

CLIMATE CHANGE POLICY IN THE U.S.

Policymakers in the United States are considering how to address the impacts of rising global greenhouse gas emissions through three complementary approaches:

- **Reduce:** reducing emissions of greenhouse gases through policies that help the economy decarbonize
- **Remove:** accelerating the deployment of technologies to remove carbon from the atmosphere and sequester it
- **Adapt:** increasing our ability to adapt to the impacts of climate change

While all three actions are important for policymakers to pursue, policies to **reduce** and **remove** emissions are critical to avoiding the most damaging and expensive climate impacts and outcomes.

How to Reduce and Remove?

Congress can choose from three broad categories of policy in deciding how to help reduce and remove carbon. These approaches serve different purposes and can be geared towards addressing different kinds of market barriers and inefficiencies to achieving a policy objective. They exist along a spectrum from prescriptive regulations to pure market-based policies. They can be used in a complementary manner to create a hybrid approach that meets specific policy objectives, especially when addressing a complex multifaceted challenge such as climate change.

At one end of the spectrum is traditional regulation. This is a familiar model, where Congress specifies the means by which an environmental benefit will be achieved. Traditional regulations govern drinking water treatment, grazing land management, and many other areas of environmental protections. Traditional regulations are often used when Congress or an administrative agency wishes to specify exactly how a desired outcome is to be reached.

At the other end of the spectrum are market-based policies that put a price on pollution, which have successfully addressed a variety of environmental problems. These market-based policies aim to achieve environmental outcomes by creating free-market incentives for environmental protection instead of using congressionally or administratively prescribed regulatory procedures.

In between are flexible regulatory approaches that often include market mechanisms like trading and banking. For example, performance standards require entities to meet a performance benchmark and provide flexibility for how those performance standards

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are met, such as energy efficiency standards for appliances that define tons of CO₂e per product.

Market-based approaches moved out of economic literature and into practice in the 1980s. Historically, market-based policies have most often been used in the U.S. to protect air quality. Notable successes include the phase-out of lead in gasoline, addressing acid rain through sulfur dioxide emissions trading, and addressing NO_x emissions that lead to smog. Market approaches have also been used to reduce overfishing, protect wildlife habitat, and improve water quality. In general, they have produced results at a far lower cost than predicted, and at far lower costs than traditional top-down, command-and-control regulatory approaches.

What makes policies “market-based?” In general, they are structured to ensure that goods and services bear the costs of the pollution they produce. Economists refer to this as “internalizing the externality.” When a good or service bears the full cost of its negative effects, investors and consumers can make informed choices in reaction to market signals. This approach establishes a financial incentive to reduce pollution or minimize damage to natural resources and—crucially—**allows the relevant entities to choose the most cost-effective approaches to meet the policy objective**. Market-based policies are focused on outcomes, not process. Regulated entities are free to achieve a specified policy objective in a flexible manner, and by creating a financial benefit to environmental protection, they create an incentive for the greatest amount of pollution reduction to be made in the most cost-effective way. The U.S. acid rain program, for example, is a “clean air” market: Congress established a cap on the total emissions allowed in the country, and companies who reduce the most can profit from those reductions by selling their “extra” reductions to companies who find it expensive or difficult due to their industrial process to meet their emissions reduction requirements.

Market approaches are particularly well-suited to climate change for the simple reason that all reductions of greenhouse gases in the atmosphere have equal value, regardless of where they come from. In other words: it makes no difference to the atmosphere *where* a greenhouse gas is emitted, or *where* it is reduced. That fact frees policymakers to design approaches that **incentivize the private sector to chase emissions reductions wherever they can be obtained at the lowest cost**.

The financial incentive to lower emissions can be a strong driver for companies to reduce their emissions by investing in low-carbon technology innovation and deployment. Importantly, it can also be a powerful driver of investment in technologies that capture and sequester carbon, and natural climate solutions that sequester carbon in lands and forests.

Market-Based Options for Climate Change

There are a number of market-based policy models for reducing greenhouse gas emissions. Each model can be tailored by policymakers to maximize performance and minimize economic costs to help achieve the “reduce” and “remove” goals in a reduce/remove/adapt plan. And, by valuing emissions reductions equally, no matter where they come from, market forces dictate that least-cost reductions are made first. Market-based policies allow policymakers to achieve the same or greater environmental outcomes than traditional regulation, while prioritizing core economic fundamentals such as cost efficiency.

The CEO Climate Dialogue supports market-based approaches that assign a cost to greenhouse gas emissions on an economy-wide basis. Our members have not endorsed any one market-based approach. We offer this overview of a few different policy options in order to provide examples to policymakers, but it is important to emphasize that some of these approaches can be more readily employed to price carbon directly and/or on an economy-wide basis.

Carbon Taxes or Fees

One example of market-based policy is a tax or a fee that assigns a price to each unit of pollution. Under this approach, the entity producing the pollution incurs an additional production cost that is based on the amount of pollution emitted. Because of this, the entity has an incentive to reduce this cost by reducing the pollution through new processes or new technology. In this way, the tax provides a continuous incentive for innovation; the more emissions can be reduced, the less tax a company would pay.

A carbon tax has the potential to raise significant revenues for the government. Recent U.S. congressional carbon pricing bills have proposed a range of revenue uses, including funding clean technology, reducing payroll taxes, offsetting higher energy costs to low-income or vulnerable populations, allocating money to climate adaptation or resilience, or rebating some portion of the revenue to the public as a dividend (e.g., tax and dividend).

Cap-and-Trade Program

A cap-and-trade program takes a different approach. Instead of setting the price on each unit of pollution, as under a tax, policymakers instead establish an overall “cap” or limit on allowable emissions and allow market forces to set the price.

Under a cap-and-trade program, companies are required to hold a tradeable permit for each unit of their pollution. The total number of these permits, called “allowances,” equals the total allowable tons of pollution defined by the cap.

Because there is a scarcity of allowances and businesses can buy and sell them, the allowances gain monetary value and the market establishes a price. This approach can provide a continuous incentive to reduce emissions and innovate since firms can save money if they reduce their emissions and avoid buying allowances. Cap and trade mechanisms have successfully reduced ozone-depleting substances under the Montreal Protocol, acid rain under the Clean Air Act, and greenhouse gases under programs in Europe, in California, and 10 U.S. states in the Northeast and Mid-Atlantic.

Hybrid Approaches

Both types of programs – cap-and-trade and a carbon tax/fee – can be designed as hybrid programs. In the case of a cap-and-trade program, price containment provisions can establish price ceilings and floors to keep the economic impacts within a range that is acceptable to policymakers. In the case of a carbon tax/fee, the program can be designed to include what are often referred to as climate backstops or

environmental integrity provisions. Such provisions typically include automatic adjustments to the tax if emissions targets are not met.

Baseline-and-Credit Program

A baseline and credit program establishes a permissible emissions intensity for emitting activities against a baseline (either business as usual or a proportion thereof). This approach is usually sector specific. Firms that emit below this level generate “credits” that can be sold to firms that emit more than their baseline limit. For example, in the power sector, standards could be based on tons of carbon dioxide per megawatt hour of electricity produced with a given fuel. With a baseline and credit approach, retail electricity providers would be able to meet the performance-based standard either by reducing their own emissions or by buying credits from other firms where it was cheaper to make reductions.

The program to remove lead from gasoline in the 1980s, for example, used a rate-based baseline-and-credit approach to achieve reductions at much lower cost than originally anticipated.

Clean Energy Standard with Tradeable Credits

Clean energy standards are types of electricity portfolio standards typically targeted to spurring procurement of less-polluting technologies (often with specific provisions to favor one or more particular technologies) in the electric power sector. These standards can be designed so that each retail electricity provider within a particular jurisdiction must obtain a certain percentage of its delivered electricity from a defined set of clean or renewable sources. To be considered a market-based policy that creates a continuous incentive to reduce emissions, this mechanism would be designed to allow a retail electricity provider that exceeds the standard to create tradable credits that can be banked for future use or sold to other utilities for their compliance obligations. Twenty-nine states and the District of Columbia already have their own clean or renewable electricity standards in place, some of which are tradeable.

About the CEO Climate Dialogue

The CEO Climate Dialogue (CCD) is a coalition of 21 companies with over \$1.4 trillion in combined annual revenue and four leading environmental non-governmental organizations working in partnership to advance effective economy-wide solutions to climate change. Acting sooner rather than later allows us to meet the climate challenge at the least possible cost and put the necessary investments in place in time to meet our emissions targets. The CCD has established six guiding principles for legislation that – taken together – can help ensure success:

1. Significantly reduce U.S. greenhouse gas emissions so that the U.S. is demonstrably a leader on global efforts to effectively limit climate change. Specifically, U.S. policy should ensure the country is on a path to achieve economy-wide emissions reductions of 80% or more by 2050 with aggressive near and mid-term emission reductions commensurate with this goal.

2. Effective: A key test of any climate policy is whether it will deliver timely emissions reductions across the economy and includes mechanisms that provide certainty that emission goals are met. The timeline for reductions must allow capital intensive industries to adjust in an economically rational manner.

Policies must encourage investment and planning decisions consistent with the timeframes needed. Policies must focus on emissions reductions outcomes, not specific resources, or technologies.

3. Market-based: An economy-wide price on carbon is the best way to use the power of the market to achieve carbon reduction goals, in a simple, coherent, and efficient manner. We desire to do this at the least cost to the economy and households. Markets will also spur innovation and create and preserve quality jobs in a growing low-carbon economy.

4. Durable and responsive: Well-designed and stable policies will deliver predictable results and increase public support over time, providing durability across time and political cycles. Policies should be adaptive over time in terms of pace and scope of reductions as our understanding of climate change, policy impact, and technological changes evolves.

5. Do no harm: Policies must support the competitiveness of the U.S. economy. Policies must address emissions leakage that can undermine climate objectives. Policies must also safeguard against negative impacts on biodiversity, land, and water.

6. Promote equity: Unabated climate change is a major threat to the U.S. economy. Therefore, policies to address climate change, which may also entail some cost, must provide transparency, and promote affordability while distributing costs and benefits in such a way that promotes equity. Policies must include mechanisms to invest in American workers, and in disadvantaged communities that have the least resources to manage the costs of climate change.

