INTERNATIONAL COMPLIANCE MARKETS WITH RESPECT TO CARBON CREDITS: WHAT TO EXPECT IN THE YEARS AHEAD

As the climate crisis escalates, regulatory approaches to curbing greenhouse gas emissions are growing in both scope and sophistication. Among the most prominent tools in this policy arsenal are compliance carbon markets—systems that legally mandate emission reductions from polluters by requiring them to hold carbon allowances or credits. The three most influential compliance markets in the world today are found in the United States, the European Union, and China. While each operates under different political, economic, and environmental contexts, their trajectories are increasingly shaping the global carbon credit landscape. This article explores the current state and future direction of these three markets, analyzing the potential evolution of compliance carbon trading and its implications for carbon credit systems.

The European Union Emissions Trading System (EU ETS)

The EU ETS is the oldest and most mature compliance carbon market in the world, launched in 2005. Covering power generation, industry, and aviation, it is the cornerstone of the EU's climate policy. The market operates on a cap-and-trade principle: the total number of allowances is capped and reduced annually, and entities can buy or sell allowances as needed.

In recent years, the EU ETS has undergone significant reforms aimed at strengthening its impact. The introduction of the Market Stability Reserve (MSR) in 2019 aimed to reduce the surplus of allowances and stabilize prices. The price of carbon under the EU ETS has increased sharply in response, reaching highs of over €100 per ton of CO2 in 2022, which has created stronger economic incentives to reduce emissions.

Looking forward, the EU is expanding and tightening the system further under the Fit for 55 package, which seeks to cut emissions by 55% by 2030 relative to 1990 levels. This includes extending the ETS to cover maritime transport and introducing a parallel ETS for buildings and road transport (ETS 2). Additionally, the Carbon Border Adjustment Mechanism (CBAM), a tariff on imported carbon-intensive goods, is set to complement the EU ETS by preventing carbon leakage and encouraging decarbonization beyond EU borders.

The future of the EU ETS lies in greater integration with other jurisdictions, stronger price signals, and a phased reduction in free allocations. These developments position the EU ETS as both a policy tool and a benchmark for emerging carbon markets worldwide.

The U.S. Patchwork: California, RGGI, and Federal Prospects

Unlike the EU, the United States lacks a nationwide carbon pricing program. However, regional initiatives have played a significant role in shaping compliance markets. California's cap-and-trade program, established in 2013, is the largest in North America

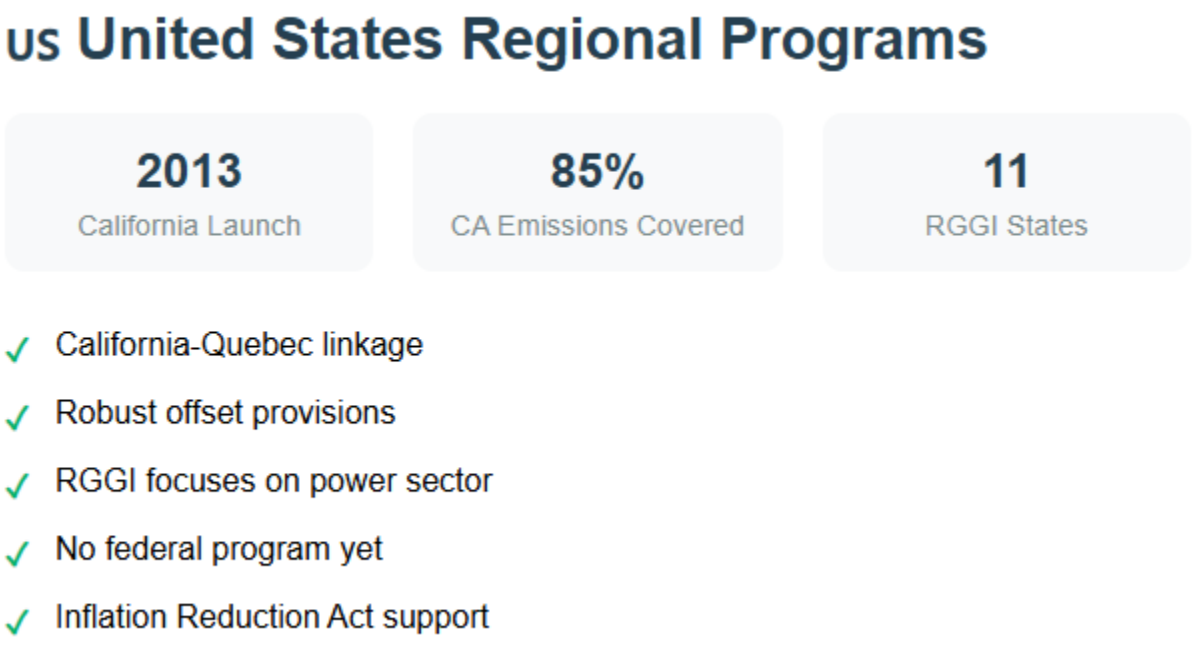
and covers about 85% of the state's emissions. It is linked with the Canadian province of Quebec's system, forming a cross-border market.

California's program includes robust offset provisions, allowing a limited number of credits from qualifying projects (such as forestry and methane capture) to be used for compliance. However, scrutiny over the environmental integrity of some of these projects has led to tighter restrictions on which types of offsets are eligible.

The Regional Greenhouse Gas Initiative (RGGI), covering 11 states in the Northeast and Mid-Atlantic, is another notable effort. RGGI focuses exclusively on power sector emissions and uses auction revenues to fund energy efficiency and clean energy programs. Although smaller in scale than California's market, RGGI has had measurable success in reducing emissions while generating billions in public investment.

At the federal level, progress has been inconsistent due to shifting political priorities. However, the Inflation Reduction Act of 2022 included substantial climate spending that, while not creating a federal carbon market, could lay the groundwork for one by incentivizing emission reductions and clean technology.

The future of compliance markets in the U.S. will likely continue to be state-led, with potential for further regional cooperation or eventual federal harmonization. Market expansion could be driven by the increasing need for predictable, market-based climate tools and pressure from the private sector to standardize carbon pricing frameworks.



China’s National ETS: A Giant in Progress

China launched its national Emissions Trading System in July 2021, initially covering the power sector, which accounts for over 40% of the country’s CO2 emissions. This made it instantly the largest carbon market in the world by volume. Unlike the EU ETS, China’s system uses an intensity-based approach, setting emission benchmarks per unit of output rather than an absolute cap.

The early phase of China’s ETS has focused on data collection, capacity building, and the establishment of a regulatory framework. The system currently lacks the liquidity and transparency of more mature markets, and the carbon price remains relatively low—hovering around RMB 50 ($7 USD) per ton in 2024. However, the long-term ambition is significant.

China plans to gradually expand the market to cover other high-emitting sectors such as steel, cement, and aluminum. It also aims to move toward absolute caps and more stringent benchmarks. International observers are closely watching how China addresses challenges related to data accuracy, enforcement, and credit integrity.

China’s embrace of digital MRV technologies and the possibility of linking with other markets—such as those in Southeast Asia—suggests a broader vision. A fully functional and robust Chinese ETS would not only transform domestic carbon pricing but could also reshape global carbon credit flows by increasing demand and offering new supply channels.

Convergence and Integration: Toward a Global Carbon Architecture

While the EU, U.S., and China each have distinct approaches to carbon pricing and compliance markets, a trend toward convergence is beginning to emerge. Shared principles such as transparency, third-party verification, and alignment with national climate goals are becoming standard. Digital tools and international standards are improving comparability and interoperability between markets.

Initiatives like the Taskforce on Scaling Voluntary Carbon Markets (TSVCM) and the Integrity Council for the Voluntary Carbon Market (ICVCM) are creating frameworks that could facilitate cross-market linkages. Similarly, Article 6 of the Paris Agreement provides the legal basis for international credit transfers and could be the catalyst for a more integrated global carbon market.

Compliance markets in the EU, U.S., and China are also increasingly influencing the voluntary market. As companies seek to demonstrate alignment with regulatory trends, the demand for credits that are "compliance-grade"—meaning they meet the standards of regulatory markets—is growing. This could raise the quality bar across all carbon trading and accelerate the unification of disparate systems.

Challenges Ahead

Despite these promising developments, challenges persist. Market manipulation, price volatility, and a lack of global harmonization still hinder the full potential of compliance

carbon markets. Political resistance to carbon pricing remains strong in some regions, and there is a continual need to ensure environmental integrity in offset credits.

In the U.S., partisan divides make the establishment of a federal carbon market uncertain. In the EU, managing industrial competitiveness and the social impact of higher carbon prices will be a delicate balancing act. In China, building trust in data and enforcement systems will be key to scaling the market.

Yet, the climate crisis leaves little room for delay. Compliance markets, by embedding the cost of carbon into business decisions, have the power to drive significant emissions reductions. Their future will depend on political will, technological innovation, and international cooperation.

Conclusion

The compliance carbon markets of the U.S., EU, and China are at different stages of development but share a common purpose: to internalize the cost of greenhouse gas emissions and accelerate the transition to a low-carbon economy. As they evolve, these markets will not only shape national climate policy but also define the contours of a global carbon economy. Whether through expanded coverage, tighter caps, digital MRV, or cross-border cooperation, the future of carbon credits in compliance markets looks set to become more robust, interconnected, and essential to achieving climate goals worldwide.