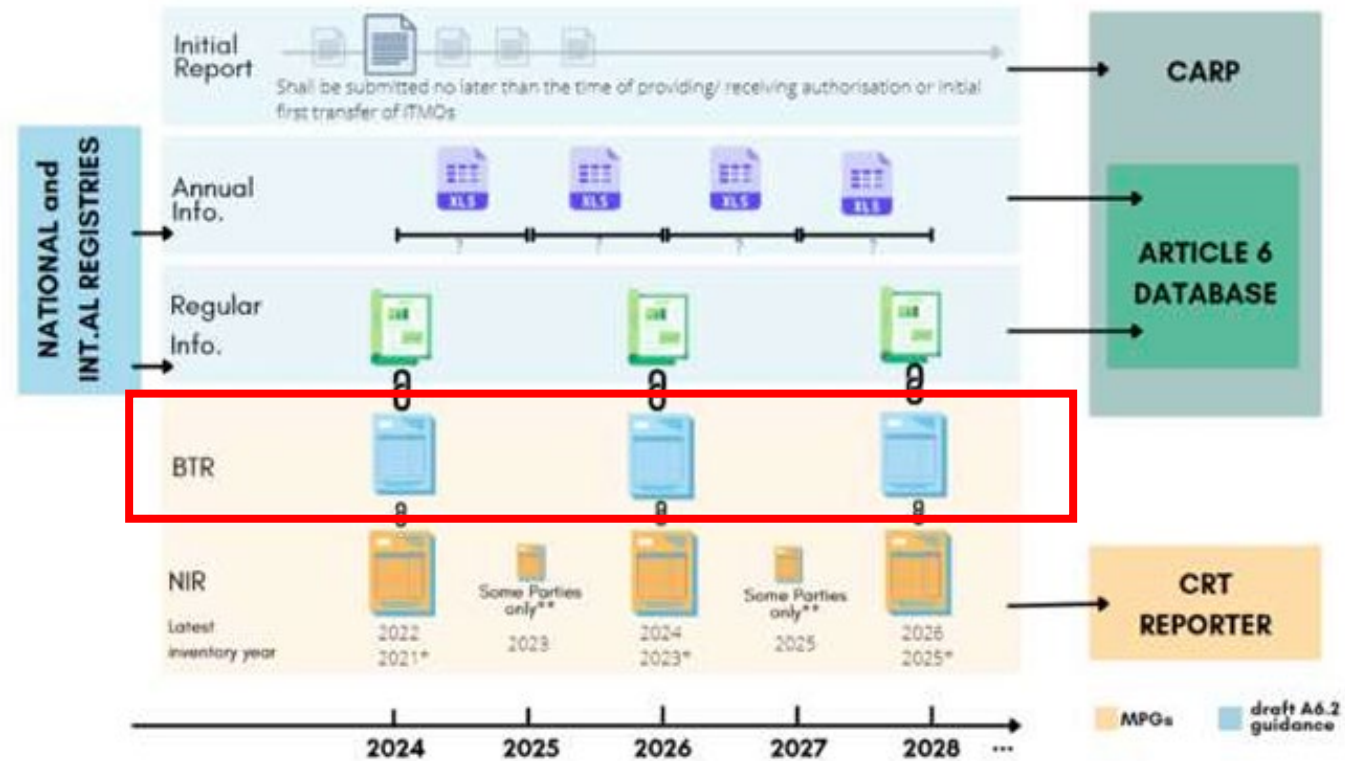
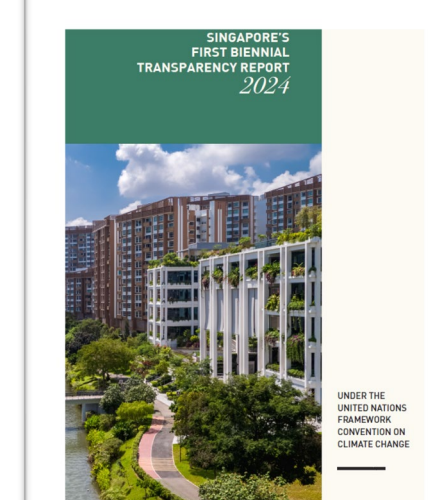
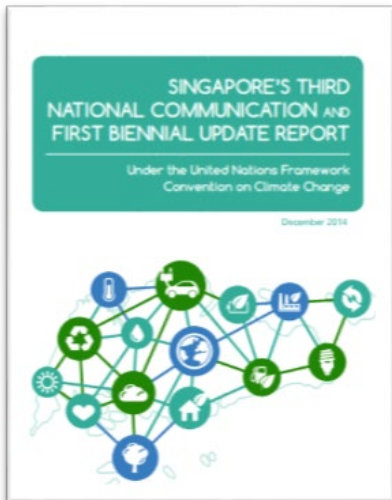


Figure 3 - Illustration of the relationships between Article 6 reports and the biennial transparency report

Source: UNFCCC Article 6.2 Reference Manual; Falduto, Ellis and Simeonova, 2021

Singapore's Track Record

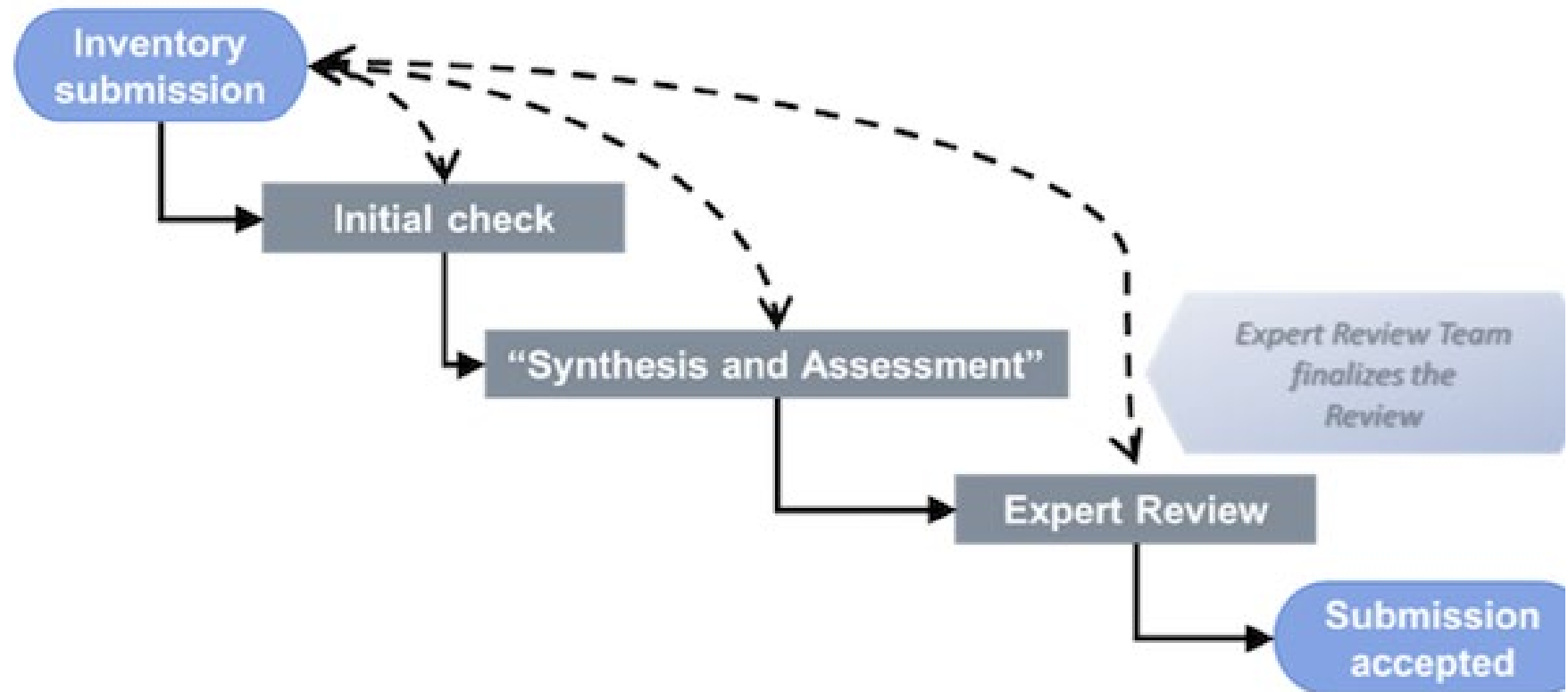
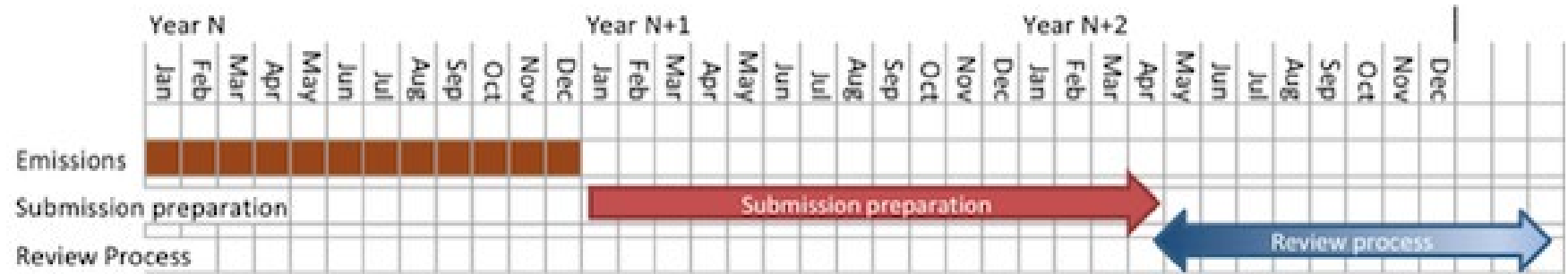
- Singapore is one of 4 developing countries that have submitted 5 Biennial Update Reports since 2014
- Under the PA's Article 13, countries must submit Biennial Transparency Reports starting Dec 2024
- Singapore submitted its first Biennial Transparency Report on 11 November 2024 and earned ourselves a “BTR Champion” certificate of recognition at COP29



See: <https://www.nea.gov.sg/our-services/climate-change-energy-efficiency/climate-change/national-communications-and-biennial-update-reports>, Chief Negotiator Joseph Teo's Twitter

ETF Time Lag

- The transparency mechanism has an intrinsic time lag of two years (Sun et al, 2022: 608).
- Paris Agreement Implementation and Compliance Committee does not enforce inconsistencies unless triggered by the Technical Expert Review report from BTR review, and Party in question needs to be willing to participate in a consideration of issues.



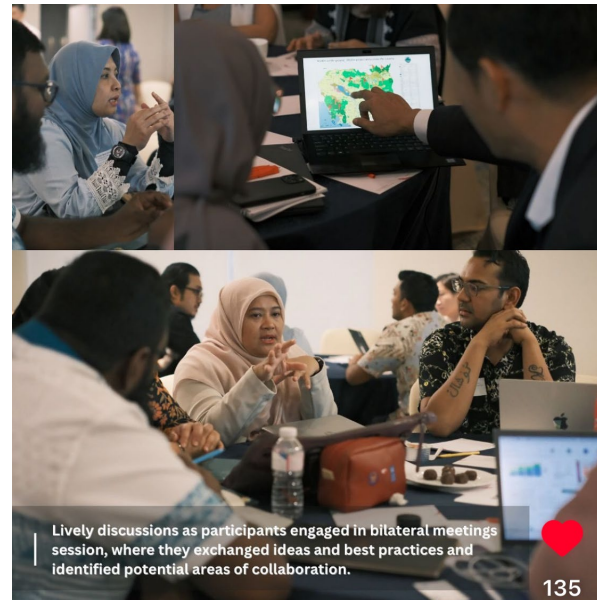
Source: <https://ghginstitute.org/2016/10/28/did-the-unfccc-review-process-improve-the-national-ghg-inventory-submissions/>

Addressing Inconsistencies

- However, at COP29, Baku, **Parties in transactions were ‘requested’ not to use ITMOs identified as having reporting inconsistencies for their NDCs** (para 40 of decision) as using transactions labeled as “Checked, inconsistencies identified” may open the door for buyers who have contracted volumes to be subject to unresolved issues and hence to potential integrity concerns.
- The Article 6 technical expert review team (TERT) can also determine whether an identified inconsistency is significant and/or persistent, and, if so, highlight it as such in its report on the review and **encourages** the lead reviewer(s) of the team, through the secretariat, to liaise with the PAICC with respect to significant and persistent inconsistencies;
- There is **no official enforcement mechanism under the Paris Agreement**. Not even the Article 15 Paris Agreement Implementation and Compliance Committee, who **can only initiate a review** if a Party fails to respond to repeated recommendations to improve its performance and inconsistencies persist, and when the ‘significant and persistent’ inconsistency threshold may have been crossed” (Voigt, 2025: 264)
- This lack of clarity, combined with the intrinsic time lag of the transparency mechanism has implications for achievement of the Paris Agreement’s mitigation objectives.

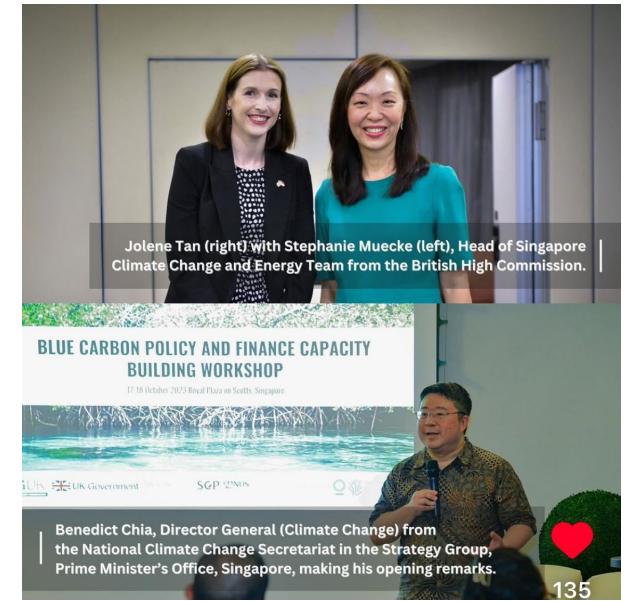


Joint Singapore-New Zealand Article 6.2 capacity building workshop for ASEAN Member States
Singapore, 29-30 September 2022



Lively discussions as participants engaged in bilateral meetings session, where they exchanged ideas and best practices and identified potential areas of collaboration.

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Jolene Tan (right) with Stephanie Muecke (left), Head of Singapore Climate Change and Energy Team from the British High Commission.

BLUE CARBON POLICY AND FINANCE CAPACITY BUILDING WORKSHOP
11-18 October 2022 Virtual Plaza at South Pole, Singapore

Benedict Chia, Director General (Climate Change) from the National Climate Change Secretariat in the Strategy Group, Prime Minister's Office, Singapore, making his opening remarks.

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CIL Art. 6 Explainer: What to Expect in COP 29
28 October 2024, Monday, 4:00 - 5:00 PM Singapore Time, via ZOOM

SPEAKERS

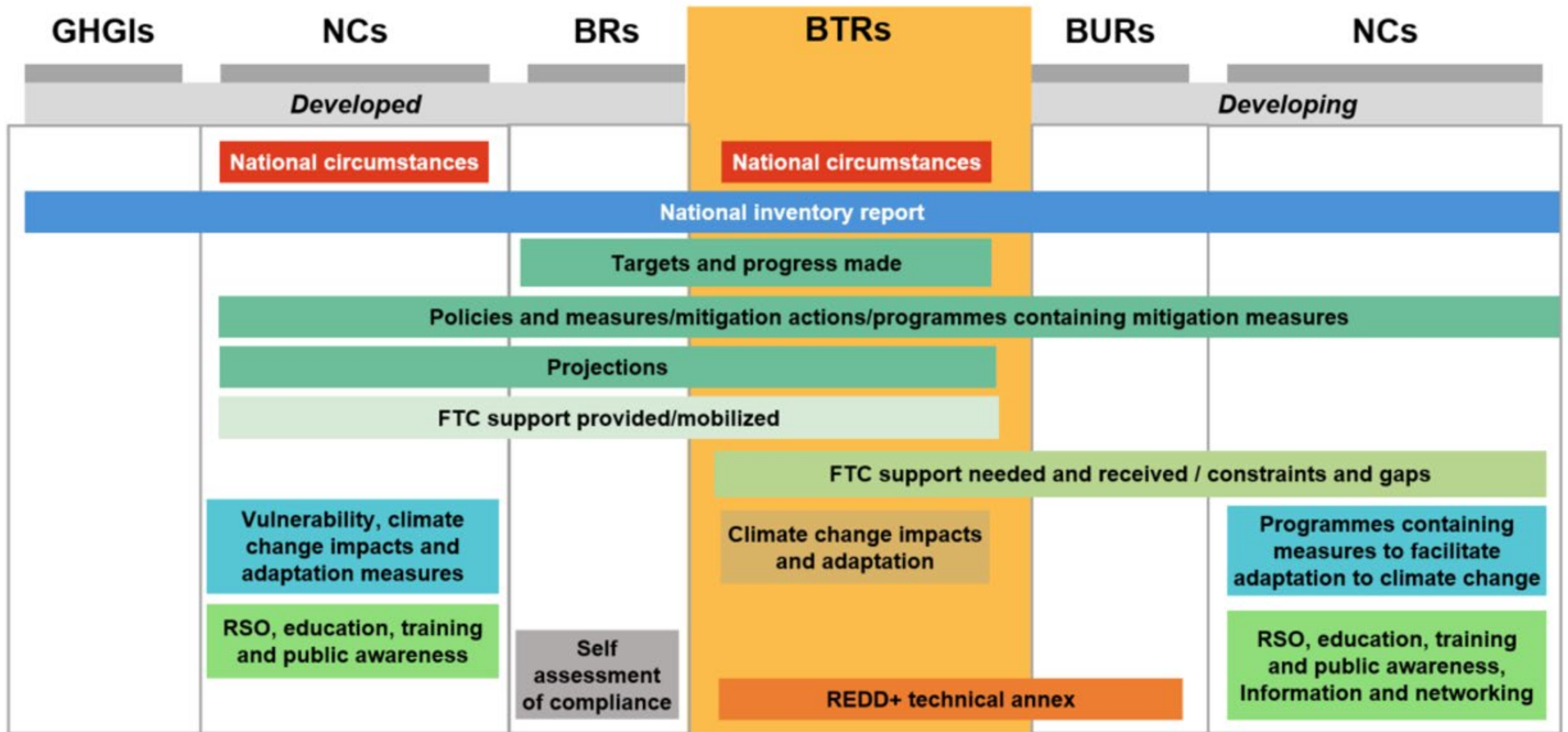
Albert Magalang Chief of Climate Change Section, Dept. of Environment and Natural Resources Art. 6 Lead Negotiator for the Philippines	Vinodhar K. Duggal Principal Climate Change Specialist, Asian Development Bank	Yi Jun Mook Senior Manager (Global Partnerships), National Climate Change Secretariat, Strategy Group, Prime Minister's Office, Singapore	Beatrice Grazziola Senior Policy Advisor, The Nature Conservancy

MODERATOR

Ralita Pineda Associate Lead, Climate Change Law and Policy, NUS Centre for International Law



Sustainability Action Package funded programme on Nature-based Carbon Project and Measurement, Reporting and Verification run by CNCS/NUS on 17-21 February 2025



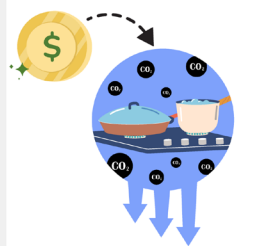
Ensuring High Environmental Integrity of International Carbon Credits

International Carbon Credits are **tradable certificates that represent emissions reductions/removals from projects outside of Singapore**. Example of such projects include reforestation activities and the provision of alternative clean energy sources.

From 2024, companies in Singapore will be allowed to **use International Carbon Credits to offset up to 5% of their carbon tax liability**. The International Carbon Credits would finance projects that reduce/remove emissions, and must adhere to these eligibility criteria:

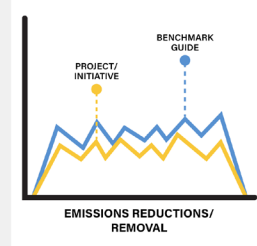


01
ADDITIONAL



Emissions reductions/removals were only **made possible with the financing from the International Carbon Credit**.

02
REAL



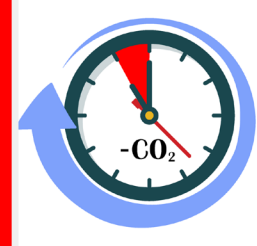
Emissions reductions/removals were quantified **based on a realistic, defensible, and conservative estimate** of what would be emitted in the absence of the project.

03
QUANTIFIED & VERIFIED



Emissions reductions/removals were **calculated conservatively and transparently, and measured and verified** by an accredited and independent third party.

04
PERMANENT



Emissions reductions/removal are **not reversible**. If there is risk of reversal, there must be **measures to monitor, mitigate and compensate** such occurrences.

05
NO NET HARM



The project that generated the emissions reductions/removals **do not violate any laws, regulatory requirements or international obligations** of the host country.

06
DO NOT CAUSE LEAKAGE



The project that generated the emissions reductions/removals **do not cause an increase in emissions elsewhere**. If there is risk of leakage, there must be **measures to monitor, mitigate and compensate** such occurrences.

07
ARE NOT DOUBLE-COUNTED



The emissions/removals are **only counted once, and not double counted**.



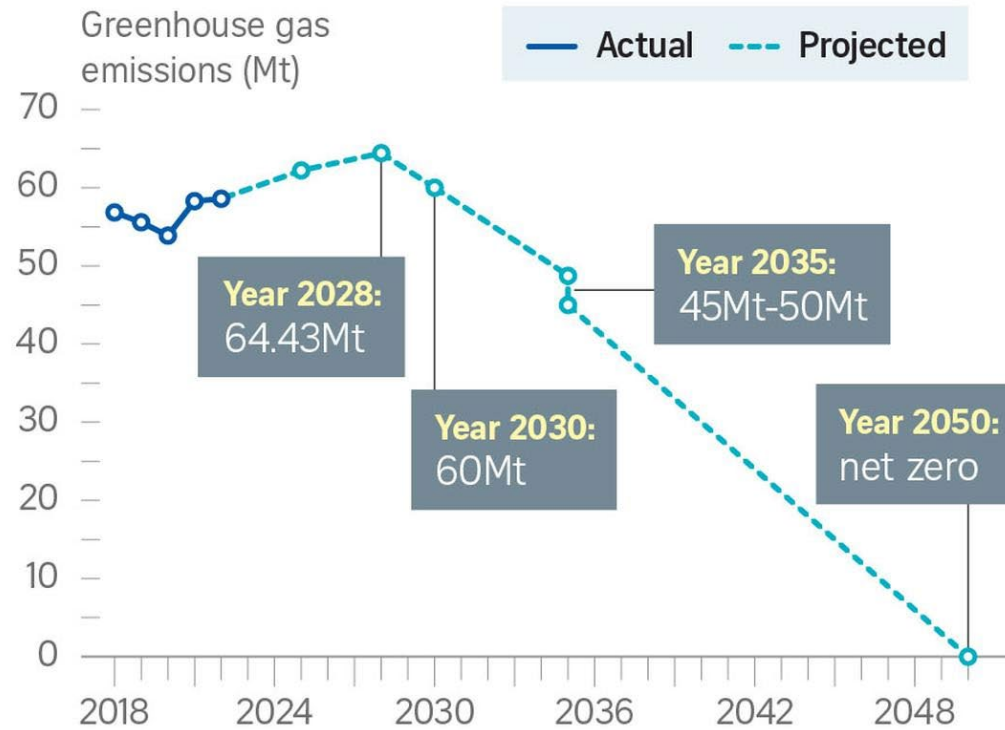
See: <https://www.mse.gov.sg/resource-room/category/2023-10-04-eligibility-criteria-for-international%20carbon%20credits>;
<https://www.carbonmarkets-cooperation.gov.sg/environmental-integrity/overall-eligibility-list/>



Centre for Nature-based Climate Solutions
Faculty of Science

Road to 2035: Driving down emissions

Singapore has committed to reducing its greenhouse gas emissions to between 45 million tonnes (Mt) and 50Mt by 2035, down from the 60Mt it is expected to emit in 2030. This is Singapore's pathway to net zero by 2050.



NOTE: The emissions decline from 2030 to 2050, as shown by the dotted line, is for illustration purposes only.

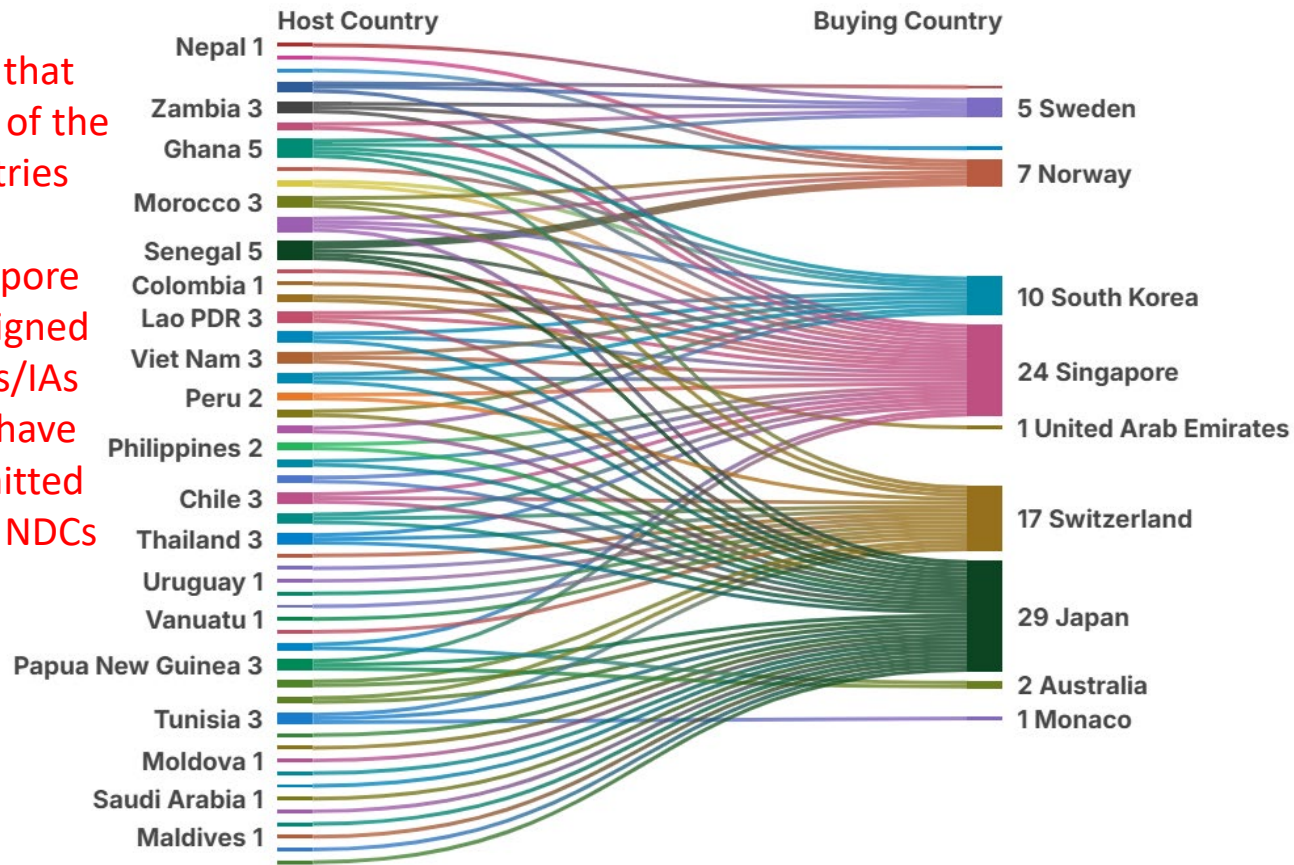
(Source: <https://www.straitstimes.com/singapore/singapore-s-2035-climate-targets-feasible-but-govt-support-and-geopolitical-stability-key-experts>)

Sources: SINGAPORE'S FIRST BIENNIAL TRANSPARENCY REPORT, SINGAPORE'S SECOND NATIONALLY DETERMINED CONTRIBUTION STRAITS TIMES GRAPHICS

International carbon agreements between countries for cooperation under Article 6.2

Agreements* between countries for cooperation under Article 6.2

Note that none of the countries that Singapore has signed MoUs/IAs with have submitted 2035 NDCs



Source: [UNEP Copenhagen Climate Centre](#) • *Includes bilateral agreements, MoUs, and

This new Article 6 portal by Carbon Pulse provides an overview of bilateral agreements and MoUs between countries for cooperation under Article 6.2 and shows the scale of developments. See:

<https://carbon-pulse.com/364632/>

Another useful resource is the Gold Standard's Carbon Market Regulations Tracker developed to enhance the understanding and transparency of carbon market regulations, and support governments, project developers, investors, and other market participants in navigating the evolving regulatory landscape. See:

<https://www.goldstandard.org/carbon-market-regulations-tracker>



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- Carbon Markets Pricing and Investors
- Quality and Integrity of Carbon Credits
- Co-benefits of Carbon Projects
- Outlook of Carbon Markets

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Centre for Nature-based Climate Solutions Faculty of Science



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EXECUTIVE PROGRAMME

LEGAL AND REGULATORY ISSUES ON CLIMATE CHANGE IN SINGAPORE



DATE & TIME

3 April 2025 (1 Day), 9am – 5.30pm
(Registration starts from 830am)



FEES

Normal rate - S\$490.50 (after 9% GST)
Early bird rate (before 7 March 2025) - S\$280 (after 9% GST)



ATTENDEES

- Lawyers*
- Accountants and other service professionals focusing on Environment, Social and Governance (ESG) issues
- Chief sustainability officers
- Risk management officers



OVERVIEW

In 2021, Singapore's Parliament declared climate change to be a global emergency. This was a milestone in Singapore's rapid law and policy-making towards the goal of net-zero greenhouse gas emissions by 2050. This goal is enshrined in international law and Singapore has committed in its Paris Agreement Nationally Determined Contribution (NDC) to achieve it. At the same time, Singapore has identified growth opportunities in the transition towards a low-carbon economy. It aspires to be a regional carbon trading and services hub.

Singapore's growing body of climate change law features climate change disclosure requirements for major corporations and a Carbon Pricing Act which is accompanied by an International Carbon Credit (ICC) framework. Company directors are being advised to consider climate impacts carefully in their decision-making at the risk of failing to fulfill their legal duties. Regulators are also stepping up against greenwashing to protect consumers and businesses.

This course is designed to provide a comprehensive overview of this rapidly developing regulatory landscape that lawyers and their clients have to navigate.

CORE FOCUS

- Understanding the UN Framework Convention on Climate Change and the Paris Agreement
- Legal and Regulatory Issues in Carbon Markets
- Latest Developments in Environmental, Social and Governance (ESG)
- Companies and Climate Change: Directors' Duties and Disclosure Obligations

KEY BENEFITS

- Understand the international climate regime and how Singapore implements the Paris Agreement
- Assess legal and regulatory developments on carbon markets to inform decisions that are aligned with organisational goals and compliance requirements
- Identify latest standards and best practices in ESG that companies should adopt
- Understand company directors' fiduciary duties to ensure legal and regulatory compliance

WHO SHOULD ATTEND

Government & Academia

- Policy makers
- Influencers of policy in academia
- Administrators and implementors
- In-house counsel and legal officers

Practitioners

- Lawyers
- Sustainability sector professionals

Private Sector

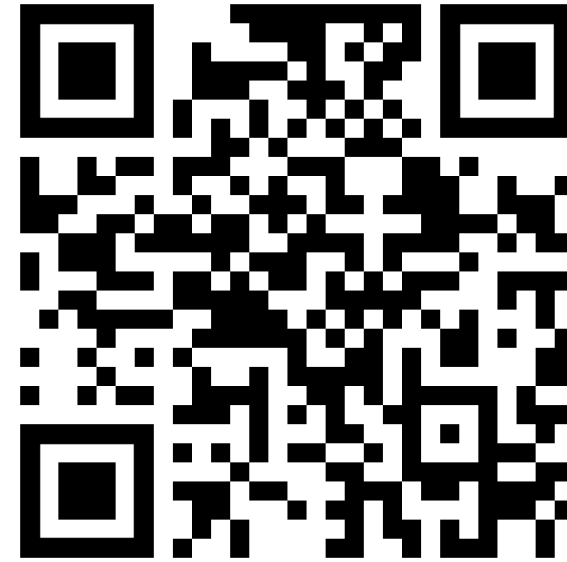
- Operations
- Legal
- Innovation
- Market Strategy
- ESG



Public CPD Points/MEC Points: 5/0.5 (TBC)
Area: Multi-disciplinary / Others
Training Level: General

Participants who wish to obtain CPD Points are reminded that they must comply strictly with the Attendance Policy set out in the CPD Guidelines. For this activity, this includes signing in on arrival and signing out at the conclusion of the activity in the manner required by the organisers, and not being absent from the entire activity for more than 15 minutes. Participants who do not comply with the Attendance Policy will not be able to obtain CPD Points for attending the activity. Please refer to <http://www.silecpdcentre.sg> for more information.

Thank you!
Questions?



Link to CNCS Training page

You may also email me further
questions at melissa.low@nus.edu.sg



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