



Implementation Guide

Cap and Invest for Equitable Decarbonization

States are setting climate goals that will require whole sectors of industry to drastically decarbonize. This presents market transformation barriers, two of which are: 1) some of the necessary technology to make this shift still does not exist, and 2) it is likely there will be many different solutions. Cap and invest policies can be a great tool to regulate carbon emissions without forcing specific solutions. Starting with the first-ever [cap and trade program](#) in 1990, emission pricing mechanisms – from carbon taxes to cap and trade – have served as an effective way to regulate industry emissions and encourage innovation to identify solutions. Now, as states implement ambitious decarbonization plans, they can use cap and invest policy as a tool to regulate these emissions.

What are Emission Pricing and Cap and Invest Mechanisms?

The authority to create emission pricing mechanisms, such as emission taxes or cap and invest programs, comes from the [Clean Air Act](#) (CAA) which gives federal and state governments the [power to regulate air emissions](#) from stationary and mobile sources. Unlike other air regulations, which rely on permits to regulate the release of emissions, these policies use market forces to price a pollutant and encourage market innovation to identify how to reduce and eventually eliminate emissions. There are three main mechanisms for pricing air emissions: 1) an emission tax, 2) cap and trade, and 3) cap and invest. All three internalize the cost of air pollutants with the goal of accelerating emissions reductions.



Emission Tax

Programs apply a price to each metric ton of a pollutant emission, such as carbon dioxide. This mechanism increases the costs of emissions to encourage businesses to lower pollutants.



Cap and Trade

Programs set a cap that declines over time and create a limited pool of credits that regulated entities can buy or bid on in an auction to allow them to pollute. This allows the market to determine the price of emissions.



Cap and Invest

Programs operate similar to cap and trade programs, but auction allowances are invested into programs that further the policy and uplift communities.

While all three can internalize costs, cap and invest offers the ability to lower emissions and invest in complimentary policies. This guide will outline important considerations for designing a cap and invest program that align with decarbonization goals. First, the guide will outline what can be capped and how strategic investments can increase a program's success. Finally, the guide will outline two important policy considerations that should be embedded in every part of cap and invest program implementation: centering equity and investing in the clean energy transition.



Capping Pollutants

The first part of a cap and invest program is determining what can be capped. Unlike typical air regulations, which regulate stationary sources such as smoke stacks or tail pipes, cap and invest mechanisms cap the amount of a pollutant that a sector is allowed to emit. Companies that emit this pollutant then buy and sell rights to emit the pollutant in an auction. This auction sets a price to pollute in that sector and drives regulated entities to achieve climate goals in a [flexible and cost-effective manner](#). Below are some examples of what can be capped:



- **Emissions Tied to Statewide Climate Goals:** [California’s cap and trade program](#) is a key element of the state’s strategy to reduce greenhouse gas emissions as mandated in the [California Global Warming Solutions Act of 2006](#). The program was set up through [regulations from the California Air Resources Board \(CARB\)](#), after CARB had concluded that a cap and invest program would be the best policy to achieve the state’s climate targets and not disproportionately impact businesses or environmental justice communities across the state. The program covers 85 percent of emissions in the state of California, and regulates about 450 entities including: electricity generators, large industrial facilities, and fuel distributors who deliver gas for transportation, natural gas, and propane. In 2021, Massachusetts passed the [Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy](#). This legislation identifies a market-based compliance mechanism as a tool to achieve the emissions reduction mandated by the law.
- **Electric Power Generation:** [The Regional Greenhouse Gas Initiative \(RGGI\)](#) is a multi-state cap and invest program that regulates carbon emissions from fossil-fuel-fired electric power generators with a capacity of 25 MW or greater. This model embeds the price of emitting carbon into the cost of running power plants, convincing some companies to consider alternatives for electricity generation. RGGI is a voluntary program that [was formed in 2012](#) with nine states originally participating. Four additional states have recently joined, nearly doubling the size of the program. RGGI and similar programs can target large and small generation facilities. For example, New York also regulates emissions for “[peaker plants](#)” (generators with [15 MW capacity](#)) to avoid shifting generation to slightly smaller peaking units that RGGI did not previously regulate.
- **Cities and Urban Buildings:** Tokyo, Japan implemented a [city-wide cap and trade program, the Tokyo CO2 Emissions Reduction Programme \(CERP\)](#), in 2006. This program aims to lower emissions across the entire city by capping the emissions of large businesses. It includes different sector caps for office buildings, district heating and cooling plants, and certain factories, water and sewage facilities, and waste processing facilities. Tokyo was the first large-scale city to implement a cap and trade system that focuses on commercial activities and the end-use of energy. CERP has also resulted in complementary building reduction emissions policies in the city, including an emissions reporting program for small- and medium-sized facilities and a building performance standard (BPS).



Investments that Accelerate Decarbonization



The second part of a cap and invest program is investment. Even when programs are run through a regional or international organization, all auction proceeds come back to the state for investment in programs as it sees fit. While cap and invest programs can regulate emissions from whole sectors, such as electric generation, the proceeds from auction, or investments, can provide a range of services from weatherizing homes to investing in local conservation efforts. Below are some highlights from programs in the U.S.

- **RGGI and Energy Efficiency:** RGGI has a [model rule](#) that states enact to join the program, but each state has the flexibility to decide how to best distribute emissions auction allowances and invest these proceeds. This means that states can [tailor investments](#) to complement RGGI. Energy efficiency has [received 54 percent of investments cumulatively](#) since the program's creation, resulting in programs that reduce consumer bills and power demand. These investments have ranged from heat pump initiatives in Maine to establishing the [Green Bank](#) in Connecticut. Additionally, states have used this funding to create or supplement energy efficiency initiatives in a state. Vermont used RGGI funding to establish [Efficiency Vermont](#).
- **California and Climate Investments:** The [California Climate Investments](#) program is funded solely by the state's cap and invest program. Program [revenues are appropriated to state agencies](#) that support objectives provided in legislation. This broad mandate allows the program to invest in initiatives that accelerate clean energy in [many different forms](#). The program also has a [data tracker](#) to show where investments have gone to date.

Policy Consideration: Centering Equity



When designing cap and invest programs, it is important to center equity. History has shown that without purposeful design, these programs can result in [disproportionate impacts and exacerbated burdens](#) in underserved communities. For cap and invest policies, inequities can appear in both how the cap is established and how investments of these proceeds are made. Thus far, states have addressed this issue through requiring a certain level of investment funding, but it is important that equity solutions go beyond financing. These programs should advance energy justice that is cognizant of historical racial injustices, local economic hardships, and present-day energy inequities. Some ways to do this include:

- Prioritize extensive, highly-accessible community engagement in every stage of program design and implementation.
- **Embed guardrails in program implementation** to ensure that heavy polluting industries do not disproportionately burden underserved communities. In California's cap and invest program, underserved ["fence-line" communities](#) are located next to plants that are able to buy enough credits to stay in operation and disproportionately pollute these neighborhoods.
- **Prioritize restorative justice in investments.** Programs can prioritize restorative justice in investments by (1) identifying explicit investment priorities for all different types of communities (frontline, majority



minority, energy burdened) that invest in the people, buildings, and local businesses located in those communities, including investments in community spaces and workforce development; (2) prioritizing community-level capacity building, including paid positions for community leaders or organizations throughout the process, from roles on advisory committees to roles helping implement programs, to roles in post-outreach evaluation; and (3) collaborating with other agencies or organizations across sectors to address multiple issues at once (such as housing availability and affordability, displacement, and public health) and leverage complementary programs to maximize co-benefits.

Policy Consideration: Clean Energy Transition

Cap and invest programs, when successful, help the economic transition away from carbon and industries that release harmful pollutants. As cap and invest programs are designed, it is also important to be cognizant of the impacts this transition will have on workers and communities built around regulated industry. This issue has become most apparent in states that belong to RGGI since the program embeds the cost of emitting carbon into the operating costs of fuel-fired power plants. This forces some power plant owners to consider transitioning their generation to new alternatives. With this shift, it is important to consider the communities that will be impacted by sudden plant closure and job displacement. Below are a few ways to embed the clean energy transition into these programs:



- **Transitioning Industry:** When designed correctly, these programs can be used on a large scale to transition industry away from fossil fuels and towards clean energy, but it is important to consider this transition's impact on workers. In 2009, the [American Clean Energy and Security Act](#) (ACES Act) was proposed to create a national greenhouse gas cap and trade program for large stationary sources, which [included](#) electricity producers, oil refineries, natural gas supplies, and energy intensive industries. The bill also outlined money to help U.S. workers transition away from fossil fuel-dependent industries.
- **Helping Surrounding Communities:** RGGI states [New York and Massachusetts](#) have used investment funds to replace lost local tax revenues in affected communities and prepare old factory sites for re-use by new businesses. Workforce training and transition should also be an important touchstone of these policies.
- **Uplifting Workers:** Pennsylvania is in the process of joining RGGI and has [prioritized transitioning coal and other industrial communities](#) as part of this process. The state is still identifying spending avenues, but has proposed an Energy Communities Trust Fund which would provide direct support to address the loss of jobs and economic activities in affected communities.

Implementing Cap and Invest for Equitable Decarbonization

Cap and invest allows for market innovation to find appropriate climate solutions and can be a great tool to regulate emissions of whole industries. Further, these programs can help states achieve climate and equity goals in both implementation and investment. Now is the time for states to cap and invest to accelerate decarbonization and achieve climate goals.