

Certification for Mandatory and Voluntary Markets

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Market

[ˈmɑːr-kæt]

A place where parties can gather to facilitate the exchange of goods and services.

Mandatory

Form **1040** Department of the Treasury—Internal Revenue Service
U.S. Individual Income Tax Return | **2022** | OMB
Filing Status Single Married filing jointly Married filing separately (MFS)
Check only one box.
If you checked the MFS box, enter the name of your spouse. If you checked the person is a child but not your dependent:
Your first name and middle initial
Last name
Last name
Address (number and street). If you have a P.O. box, see instructions.
Post office. If you have a foreign

- Driven by governments
- Participation required by law
- Consistent methodology

Voluntary



- Driven by companies
- Optional participation
- Variable methodology

Compliance Carbon Markets

Mandatory systems regulated by government organizations to cap emissions for specific industries.



Voluntary Carbon Markets

Where carbon credits can be purchased by those that voluntarily want to compensate for their emissions.



Market size
2021

Compliance
\$899B

Source: Visual Capitalist

Voluntary
\$2B

Sources: Refinitiv,
Ecosystem Marketplace

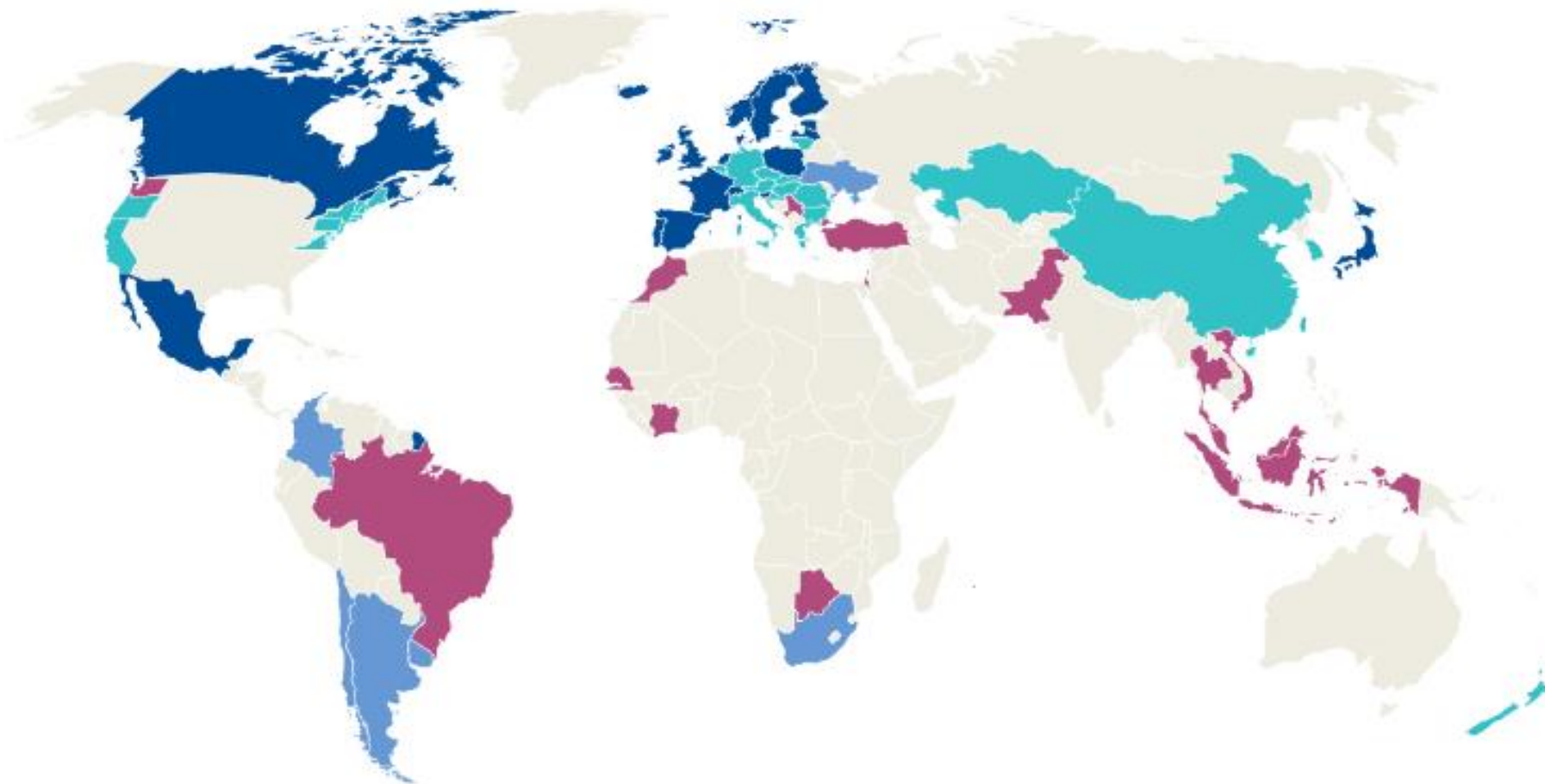
As demand to cut emissions intensifies, voluntary carbon market volume has grown **five-fold in three years.**

Under consideration
or planned

Carbon tax

Emissions trading
scheme (ETS)

Carbon tax
and ETS

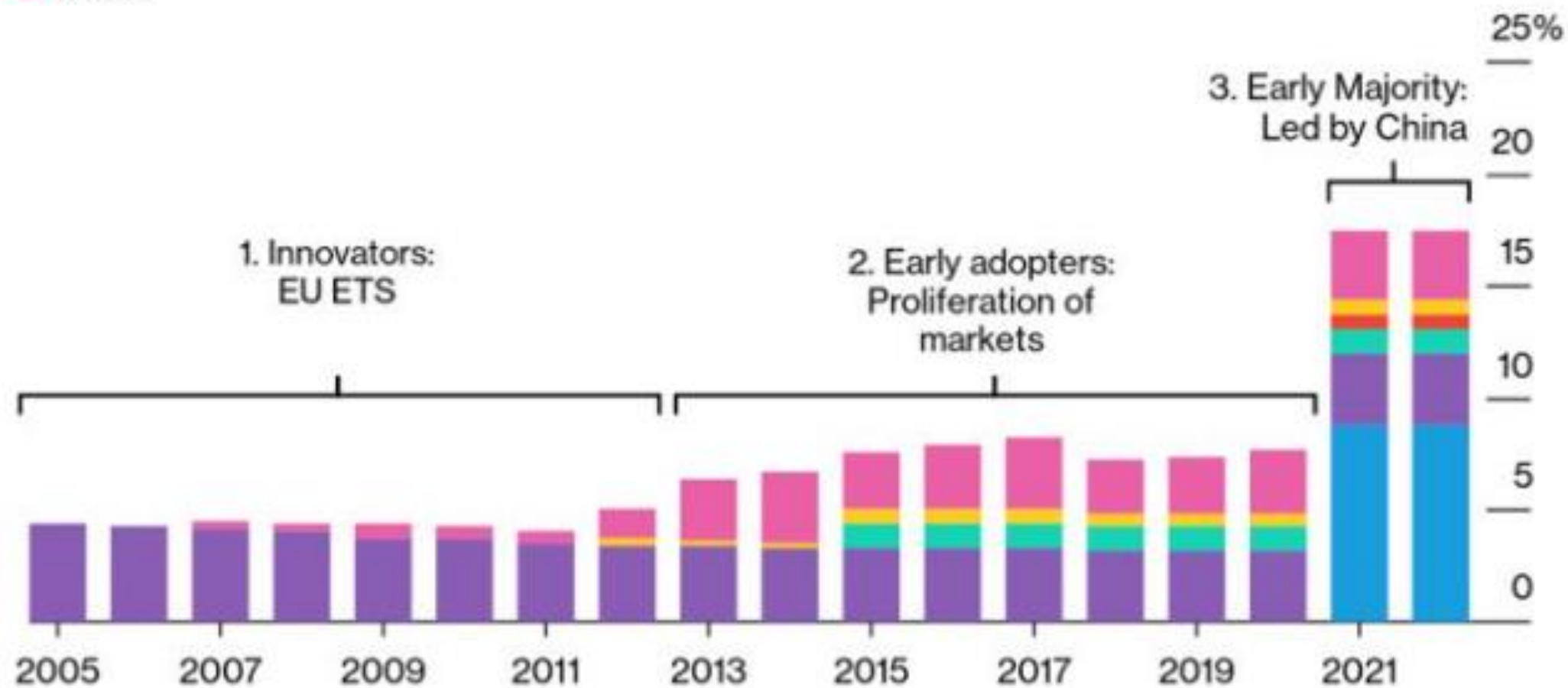


Source: WBG, IMF staff calculations, and national sources. Note: The boundaries and other information shown on any maps do not imply on the part of the IMF any judgment on the legal status of any territory or any endorsement or acceptance of such boundaries.

Expanded Reach

Almost a fifth of global emissions are now covered by a carbon market

■ China's national program ■ European Union ■ South Korea ■ Germany ■ California
■ Other



Source: World Bank, BloombergNEF.

Note: 'EU ETS' refers to the EU Emissions Trading System.

BloombergNEF

Drivers of

Voluntary Market Demand



Paris Agreement

Companies seeking alignment with these goals.



Technological Gaps

Companies are limited by technologies that are available at scale and not cost-prohibitive.



Time Gaps

Companies do not have the means to eliminate all emissions today.



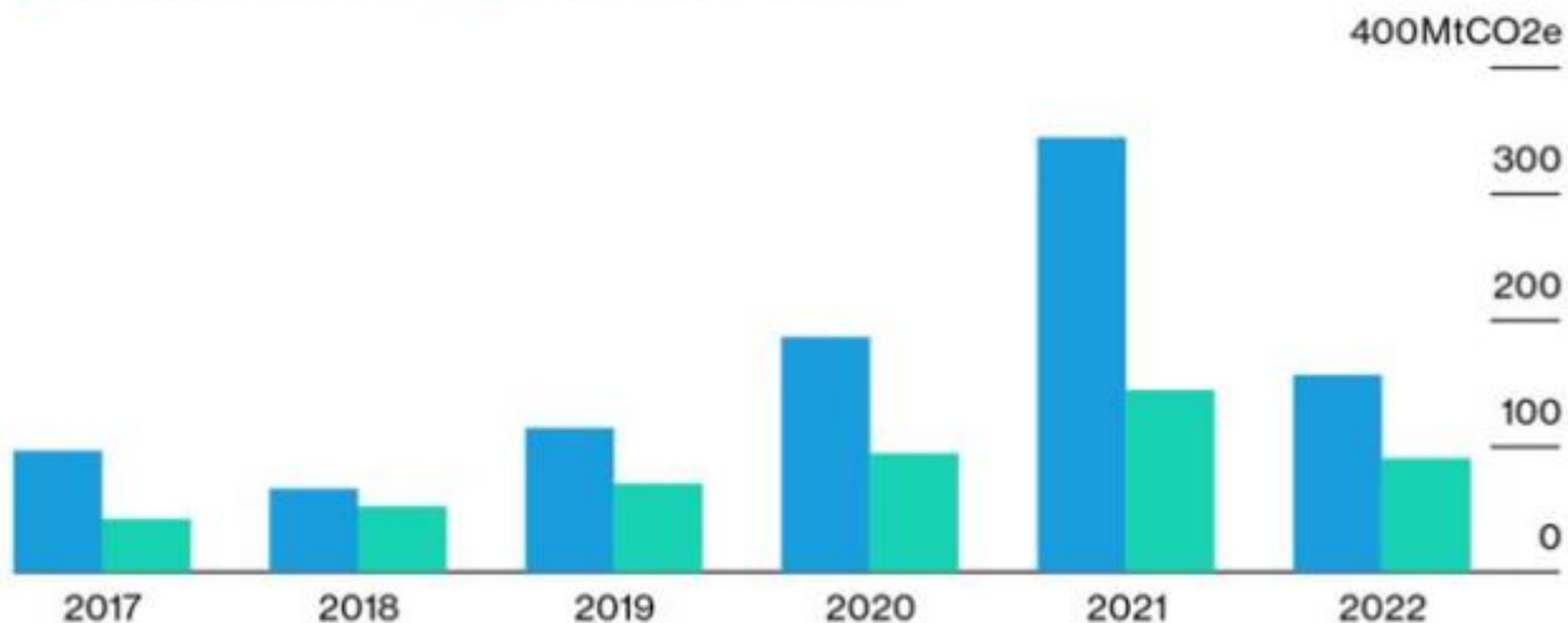
Stakeholder Pressure

Companies are facing pressure from stakeholders to address their emissions.

Offset Overload

The carbon offset market is currently in oversupply as the rise in issuance has outpaced demand growth

■ Annual offset issuance ■ Annual offset retirement



Source: BloombergNEF, Verified Carbon Standard (VCS), American Carbon Registry (ACR), Climate Action Reserve (CAR).

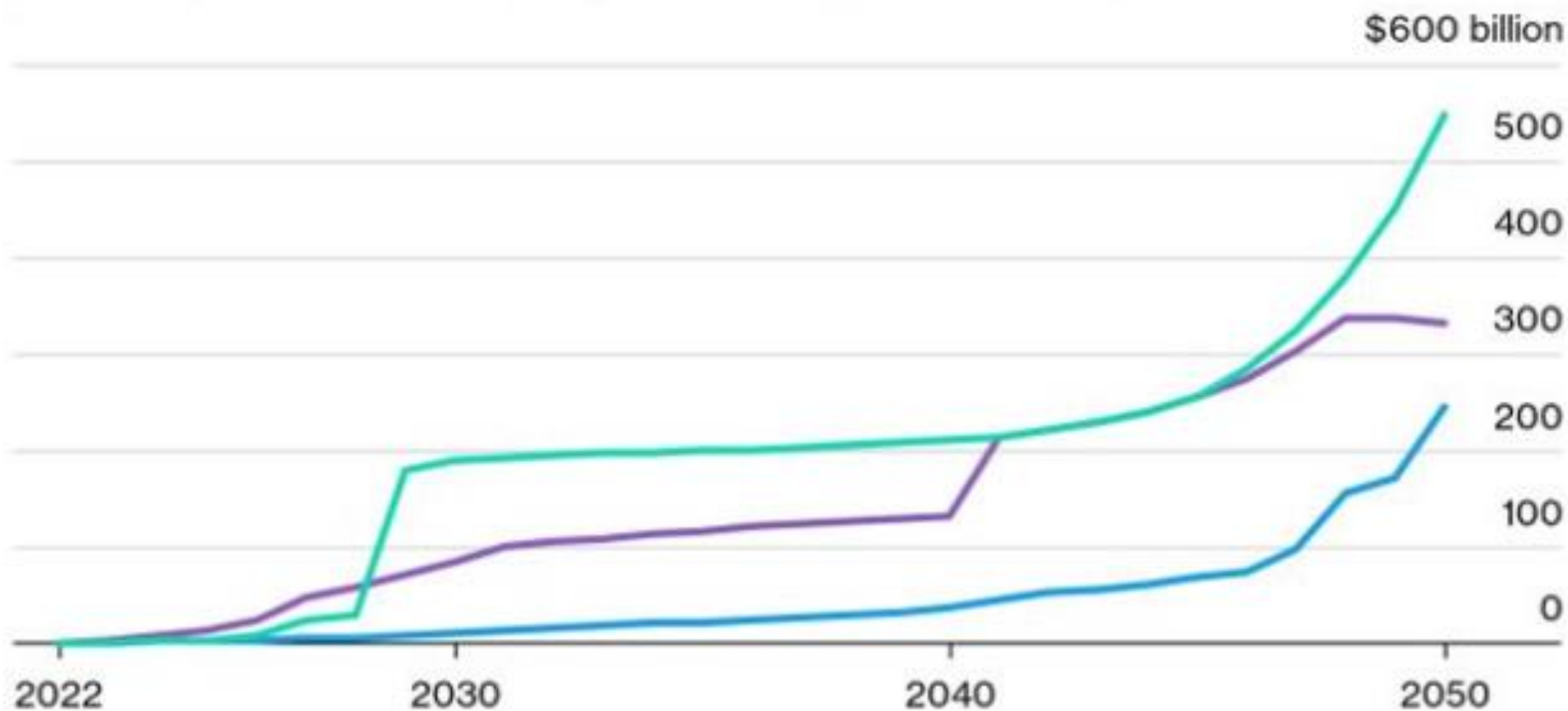
Note: 2022 is year-to-date.

BloombergNEF

Huge Potential

The value of the carbon offset market could top \$500 billion in 2050

Voluntary market scenario Hybrid scenario Removals only scenario



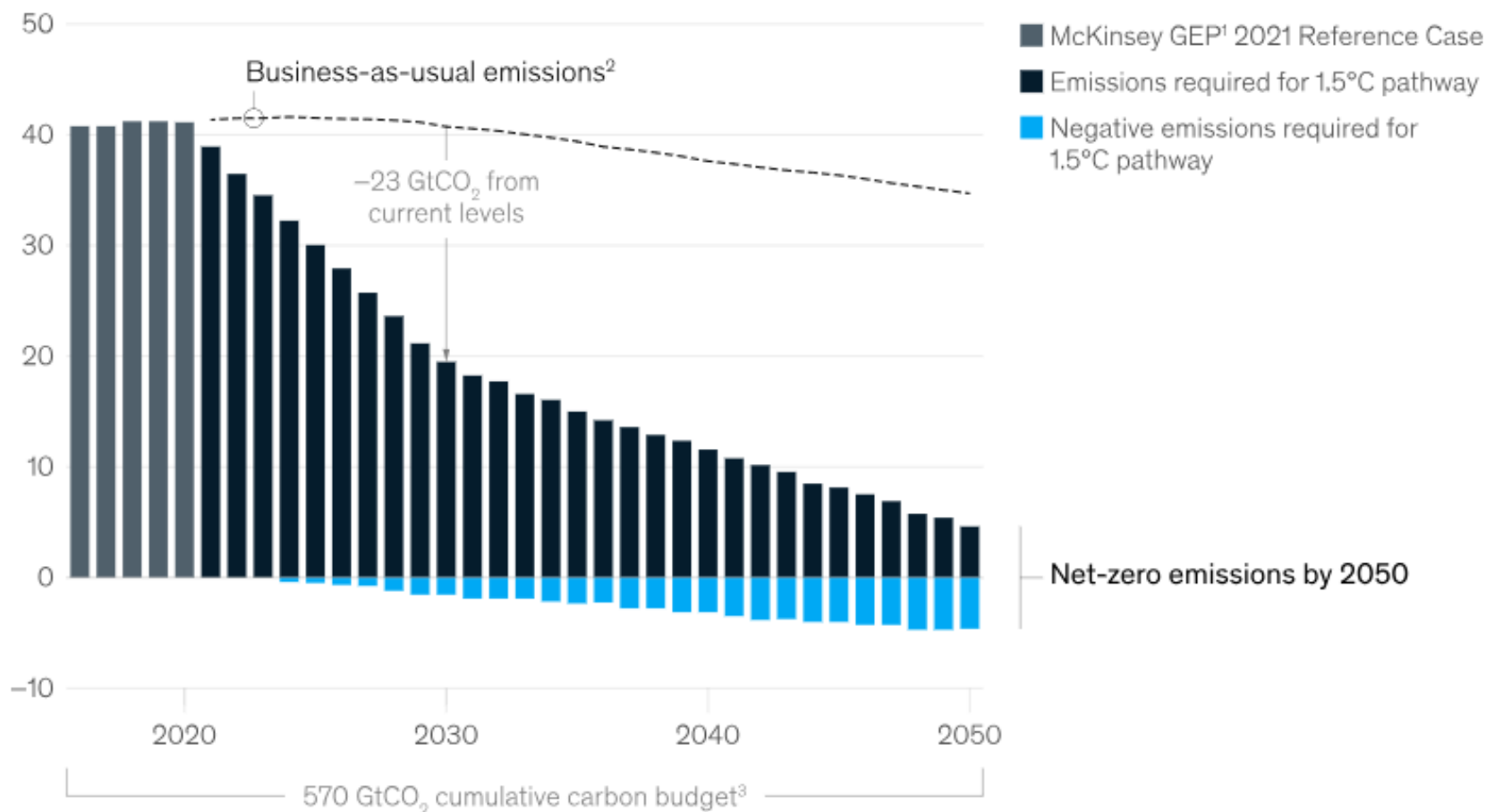
Source: BloombergNEF

Note: Scenarios are based on intersection of price, supply and demand, and are not necessarily representative of how the market will evolve. The voluntary market scenario assumes the current voluntary market design remains out to 2050. The removals only scenario assumes only removal offsets are allowed. The hybrid scenario looks at a gradual evolution of the market.

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Reaching the 1.5-degree warming target could require a large quantity of negative emissions, including some generated using carbon credits.

Global carbon-dioxide emissions, gigatons (GtCO₂) per year



¹Global Energy Perspective.

²While emissions fell by a quarter at the peak of COVID-19-related lockdowns, daily emissions have rebounded to be only 5% lower than 2019 levels. Scenarios to 2050 remain the same. Forster et al., "Current and future global climate impacts resulting from COVID-19," *Nature Climate Change*, August 7, 2020, nature.com.

³Budget of 570 GtCO₂ emissions from 2018 onward offers a 66% chance of limiting global warming to 1.5°C, when assessing historical temperature increases from a blend of air and sea-surface temperatures. Source: Corinne Le Quéré et al., "Global Carbon Budget 2018," *Earth Systems Science Data*, 2018, Volume 10, Number 4, pp. 2141–94, doi.org; IPCC; McKinsey Global Energy Perspective 2021; McKinsey analysis