



Bipartisan Policy Center

Pathways to Decarbonization: Carbon Pricing

1. What Is Carbon Pricing?

Policies that put a price on greenhouse gas emissions create market-based incentives to reduce emissions and invest in lower-emitting technologies. The two main pricing policies are: (1) a carbon tax and (2) a cap-and-trade system.¹ These policies can vary in their design details, but their basic features are described below.

Under a carbon tax, the government collects a fee from entities that emit GHG—typically on a per-ton, carbon-dioxide-equivalent basis. To reduce their tax liability, entities will undertake mitigation measures to reduce their emissions below the cost of the tax. Because of the tax, technologies that are less carbon-intensive would gain a competitive advantage over technologies that are more carbon-intensive.

Under a cap-and-trade policy, the government sets a limit, or “cap,” on overall emissions. The government then distributes a quantity of allowances equal to the cap, either through a free allocation or an allowance auction (or a combination). Entities covered by the policy must hold government-issued allowances equal to their total emissions at the end of each compliance period. These allowances can be bought and sold in secondary markets, incentivizing the lowest-cost reductions and leading to a market-derived price for carbon emissions.

2. How Do Carbon Pricing Policies Work?

The two primary forms of carbon pricing rely on different mechanisms to achieve their ultimate policy goal of reducing GHG emissions. Cap-and-trade specifies a set level of emissions reduction and allows the carbon price to adjust based on market dynamics, while a carbon tax sets a fee on emissions but does not guarantee emission levels. In short, a carbon tax provides price certainty, but not emissions certainty, whereas a cap-and-trade system provides emissions certainty, but not price certainty. However, differences between the two approaches can be narrowed significantly through policy design. A carbon tax can be structured to provide greater emissions certainty and, conversely, a cap-and-trade system can be designed to provide greater price certainty. Either policy can be applied to multiple sectors across the economy or to a specific sector.

The two carbon pricing policies also differ in the complexity of their administration and implementation, though the extent of any differences will depend on details of policy design. A carbon tax generally requires changes to the tax code along with a tax collection mechanism, but it does not require a new market or administrative functions to oversee allowance (or credit) trading. A cap-and-trade system generally requires the government to establish a regulatory structure, issue allowances, and set up and

¹ Cap-and-trade policies, depending on their design, are also known as cap-and-dividend or cap-and-invest policies.

oversee an infrastructure for tracking allowances and enabling trading. As a result, cap-and-trade systems are more administratively complex and typically require more time to establish.

A policy that drives emission reductions by creating a market-based price signal—whether through a tax or a cap with trading—has several advantages over other approaches. Compared to command-and-control-type regulations, which specify rigid emissions limits for different types of entities, putting a price on carbon:

- Is technology-neutral and does not require policymakers to predict in advance where emissions can be reduced most cost-effectively;
- Will drive energy efficiency investments and the adoption of lower-carbon fuels;
- Will encourage private-sector investment and research and development into new low-carbon technologies; and
- Will generate federal revenues that can be used in various ways, including to fund other budget and policy priorities, reduce other taxes, and offset costs to businesses and consumers (for example, taxpayer dividends or credits funded from revenues from a carbon tax or from the sale of carbon allowances).

3. What Experience with Carbon Pricing Do We Have in the U.S.?

Several states have successfully implemented cap-and-trade policies to reduce GHG emissions. For example, the Regional Greenhouse Gas Initiative was launched in 2009 to cap and reduce carbon dioxide emissions from the power sector across several Northeastern and Mid-Atlantic states: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. New Jersey finalized regulations in 2019 to rejoin RGGI, and the Governors of Pennsylvania and Virginia have asserted their commitments to join RGGI in 2020. California launched a cap-and-trade program in 2013, which now covers electric power plants, industrial facilities, and fuel distributors that emit at least 25,000 tons of carbon dioxide equivalent per year.

At the federal level, the Environmental Protection Agency implemented the world's first large-scale pollutant cap-and-trade system in 1995, to address an environmental problem unrelated to climate change—that of acid rain. The policy led to dramatic reductions in sulfur dioxide emissions from power plants.

However, establishing a national trading program for GHG has proved more difficult. In 2009, the House of Representatives passed the so-called Waxman-Markey bill,² formally known as the American Clean Energy and Security Act, which would have established such a program for several GHGs, including carbon dioxide, from 2012 through 2050. However, this legislation was never taken up by the Senate.

Currently, no state has implemented a carbon tax. Further, a federal carbon tax bill has never made it to a House or Senate floor vote.

4. What Are the Key Considerations in Designing a Carbon Pricing Policy?

There are many ways to design a carbon pricing policy. Some top-line considerations include:

Stringency: If the approach is a tax, what is the level of the initial tax and should it increase over time? If the approach is cap-and-trade, what is the cap and how should it change over time? Should carbon offset credits³ be allowed to substitute for some portion of allowances?

Scope: What portion of the economy is covered by the policy? Should it be economy-wide or sector-specific? And what emissions should be covered (e.g., carbon dioxide, methane, etc.)? Generally, carbon pricing is more effective and efficient when coverage is broad because it provides more options to find the most cost-effective emission reductions.

Point of Regulation: What upstream or downstream entities have the compliance obligation to reduce their emissions?

² The bill was introduced by Reps. Henry Waxman (D-CA) and Ed Markey (D-MA).

³ Existing state cap-and-trade programs in the United States allow carbon offset credits to be used as a compliance option. An offset credit represents one ton of CO₂-equivalent GHG emissions reduction or removal (carbon sequestration) that results from an activity that meets the state's approval criteria.

Cost of Compliance: In the case of a carbon tax, at what level should government set the tax? In the case of a cap-and-trade system, what compliance cost is considered acceptable and should the system include “safety valve” provisions (e.g., price ceilings and floors) to keep compliance costs in a desired range?

Revenue: How should the revenue from a tax or from allowance sales—in the case of a cap-and-trade system—be used? Should any portion of the revenue be used to offset costs to certain stakeholders, to support advanced technology development, or to help fund other budget needs by being recycled back into the general treasury?

Regional and Distributional Impacts: How would the policy affect different U.S. regions, industries, and populations? Would some bear disproportionate costs and would the benefits be equitably distributed? A cap-and-trade system’s distributional and revenue effects can vary substantially depending on how allowances are allocated.

Interaction with Other Policies: How does the policy interact with other policies and programs, such as technology innovation programs and tax credits?

5. Is Carbon Pricing Being Considered in the 116th Congress?

Nine carbon pricing bills have been introduced in the 116th Congress, eight of which propose carbon taxes and one of which, S. 940, the Healthy Climate and Family Security Act, proposes a cap-and-trade system. The bills vary widely along several dimensions including types of emissions covered, emissions reductions targeted, initial carbon price, the rate at which the carbon price increases, and the disposition of resulting revenues:

- S. 1128, the American Opportunity Carbon Fee Act, introduced by Sen. Sheldon Whitehouse (D-RI).
- H.R. 4142, the America Wins Act, introduced by Rep. Rick Larson (D-WA).
- H.R. 5457, the Carbon Reduction and Tax Credit Act, introduced by Rep. Sean Patrick Maloney (D-NY)
- S. 2284 and H.R. 4051, the Climate Act Rebate Act, introduced by Sens. Chris Coons (D-DE) and Diane Feinstein (D-CA), and Rep. Jimmy Panetta (D-CA).
- H.R. 763, the Energy Innovation and Carbon Dividend Act, introduced by Reps. Ted Deutch (D-FL) and Francis Rooney (R-FL).
- S. 940 and H.R. 1960, the Healthy Climate and Family Security Act, introduced by Sen. Chris Van Hollen (D-MD) and Rep. Don Beyer (D-VA).
- H.R.4520, the Modernizing America with Rebuilding to Kickstart the Economy of the Twenty-first Century with a Historic Infrastructure-Centered Expansion Act, introduced by Reps. Brian Fitzpatrick (R-PA) and Salud Carbajal (D-CA).
- HR. 3966, the Raise Wages, Cut Carbon Act, introduced by Reps. Dan Lipinsky (D-IL) and Francis Rooney (R-FL)
- H.R. 4058, the Stemming Warming and Augmenting Pay Act, introduced by Reps. Francis Rooney (R-FL) and Dan Lipinski (D-IL).

