

MUFG TRANSIT

APAC Carbon Offsets

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ESG Finance Department

MUFG Bank, Ltd.

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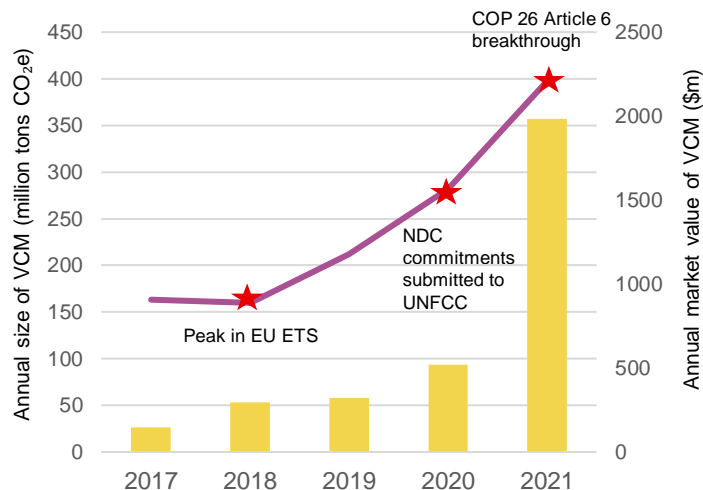


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Global Voluntary Carbon Market Landscape | Rebuilding trust

A series of controversy around the quality of nature-based credits has disrupted the market sentiment, a call for for greater market integrity, scrutiny & transparency to bring back market confidence

Total size of voluntary carbon market

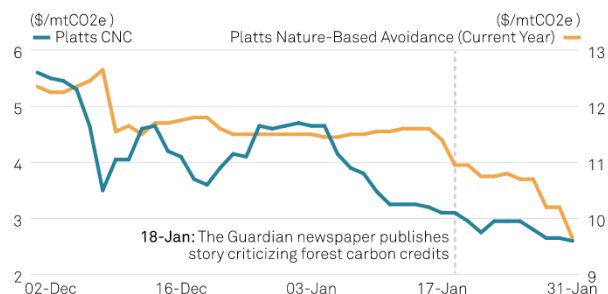


Source: World Bank Carbon Pricing Dashboard (2021), Ecosystem Marketplace Insights Brief (2022)

4x

- A jump in market value of voluntary carbon market (VCM) to \$2 billion between 2020 & 2021, accelerating a rising pace of the market

Price of selected carbon credits in 2023



Source: S&P Global Commodity Insights (2023)

- VCM has priced in series of controversies from under-delivered carbon credits e.g. Verra, Chevron etc., with nature-based carbon credit prices hitting all-time low of \$2.60/mt CO₂ in Jan 2023

Key carbon market drivers for the rest of 2023 & beyond

1 Launch of new industry standards

2 Implementation of carbon tax/ Emissions Trading System(ETS)

3 COP28: Facilitating the cross-border movement of carbon credits

Section I: Launch of new industry standards

Launching of Buyer's Guidelines | From pure voluntary to regulated voluntary

The industry guidelines for carbon credits buyers demand clarity, consistency & transparency, preventing misuse of generic claims

A growing concern

- Carbon neutrality declaration does not always mean carbon reduction is involved e.g. one-off offset with carbon credits vs investing in long-term emission reduction plans
- Bundled 'carbon neutral' products e.g. LNG, crude oil are not made equally
- More and more variations of claims e.g. carbon positive, carbon-free without material impact on own emissions

Purchase & declare voluntarily according to corporate policy

Current Practice

VCMI's CoP:

Existing Concept : Offsets

Carbon neutral = own value chain emissions – carbon credits

New Concept : Further Contributions

Carbon neutral = own value chain emissions – **own value chain reductions** – carbon credits

Science Based Targets Initiative:

Existing:

SBTi Corporate Net-Zero Standard to set science-based targets in near & long-term

New:

Go beyond science-based targets with view to **mitigate emissions** outside a company's value chain

Recommended Practice

1

VCMI's Claims Code of Practice (CoP)

Released in Jun 2023

Stringent tiered claims system offset at least 20% of remaining emissions with carbon credits

Ambitious longer-term emission reduction framework

whereby % of carbon credits purchased & retired must increase each subsequent year after making a Silver/Gold Claim

Mandatory disclosure, independent validation & assurance required to support claims

2

SBTi's Beyond Value Chain Mitigation (BVCM)

To be released by end-2023

Purchasing high-quality carbon credits for **reduction** or investing in CO₂ **removal** methods, such as direct air capture

Directed approach for deploying capital towards 3 models - high-quality credits, internal carbon tax & project investment

Enhancing Credit Standards | Defining a good credit

Strengthening industry guidelines for a higher integrity carbon credit

Common areas of scrutiny

True quality of nature-based offsets

Lack of long-term commitment

Double-counting

3

ICVCM's 10 Core Carbon Principles (CCPs)

Released in Jun 2023

Key Highlights from CCPs:



• **Additionality**

Category-level Assessment Framework identifies Jurisdictional REDD+ (nature-based) as a Category that requires special consideration



• **Permanence**

Project proponents required to commit >40-year monitoring period for Categories with high reversal risk with buffer pool contribution of >20% of total carbon credits issued



• **Exclusive claim**

Registries handling retirement of CCP credits required to disclose said entity to ensure ineligibility for further trading or utilization by another company to fulfil climate targets



• **Adopted firm stance**

On ruling out projects "locking in fossil fuel emissions" such as unabated coal-fired power & Enhanced Oil Recovery (EOR) but grants an exemption for transition projects such as gas-fired power generation

4

Verified Carbon Standard (VCS) 4.5

Released update in Sep 2023

Other leading industry standards to establish credibility & integrity of originating source of credits

- Verra's latest update to its VCS include greater useability, transparency & integrity to better align with other industry guidelines such as Carbon Offsetting Reduction Scheme for International Aviation (CORSA)

*ICVCM – Integrity Council for the Voluntary Carbon Market

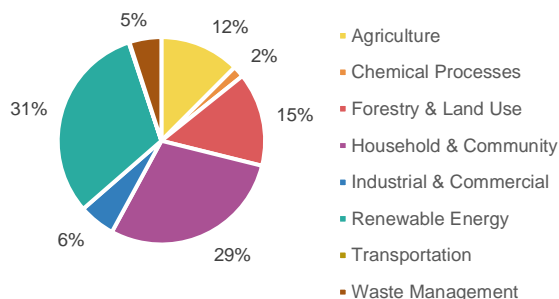
Source: MUFG compiled from Carbon Herald, ICAP, ICVCM, Science Based Targets, Sylvera, The Straits Times and various public sources

APAC Carbon Credits | Flooded with reduction credits

Most of the voluntary carbon credits generated in APAC are reduction-based credits, while the market is increasingly demanding for removal-based credits

Annual Emission Reductions from Voluntary Carbon Offset Projects* in Asia & Oceania (ex-Japan) as of May 2023

Top 5 Countries	Volume (mil tCO ₂ -e)	% of total emissions
India	249.6	46.9
China	181.4	34.1
Philippines	35.5	6.7
Indonesia	33.0	6.2
Vietnam	12.4	2.3



*Note that the database does not include projects registered under domestic standards & only projects certified by American Carbon Registry, Climate Action Reserve, Gold Standard & Verified Carbon Standard

Source: MUFG compiled from Berkeley Carbon Trading Project Voluntary Registry Offsets Database (2023)

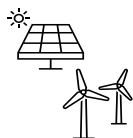
90%

- Credits supplied are **reduction-based**, rest being **removal-based**
- Technology-based methods are still at an early stage development in APAC

81%

- Annual emission reductions from carbon credit projects come from **China & India**

31%



- Total emission reductions in APAC come from carbon credit projects in the **renewable energy sector**
- Largest project being the 66 turbines wind farm project in China

- **India** saw highest estimated annual emission reductions followed by **China & the Philippines**



- **Renewable energy** stands as largest contributing sector in India. In Feb 2023, government published a list of 13 carbon credit types eligible for Article 6 targeted at attracting inward investments on innovative green technologies e.g. renewables, sustainable aviation fuel & bio-gas



- China's **agriculture-based** projects dominated domestically & among other APAC markets. One of the world's leading rice producers, it declared a "comprehensive & ambitious national action plan on methane" in COP27 targeting emission reduction from its cultivation fields



- Philippines' projects mainly come from **household & community** sector as reduction projects dominate like community campaigns to replace inefficient cookstoves with cleaner alternatives

Fact

Top 5 emitting markets in APAC

1. China
2. India
3. South Korea
4. Indonesia
5. Australia

Section II: Implementation of Carbon Tax/Emissions Trading System(ETS)

From Policy to Implementation | Regulatory push in APAC

EU's CBAM as a nudge to policy regimes in APAC to cover cost abatement from domestic emissions



Carbon Border Adjustment Mechanism (CBAM)

- To be introduced in Oct 2023, full-fledged launch phased from 2026-34
 - Carbon price applied to imports to EU, proportionate to “embodied emissions” generated from manufacture with Scope 1 as starting point
 - Initial sectors covered include **iron & steel, cement, aluminium, fertilizers, some chemicals & electricity**
 - Credits under voluntary carbon market not yet accepted towards EU CBAM reporting obligations due to ongoing concerns over integrity of emission reductions achieved

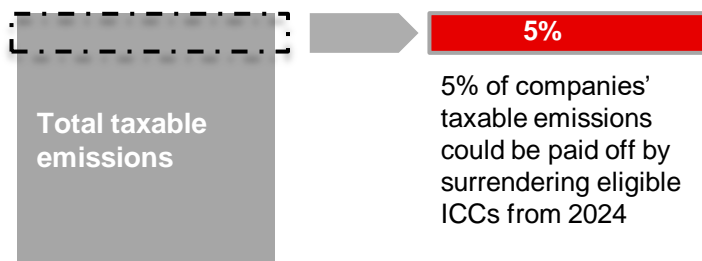


- In APAC, China, India & South Korea among top 10 trading partners projected to be most affected by CBAM due to high export exposure to EU, where a rise of emission reduction activities & reporting are expected
- While compliance ETS is being adopted in the above 3 markets to manage sector-wide emissions, the rise of voluntary carbon markets could be expected after further clarity on acceptance of overseas credits under CBAM

Case study of Singapore : Convergence of compliance & voluntary markets



Singapore's Carbon Pricing Mechanism:



- ‘International carbon credits’ (ICCs) introduced as new concept under Singapore law
- Government’s intention to tap into Singapore’s existing arrangements with other jurisdictions under Article 6.2 of the Paris Agreement on ICCs to help fulfil its climate goals

What to expect in Q4 2023

- The whitelist of acceptable International Carbon Credits under the amended Carbon Pricing Bill to be released by end-2023 with expected criteria to include:

CORSIA+





Corresponding Adjustment

Use towards NDC



From Policy to Implementation | More compliance markets coming to the forefront

Carbon tax approach is gaining momentum in APAC, a possibility of larger-scale convergence between compliance & voluntary carbon markets in the region

2023

- Feb  • **Indonesia: announced postponement of carbon tax till 2025**
 - Aug 2023: Financial Services Authority (OJK) introduced new regulation (POJK) No. 14/2023 to set out standards for carbon trading & licensing requirements for carbon exchange
- Mar  • **Thailand: announced consideration of carbon tax on 3 sectors - energy, transport & industry**
 - Mar 2023: First Carbon Credit Exchange, FTIX, launched following Thai government's published rules & guidelines for carbon credit trading in early-2022
- Sep  • **Malaysia: Federal government announced consideration of a carbon tax**
 - Mar 2023: Bursa Carbon Exchange launched Malaysia's 1st auction platform to increase economic viability of carbon credits by incentivising local project owners
-  • **Singapore: To implement carbon tax hike in 2024 from S\$5 to S\$25/tCO₂e**
 - Singapore government has been pushing for the nation to become a carbon services & trading hub with leading global exchanges such as Climate Impact X & AirCarbon Exchange established

2024

- In other markets, growing momentum towards formation of carbon exchanges is observed
 -  ○ Aug 2023: Ministry of Power approved formation of India's first domestic regulated carbon market
 -  ○ Aug 2023: Taiwan Carbon Solution Exchange (TCSE) launched to promote local carbon credit trading

Section III: COP28: Facilitating the cross-border movement of carbon credits

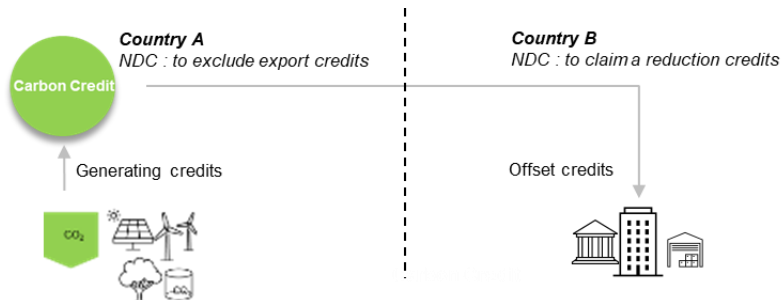
The road to COP28 | Actualizing climate action through international carbon market

A lookback at COP27



Working on implementation of Article 6

- Implementation Partnership to achieve Nationally Determined Contributions (NDCs) through cross-border transfer of credits
- Clarifications on transfer of credits developed under Clean Development Mechanism to Article 6 mechanism



***Article 6.2:** creating decentralized cooperative approaches for trading between markets to achieve GHG emission reduction (mitigation outcomes)

****Article 6.4:** developing centralized international structure to achieve GHG emission reduction (mitigation outcomes)

The road to COP28...

Summit for a New Global Financing Pact: High-Level Roundtable on Voluntary Carbon Markets, Jun 2023

- Urgency of scaling high-integrity VCMs to mobilize significant flows of cross-border financing to emerging markets & developing economies
- Role VCMs play in financing urgent priorities, such as accelerated phaseout of coal assets & investment in new climate technologies

Bonn intersessional climate talks (SB58), Jun 2023

- Operationalisation of **Article 6.2** & **Article 6.4**
- Some degree of progress on how mitigation outcomes through credits work in practice

Setting the tone for COP28: UAE's climate action

- Aug 2023: UAE announced launch of national system for carbon credits powered by blockchain technology in pioneering move to accelerate carbon credit market by injecting efficiency, reliability, security & transparency into issuance & registration of credits

What to lookout for at COP28

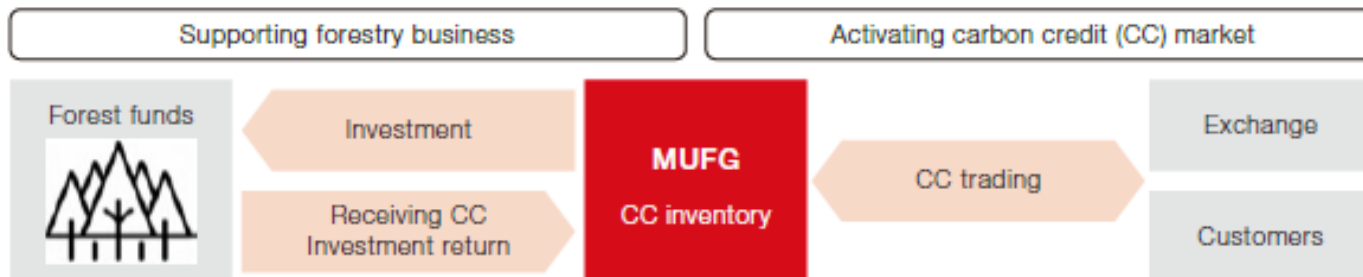
- Forging a consensus around a **global carbon price/tax**
- Follow-up on details of **operationalising Article 6.2 & 6.4**
- Further consideration of **“corresponding adjustment” mechanism** for cross-border trade of carbon credits

MUFG's Value Proposition

Supporting the carbon credit ecosystem | MUFG's initiatives

Forest Fund Investment Initiatives

- MUFG's investment in forest funds with objective of receiving carbon credits for GHG absorption by forests in addition to earning a financial return on said investments
- Jun 2023: signed investment agreement with Imprint Nature-Based Opportunities (NBO) & Manulife Forest Climate Fund (MFCF), 2 global forest investment funds, to contribute to creation & development of carbon credit market in Japan & invigoration of global CC market
 - Both funds to receive certification standards for voluntary emission reduction efforts such as Verified Carbon Standard (VCS) or American Carbon Registry (ACR)
 - To obtain international certification provided by Forest Stewardship Council (FSC)



Referral Service for Carbon Credits Provided by ENGIE SA

- MUFG has launched a fee-based business matching service to introduce Japanese customers to carbon credits offered by ENGIE SA
- Enables us to provide carbon credits in line with our customers' strategies toward carbon neutrality
- ENGIE SA has extensive experience in renewable energy projects & long history of carbon credit creation & trading to provide quality carbon credits

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