KPMG

What is going on in Carbon Markets?

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Presenter

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As Carbon Pricing and Markets Lead, Leo is providing strategy and advising on the state and trends of carbon markets, the neutralisation of residual emissions in corporate net zero targets, and engagement opportunities in beyond value chain mitigation.

With nearly 15 years of work experience in the sustainability space, Leo brings deep expertise on a wide range of challenges including carbon projects development and access to markets (compliance or voluntary), designing of crediting mechanisms and Article 6 transactions under the Paris Agreement, or advising large international corporates on their net zero strategies, and developing solutions to secure long-term supply of high-quality credits while avoiding reputational risks associated with carbon markets.

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Introduction to carbon pricing instruments

Why carbon pricing is necessary?

CO_2 emissions are a **negative externality** for society given their environmental impact. As such they should be **considered and integrated in any investment decision**.

Carbon pricing is a pathway to **help achieving the decarbonization goals** defined in the Paris Agreement (keeping the temperature increase below 2°C compared to pre-industrial times and making every effort to limit the increase to 1.5°C) and countries' net-zero goals.

Carbon pricing **stimulates investment and innovation** in clean technologies

Carbon pricing creates an **economic incentive** for companies to reduce their emissions and/or increase carbon removal initiatives as part of their activities.

Carbon pricing **contributes to the achievement of the Sustainable Development Goals** (SDGs) through the channeling of financing for sustainable development projects.

Carbon pricing instruments are an **important source of revenue for states** (in 2021 around USD 84 billion in revenue, showing an increase of 58% over the previous year).

Which carbon pricing instruments are available?

Carbon Taxes

- Governments set rules in terms of coverage and a fixed price per tCO_2e (e.g. USD 137/tCO_2e in Sweden)
- The market determines the level of emission reductions achieved, so a concrete emission reduction target cannot be guaranteed
- It becomes a financial incentive for companies to reduce their emissions

Emissions Trading Systems

- Also known as Cap & Trade
- Governments decide the sectors covered and total volumes of GHG emissions that can be emitted
- Markets players operating under covered sectors are incentivised to reduce their emissions over time
- Of the total volume defined, a % is allocated free of charge and another % is auctioned
- Companies emitting more than their free allocation must buy emission allowances, those that emit less can sell the excess allowances

Internal Carbon Pricing

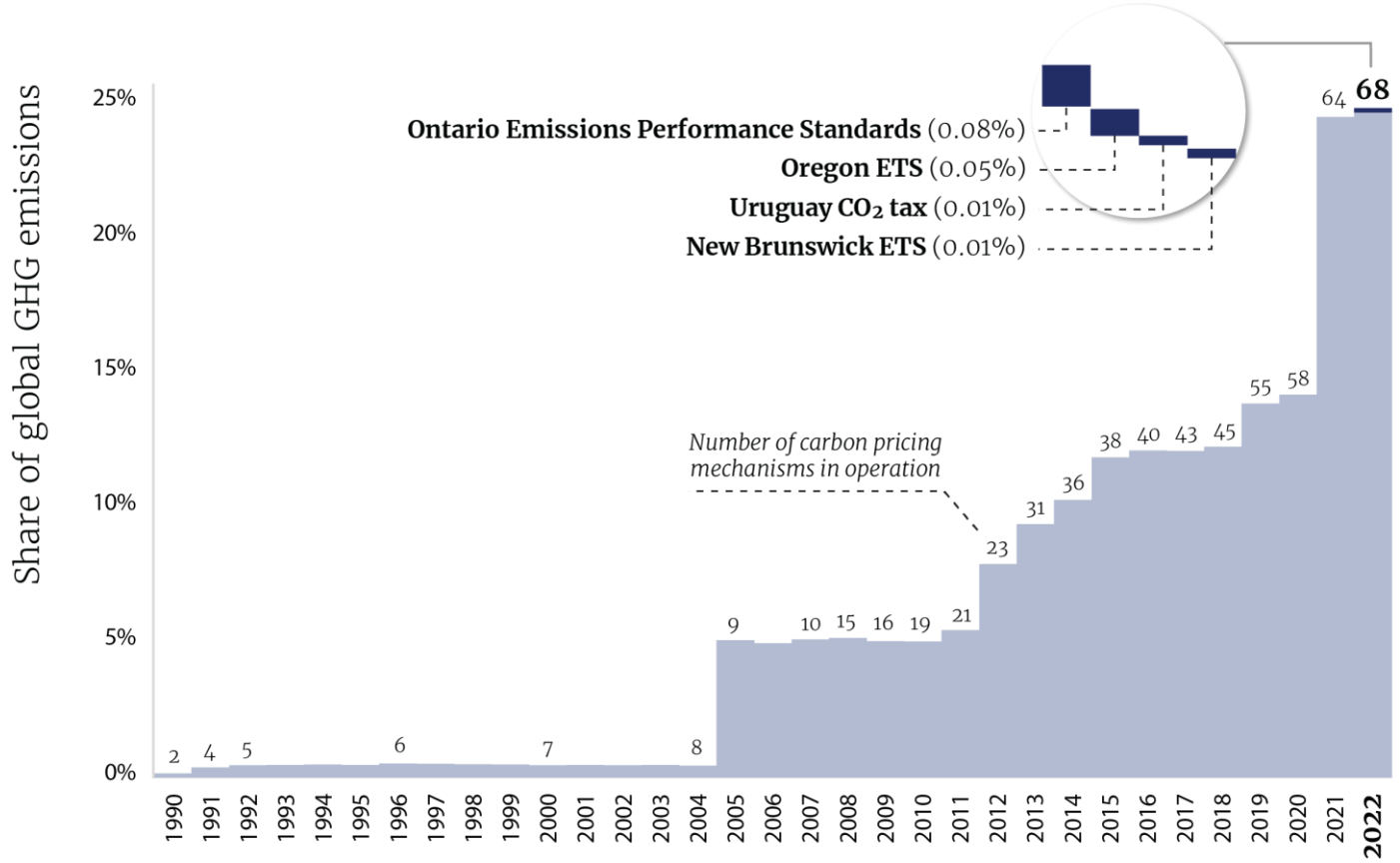
- ICP is a mechanism that enables companies to put a price on their GHG emissions in order to drive positive change
- The reasons for adopting an ICP are many, ranging from reducing carbon emissions, understanding carbon risks, driving business shifts, raising awareness internally and externally, future-proofing, complying with upcoming disclosure requirements, etc.
- ICPs roughly comes in two flavours: (1) shadow cost pricing, which is theoretical, and (2) internal tax/fee or trading system, which is real

Crediting Mechanisms

- Crediting mechanisms are instruments designed to reduce GHG emissions
- They are typically governed by peer-reviewed methodologies that establish the difference between a baseline and a project scenario resulting in emission reductions, and the issuance of an equivalent amount of credits (each representing one tCO_2e)
- Crediting mechanisms can be national (UK Woodland Carbon Code) or international (A6 of the Paris Agreement or the VCM)

Regional, national, sub-national ⟷ *Companies (mostly)* ⟷ *National, international*

Are the current carbon pricing instruments sufficient?



"Only 23% of global emissions are currently covered by a carbon pricing instrument."

"The percentage of emissions covered by carbon pricing instruments has almost tripled in the last decade."

Source

World Bank
State and Trends of Carbon Pricing 2022

Are the prices currently applied high enough?

*Current prices have reached record highs in the last year (e.g. EUA, VER etc.), but even so, they are **still way below what is required to meet the Paris Agreement targets**.*

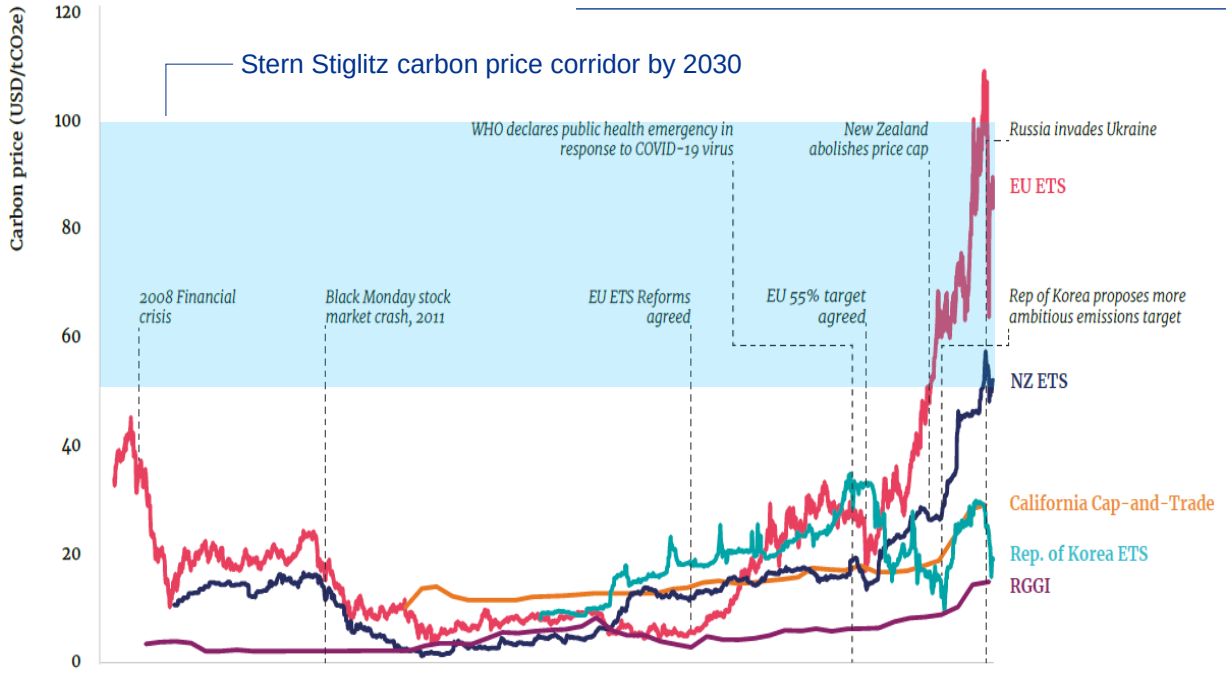
2021	Min (USD/tCO_{2e})	Max (USD/tCO_{2e})
Carbon Tax	**USD 0.08** (Poland)	**USD 137.24** (Sweden)
ETS	**USD 1.18** (Kazakhstan ETS)	**USD 100.47** (EU ETS)

4%

Share of global emissions currently covered by a carbon price within an appropriate range by 2030.

USD 75/tCO_2e

The global average carbon price by the end of the decade recommended by the IMF.



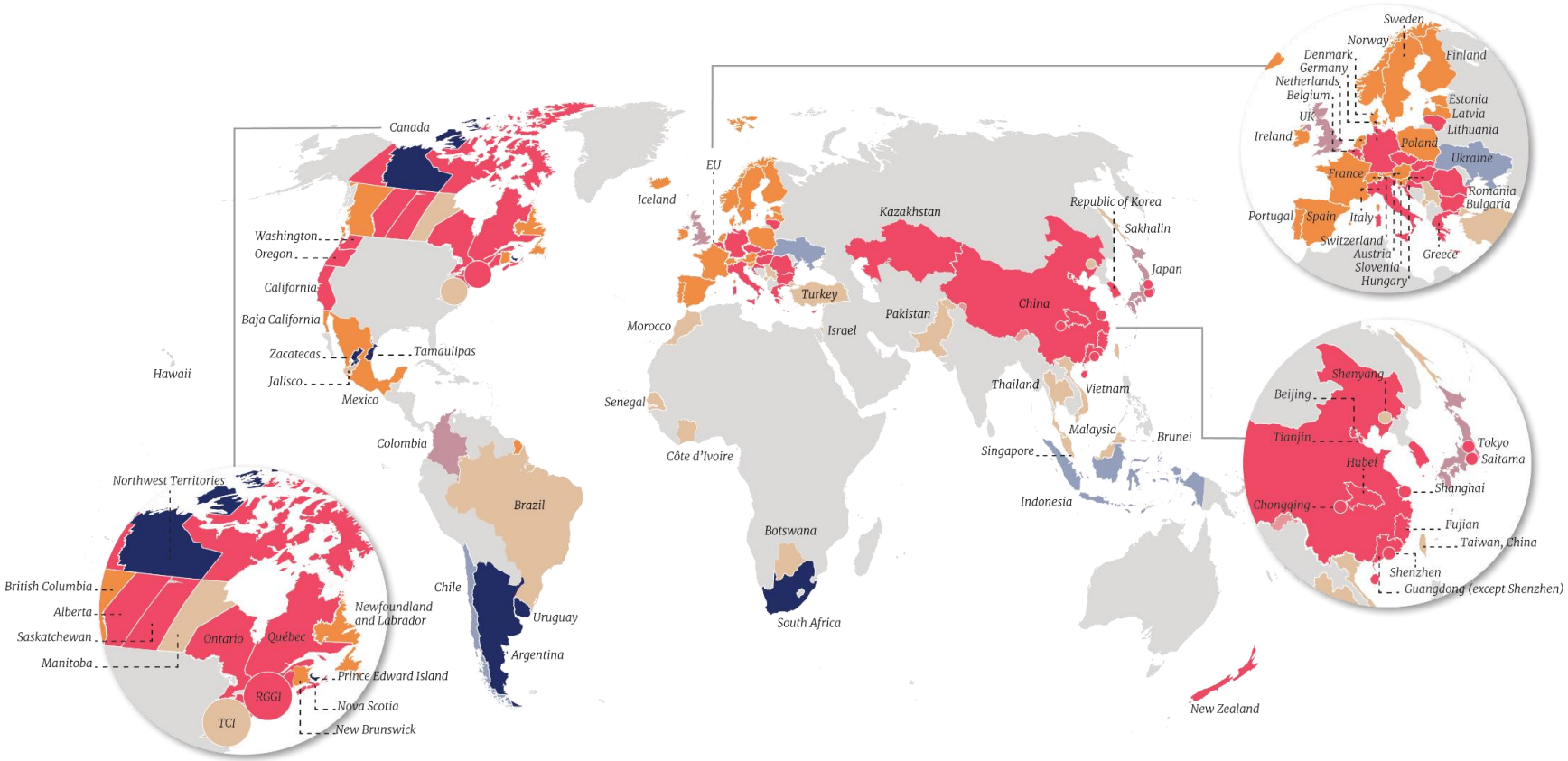
Source

World Bank
State and Trends of Carbon Pricing 2022

02

ETS and Carbon Tax schemes

Current carbon pricing instruments



- ETS implemented or programmed for implementation
- Carbon tax implemented or scheduled for implementation
- ETS and carbon tax implemented or programmed
- ETS implemented or programmed, carbon tax under consideration
- Carbon tax implemented or programmed, ETS under consideration
- ETS or carbon tax under consideration

48%

Emissions Trading Systems

52%

Carbon Taxes

Operating | Scheduled for implementation

68+3

Carbon Pricing Instruments

Source

World Bank
State and Trends of Carbon Pricing 2022

EU ETS

KEY FACTS

15 billion

Volume of emission allowances traded on ICE, the largest secondary market platform (EU ETS = largest market by traded value)

EUR 98/tCO_2e

Historical maximum price (August 2022)

USD 34 billion

Total revenues generated in 2021

SECTORS COVERED

Electricity generation and heating

Energy-intensive sectors (oil refineries, the production of iron, aluminum, metals, cement, lime, glass, ceramics, paper and pulp, paperboard, acids and raw organic chemicals)

Commercial aviation within the European Economic Area

FUTURE COVERAGE

Maritime sector

New ETS for building and road transport fuels

EU Green Deal

The EU has pledged to **reduce emissions by 55% by 2030** compared to 1990 values and to **reach net zero emissions by 2050**, a new package of measures is proposed under the **European Green Deal** which includes the following changes:

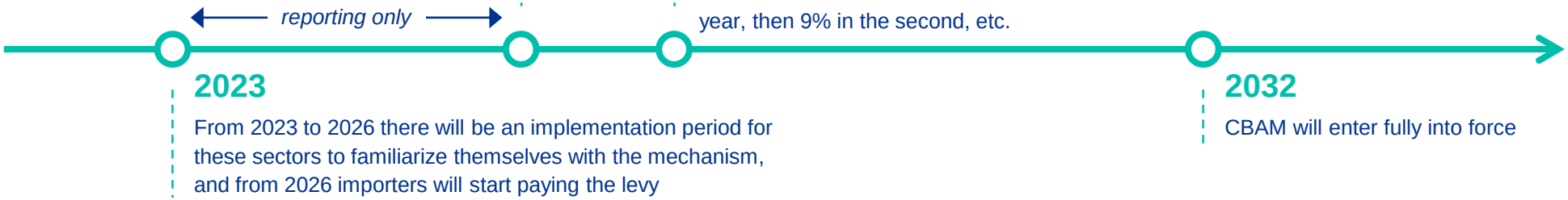
- An **increase in the linear reduction factor** from 2.2% to 4.2%, and a one-off reduction in the cap to be applied retroactively when the legislative review process is concluded.
- **Inclusion of the maritime sector** in the scope of the market from 2023, and a **separate fuel ETS for buildings and road transport**.
- The **introduction of uniform product benchmarks** to support innovative technologies, stricter benchmark values, and a provision that would make free allocation conditional on low-carbon investments by the recipient entity.
- **Phasing out the free allocation to the aviation sector**.
- The **introduction of a Carbon Boarder Adjustment Mechanisms** (CBAM) that prices imported goods based on their emissions starting in 2026.
- **Updated Market Stability Reserve** (MSR) parameters, including a new buffer threshold and an extension of the current 24% admission rate beyond 2023.
- New **regulations on the use of revenues** to address distributional effects and stimulate innovation, including the creation of the Social Climate Fund.

Carbon Border Adjustment Mechanism (CBAM)

CBAM is designed to avoid carbon leakage, which can occur when European companies, subject to increasingly stringent climate regulation, relocate their production to countries outside the European Union with laxer emissions legislation.

Going forward, importers of products in the sectors covered by CBAM will have to **purchase certificates for the carbon emissions associated with the imported products**.

CBAM will be implemented gradually, **starting January 1st 2023**



SECTORS COVERED

- Iron
- Steel
- Aluminium
- Cement
- Power generation
- Fertilisers

ADDITIONAL COVERAGE CONSIDERED

- Hydrogen
- Organic chemicals
- Plastics

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Internal Carbon Pricing

Internal Carbon Price (ICP)

80%

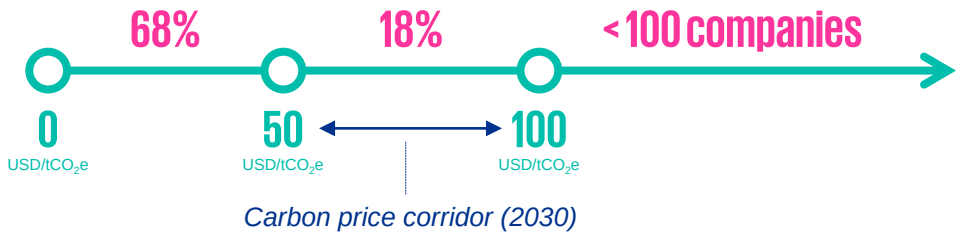
Increase in companies using or planning an ICP (2015 - 2020)

USD 0.8 – 6,000/tCO_2e

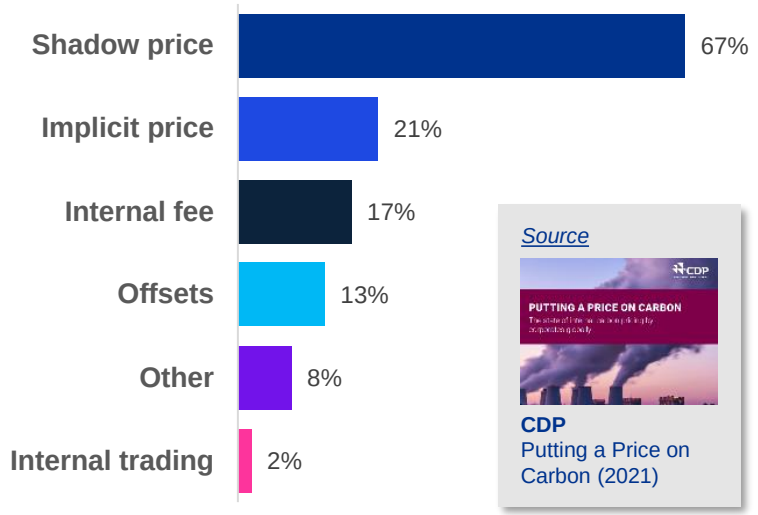
Price range observed out of the companies that reported using ICP measures to the CDP in 2021

Share of companies applying an ICP

(disclosed)



Type of ICP applied



Source

CDP
Putting a Price on Carbon (2021)

Median ICP observed per sector

USD/tCO_2e (median price)	82	43	35	28	28	28	28	23	23	20	20	17	16
Sector	Apparel	Biotech, Heath care & pharma	Infrastructure	Food, beverage & Agriculture	Fossil fuels	Manufacturing	Materials	Power generation	Retail	Other services	Transportation services	Financial services	Hospitality

04

Carbon crediting mechanisms

The carbon crediting landscape

Crediting Mechanisms	International	Regional, national and subnational	Independent
Examples	CDM, Article 6.4	California Compliance Offset Program	VCS, Gold Standard

Market Segments	International compliance markets	Domestic compliance markets	Results-based finance	Voluntary carbon market
Objective	Helping countries meet their NDCs and airlines comply with CORSIA.	Complying with obligations under carbon taxes or ETS schemes.	Public policy tool for incentivising mitigation action.	Contributing to meeting voluntary targets or commitments.

05

The voluntary carbon market

The voluntary carbon market in numbers (2021)

US$ 2bn

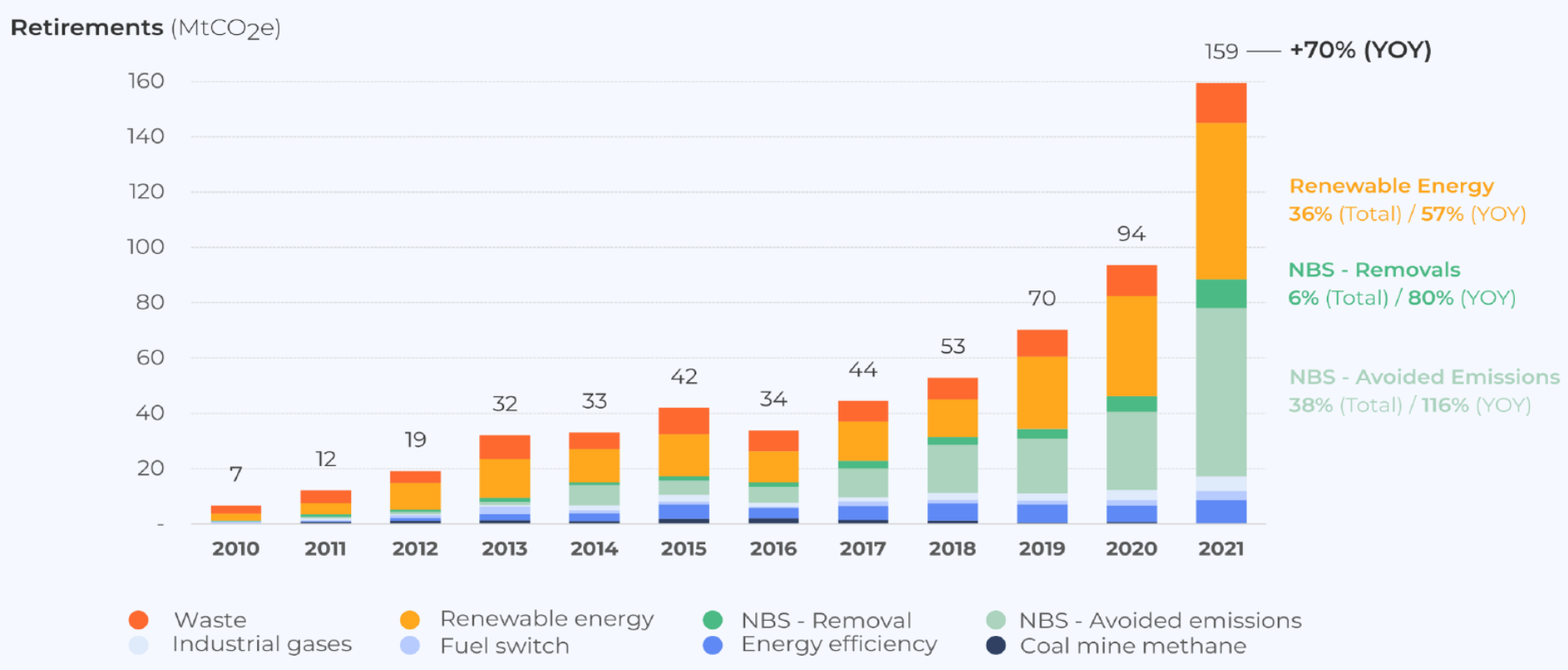
Annual value of VCM transactions reached nearly $2 billion in 2021

+280%

Year-on-year market value growth (2021 vs. 2020)

+60%

Average carbon credit price increased from $2.52 in 2020 to $4.00 in 2021



In a world pivoting to net zero, laggards will be losers

Setting the scene

1,300+

Companies worldwide already with a Science-Based Targets initiative net zero commitment.

3x

Year on year net zero target validation rate under the Science-Based Targets initiative in 2021

91%

Of global GDP is covered by net zero targets, part of which will require a substantial supply of removal credits for neutralisation of residual emissions

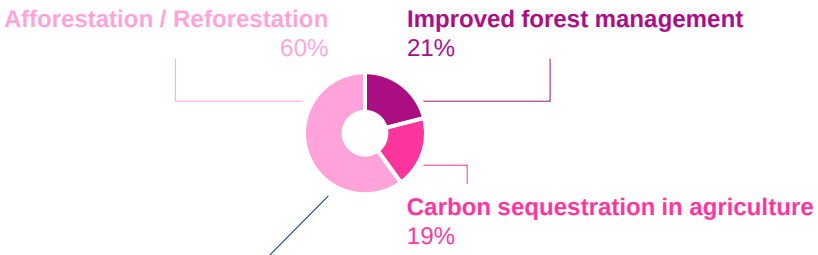
The competition is already fierce in accessing high-quality, affordable supply of credits (especially removal) and it will only get worse.

Supply bottlenecks

- Only a handful of approved methodologies available for issuance of removal credits (only NBS options)
- Limited number of registered projects for the generation of NBS removal credits (greenfield opportunities are in great demand!)
- Lead time from project inception till issuance is often overlooked (typically 10-15 years)
- Tech-based options are currently still in early-stage of development and expensive (no approved methodology from the main standards)

VCM trends in 2022

- Issuance growth trend pauses in 2022 (issuance levels -20% across all types, -33% for NBS)
- Avoidance NBS & renewable energy activities still dominate (78% in first half of 2022)
- Carbon removal credits in **limited supply** (only 13 $MtCO_2e$ issued in 2022 so far)



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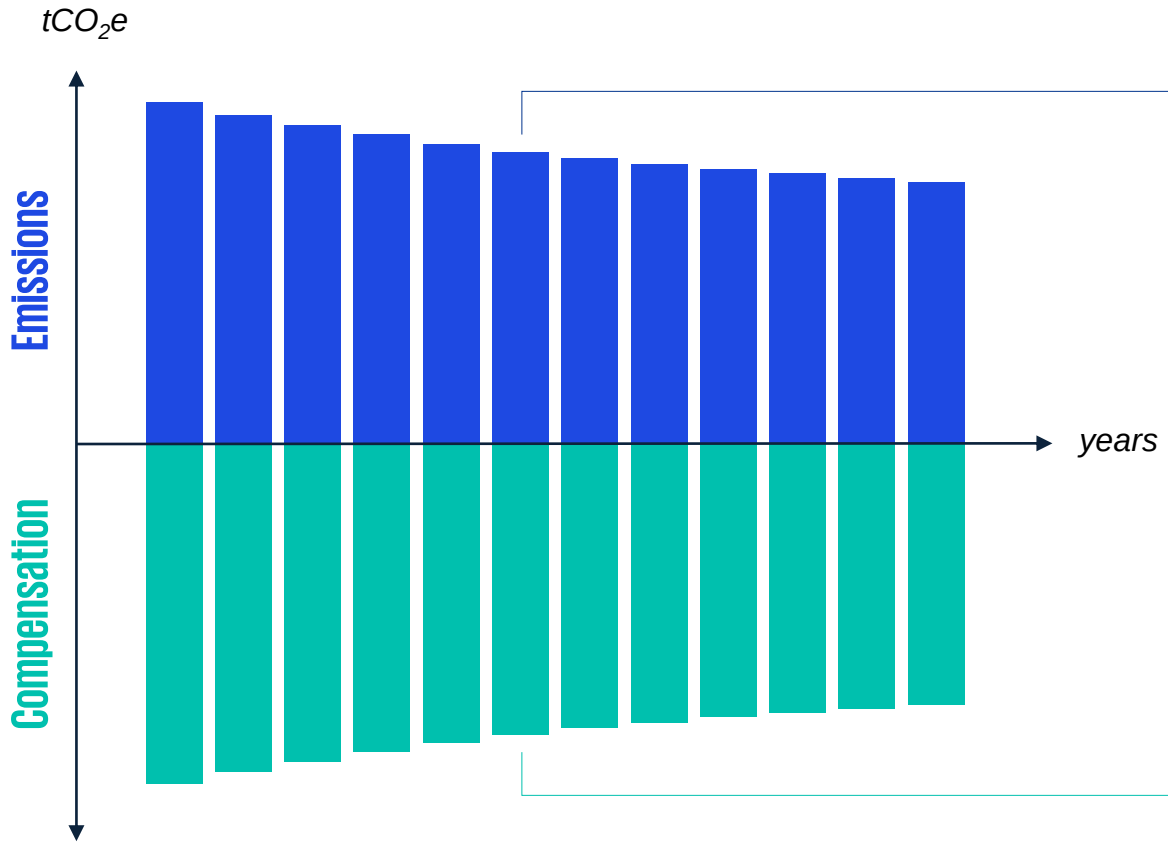
A few concepts to keep in mind

One of the greatest misconceptions today

Carbon neutrality ≠ net zero

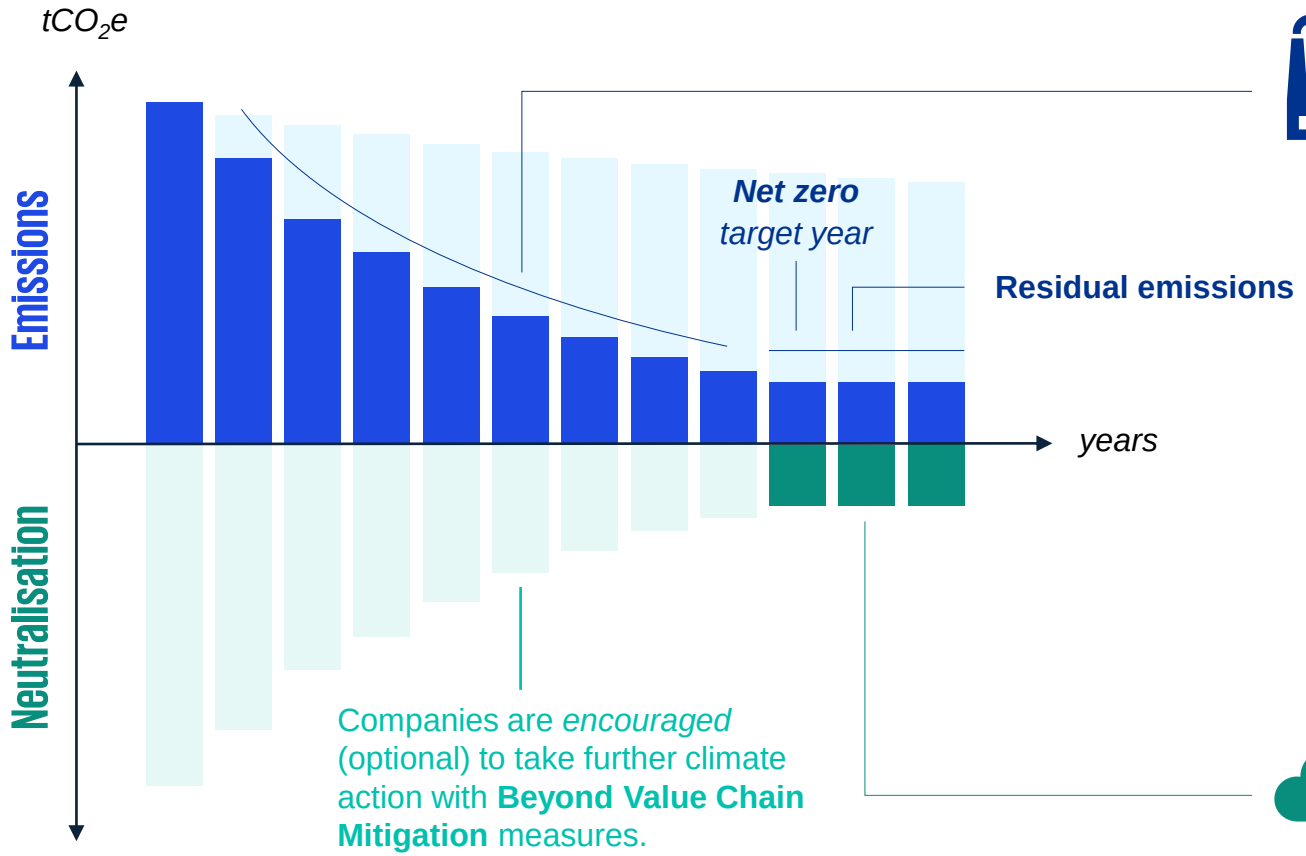
What is commonly understood by “carbon neutrality”?



Companies are generating emissions. These will tend to decrease over time due to improvement in efficiency and development of innovative technologies and fuels. But there are **no stringent decarbonisation requirements**.

Companies are **purchasing offsets to compensate for their emissions**, each year. There is **no requirement related to the nature of the credits to be retired**, therefore the vast majority are from avoidance / reductions projects.

And what does achieving net zero mean?

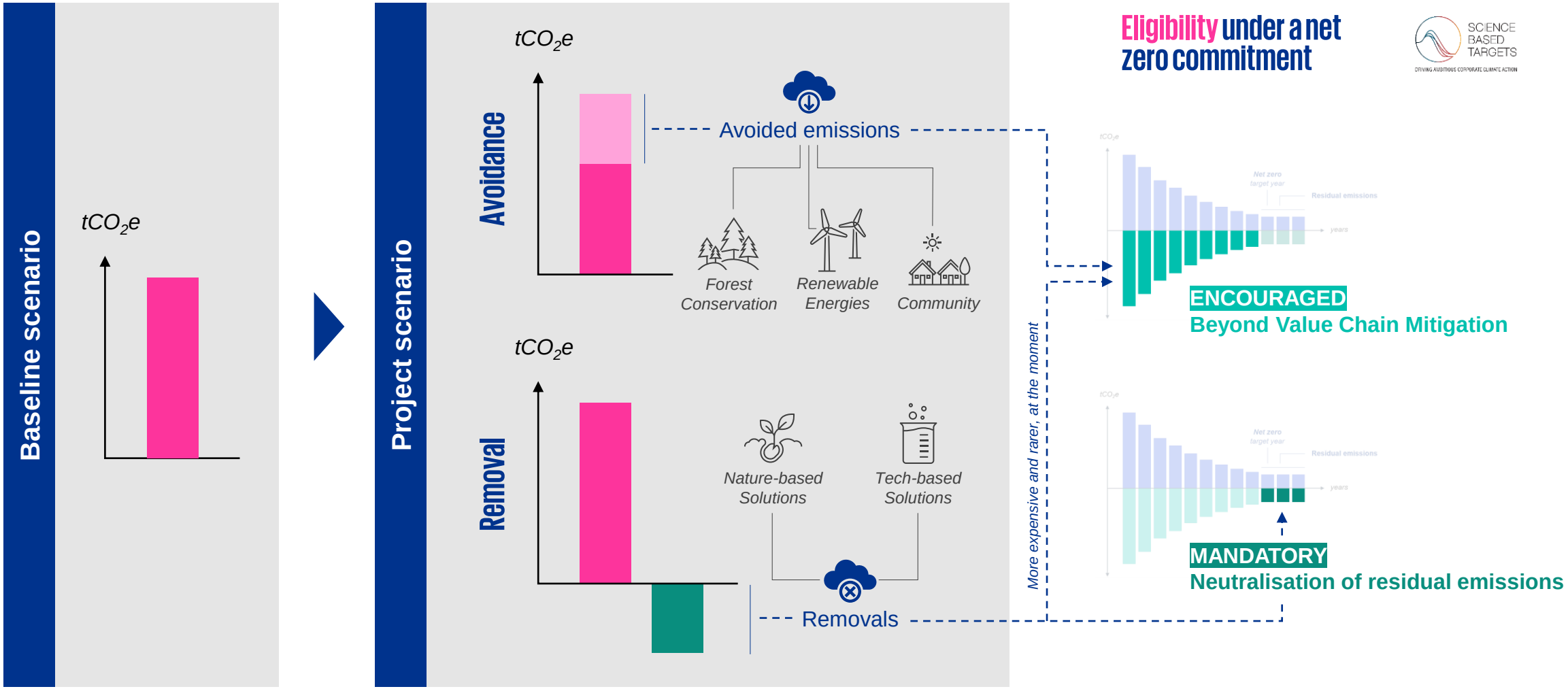


Companies are engaging in measures to drastically reduce their emissions. **Their decarbonisation pathway is science-based, and aligned with a 1.5C scenario**.

Companies are *encouraged* (optional) to take further climate action with **Beyond Value Chain Mitigation** measures.

From their target year onward, **companies are retiring carbon removal credits** to counterbalance their residual emissions with an equivalent amount of carbon sequestered, therefore **reaching a state of net zero**.

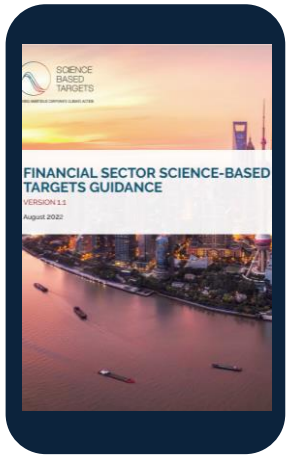
The difference between avoidance and removal credits



A rapidly evolving regulatory landscape

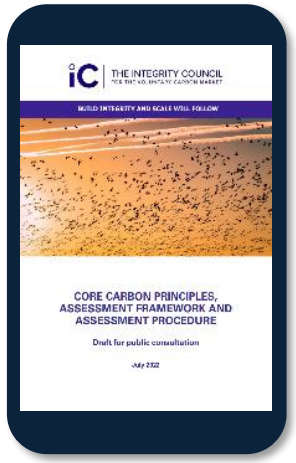
SBTI

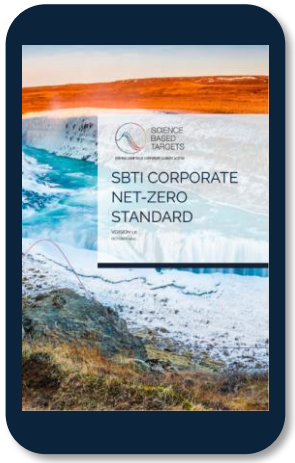
Target setting guidance
specific to the financial sector



IC-VCM

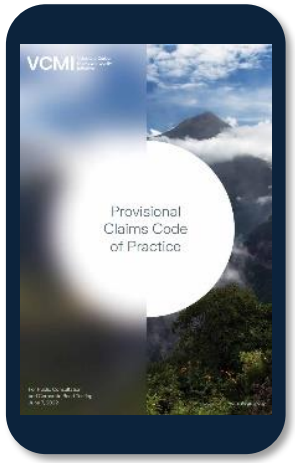
Draft guidance on market integrity - **Supply side**
(Carbon credits quality and environmental integrity)





SBTI

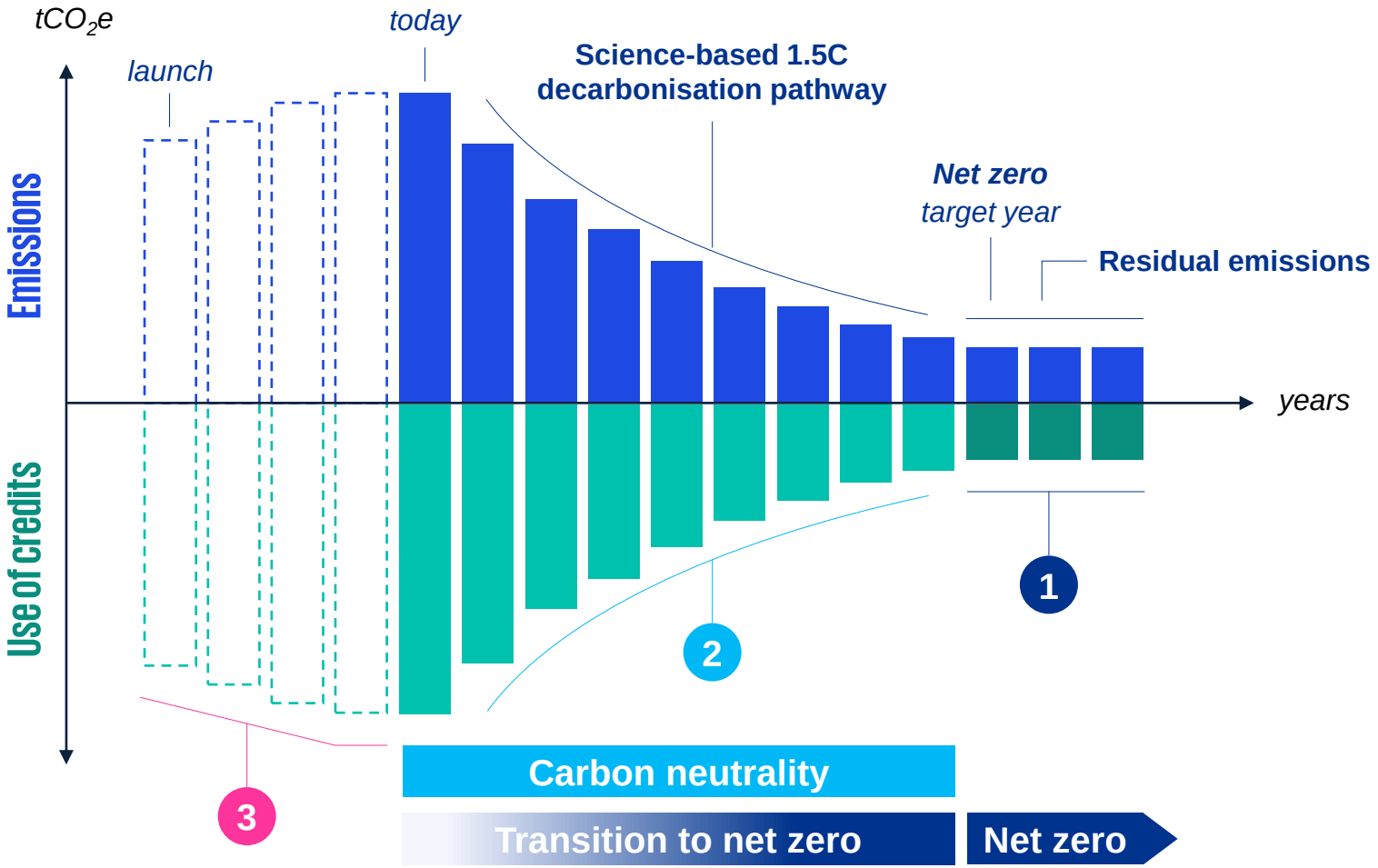
Corporate net-zero standard
(General guidance on net-zero setting)



VCMI

Draft guidance on market integrity - **Demand side**
(Corporate claims and guidance on use of offsets)

Which engagement options with the voluntary carbon market?



In summary

Mandatory

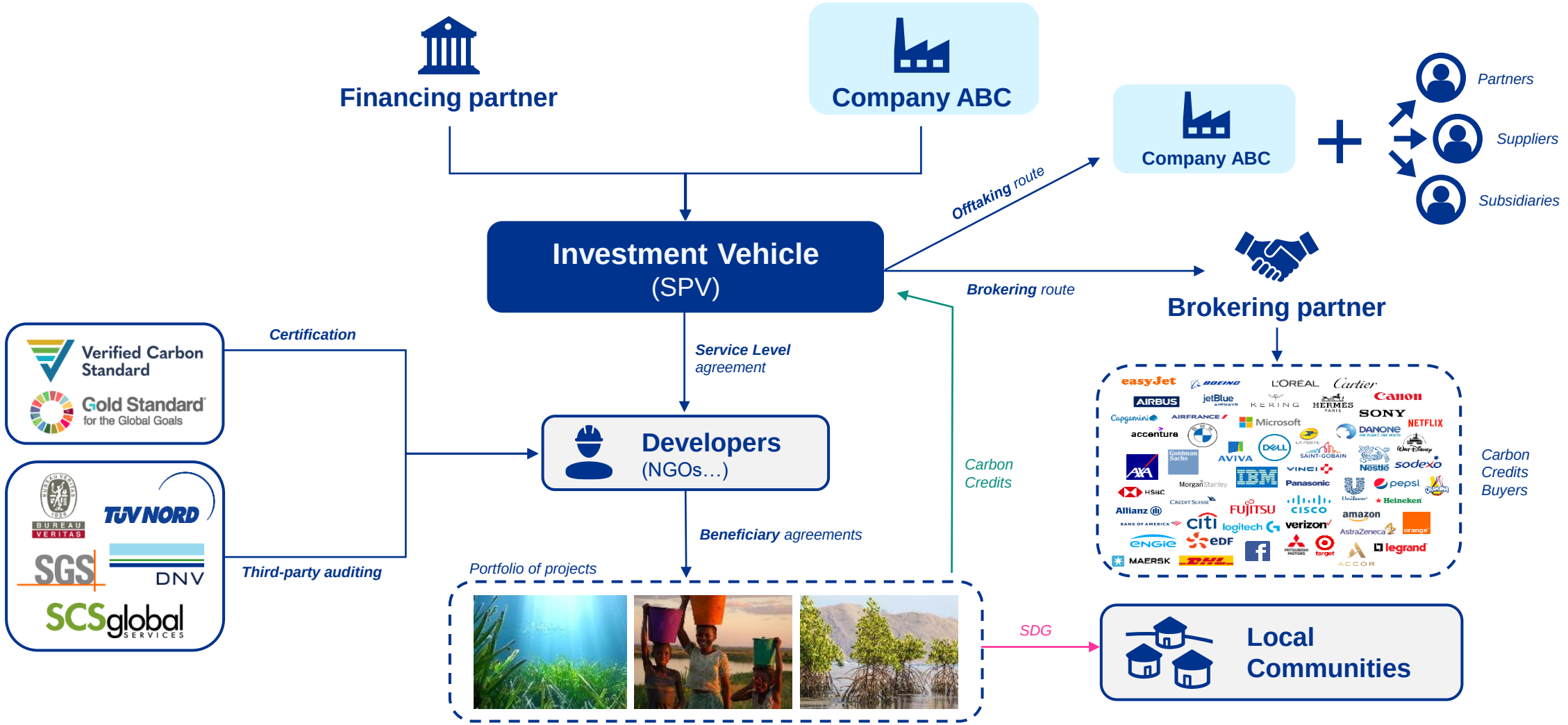
1 Neutralisation of residual emissions
- removal credits only

Encouraged

2 Beyond value chain mitigation
(compensation for unabated emissions during net zero transition)
- avoidance / removal credits

3 Compensation for historical emissions
- avoidance / removal credits

Turning a necessity into an opportunity



Thank you | Q&A Session