



ENVIRONMENTAL DEFENSE FUND

finding the ways that work

THE CASE FOR CAP AND TRADE

As Congress crafts its own climate change policy, it is useful to revisit the reasons why cap-and-trade is the best approach to address the challenge of climate change.

A good starting point is a reminder of what makes cap-and-trade different from conventional regulatory mechanisms aimed at reducing pollution. “Cap-and-trade” is not a three syllable word, but a policy with two equally important parts. The cap limits emissions, and will decline over time; the trade lowers compliance costs by letting the market, rather than the government, determine how to meet the cap.

This short primer explains the key advantages of cap-and-trade. To support our arguments, we draw on studies by researchers at MIT and Resources for the Future, and by a blue-ribbon panel of market experts convened by California Governor Arnold Schwarzenegger. As these excerpts attest, well-designed cap-and-trade policies are an environmentally effective and economically efficient approach to cutting pollution. (References are noted in brackets and listed at the end of the document.)

Cap-and-trade achieves environmental results at lower costs.

A chief advantage of cap-and-trade is that it lowers the overall costs of the program. The reason is simple: The cap sets the overall goal, but trading lets individual businesses determine the cheapest and best ways to get there. Lower costs are not only important in their own right; they also mean that we can afford to make deeper cuts under a cap-and-trade program than with conventional approaches. Cap-and-trade also keeps administrative costs down by lessening the informational burden on regulators.

- California’s Market Advisory Committee recommended a cap-and-trade approach for “its potential to achieve the emissions-reduction target at lower cost than would otherwise be possible.” [1]
- Experts at MIT noted that cap-and-trade “provides a framework to meet emissions reduction goals at the lowest possible cost...by giving emissions sources the flexibility to find and apply the lowest-cost methods for reducing pollution. Emission sources with low-cost compliance options have an incentive to reduce emissions more than they would under command-and-control regulation.” [4]
- “Administrative costs can be lower because regulators are relieved of responsibility for establishing specific targets on a facility-by-facility basis.” [1]

The real-world cost savings from cap-and-trade have been substantial.

The gains from using cap-and-trade are not just theoretical. The landmark 1990 Clean Air Act Amendments created an emissions trading system for sulfur dioxide (SO₂), a key precursor to acid rain. Economic analysis has shown that cap-and-trade saved hundreds of millions of dollars a year.

- “Savings under the trading program amounted to 43-55% of expected compliance costs under an alternative regulatory program that imposed a uniform emission standard.” [1]
- A widely cited economic study of the 1990 Clean Air Act found that “in the long run, allowance trading may achieve cost savings of \$700-\$800 million per year compared to an ‘enlightened’ command and control program characterized by a uniform emission rate standard. The cost savings would be twice as great if the alternative to trading were forced scrubbing.” [2]

- Over the first 13 years of the program, the ability to trade allowances nationwide across affected units and through time is estimated to reduce compliance costs by a total of \$20 billion, a cost reduction of about 57 percent from the assumed command-and-control alternative. [4]
- “The available evidence suggests that the increased compliance flexibility of emissions trading yields costs savings of as much as 50 percent.” [4]

Cap-and-trade gives firms flexibility in meeting environmental goals.

Cap-and-trade programs build in a wide range of flexibility measures. Trading means that the firms that can cut emissions cheaply will do more, lowering costs overall. Banking and borrowing provisions lets firms manage their compliance costs over time. In the context of climate policy, cap-and-trade would include a third flexibility mechanism: rigorously verified “offset credits” for emissions reductions outside the cap — resulting, for example, from the adoption of no-till methods on American farms, or reduced deforestation in tropical forests. Put these together, and the result is “what, when, and where flexibility” that drives down the costs of compliance while ensuring that the environmental goal is met.

Trading

- “The flexibility of the trading program has encouraged utilities to capitalize on advantageous trends, such as changing fuel prices and technological innovation that might have been delayed or discouraged by traditional regulatory approaches.” [2]
- “By giving firms the flexibility to reallocate (trade) emissions credits or allowances among themselves, trading can reduce the compliance costs of achieving the emissions target... Differences in emission control costs across emissions sources create the opportunity to reduce costs through trading.” [4]

Banking

- “Enhanced environmental performance can be attributed to the increased flexibility associated with emissions trading. Where emission reduction requirements are phased in and firms can bank emission reductions — as was the case in the Lead Trading, Acid Rain, ABT, and Northeast NOx Budget Programs — the achievement of the required emission reduction has been accelerated.” [4]
- “The reason for the remarkable reduction in [SO₂] emissions in 1995 is the availability of ‘intertemporal trading’ in the form of banking. The prospect of higher marginal abatement costs after 2000 made abating more than required in Phase I an appealing option for smoothing the transition to the more demanding Phase II cap. As a result, the reduction in emissions experienced in Phase I was about twice what would have been required to bring emissions below the level allowed in these years.” [4]

Cap-and-trade policies encourage technological innovation.

By putting a price on pollution, a cap-and-trade policy gives firms a strong economic incentive to reduce their costs through technological innovation.

- “Since allowances are valuable, cap-and-trade programs give firms continuing incentives to identify low-cost reduction opportunities... The cap not only limits emissions, it creates a market for emissions allowances where every ton of emissions has a price. This price provides sustained incentives for developing new technologies that can reduce GHG emissions.” [1]
- “The incentive to abate in cap-and-trade programs, where there is no specific standard for any single plant, is continuous and any improvements in abatement technology will result in allowance savings.” [4]

Cap-and-trade policies achieve their environmental goals.

Cap-and-trade programs have a sterling compliance record. Under past command-and-control approaches, firms with high abatement costs have fought to weaken the regulation and to delay its implementation. However, under cap-and-trade, flexibility and incentives make it cheaper for firms to comply than to seek the

relaxation of the cap. And with banking, firms have an incentive to act *ahead* of schedule, rather than delaying it.

- “Four features describe the environmental performance of the Acid Rain Program [the SO₂ trading program]. First, a large reduction of emissions was accomplished relatively quickly—in the fifth year following passage of the enabling legislation. Second, the schedule of emission reduction was accelerated significantly as a result of banking. Third, no exemptions, exceptions, or relaxations from the program's requirements were granted. Fourth, the ‘hot spots’ that were feared to result from emissions trading have not appeared.” [3]
- Emissions trading makes it “cheaper for these firms to comply than to seek some relaxation of the standard. Moreover, the existence of a market removes the primary reason for seeking relaxation: unique hardship due to the uniform application of a rule to source-specific circumstances. No one is uniquely disadvantaged in a market with many buyers and the highest cost is that of a permit. The happy result is a regulatory system in which compliance has been made cheaper than seeking some type of relaxation.” [3]
- The SO₂ program “was implemented without the granting of the exemptions, exceptions, or relaxations of the regulatory requirement that are typically issued to avoid the undue hardship that can result when a more or less uniform mandate is imposed on sources exhibiting cost heterogeneity.” [3]
- “Allowing firms that face high marginal costs of abatement, or even technical infeasibility, to comply with environmental requirements by buying allowances — effectively paying others to reduce more on their behalf — has eliminated one of the features of command-and-control programs that diminishes environmental effectiveness. In a command-and-control program, economic hardship or technical barriers can be dealt with only by relaxing the emissions standard in some way. While often justified, these exceptions reduce the regulation’s environmental effectiveness because they are one-sided: standards are relaxed to avoid “hardships” for some facilities, but increased emissions cannot be offset by increasing standards at facilities for which abatement is less expensive or easier technologically.” [4]

References

[1] California Market Advisory Committee, "Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California," recommendations to the California Air Resources Board, June 30, 2007.

[2] Carlson, Curtis, Dallas Burtraw, Maureen Cropper, and Karen Palmer, "Sulfur Dioxide Control by Electric Utilities: What Are the Gains from Trade?" *Journal of Political Economy* vol 108, no. 6 (2000).

[3] Ellerman, Denny A, "Are Cap-and-Trade Programs More Environmentally Effective than Conventional Regulation?" Center for Energy and Environmental Policy Research, Massachusetts Institute of Technology, October 2003.

[4] Ellerman, A. Denny, Paul L. Joskow, and David Harrison, Jr., Emissions Trading in the U.S. — Experience, Lessons, and Considerations for Greenhouse Gases, Pew Center on Global Climate Change, May 2003.