CARBON PRICING IN THE UNITED STATES AND NEW YORK AS A CASE STUDY

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As policymakers continue to grapple with ways to combat climate change, carbon pricing, as a market mechanism in reducing greenhouse gas (GHG) emissions, has emerged as a front-runner among environmentalists, economists, and regulators alike.

WHAT IS CARBON PRICING?

Put simply, carbon pricing places a price on carbon dioxide (CO2) emissions that result from the generation of electricity from nonrenewable resources such as fossil fuels. The goal of carbon pricing is to create an economic mechanism that would internalize the externality that fossil-fuel generators have historically benefited from, as they emit carbon dioxide or other GHGs into the atmosphere without accounting for the cost of those emissions. Carbon pricing essentially embeds a cost per ton of CO2 emissions in the sale of wholesale electricity, which creates a price signal for investment in new clean energy resources as well as for existing generators to minimize their CO2 emissions through upgrades and efficiency improvements. If implemented at a regional level, meaning through a regional transmission organization (RTO) or an independent system operator (ISO)'s wholesale competitive market, carbon pricing allows for the market to reflect the negative impacts of emitting greenhouse gases. This ultimately leads to the dispatch of renewable energy or non-carbon emitting generators and, in turn, reduces GHG emissions.

It is important to note that carbon pricing is different from a carbon tax. A carbon tax usually results in laws or regulations that establish a fee per ton of carbon emissions from a sector or the whole economy. Owners of emission sources subject to the tax would be required to pay taxes equivalent to the per-ton fee times their total emissions. A carbon price is different, as it adds a market mechanism that sets a "price" on carbon emissions and relies on a competitive wholesale market to dispatch the most reliable, cost-effective generation fleet to

power the grid.

Cap-and-trade programs are also discussed in the context of reducing CO2 emissions. Under a cap-and-trade program, regulators may implement a cap on the amount of carbon emissions in either a region or industry sector and issue allowances or permits up to the level of the cap. Every source of emissions subject to the cap (for example, power plants or refineries) would be required to purchase and hold permits equal to the amount of emissions they produce. Typically, these permits are procured through auctions, and entities can buy and sell their permits. This encourages emitting entities to reduce their emissions. Some cap-and-trade regimes may have a declining cap, which also encourages emitters to prioritize emission reduction.

Carbon pricing is gaining popularity due to its flexibility as a market-based tool that could set clearer price signals in competitive wholesale energy markets with the goal of ultimately reducing GHG emissions. This past year, the Federal Energy Regulatory Commission (FERC) held a technical conference to explore the feasibility of a national carbon-pricing regime and to discuss FERC's jurisdiction over a state-determined carbon price. This resulted in two FERC policy statements presenting a framework on FERC's jurisdiction and encouraging RTOs and ISOs to reach out to stakeholders, including states, market participants, and consumers, to explore and develop the value of incorporating a state-determined carbon price. While a national carbon price is not off the table, it appears as though these types of policies will largely fall on states to implement through their respective RTOs and ISOs.

CARBON PRICING CASE STUDY AND NEW YORK'S MODEL

There are currently 12 states considering carbon-pricing legislation. The types of carbon pricing can vary between either a cap-and-trade approach, as discussed above, or a set carbon price, based upon the social cost of carbon (SCC).[1] At least 11 states that already have carbon-pricing legislation in place use the SCC approach to better account for the impact of GHG emissions.[2] To better understand how a state may implement a carbon-pricing regime through a RTO or ISO, New York's model serves as a good case study. In 2019, New York codified one of the most aggressive GHG emissions in the country. In its 2019 Climate Leadership and Community Protection Act (CLCPA), the state mandated that 70 percent of the electricity consumed in New York come from eligible zero-emitting assets by 2030, with 100 percent being derived from those resources by 2040. To reach its aggressive climate-protection goals, the state will likely implement a carbon-pricing policy in the near future.

The New York Independent System Operator (NYISO) is the organization responsible for managing New York's electric grid and its competitive wholesale electric marketplace. The NYISO does not generate power or own transmission lines, but it is tasked with reliably operating New York's grid and plans the power system for the future. The NYISO carries out its mission through working with stakeholders, independent power producers, and utility companies to create policies and facilitate the competitive wholesale market.

The NYISO has been studying the feasibility of implementing a carbon price for the past few years. It determined that a market-based approach to pricing CO2 emissions will leverage the success of wholesale energy markets to develop the broadest possible set of low-cost, innovative carbon-abatement measures. The NYISO's carbon-pricing concept would operate in conjunction with how the state historically procures renewable energy through the purchase of renewable energy credit (REC) and zero-emission credit (ZEC) mechanisms, the Regional Greenhouse Gas Initiative (RGGI), and other existing state public policy programs. The NYISO argues that a transparent carbon-pricing concept will benefit consumers by reducing the cost of RECs and ZECs while also stimulating dynamic market responses. For instance, carbon pricing will incentivize a reduction of GHG emissions by providing a price signal for investment in upgraded fossil fuel generators or in renewable energy generators to replace energy production from older, less efficient fossil fuel units.

Another state agency in New York is also grappling with pricing carbon: the New York Department of Environmental Conservation (NYSDEC). New York's clean energy goals include generating 70 percent of the electricity consumed in the state from eligible renewable resources and reducing economy-wide CO2 emissions by 40 percent by 2030 (when compared to 1990 levels). Per the state's request, the NYSDEC finalized a guidance document on the value of carbon in December 2020. This guidance is different from a regulation and does not propose a carbon price, fee, or compliance obligation. It is a metric that will be broadly applicable to all state agencies and authorities to demonstrate the global societal value of implementing actions to reduce GHG emissions. This guidance is meant to be used by other state agencies to aid in decision-making. The NYSDEC, after public comments, decided to use a lower central discount rate, which translates into a 2020 central value of $125 per ton of carbon dioxide; $2,782 per ton of methane; and $44,727 per ton of nitrous oxide. While the NYISO is not mandated to use the NYSDEC's social cost of carbon, it may incorporate it in its carbon adder. Lastly, the state's energy regulator, the New York State Public Service Commission (NYSPSC), has also been analyzing the environmental value of adding the SCC to the value stack for distributed energy resources to reflect the 2021 interim SCC. These additions are the first of their kind and the changes in the components of the value stack for distributed energy resources will ultimately determine the energy compensation many renewable projects receive from utilities. Under this program, each project gets assigned a credit based on their SCC, and this new calculation could be used to determine the environmental component of these projects.

As the NYISO continues to evaluate its carbon-pricing policy, two state agencies in New York continue to use SCC as a price signal and a way to evaluate agency decisions. While it remains to be seen how carbon pricing gets implemented in the United States at the federal level, we will likely see these regimes implemented in states like New York.

1 "The Carbon Cost Coalition," National Caucus of Environmental Legislators, accessed July 21, 2021, https://www.ncel.net/carbon-pricing/#coalition

2 "States Using the SCC," The Cost of Carbon Pollution, accessed July 21, 2021, https://costofcarbon.org/states.

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