

SUPPLY AND DEMAND OF CARBON CREDITS

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A crediting mechanism incentivizes specific mitigation activities

- Creates **credits** for emission *reductions* (or *removals*)
- Need a source of demand for credits.
 - a tax or an ETS (e.g., reduce compliance costs by accessing abatement in uncovered sectors)
 - results-based finance (as basis for recognizing climate benefits)
 - corporations for voluntary purposes.
- Useful in sectors, activities, or regions **where there are barriers to direct ETS/tax coverage**

Challenges of crediting in achieving environmental integrity



Additionality

Reductions would not have occurred on their own.



Permanence

Safeguards can help protect against future reversals



“Double counting”

Reductions cannot be used by more than one person

Carbon credits underpin the **carbon market** and can be generated from a **range of mechanisms and activities**

SOURCES
OF SUPPLY

**International Crediting
Mechanisms**

e.g. CDM, Art 6.4

Domestic Crediting Mechanisms

e.g. California Compliance Offset Program

Independent Mechanisms

e.g. VCS, Gold Standard

Carbon credits can be sold to **various types of buyers** for **different uses**

MARKET
SEGMENTS

**International compliance
markets**

Credit purchases aimed at helping countries meet their NDCs and airlines comply with CORSIA

**Domestic compliance
markets**

Credit purchases aimed at complying with obligations under carbon taxes, ETS

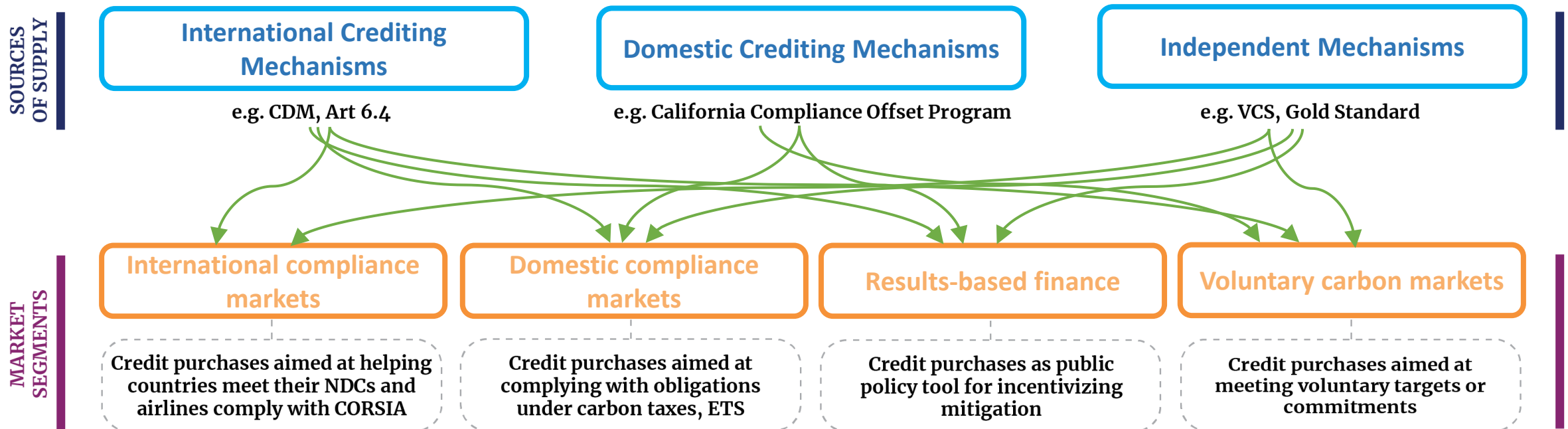
Results-based finance

Credit purchases as public policy tool for incentivizing mitigation

Voluntary carbon markets

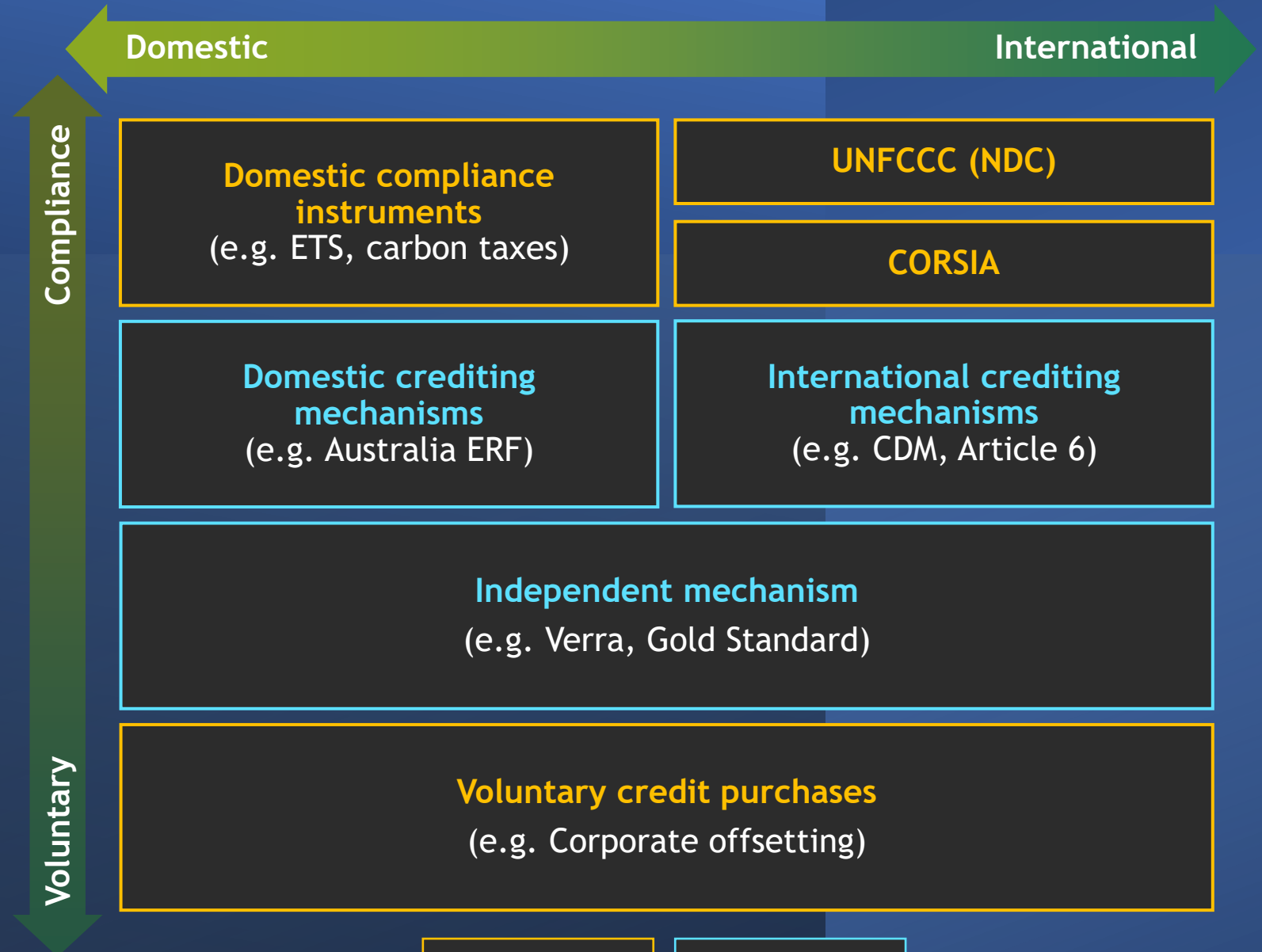
Credit purchases aimed at meeting voluntary targets or commitments

Carbon crediting markets continue to evolve as market players define and understand rules and implementation



Carbon credit markets

The spectrum of compliance-voluntary and domestic-international adds complexity to the markets for carbon credits



Note:

Credit demand

Credit supply

Carbon markets play an increasingly important role for countries to reduce emissions and attract capital



Countries increasingly planning to cooperate under Article 6.2



In 2023, Bangkok e-Bus Program, the **first Article 6.2 program in Asia**, authorized by Switzerland & Thailand



Korea is negotiating with several countries (Bangladesh, Indonesia, Myanmar, Thailand, etc.) to establish cooperation agreements



Voluntary credits increasingly used to achieve compliance targets



China allows compliance entities to use voluntary credits to offset 5% of annual emission obligations



Singapore has signed various MoUs with crediting mechanisms to supply credits for its carbon tax



Colombian companies can offset 50% of carbon tax obligations with voluntary carbon credits

.. but this has created confusion about opportunities and risks of the carbon markets

Domestic vs International

Challenge: International sales of carbon credits may undermine NDC achievement

VCM and Article 6 market can impact governments ability to retain carbon credits for their own use. Tensions exist between international sales and nascent domestic markets



India has notified a positive list of eligible technologies for international carbon markets.



Indonesia limits sale & exports of credits to international markets while in the process of establishing its national carbon exchange

Voluntary vs Compliance

Challenge: Voluntary and compliance market interplay may create confusion with NDC and corporate net zero commitments

VCM market highly dynamic, with most countries unclear of implications. Discussion ongoing to ensure integrity and impact.



Until recently, MONRE had the view that all VCM transactions require a Corresponding Adjustment



Thailand has expressed strong interest in accessing VCM as source of revenue for energy transition

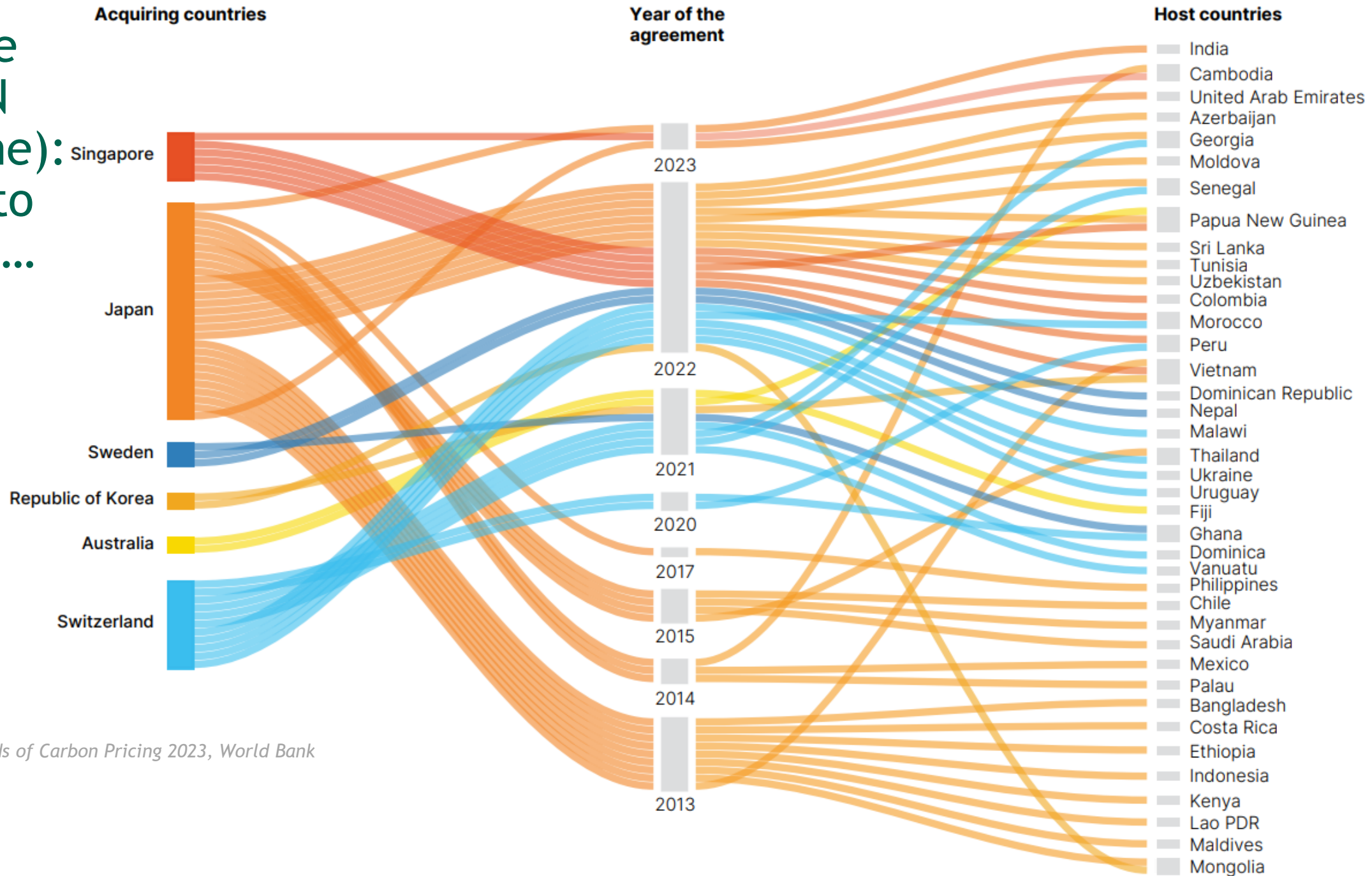
VCM



Global initiatives are playing active roles in the treatment of credits for corporate accounting

Securities regulators are increasingly active in defining the use of VCM credits

Compliance Market (UN Paris regime): beginning to take shape...



Source: State and Trends of Carbon Pricing 2023, World Bank

Demand in VCM driven by companies' commitments

Companies purchasing carbon credits today to support their commitments

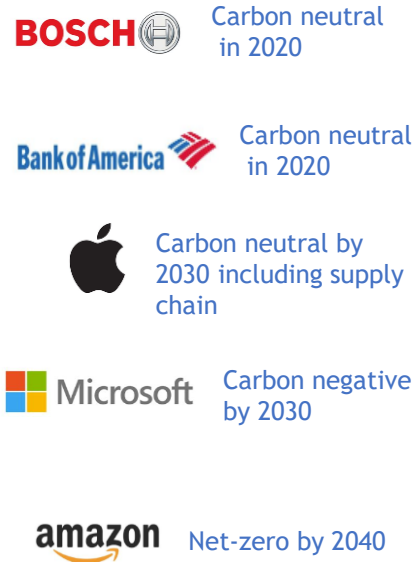
Latest net-zero commitments from companies

DEFINITIONS

Carbon Neutral: carbon reductions delivered to some level and remaining carbon emissions are being offset somewhere else making the overall net emissions zero.

Carbon Net Zero: carbon reductions delivered to a 1.5°C pathway level (50% reduction by 2030 and 70% reduction by 2050) and remaining carbon emissions are being offset somewhere else making the overall net emissions zero.

Carbon negative: requires a company to go beyond achieving “Carbon Net Zero” and to remove more carbon from the atmosphere than it emits.



Corporate net zero commitments: driver for voluntary carbon market

➤ There has been no letup in the number of firms committing to set science-aligned net-zero targets.

2,431 companies have committed to set SBTi target in next 2y (+299, or +14% in 2Q23)

436 companies with an emission reduction target aligned to well-below 2°C (+26, or +6% in 2Q23)

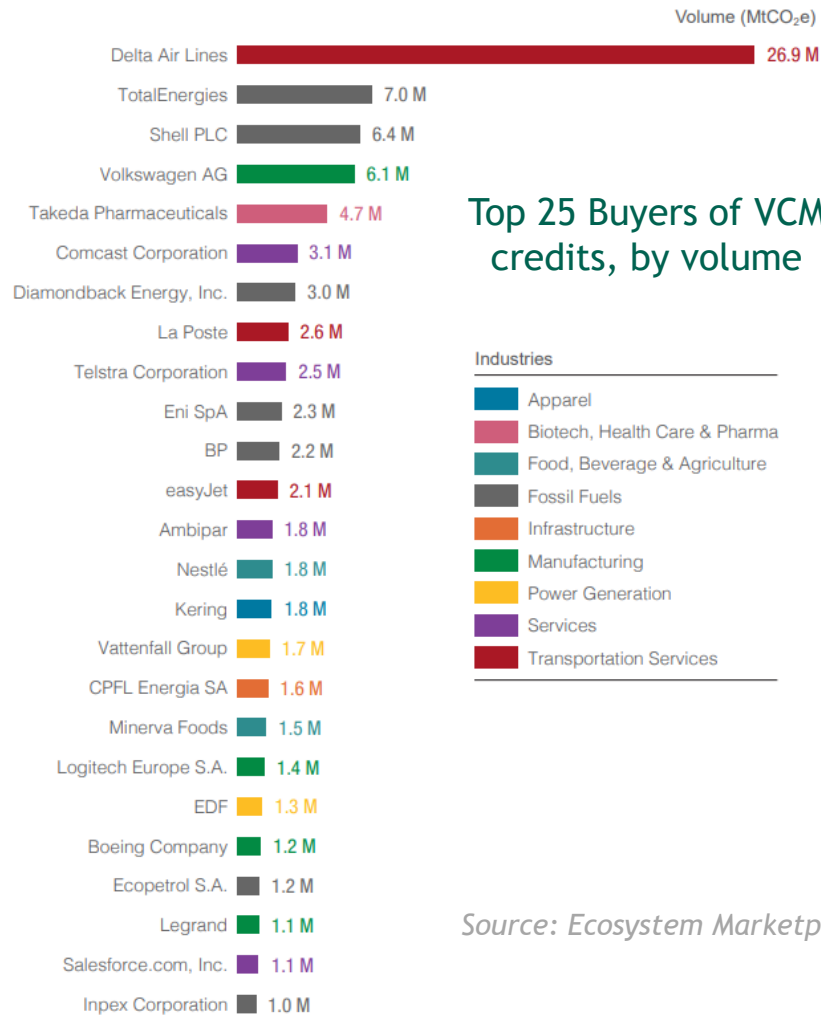
2,486 companies have set a near-term reduction target aligned to 1.5°C (+532, or +27% in 2Q23)

Number of companies with SBTi commitments



Source: Trove Research, 2023

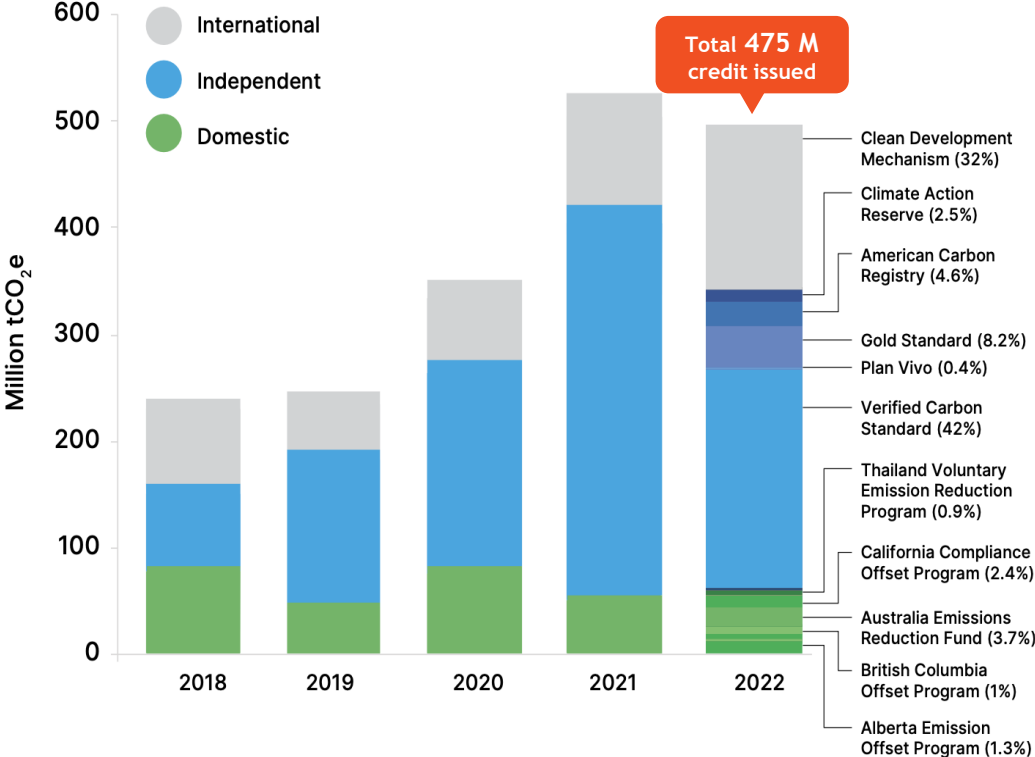
➤ The top 25 buyers of credits in the VCM have purchased roughly 88 MtCO₂e, with companies in the **Services sector making up the largest industry segment** of these buyers.



Source: Ecosystem Marketplace, 2023

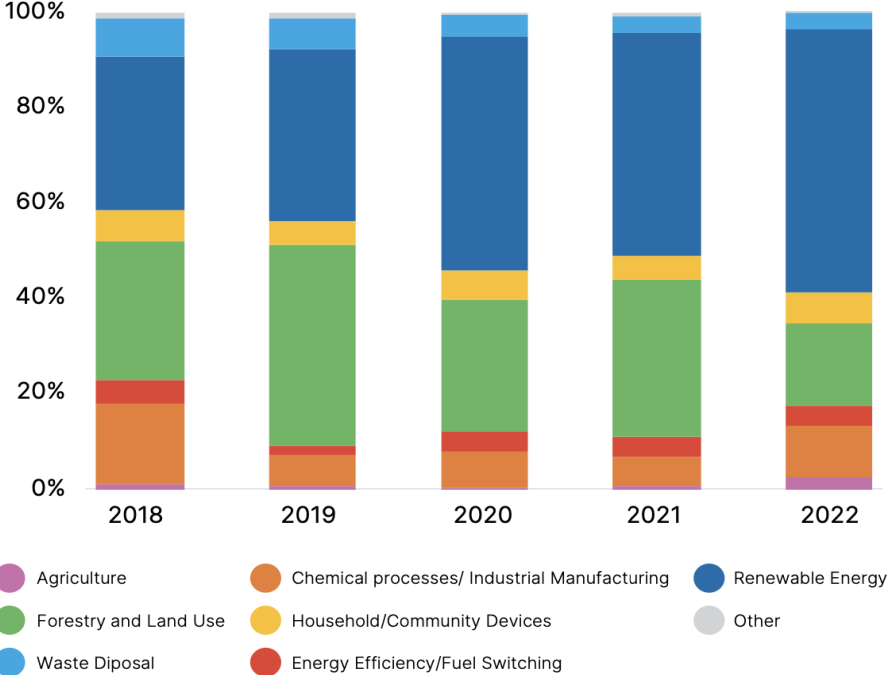
Carbon crediting supply dropped in 2022, following a significant increase in 2021

➤ Carbon credit issuance increased until 2021 but fell in 2022.



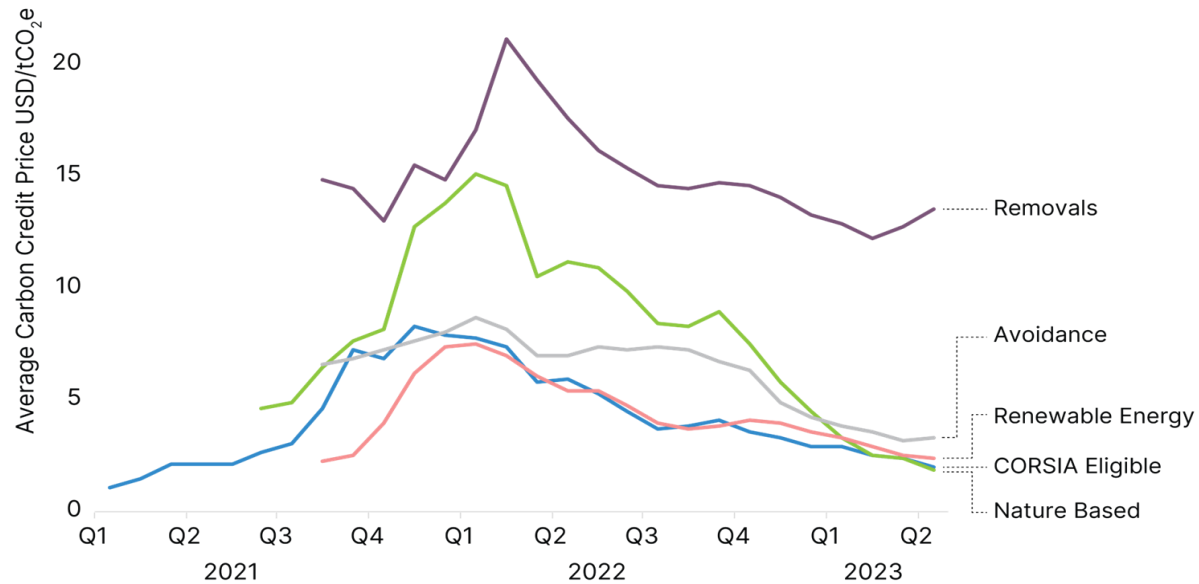
Global volume of issuance by crediting mechanism types

➤ The share of credit issued from renewable energy activities has increased, reaching 55% in 2022. The supply of nature base solution credits is expected to increase as 54% of new project registrations were for forestry & land use.



Percentage of credit issuance by project category & year

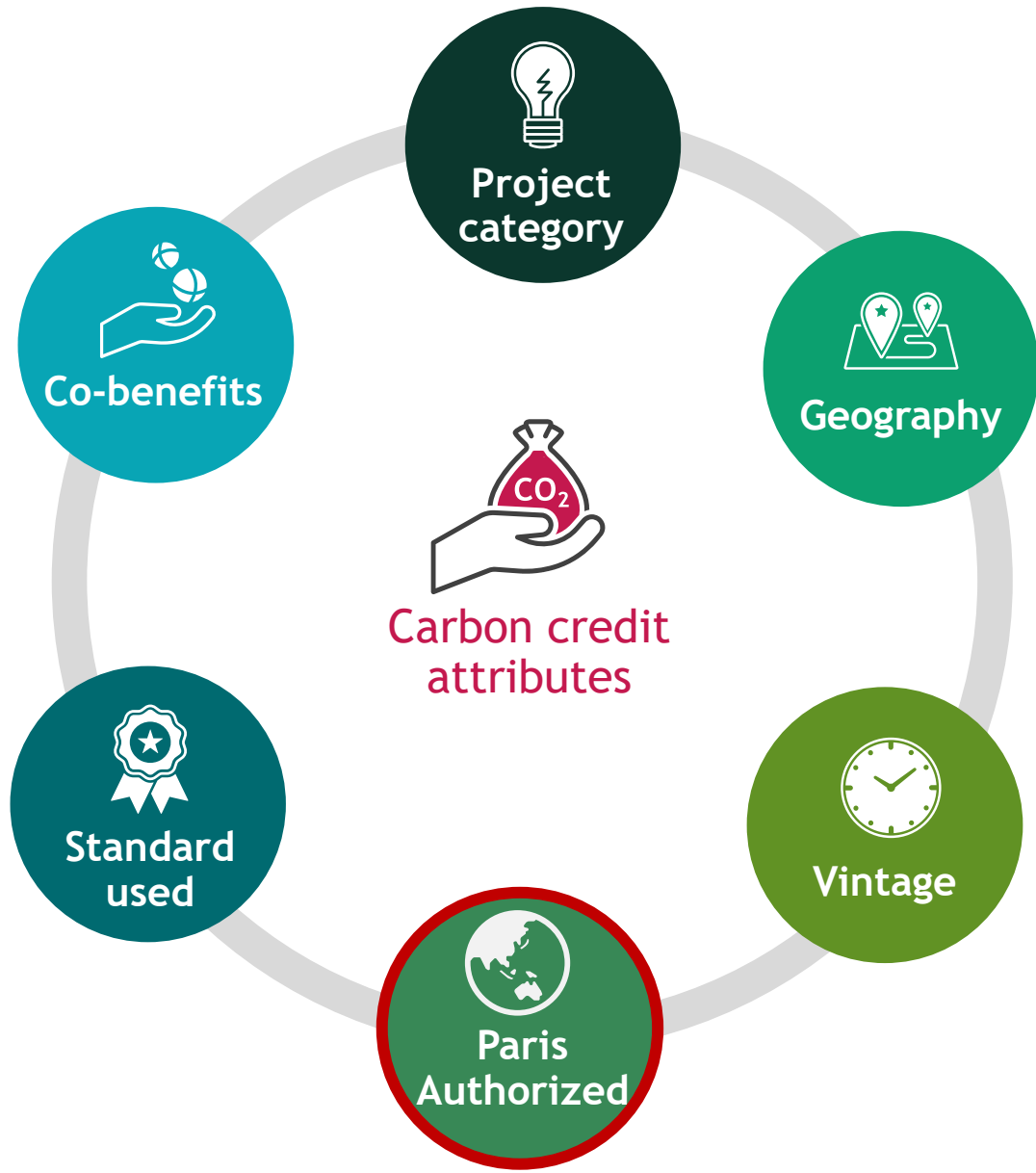
Significant price differentiation persisted in 2022 between different carbon asset classes



Voluntary Carbon Market Prices by Asset Category, 2022

- Credit prices from **nature-based projects** started the year with a high \$16/ton in 2022 but fell to \$4/ton by the end of the year and have declined even further in the first half of 2023.
- **Newer vintages, removals credits and credits carrying sustainable co-benefits** all fetched a higher price in the market
- Majority of the trade continued to happen over-the-counter (OTC) rather than through exchanges and there was a **bifurcation in prices** with OTC transactions fetching higher prices in the market than standardized contracts traded on exchanges
- Prices for standardized contracts traded on exchanges declined while **OTC transactions saw an increase in prices** (by more than 70% to \$6.83 on average**).

Carbon credit prices are determined by market, based on various drivers and credit attributes



Multilayered purchaser decisions shape diverse markets and prices

- 1 Voluntary or compliance?**
Voluntary market purchasers tend to have more diverse preferences than compliance purchasers
- 2 Co-benefit or least cost?**
Consumer-facing companies are more likely to seek credits from “marketable” projects with multiple co-benefits
- 3 Contribution or compensation?**
Purchasers seeking to offset their emissions may be more likely to seek credits with corresponding adjustments
- 4 Removal or reduction/avoidance?**
Purchasers seeking to comply with net-zero prefer carbon removal over emission reduction/avoidance

What are the challenges?

Challenges to the private sector



Responsible corporate investments: risk of greenwashing; need to avoid and reduce own emissions first



Clarity and standards: acceptable use of carbon credits for voluntary net-zero/decarbonization targets



Integrity: Supply side integrity of carbon markets is key to attracting corporate investments. The Integrity Council for the Voluntary Carbon Market (ICVCM) seeks to build it.

Broader challenges



Transparency and Integrity: Methodologies for generating carbon credits and market infrastructure



Policy and Institutions: Country arrangements and common understanding between buyers and suppliers



Monetization of Credits: Building capacity for monetizing Mitigation Outcomes and providing RBCF as countries get ready to access markets



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EXTRAS