Driving Carbon Markets for Inclusive Net Zero Economic Growth in G20

Policy brief

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ABSTRACT

The urgency of achieving net zero emissions by mid-century is undeniable. The G20, representing the world's largest economies, has a critical role to play in steering the global course towards a sustainable future. While ambitious climate targets are crucial, translating them into action requires robust economic frameworks. Carbon markets, if designed and implemented effectively, hold immense potential to drive inclusive net zero economic growth within the G20. The G20 has long recognized the importance of inclusive growth – a concept that emphasizes spreading the benefits of economic progress across all segments of society. The G20 can play a pivotal role in fostering robust and inclusive carbon markets. Establishing harmonized standards for carbon credits across G20 nations ensures environmental integrity, avoids double counting of offsets, and promotes market transparency. G20 collaboration in developing clear policies and regulations for carbon markets can attract investments and ensure market stability and inclusivity in the long run.

INTRODUCTION

Climate change poses an existential threat to humanity and the planet. The Intergovernmental Panel on Climate Change (IPCC,2023) emphasizes the need for rapid and deep cuts in greenhouse gas (GHG) emissions to limit global warming to 1.5°C. This necessitates achieving net zero – a state where human-caused emissions are balanced by removals – by 2050. The G20, comprising both developed and developing economies, is a key player in the global climate action arena. Its members are responsible for over 80% of global greenhouse gas emissions and world trade. Therefore, their commitment and leadership in embracing a net zero transition are critical for success. Several G20 countries have set ambitious net zero targets, with some aiming for 2050 deadlines. However, translating these targets into concrete action requires robust economic mechanisms that incentivize low-carbon investments and emission reductions.

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Carbon markets offer a promising pathway towards achieving net zero while fostering economic growth. They function by setting a carbon price and creating a tradable commodity – carbon credits. These credits represent one ton of CO2 equivalent that has either been avoided through emission reduction projects or removed from the atmosphere through natural climate solutions like sustainable forestry. Companies that exceed their emission allowances can purchase carbon credits to offset their footprint, promoting accountability and driving emission reductions. As net-zero targets tighten, de-

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mand for carbon credits will rise, creating a market that incentivizes investments in renewable energy, energy efficiency, and clean technologies.

CARBON MARKETS AS A CATALYST FOR NET ZERO ECONOMY

Carbon market infrastructure has rapidly evolved in G20 countries over the past five years. Carbon markers come in two sub-credit or trading based on their governing mechanism. First, compliance markets are driven by regulatory bodies. For instance, the EU Emissions Trading System (ETS) issues emission allowances as part of a "cap-and-trade" system. Second, voluntary markets are where independent entities, such as companies, nongovernmental organizations, and individuals, voluntarily participate in the carbon trading process. Table 1 illustrates the carbon market status in G20 countries.

Table 1: Carbon markets Status and Voluntary Credits allowed for compliance.

Country	Carbon Market Status	Voluntary offsets allowed for compliance
Australia	Functional carbon market since 2012	No international Voluntary carbon market offset
New Zealand	Functional ETS since 2008	No offsets
South Korea	Functional ETS since 2015	KOC up to 5% allowed
Japan	Functional carbon tax since 2012, ETS to start 2028-29	J -Credits
Malaysia	ETS estimated to start by 2028	International VCM credit trading only
Indonesia	Functional ETS since 2023	No offsets
India	ETS to start 2026	No offsets
China	ETS since 2021 (power sector only)	CCER upto 5% allowed
Thailand	Voluntary ETS since 2013	T-VER credit to be allowed
Singapore	Carbon tax	Offset upto 5% allowed
EU ETS	Functional ETS since 2025	No offsets
Switzerland	Functional ETS since 2008	No offsets
UK	Functional ETS since 2021	No offsets
Sweden	Carbon Tax since 1991	No offsets
Finland	Carbon Taz in 2022	No offsets
Germany	Functional ETS since 2021	No offsets
US-RGGI	Functional ETS since 2009	Offset 3.3% allowed
US_California	Functional ETS since 2013	Offset below 8% allowed
Canada	Mix of ETS and Carbon Tax	Offsets allowed
Mexico	Functional ETS since 2023	Offset up to 10% allowed
Brazil	Voluntary ETS since 2013	Offsets to be allowed
Colombia	Carbon tax, offset scheme, ETS under planning	Offsets allowed
Chile	Carbon Tax, ETS under planning	Offsets to be allowed

When used correctly, carbon markets can promote the decarbonization that is crucial for our warming world, supporting the emissions reduction goals of business owners, investors, and philanthropists. However, within G20, carbon markets tend to be highly fragmented with several structural and operational challenges hampering progress, including a lack of trust in the environmental integrity, credibility, and additionality of carbon credits. While compliance carbon markets are well established on their own, diverging regulatory requirements across jurisdictions, different levels of climate ambitions, and varying stages of development are preventing greater convergence among markets. Voluntary carbon markets where governments, organizations, and individuals can purchase credits at will, also tend to be fractured, in part because of the sheer number of actors who operate within them.

As a result, buyers, sellers, and intermediaries may find it challenging to monitor and validate underlying credits in a systematic, credible, and consistent way. This has introduced possible reputational risks and contributed to lower demand: some companies, for example, have stopped including carbon credits in their climate pledges and net-zero targets altogether. Such reluctance from potential buyers may also be keeping carbon prices low.

ENABLERS OF GLOBAL CARBON MARKETS

One important tool to elevate the effectiveness of carbon markets and enable greater cross-border trading is the Paris Agreement Work Program, particularly the guidance on cooperative approaches under Article 6.23 and the rules, modalities, and procedures for the Article 6.4 mechanism set up a functional architecture for implementing international carbon markets and clarify how governments should account for credits in national emissions targets. Through cooperative approaches to transfer carbon credits between countries, known as internationally transferred mitigation outcomes.

In addition to the United Nations efforts, industry associations and other global organizations are also advancing initiatives to help bolster market transparency, foster innovation, and deliver carbon credit benefits. Private-sector groups, such as the supply-side-focused Integrity Council for the Voluntary Carbon Market and the demand-side-focused Voluntary Carbon Markets Integrity Initiative, are working to build trust in the supply of carbon credits and guide businesses on how to use them in their net-zero pathways. Other groups are piloting novel approaches to refine carbon trading operations and enhance their outcomes.

At the start of 2024, more than two dozen compliance markets operated around the world, and several more are expected to launch in the coming years. These include:

- Cities such as Shenzhen and Tokyo.
- States and provinces, such as California, Quebec, and Guangdong.

- Nations, such as Mexico, South Korea, and New Zealand; and
- Supranational entities, such as the EU Emissions Trading System (ETS).

To facilitate greater market integration, many G20 governments are starting to link their compliance markets. This move can bring several potential benefits, including expanding their scope of coverage and enabling progress in local jurisdictions, such as states or cities, where national-level mandatory climate action may not be feasible.

Linking markets can also lead to price convergence. Establishing a common carbon price across systems can minimize price fluctuations and increase liquidity. Additionally, linkages can cause the overall cost of emissions to fall by allowing companies in regions with higher abatement costs to purchase allowances from regions where abatement is cheaper. This, in turn, can prompt countries to set more ambitious climate targets for their public and private sectors. A 2017 study found that an international linkage of worldwide ETSs could reduce the total expense of achieving NDCs by 32% before 2030, and by 54% before 2050 (ICAP, 2023).

INTERLINKAGES AMONG EMERGING CARBON MARKETS

The linkage between the cap-and-trade systems in the state of California, US, and the province of Quebec systems in Canada is an example of a relationship that delivered value to both entities by significantly reducing emissions while generating billions of US dollars in revenue. The initiative has been so successful that the state of Washington is considering joining, nearly a full decade later. These jurisdictions are also considering states and provinces beyond North America and may soon try to recruit additional states within Mexico and Brazil.

States in the Northeast United States are also espousing the benefits of linkages. New York, for example, is already part of the 12-state Regional Greenhouse Gas Initiative (RGGI), which sets regional caps on emissions from power plants. Its forthcoming "cap-and-invest" program seeks to return one-third of revenues to consumers, while the rest would support renewable energy projects. This revenue model is like California's cap-and-trade system that funds the Greenhouse Gas Reduction Fund, which has generated US$9 billion for investments in energy efficiency, public transit, and affordable housing. The governor of New York has indicated that its program will be designed to easily link with other jurisdictions.

There are also varying degrees of linkages that jurisdictions can pursue, depending on their capabilities and how closely they wish to be interlinked. Direct or "full" linkages permit jurisdictions to buy and sell allowances across trading systems. The Swiss ETS and the EU ETS have a direct linkage that creates a single carbon price and permits members to use allowances in both systems. The UK ETS, which was created in 2021 after Brexit, may seek a direct link with the EU ETS, or possibly a new multilateral arrangement altogether. Indirect linkages, on the other hand, are less formal but can involve sharing design elements, leading practices, or experiences and information.

When China was setting up its new carbon market, the state of California offered advice on design, reporting and verification protocols, and enforcement mechanisms. As a result, the California-Quebec carbon market and Chinese ETS have similar emission thresholds and reporting requirements, and firms doing business in China and California may swap or trade credits from one carbon market for credits in the other through structured financial deals. Eventually, the governments may seek a more direct linkage.

National-level cap-and-trade programs can also embed Article 6.2 accounting principles into their linking agreements so the resulting change in emission flows is reflected in their NDC calculations. Although Article 6.2 provisions are not a prerequisite for linkages, they can help reduce the risk of double counting and make it easier for countries to stay on track toward NDCs. When negotiating new forms of voluntary cooperation, leaders can incorporate Article 6.2 through memorandums of understanding, treaties, or informal agreements, as Singapore did with countries such as Bhutan, Cambodia, Colombia, Kenya, Peru, and Sri Lanka. These agreements can add more credibility to carbon market collaborations since Article 6.2 accounting, reporting, and disclosure obligations were designed to boost transparency and environmental integrity.

Linkages may be easier to establish between countries nearby, especially if they share similar environmental goals, economic backgrounds, and histories of mutually beneficial trade agreements. The linkage of the EU's carbon market with the Swiss market is an example of a relationship that has benefited from existing ties. Carbon markets are also easier to converge when they have compatible design and market structures, including similar methodologies for certifying carbon credits, platforms for storing registry data, and penalties for noncompliance (Kachi, 2015).

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Moreover, linkages cantered on regional hubs can harmonize governance and design frameworks, as several US and Canadian jurisdictions did when drawing up the Western Climate Initiative (WCI). This program design not only laid the groundwork for California and Quebec's partnership, but has also been used as the model for carbon markets in British Columbia, Manitoba, Ontario, New Mexico, and Washington state. Some jurisdictions in Latin America are also considering entering the WCI, which could open the door to more Pan-American linkages.

Other parts of the world are also making moves to become carbon-trading hot spots. Singapore, for example, is heavily investing in its capabilities, building upon its experience in commodities trading in the hopes of emerging as the central trading hub within Asia. And during the

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inaugural African Climate Summit, Kenya signaled its intention to become the continent's carbon trading powerhouse. The country's new Climate Change Act will introduce a national carbon registry and help regulators guide participation in global carbon markets, including through Article 6 mechanisms. These efforts could be impeded by countries imposing trade restrictions that keep the social benefits of emission-reduction projects within their borders. Malawi, Zambia, and Zimbabwe are redirecting revenues from projects to local stakeholders, for example, while India and Papua New Guinea have temporarily banned external sales entirely.

Creating new regional carbon markets or facilitating greater integration among them can create a common infrastructure, align pricing mechanisms, and attract new players (White and Krukowska (2023). These regional markets could eventually serve as the groundwork for a global trading regime, helping ensure that countries are better prepared for greater market convergence.

CHALLENGES IN CARBON MARKETS TO ACHIEVE GREATER INCLUSIVITY AND RECOMMEND G20 ACTIONS.

The G20 economies together will account for 85% of the world's emissions in 2030 and their alignment on a carbon price floor could advance climate equity, given their record of historical emissions. However, there are three challenges with the carbon market development toward a Net Zero economy.

- Transition Costs: Shifting towards a net zero economy may require upfront investments, potentially impacting some sectors and communities negatively.
- Equity Considerations: Ensuring a just transition requires a fair distribution of the benefits and burdens of carbon pricing. Developing countries may require financial and technological support to participate effectively.
- Market Design: Designing carbon markets that are transparent, efficient, and avoid market manipulation or greenwashing is crucial.

The G20 can play a pivotal role in fostering robust and inclusive carbon markets. Here are some key recommendations for coordinated actions.

Harmonization and Standardization: Establishing harmonized standards for carbon credits across G20 nations ensures environmental integrity, avoids double counting of offsets, and promotes market transparency.

Financial Instruments and Capacity Building: Supporting developing countries through financial instruments like dedicated transition funds and capacity-building initiatives can facilitate their participation in the carbon market.

Technology Transfer and Collaboration: Accelerating technology transfer and promoting international collaboration in clean technologies benefits both developed and developing nations while fostering innovation.

Policy Alignment and Regulatory Clarity: G20 collaboration in developing clear policies and regulations for carbon markets can attract investments and ensure market stability.

Aligning net zero goals with inclusive economic growth requires a multi-pronged approach. Well-designed carbon markets are an essential tool in this endeavor. By fostering international cooperation, promoting innovation, and prioritizing inclusivity, the G20 countries can unlock the full potential of carbon markets for a sustainable and prosperous future.

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