Paying to pollute

System would limit emission, allow trading of credits

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It costs nothing to pump greenhouse gases into the air.

No money, at least. For as long as human beings have used fire -- whether to make steel or cook mastodon meat -- they have poured carbon dioxide into the atmosphere without paying any financial price.

That is starting to change.

Driven by fears of global warming, countries and states are trying to place a price tag on emissions of carbon dioxide, the gas considered most responsible for rising temperatures.

They are turning to a system called "cap and trade," which limits the overall amount of carbon dioxide an area or industry can emit and then lets individual companies buy and sell credits to release specific amounts of the gas.

The cap-and-trade concept is considered an alternative to strict government mandates. It tries to use market dynamics to cut pollution, allowing flexibility on emission levels -- for a price. Emissions that were free in the past, regardless of their environmental cost, now would cost an amount set by the market.

In theory at least, it allows businesses that emit carbon dioxide to choose the most cost-effective way to cut their emissions. And it gives them leeway in the speed of their cuts.

"They seem to like the cap-and-trade concept because it's got some flexibility," said Diane Wittenberg, president of the California Climate Action Registry, which helps businesses calculate and track their emissions. "It makes companies more innovative."

Europe has a carbon dioxide market up and running, with release of a ton of gas now trading at 27 euros, about $32. New York and six other Eastern states plan to open one in 2009. California energy regulators last week took the first step toward such a system, adopting a policy to limit the amount of greenhouse gases produced by several of the state's electrical utilities. A voluntary market was started two years ago in Chicago, with carbon credits now selling for $2 per ton, a level some consider artificially low.

The basic idea has been used before to control the pollutants behind acid rain. Debate rages over whether it will work with carbon dioxide or other greenhouse gases.

But many state officials have decided the idea warrants a try, considering the severity of the threat. Despite resistance from the federal government, they want the rest of the nation to follow their lead.

"We hope that the parallel efforts on both coasts to reduce greenhouse gas emissions will help move the ball forward on initiatives to reduce emissions and mitigate global climate change in the United States and around the world," said Michael Peevey, president of the California Public Utilities Commission. The panel voted last week to limit carbon dioxide emissions at some point in the future, with the exact level still to be set.

The idea has enough momentum that some energy companies consider it unavoidable.

"We absolutely think this is inevitable," said Wendy Pulling, director of environmental policy at Pacific Gas and Electric Co. "Not only do we think it's inevitable, we're actually advocating for market-based federal legislation. And we're actively planning for it."

The concept, however, has many critics, from free-marketeers to environmentalists.

The latter say cap-and-trade systems can die in the details. If the limits are set too high and the reduction targets too low, companies won't have an incentive to cut their emissions.

"We think that it is very easy to craft a carbon-trading system that doesn't work and is full of holes," said David Hamilton, director of the Sierra Club's global warming and energy program. "It's very difficult to craft one that works."

Free-market advocates, meanwhile, say the idea is heavy-handed government regulation in a disguised form. It will raise electricity bills and lead to government rationing of the right to emit carbon dioxide, they argue.

"It's a sneaky way of putting a tax on things, essentially," said Myron Ebell, director of the energy program at the Competitive Enterprise Institute, which opposes regulating carbon dioxide emissions in general.

Not all cap-and-trade systems follow the same rules. A typical system, however, would look like this:

-- First, government regulators would set a limit on carbon dioxide emissions. They also would set reduction targets.

-- Companies or facilities that emit the gas would be assigned their own limits and targets, probably based on their emissions in the past. They would be able to choose how to meet those targets.

-- Those who cut their emissions below their targets would be able to sell credits to those who haven't. Exceeding the limits would require buying credits.

-- Companies might also be able to offset some of their emissions by buying credits from other businesses that, in one way or another, reduce the amount of carbon dioxide flowing into the air. That could include companies that plant trees -- which remove the gas from the atmosphere -- or build windmills, cutting the need for electricity from power plants burning coal or natural gas.

The general idea has been tried before. The United States uses a similar system to control emissions of sulfur dioxide, one of the key causes of acid rain. Southern California has a smaller system for controlling both sulfur and nitrogen oxide.

Many analysts consider the federal program a success. But they caution against using it to draw conclusions about carbon dioxide.

Sulfur, they say, is relatively easy to control, because most of it flows from power plant smokestacks. Carbon dioxide comes from electrical plants, cars, planes, fires and human breath, among other things.

California emitted about 493 million metric tons of greenhouse gases in 2002, the most recent year for which data are available. Eighty-four percent was carbon dioxide. Cars and other forms of transportation accounted for 41 percent of the gases emitted, according to the California Energy Commission. Utilities and power plants produced an additional 20 percent.

That makes crafting a cap-and-trade system difficult. The policy approved last week by the PUC, for example, will try to limit greenhouse gases from the state's three investor-owned utilities: PG&E, San Diego Gas & Electric Co. and Southern California Edison Co. But it will not cover municipal utilities -- including those in Los Angeles and Sacramento -- because the commission has no legal authority over them.

That worries PG&E, even though the San Francisco company backs cap-and-trade systems in principle. If the municipal utilities aren't included, the cap would cover just 15 percent of the state's greenhouse gas emissions. And customers of the investor-owned utilities would face costs that other Californians wouldn't.

"We wouldn't want to see a result where PG&E's customers are subsidizing the cleanup of greenhouse gases from municipal utilities in California," Pulling said.

There are also questions about how to set the limit. The commission may use 1990 emissions as a baseline, but that is far from certain. Penalties for companies that exceed their limits also have not been determined. The process will probably take years.

But Lainie Motamedi, a utilities commission analyst working on the effort, said the details will determine whether the cap-and-trade system works or becomes just another ineffectual theory.

"People get kind of dreamy-eyed when they talk about the trading," she said. "But we want to make sure we have a real cap and that we can tie this into real emissions reductions."

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