



Global Warming Campaign

CAP & TRADE PROGRAMS

Concerns about global warming are fostering creative strategies for reducing our emissions of heat-trapping greenhouse gases such as carbon dioxide (CO₂). A common feature among these climate strategies is a “cap-and-trade” system for reducing emissions. These systems rely on the marketplace to reduce emissions in a cost-effective and flexible manner.

In practice, cap-and-trade systems create a financial incentive for emission reductions by assigning a cost to polluting. First, an environmental regulator, like the Environmental Protection Agency, establishes a “cap” that limits emissions from a designated group of polluters, such as power plants, to a level lower than their current emissions. The emissions allowed under the new cap are then divided up into individual permits—usually equal to one ton of pollution—that represent the right to emit that amount.

Because the emissions cap restricts the amount of pollution allowed, permits that give a company the right to pollute take on financial value. Companies are free to buy and sell permits in order to continue operating in the most profitable manner available to them. So, those that are able to reduce emissions at a low cost can sell their extra permits to companies facing high costs (industry will generally prefer to buy permits rather than make costly reductions themselves). A key advantage of a cap-and-trade system compared with other emission reduction strategies, such as a carbon tax, is that it gives companies flexibility in the manner in which they may achieve their emission targets. Another advantage is that it sets a clear limit on emissions. Traditional approaches often focus on emission rates or require the best available technology, but do not always require that specific environmental goals be met. For example, a carbon tax penalizes polluters but does not guarantee the degree to which the environment will benefit, because some companies might find it easier to pay the tax instead of reducing emissions.

SMALL-SCALE EXAMPLE

In a real-world cap-and-trade system, permits would be traded between many polluters and at varying prices. Trading pollution reductions will result in exactly the same reduction of total emissions as long as the “cap” is maintained overall. Cap and Trade systems allow regulated industries to keep economic disruption to a minimum. Let’s assume it will cost Factory A \$100 to cut the last ton of pollution to stay within their permitted allowance. But Factory B can cut its emissions at a cost of \$50 per ton. Factory B

decides to cut an additional one ton of pollution beyond their allowance, creating an opportunity for Factory B to put its extra ton of reduced pollution up for auction or trade.

Let's say Factory A bids and wins the auction at \$70. Factory A pays \$70 to Factory B and saves \$30; Factory B has been able to sell that one ton reduction for \$70 and is ahead \$20. The overall "cap" is achieved, the same pollution reduction goals are realized, but at a savings of \$30 in overall reduction costs. The cost for each plant to make emission reductions depends on factors such as plant efficiency and the type of fuel used (e.g., coal, natural gas).

Under a cap-and-trade system, each plant seeks out the lowest-cost way to reduce emissions. Initially, Plant B is able to reduce its emissions at a lower cost than Plant A, so it reduces its pollution below the cap and sells its permits to Plant A. However, the more Plant B reduces its emissions, the more expensive it becomes to make further cuts. Eventually, both plants reach a point where their cost to reduce an additional ton of pollution is equal. The end result of the cap-and-trade system is that the two plants are able to reach the emission reduction goal set under the cap, but at a lower cost.

ENCOURAGING AMERICAN INNOVATION

In the United States, cap-and-trade systems first gained prominence when amendments to the 1990 Clean Air Act established the first cap-and-trade system to reduce emissions of sulfur dioxide (SO₂), the primary cause of acid rain. This system has proven to be such an environmental and economic success—reducing SO₂ emissions at a fraction of the expected costs—that the European Union borrowed directly from it to design its cap-and-trade system for CO₂ emissions, which went into effect earlier this year. In general, cap-and-trade systems work best when the emissions have a negative impact on broad geographic areas or, in the case of global

warming pollution, globally. These systems are also successful when the cost of reducing emissions among polluters varies, and when emissions can be consistently and accurately measured. Global warming pollution such as CO₂ is an ideal candidate for regulation under a cap-and-trade system because it mixes equally throughout the atmosphere and therefore has a global impact regardless of its geographic source. Furthermore, there are many sources for these emissions, they face different reduction costs, and measuring these emissions is relatively simple.

Other emission reduction approaches are preferable to cap-and-trade, in some cases. For example, less flexible regulations are more appropriate when the negative impact of pollution is direct and localized (such as fish kills from an industrial discharge of toxic water) rather than indirect and global (as with climate change). Cap-and-trade systems are also not very beneficial if the polluters have identical costs for reducing emissions, or if policy makers prefer to be more certain about how much the program will cost rather than how much the environment will benefit.

Cap-and-trade systems do, however, exert constant pressure on polluters to reduce emissions while allowing flexibility in the process. This encourages companies to meet (or exceed) their emission targets in the most innovative and cost-effective way possible. By promoting innovation, cap-and-trade systems can help slow the pace of global warming while spurring the development of new technologies and industries that will contribute to the long-term growth of the U.S. economy.

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