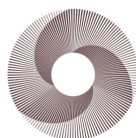


An overview of carbon credits and carbon markets

More resources at: tinyurl.com/Singapore-carboncredits

Keen to collaborate? Drop us a message:
climate_cooperation@pmo.gov.sg



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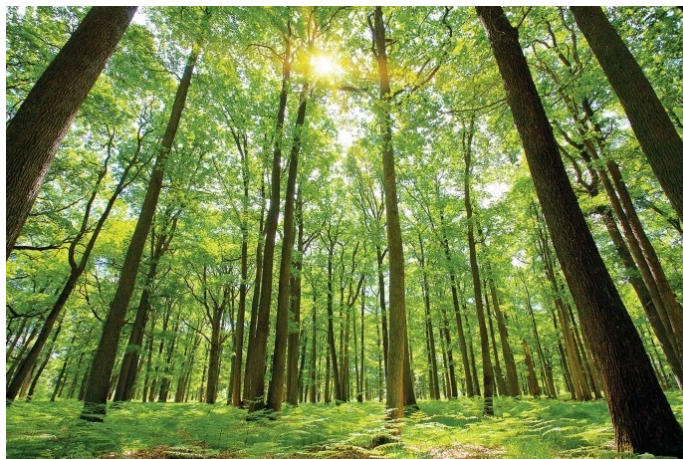
What are carbon credits?

Carbon credits and markets **unlock much-needed capital** for climate action – to achieve Paris Agreement goals, carbon credit issuance will need to increase 40-fold by 2035

1 Carbon Credit = 1 tCO₂e reduced/removed

A carbon credit is a tradable unit representing an allowance or offset for one tonne of carbon dioxide equivalent (tCO₂e)

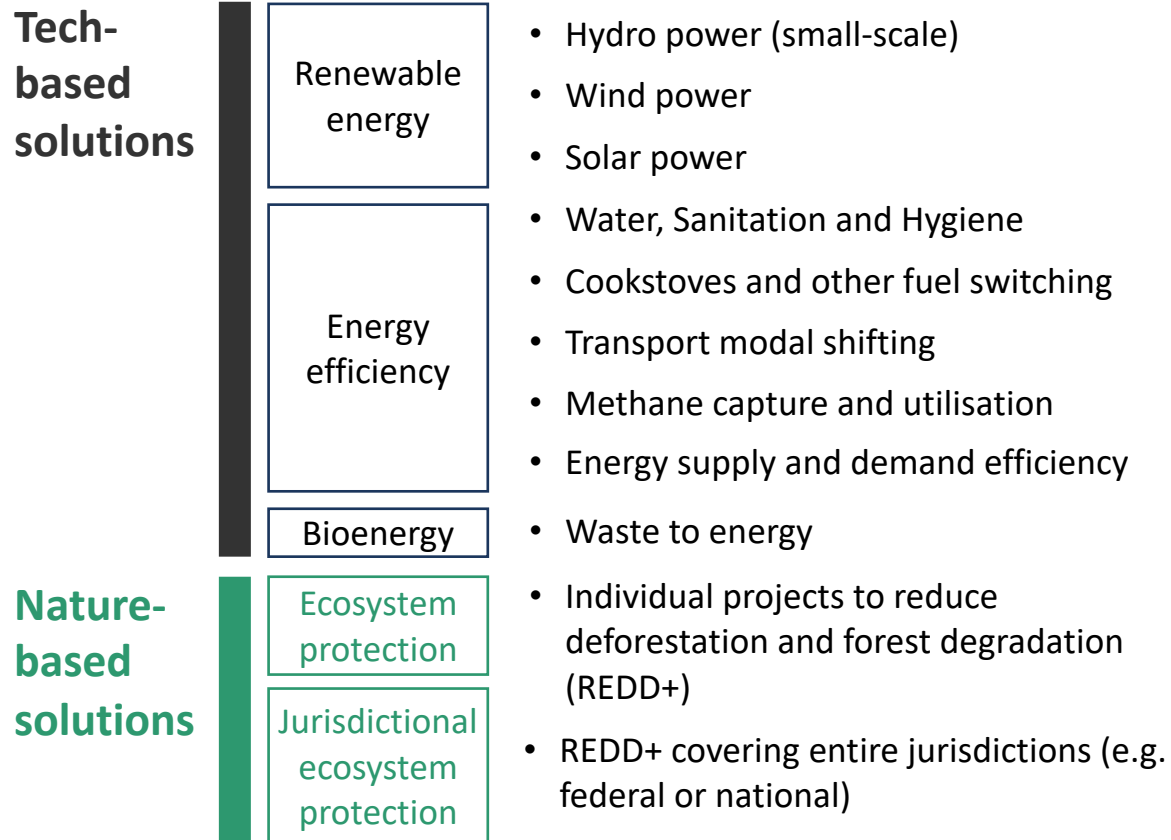
- **Offsets** represent claims to emissions avoidance or removal
 - Offsets can be used to reduce carbon footprint and meet climate commitments
- Carbon offset projects can also **advance sustainable development** and deliver **co-benefits**
 - e.g. energy security, health and sanitation, job creation, biodiversity protection



What projects generate carbon credits?

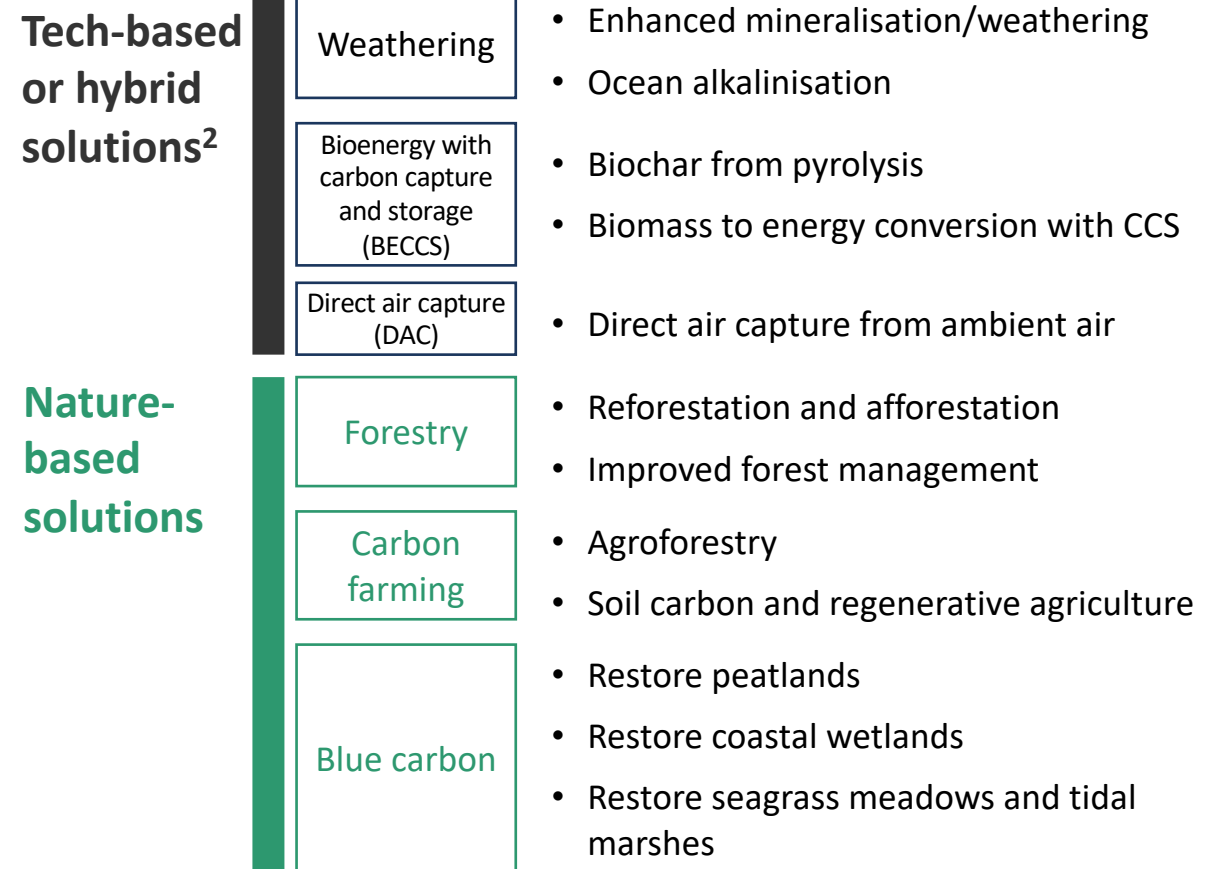
Carbon reduction projects

Incentivise emission reduction



Carbon removal projects

Remove carbon from the atmosphere for long-term storage



What is a high-quality credit?

High-quality credits meet a set of environmental integrity principles

Common principles:

Real	■	Represent genuine emissions reductions/removal
Measurable	■	Quantified using accurate measurement tools
Additional	■	Emissions reductions/removal would not have occurred under a business-as-usual scenario
Permanent	■	Represent permanent emissions reductions/removal that cannot be reversed
Verifiable	■	Independently verified by a third-party auditor

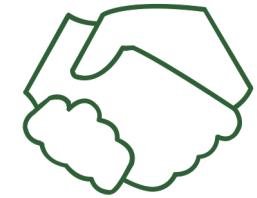
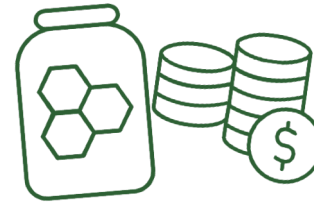
A common international standard is the International Civil Aviation Organisation (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) scheme

- CORSIA was approved and backed by a multilateral process under a UN agency, with green groups and industry consulted
- Extra safeguards to ensure high additionality

The UNFCCC Paris Agreement Article 6 also specifies certain rules on carbon credit trading, e.g. no double-counting (see page 7)

How are carbon credits generated and sold?

Upon conception, carbon offset projects take ~1.5 – 5 years to start issuing credits



Projects are developed with activities that measurably reduce or remove carbon emissions

Emissions reductions/removals are verified by industry-recognised bodies (e.g. Gold Standard and Verra)

Carbon registries issue credits in exchange for the carbon reduction/removal from the project. Credits can be sold directly to buyers, or through agents/exchanges (e.g. carbon trading desks)

Buyers purchase carbon credits to offset their carbon footprints (e.g. corporates or individuals). Once claimed, credits are retired and can no longer be traded, to avoid double counting



Carbon credit revenue
Is channeled to the projects

Who are buying carbon credits?

More countries and corporates are buying credits to meet binding or self-imposed climate targets

Two markets facilitate this:

Compliance Market

Created and regulated by **mandatory** carbon reduction regimes (can be national, regional or international)

Voluntary Market

Allow corporates and individuals to offset carbon emissions or footprint **voluntarily**

As demand increases, carbon credit prices could reach **US\$20 - 50/t by 2030**
Global carbon offset market could be worth **US\$50b by 2030**, up from US\$0.6b in 2019

Demand-drivers

- **Regulatory developments**
 - Commencement of CORSIA's mandatory phase in 2027, which would require almost all flights to use carbon credits
 - Greater clarity on international carbon trading rules at COP-26
 - Provisions for companies to surrender carbon credits to offset their carbon tax, e.g. Switzerland, Singapore
- **Growing climate commitments**
 - 1,800+ global corporate commitments currently; at least 36% of the S&P 500 buy carbon credits
 - Countries to meet their Nationally Determined Contributions – NDCs

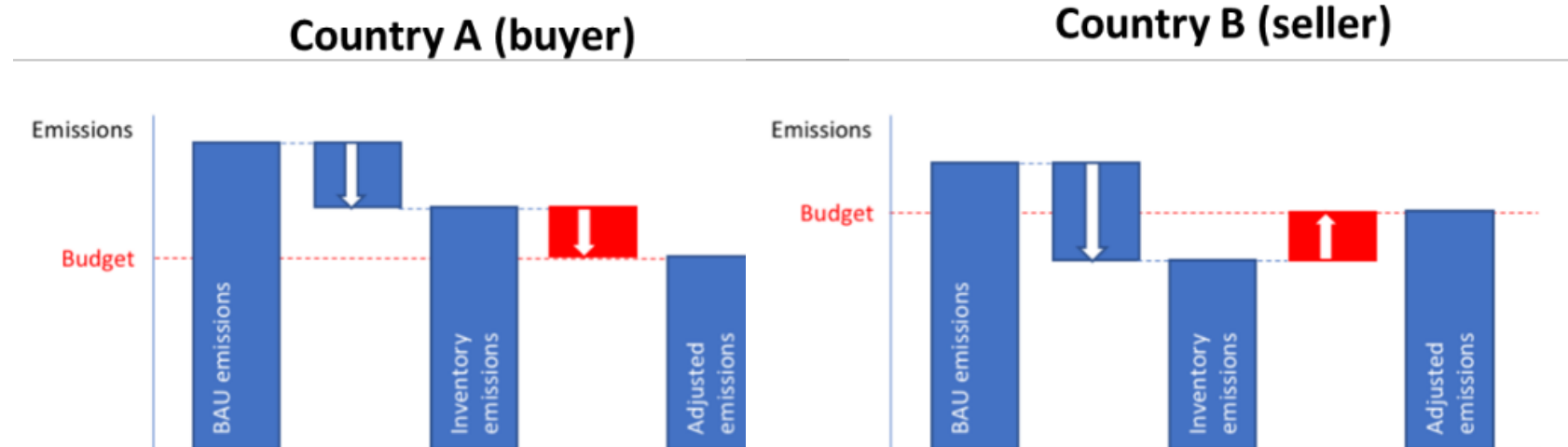
Who governs international carbon trading?

Paris Agreement Article 6 set outs framework for countries to **voluntarily** cooperate to **achieve their NDCs**, and **advance global climate action and ambition**

Article 6.2 and 6.4 set out the rules and guidelines for international carbon trading to avoid double counting and advance climate ambition

1. Corresponding adjustments to prevent double-counting

What is it: mechanism to prevent countries from using the same carbon credit towards their NDC



2. Levy for adaptation finance & credit cancellation

What is it: 5% of carbon credits revenue will go towards an adaptation fund for developing countries; 2% of carbon credits will be cancelled to increase overall emissions cuts

3. Limit on the use of pre-2020 credits for 2030 NDC

What is it: Countries may only use the Kyoto Protocol's Clean Development Mechanism (CDM) carbon credits that were derived from projects registered in 2013 or later

Who develops guidelines for the voluntary carbon market?

- **Voluntary, multistakeholder initiatives** are developing standards for the **quality** and **use** of credits
- Current consensus: Organisations should **prioritise abatement** before they can credibly use credits to offset emissions

Targeting suppliers of credits



- Independent governance body developing a set of "core carbon principles" as a threshold standard for high-quality credits
- National University of Singapore (NUS) is a founding sponsor, and NUS professor Koh Lian Pin co-chairs the IC-VCM Expert Panel



- Carbon crediting programmes update or develop new methodologies

Targeting buyers of credits



- Independent body developing a set of global standards for credible use of voluntary carbon credits and public claims
- Singapore is a member of the VCMI's Country Contact Group



- Net Zero Standard defines credible target-setting for corporates

How is Singapore playing a part?

Singapore is keen to foster transparent and robust carbon ecosystems with like-minded partners

1 Shaping global standards and practices

- Participation in **international carbon market rule-setting**, e.g. Article 6, CORSIA Technical Advisory Board
- Host the World Bank-initiated **Climate Action Data (CAD) Trust** (formerly the Climate Warehouse Initiative), a global market infrastructure connecting carbon credit registries to boost transparency

2 Building capabilities to unlock demand and supply

- Article 6.2 **Capacity Building Workshop for ASEAN Member states** (with New Zealand)
- Carbon markets module offered under the **Sustainable Action Package**, Singapore's flagship technical assistance programme (launched Oct 2022)
- Advancing **research on new methodologies** to unlock supply of nature-based credits
 - Ongoing blue carbon research project with Indonesia
 - Launch of International Blue Carbon Institute at COP-27

Some key players in Singapore



Climate Impact X pioneered a Marketplace and Exchange for nature-based credits, to address issues of price transparency and quality



GenZero is a Temasek-owned investment platform company with an initial S\$5b (~US\$3.5b) capital to invest globally in decarbonisation solutions, e.g. carbon credit project financing



AirCarbon Exchange established a permissioned ecosystem for market participants to trade carbon efficiently, without fear of double-counting



NUS Centre for Nature-based Climate Solutions developed the Carbon Prospecting Dashboard, an interactive mapping tool for nature-based credits

How can we collaborate on carbon trading?

A Government-to-Government (G2G) framework can help both countries achieve their NDCs, while advancing global climate ambition

Together we can:

- Unlock mitigation potential from investment in projects
- Generate co-benefits – e.g. job creation in green economy, facilitation of technology-sharing, energy security
- Advance sustainable development – e.g. environment and biodiversity protection, benefits to local communities, adaptation benefits
- Generate revenue to fund further climate mitigation and adaptation

Circularity of benefits through the cooperation of two countries. The benefits of increased abatement to be shared across various sectors. Singapore and our companies will contribute:



Finance



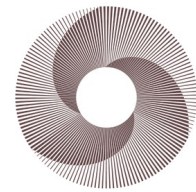
Capability
Building



Technology

Singapore's participation in Article 6 cooperation

- Co-facilitated Article 6 negotiations at COP-26 in Nov 2021, which yielded the comprehensive guidance to operationalise Article 6
- Collaborating with Ghana, Colombia, Morocco and others on carbon credit cooperation aligned with Article 6.2
- Participation in the Article 6.4 Supervisory Body, which decides on the centralised trading mechanism under the UNFCCC
- Introduced a framework to allow Singapore-based companies to use high-quality carbon credits to offset up to 5% of carbon tax payment



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