

# Climate Future-Proofing: How Exchanges Lead the Way

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Amid ongoing political debate and shifting energy landscapes, environmental markets have established themselves as critical tools in the global effort to combat climate change.

Environmental derivatives fall into three main categories: carbon, renewable and fuel attribute certificates. These markets operate under two primary structures: compliance programs (mandated caps and targets) and voluntary programs (driven by corporate sustainability goals).

The immense value of harnessing market power to drive cost-effective emission reductions is well-documented. A prime historical example is the late 20th-century U.S. EPA Acid Rain Program, which achieved sulphur dioxide pollution cuts ahead of schedule and under budget. Initial skepticism from environmental groups receded as the market forces delivered an optimal outcome, providing industry with clear long-term targets while allowing flexibility to develop innovative compliance solutions.

But the evolution of environmental attribute trading, to include physically and financially settled and cleared futures and options on exchanges, has created an even more powerful weapon. Derivatives markets enable crucial price discovery and transparency far further into the future than current risk models allow. This provides vital signals for corporations and policymakers, helping them understand the true costs of climate change and manage long-term investments with reduced risk of creating stranded assets.

## **The First Cut is the Cheapest: Driving Economic Efficiency**

Cap-and-trade systems foster economic efficiency by ensuring that emissions reductions occur where they are cheapest. As regulatory caps are lowered, the price of allowances rises, creating an economic signal that effectively acts as a proxy for the value of economy-wide decarbonization.



The European Energy Exchange (EEX) has been building markets to support decarbonization since 2005, when it first introduced European Union Emissions Trading Scheme (EU ETS) futures contracts. The EU ETS has reduced emissions by 50 percent since its inception. Moreover, auction revenues have surpassed €216 billion, funding national government programs and key EU initiatives such as the Innovation Fund, Modernization Fund and the Social Climate Fund, all dedicated to low-carbon innovation and energy transition.

*"Seeing the success of collective effort in the past decades to reduce greenhouse gas emissions through market-based instruments like ETS, we must continue to build global infrastructure that accelerates their impact across the globe. In addition to ETS, Guarantees of Origin schemes and registry services play an essential role in increasing renewables integration by ensuring transparency and bringing trust to the markets." - Peter Reitz, CEO, EEX Group*

EEX Group, which collaborates with IncubEx to expand environmental markets in Europe and North America, recently launched contracts for the EU ETS's second phase, starting in 2028. This phase will cover a broader range of sectors, including buildings and road transport, with deals already underway. Beyond trading emissions spot and derivatives, EEX also hosts the EU ETS primary market auctions for participating member states.

EEX's US subsidiary, Nodal Exchange, offers the most comprehensive environmental futures contract listing globally. This service is seeing growing success, with North American environmental futures and options volume topping 400,000 lots in the first half of 2025, a 48 percent year-on-year increase. Open interest remains robustly over 400,000 lots.

*"With climate change having a significant impact on society around the globe, Nodal Exchange is proud to be a leader in the development of these important markets. Our environmental contracts represent the broadest suite of exchange-listed environmental products in the world and demonstrate our continued commitment to addressing climate change and to meeting the growing and evolving needs of the environmental markets." – Paul Cusenza, Chairman and CEO, Nodal Exchange and Nodal Clear*

## **The Rise of Voluntary Renewable Energy Certificate Markets**

Voluntary carbon and Renewable Energy Certificate (REC) markets allow corporations to move beyond mandatory state requirements, driving further



reductions. These markets serve as crucial testing grounds, fostering innovation and allowing for quicker learning about which instruments best suit different programs and local conditions. The lines between voluntary and compliance markets are sometimes blurred, as some mandatory programs allow the use of offsets or voluntary RECs to reduce power source carbon intensity.

By offering forward pricing and indicating customers' willingness to pay, these markets provide vital tools for policymakers and companies to develop robust, long-term sustainability objectives.

Wind and solar are the fastest-growing power capacity sources in the US. In recent years, more than 30 percent of the RECs associated with new capacity came from voluntary buyers, notes Eric O'Shaughnessy, Renewable Energy Research Analyst at Clean Kilowatts. Nodal Exchange is the leading platform for the most active US voluntary REC futures contract, which aligns with the Center for Resource Solutions' Green-e standard.

O'Shaughnessy emphasizes that revenues from these "unbundled" RECs (sold separately from the power they originated from) are critical for deploying new capacity. While typically lower priced than compliance RECs, these voluntary revenues help bridge the gap between a project's expected revenues and its required revenues. The so-called "missing money". Furthermore, RECs underpin the financial viability of long-term power purchase agreements (PPAs), as most voluntary buyers require legal recognition of clean energy claims to take on long-term risk.

In Europe, RECs are known as Guarantees of Origin (GOs). EEX's GO futures contracts, launched in collaboration with IncubEx in September last year, show continuous growth, with more than 30 TWh traded overall. These contracts allow companies to hedge against increased demand for renewable energy while lowering their carbon footprints. GOs and RECs are especially sought after by technology companies with high electricity demand due to data centers and the emergence of Artificial Intelligence.

The transition to a cleared futures market has been more challenging in the voluntary carbon sector. Integrity is paramount, requiring proof of "additionality" that the carbon reduction would not have occurred without the offset project. This forces buyers to seek project-specific details to tell the story. Standard-setting bodies are currently working to update their guidelines to address critics who cite issues such as over-crediting or greenwashing. Only when confidence grows in this market can a standardized, fully commoditized futures market truly take off.

### **Act Local, Think Global: The Missing Links**



Climate change is a global problem currently being tackled with local market solutions. While systems such as the EU ETS, the Regional Greenhouse Gas Initiative and the Western Climate Initiative allow for cross-border trading, attempts to create a single global carbon index have been largely ineffective so far.

However, two major developments are planting the seeds for a more globally connected carbon market:

- **Paris Agreement Article 6:** This facilitates the transfer of credits between two countries, provided they have agreements to prevent double counting the reductions.
- **CORSIA:** The Carbon Offsetting and Reduction Scheme for International Aviation, developed by the International Civil Aviation Organization, allows offsets and is expected to provide strong price support by linking to the EU ETS.

According to the International Carbon Action Partnership, there are 38 ETSs currently operating worldwide, covering 23 percent of global greenhouse gas emissions, with a further 20 under development or consideration. The majority of these allow for the use of offsets.

*"Environmental markets have grown dramatically over the past two decades and we see vast growth potential in the years ahead in Europe, North America and beyond." – Dan Scarbrough, CEO, IncubEx*

As carbon programs expand, power demand continues to grow and digital technologies allow for more sophisticated supply and demand management, previously siloed energy and industrial sectors are becoming deeply interconnected, resulting in increasingly complicated deal structures. EEX and Nodal, alongside IncubEx, are at the forefront of this evolving market, providing the crucial infrastructure and developing increasingly complex tools to build tomorrow's sustainable energy future.

#### References:

- [Role-of-Derivatives-in-Carbon-Markets.pdf](#)
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- [Solar and wind to lead growth of U.S. power generation for the next two years - U.S. Energy Information Administration \(EIA\)](#)