

Market-Based Strategies for State Carbon Policy

Description:

The international scientific community has determined that steep and rapid reductions in global greenhouse gas (GHG) emissions are needed to avoid the worst impacts of global warming and climate change. Federal and state policy interventions are necessary to transform our energy systems and rapidly reduce GHG emissions in the U.S. In general, effective policies will:

- 1) Establish performance standards and place enforceable limits on carbon pollution;
- 2) Provide financial incentives for individuals, businesses, and industry to choose clean energy and greatly improve energy efficiency;
- 3) Spur public and private investment in clean energy infrastructure, including investment in advanced transportation systems for the movement of people and goods; and
- 4) Provide funding for research, development, and demonstration of technologies that will underpin the decarbonization of the US economy.

Discussion of the Policy:

GHG Emissions Monitoring and Reporting

First, to effectively implement policies that reduce emissions, a mandatory system for monitoring, reporting, and verifying greenhouse gas (GHG) emissions must be put in place. While the U.S. EPA has GHG reporting requirements, the federal reporting requirements focus on major industrial sources leaving significant gaps in the information states need to fully understand their emissions profile.

States can enact legislation that requires annual GHG reporting and establishes emissions baselines from which to measure progress. A recent example of such state legislation is Colorado's [SB19-096](#). The bill appropriates funds and designates the state air commission to administer new mandatory tracking and reporting rules. The bill's intention is to fill gaps left by the federal reporting requirements and to build a granular understanding of the state's past, current, and future emissions. It requires biennial public reporting, as well as forecasting of future emissions to monitor progress toward the state's GHG reduction goals.

Other states that have GHG reporting requirements include California, Connecticut, Iowa, Massachusetts, Minnesota, New Jersey, Oregon, Vermont, and Washington.¹

Cap-and-Trade / Cap-and-Invest

Cap-and-trade policies place enforceable limits on carbon emissions that cannot be exceeded by regulated entities without penalty. Emissions allowances are allocated or sold to companies by the state and sources must hold an allowance for each ton of carbon they emit in a given year. Emissions caps and available allowances are reduced every year, requiring that industries reduce their emissions or pay higher market prices for available allowances.

Key considerations in the development and implementation of cap-and-trade programs include:

- Scope – What sources will be regulated?

¹ <https://www.ncsl.org/research/energy/greenhouse-gas-emissions-reduction-targets-and-market-based-policies.aspx>

- Cap setting – What is the goal and how will the cap be ratcheted down each year to meet that goal?
- Allowance allocation – Will allowances be freely allocated to sources, sold by the state at auction, or distributed through a hybrid approach?
- Use of program revenue – Will the state refund the revenue or use it to fund activities that enable the transition to a low carbon economy?

Example Programs:

[Western Climate Initiative](#): The Western Climate Initiative (WCI) is an economy-wide cap and invest program jointly implemented by California and Quebec since 2013. This program covers approximately 80% of all GHG emissions and has generated almost \$22 billion for the State of California and California's utilities since inception. By placing a declining cap on emissions and requiring sources to purchase an allowance for each ton they emit, the program creates a financial incentive for industries to invest in clean technologies and develop innovative ways to reduce pollution. Further, [the state uses the proceeds](#) from the sale of allowances to invest in renewable energy, public transportation, zero-emission vehicles, environmental restoration, sustainable agriculture, recycling, and other actions. At least 35 percent of these investments are made in disadvantaged communities and low-income communities and households. California's cap is designed to achieve a 40% reduction in GHG emissions by 2030.

[Regional Greenhouse Gas Initiative](#): The Regional Greenhouse Gas Initiative (RGGI) is the first mandatory market-based program in the United States to reduce GHG emissions. RGGI is a cooperative effort among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont to cap and reduce CO₂ emissions from the power sector. Virginia and Pennsylvania have plans to join in the near future.

Following a comprehensive 2012 Program Review, the RGGI states implemented a new cap. The RGGI CO₂ cap represents a regional budget for CO₂ emissions from the power sector and that cap has declined by almost 60% since the program began in 2009.

States sell nearly all emission allowances through auctions and invest proceeds in energy efficiency, renewable energy, and other consumer benefit programs. These programs are spurring innovation in the clean energy economy and creating green jobs in the RGGI states. Total auction proceeds to date total over \$3.5 billion. See this [reinvestment](#) page for more detail on how RGGI states have reinvested the auction proceeds to benefit consumers and further reduce pollution.

Carbon Tax

Carbon taxes impose a price on each ton of carbon emitted and are levied on the purchase and use of fossil fuels by business and industry. That cost is subsequently reflected in consumer prices. If carbon taxes are levied at a high rate they will discourage the use of high GHG emitting resources and technologies, encouraging a market switch to new technology. Alternatively, carbon taxes can be set at a lower rate, which will have a limited impact on market behavior, but the revenue can be substantial and that revenue can be invested in energy efficiency and emission reduction technologies which will result in lower emissions.

Example Program:

[British Columbia's Carbon Tax](#): In 2008, British Columbia implemented North America's first broad-based carbon tax. The carbon tax applies to the purchase and use of fossil fuels and covers approximately 70% of provincial GHG emissions. On April 1, 2019, B.C.'s carbon tax rate rose from \$35 CAD to \$40 CAD per ton of CO₂e. For reference, that translates to approximately \$0.34 CAD/gallon of gasoline. Traditionally, the tax is raised every year to

encourage continued efficiency measures, but legislation allows for flexibility in times of economic hardship. Tax increases were suspended in 2020 due to the Covid-19 crisis.

B.C.'s tax credit is mostly revenue neutral with the carbon tax revenue refunded, less administrative fees, in the form of reductions in other taxes and as tax credits to citizens on a sliding, income-based scale. This approach to tax distribution prevents lower income consumers from carrying a disproportionate share of the tax burden. B.C.'s government increased the Climate Action Tax Credit to \$154.50 CAD per adult and \$45.50 CAD per child as of July 1, 2019. The government also offers several [carbon tax programs](#) for businesses and local governments. At the same time, the carbon tax provides a signal across the economy to reduce emissions and encourages sustainable economic activity and investment in low-carbon innovation.

Emissions Performance Standards

The [Low Carbon Fuel Standard](#) (LCFS) implemented by both Oregon and California is another example of a flexible, market-based approach to regulating carbon emissions at the state level. Transportation sources now emit more GHGs than any other sector, and rapid reductions from all types of vehicles, engines, and equipment is critical to achieving carbon reduction goals.

LCFSs regulate the carbon intensity of transportation fuel in order to reduce the use of petroleum-based fuels and promote investment in low-carbon options (electrification, biofuels, hydrogen, etc.). The market mechanism LCFSs use is a crediting system whereby fuel providers obtain a credit or a debit for each unit of fuel they provide to determine if they have met the carbon intensity standard for that year. For instance, California's Air Resources Board puts gasoline and diesel fuels through a GHG life-cycle assessment. Each fuel type is assigned a carbon intensity (CI) score. The allowable CI score is decreased yearly, requiring a switch to lower CI fuels. Entities who provide fuel below the regulated CI score earn credits. These credits can be sold to providers who operate at a deficit (above the mandated CI score), generating income and market incentive for investment in cleaner fuels.

California's LCFS sets a goal to reduce carbon intensity 20% by 2030 from a 2010 baseline.² Oregon's current reduction timeline is 10% by 2025 from a 2015 baseline, but an executive order issued in March 2020 expanded reduction targets to 20% by 2030 and 25% by 2035, also using the 2015 baseline.³

Other Policies Under Consideration

- [Citizen's Climate Lobby, H.R 736](#): Although this is a federal carbon tax bill introduced in the House of Representatives, similar measures can be adopted at the state level. As a revenue neutral carbon tax, all funds would be returned to citizens as a carbon dividend.

The tax is levied against the use of fossil fuels on an increasing scale over time. Increasing tax levies encourage businesses and individuals to invest in lower emitting technologies. Because this tax is given directly back to citizens, it has a political advantage over programs that give revenue control to the state. To maintain competitiveness, imported goods from non-participating members are taxed a "border carbon adjustment" and exported goods may receive a refund.⁴

The [Climate Leadership Council](#) backs a similar federal carbon tax.

- [Transportation and Climate Initiative \(TCI\)](#): TCI is a first of its kind effort between 12 East Coast states⁵ and the District of Columbia, using cooperation to improve regional transportation while simultaneously reducing emissions. Under the proposal, the TCI states would implement a cap-and-invest program for the

² https://ww2.arb.ca.gov/sites/default/files/2020-06/basics-notes_1.pdf

³ <https://www.oregon.gov/deq/aq/programs/Pages/Clean-Fuels.aspx>

⁴ <https://citizensclimatelobby.org/energy-innovation-and-carbon-dividend-act/>

⁵ Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Virginia.

transportation sector that operates in a manner similar to RGGI, which covers the electric power sector (as described above). This program operates at the nexus of environmental, transportation, and economic development policy.

TCI also coordinates individual projects within the larger initiative and each jurisdiction decides if and how to participate. One such program is the [Northeast Electric Vehicle Network](#), coordinating electric vehicle infrastructure between New England and the District of Columbia. Another working group focuses on [Freight Efficiency](#), aiming to minimize both the congestion and emissions associated with shipping freight across the region.

The TCI states are currently developing an memorandum of understanding on program design. Ultimately, each state might need/want legislative direction to implement the program.

More Information

- Center for Climate and Energy Solutions (C2ES), Cap and Trade Basics: <http://www.c2es.org/content/cap-and-trade-basics/>
- C2ES, Carbon Tax Basics: <https://www.c2es.org/content/carbon-tax-basics/>
- C2ES, Low Carbon and Alternative Fuel Standard: <https://www.c2es.org/document/low-carbon-fuel-standard/>