Emissions Trading Goes Global

Spurred on by critics, the Administration is set to propose a world market in emissions of greenhouse gases

THE BUSH ADMINISTRATION, which has been criticized for being slow to react to the problem of global warming, may be ready to get off the dime. At a meeting of an international panel on the subject that convenes on 5 February in Washington, D.C., the Administration will propose an international system of emission credits that would allow each country to release a specified amount of the gases that cause the greenhouse effect; the credits could be bought and sold among nations. Some critics are calling this "free market" solution unworkable and politically motivated but others see the proposal as a useful first step.

The U.S. proposal was included—in broad outline rather than specific detail—in a State Department document submitted last month to the Intergovernmental Panel on Climate Change (IPCC). The panel was set up by the United Nations in 1988 to assess the effects of climate change and evaluate response strategies to global warming. The State Department document, written in response to IPCC talks in October about economic incentives for controlling global warming, says the panel "should seriously evaluate" various options to control greenhouse gases, including international emissions trading.

The proposal is one of the first the Administration has made on global warming, a fact that has led to considerable pressure from environmental groups and members of Congress for stronger leadership. Criticism came to a head in December when White House officials balked at sending William K. Reilly, head of the Environmental Protection Agency, to an international meeting in the Netherlands on global warming; later that stance was reversed and Reilly did attend.

The Netherlands meeting, like other international talks, focused mainly on developing a protocol for controlling carbon dioxide as a first step toward reducing the levels of all greenhouse gases. In the Netherlands many European nations initially called for the industrial countries to reduce their level of carbon dioxide emissions 20% by 2005, but the United States, did not endorse this position. Participants ended up merely calling for the stabilization of emissions "as soon as possible."

The emissions trading proposal is compatible with either stabilizing or reducing emissions. Under that framework all greenhouse gases—including carbon dioxide, methane, nitrous oxide, and other trace gases—would be addressed collectively. Nations releasing such gases would be assigned an allocation for emissions up to a set amount. A country that wishes to exceed its limit might buy credits held by another nation that is not emitting as much as it is assigned or can reduce its own emissions for less than it would gain by selling the rights.

The buying and selling of emissions rights is attractive to the Administration, which staunchly advocates free market principles. Free market theory holds that emissions trading is a cheaper and more efficient way to reduce pollution than regulation. The concept has some highly placed champions, including Boyden Gray of the Council to the President and Richard Stewart of the Justice Department. Indeed, a similar scheme has already been successfully implemented to reduce sulfur dioxide emissions in southern California and lead in gasoline in the United States and has been proposed by the Administration as a way to control sulfur dioxide emissions nationally.

But emissions trading has never been applied to an international setting, and experts on environmental issues—even those sympathetic to the concept—note that it raises a host of issues that are not easily resolved. One is how emission allowances would be determined. One possibility is to use GNP as a base—a criterion under which the developed countries would fare far better than the developing ones. Using population as a base, on the other hand, would favor countries such as India and China. Dan Lashof of the Natural Resources De-

BITNET Headed for New Frontiers

Researchers in eastern Europe should soon be able to collaborate with their colleagues in the West using a computer network. The U.S. Department of Commerce last week informed CREN—the Corporation for Research and Educational Networking—that it had no specific objections to making the BITNET computer network available to research institutions in eastern European countries.

BITNET has become an increasingly popular way for scientists to communicate with one another. BITNET founder Ira Fuchs says the political changes in Eastern Europe convinced him that the time was right to seek permission for those countries to join the network.

"We have been trying to push Commerce to give us an answer," says Fuchs, who is now president and CEO of CREN. "I figured if ever there was a time to make this happen, this was it."

Fuchs says BITNET or its counterpart, the European Academic and Research Network (EARN), has received applications from the Soviet Union, Czechoslovakia, Hungary, Poland, and Bulgaria to establish network sites. He hopes that it will also be possible to extend services to China. Yugoslavia already has a BITNET site.

The Commerce Department has been concerned that electronic mail could make it easier for someone to send prohibited exports to countries not part of a Western alliance known as Cocom.

"From an export control perspective we'd probably prefer they didn't do this," says Dan Cook of the Commerce Department's export administration. But if someone wanted to use BITNET for espionage, he says, "it's nothing they couldn't do by putting something in an envelope and putting postage on it. It's not how you communicate but what you communicate that we control."

Fuchs says CREN will probably help promulgate export control rules so there won't be any accidental slipups. CREN officials were worried that they would be required to scrutinize network messages in search of violators. "Obviously as an organization we don't want to be held liable if somebody goofs," says Fuchs.

CREN's lawyer is studying a seven-page legal opinion from Commerce Department lawyers advising them on how they can proceed. If there are no problems, CREN should start evaluating applications from Eastern countries within weeks.

"This has been something we've been working on for a long time," says Fuchs. "I made it my New Year's resolution that it had to happen in 1990." ■ JOSEPH PALCA

fense Council suggests the formula might take into account both GNP and population, but adds that reaching international agreement would require lengthy negotiations.

There are some other nasty wrinkles that could complicate the process of adjusting the emission credits. Should an energy-efficient nation such as Japan, which releases relatively little greenhouse gas into the environment, be rewarded with additional credits? Should a nation that relies on nuclear power and therefore is also a small emitter—like France—get extra credits? Should Brazil, whose copious forests absorb carbon dioxide, be rewarded for that?

Even if the world's countries could agree on a standard, monitoring and enforcement would be difficult, according to Paul Portney of Resources for the Future. Controlling sulfur dioxide by trading rights is manageable because there are relatively few sources to monitor, Portney says. It would be much harder, he adds, to police the diverse sources of greenhouse gases, which include innumerable industrial boilers around the world—and even cows and rice paddies, which give off substantial quantities of the greenhouse gas methane.

William Nitze, who was the State Department's deputy assistant secretary for environment, health, and natural resources until his departure this month, favors experimenting at a national and bilateral level before attempting to devise an international system. Nitze adds, "I don't think you can go too far with the concept of emissions trading without setting a target and a timetable [for reducing emissions] first."

Robert Hahn, an economist at the American Enterprise Institute, argues that the scheme has been a successful domestic regulatory tool. But emissions trading on a global scale is simply too complex to manage, Hahn says. He thinks "politics is driving this proposal." Hahn says that to answer critics who say the Administration has been sluggish on global warming, "the President has to propose something at the IPCC."

Officials from at least one country agree in part with Hahn. According to Yasu-hiro Shimizu, environmental attaché at the Japanese embassy, "there is a general feeling among Japanese officials that emissions trading would be too complex to be effective."

Others are less critical. Rafe Pomerance of the World Resources Institute acknowledges emissions trading would be complex, but feels the proposal is "a constructive thing." Administration officials have previously said global warming was too little understood to do anything substantive yet. At least now, Pomerance says, the Administration "is talking about doing something."

■ MARJORIE SUN

Global Warming Continues in 1989

The greenhouse decade closed out with a strong showing. Nineteen eighty-nine ranks as one of the warmest years on record despite the chill of unusually cool water in the tropical Pacific, say climatologists Philip Jones and David Parker in their second annual report on the global temperature. The continued robustness of the warming trend that began in the mid-1970s lends support to claims that an intensifying greenhouse effect is behind it all, although that case has not yet been made definitively. Even at the current rate of global warming, says Jones, who works at the University of East Anglia in Norwich, "it will take another 10 years or so to be confident" that the greenhouse effect is with us.

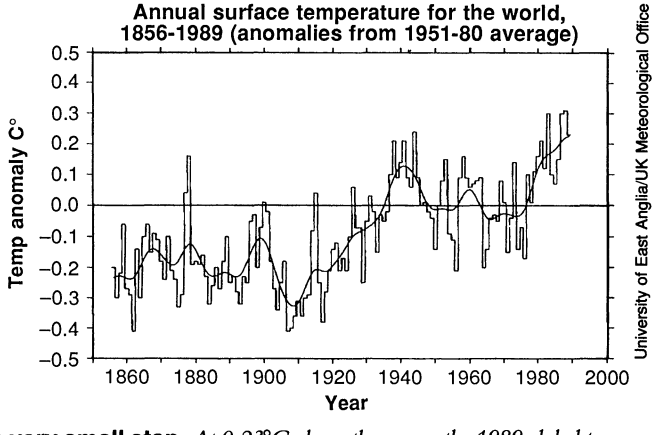
But there is little doubt that 1989 was a warm year, according to the surface temperatures compiled by Jones and by Parker, who is with the British Meteorological Office in Bracknell. Their results show the globe to have been 0.23°C warmer last year than during the reference period of 1951 to 1980. For comparison, the entire warming during the 134 years for which they have compiled temperature records amounts to less than 0.5°C. So the recent excess warmth is considerable; it makes 1989 the fifth warmest year in the record. The decade as a whole was hot too, standing at 0.2°C, or two standard deviations, above the reference period. Six of the ten warmest years on record fell in the sizzling 1980s.

The last year of the 1980s maintained the decade's warmth despite a strong push from the tropical Pacific Ocean toward the cold side. The temperature of the surface waters west of Peru along the equator has a strong effect on air temperatures around the globe, and especially in the tropics. When tropical waters warm during an El Niño, the global air temperature tends to rise about 6 months later. A sea surface cooling, called a La Niña, has the opposite effect.

A strong La Niña cooling, the first since 1975, arrived in mid-1988, just in time to cool the atmosphere during all of 1989. Jones estimates, from the effects of the El Niño–La Niña cycle in the past, that this La Niña would have made 1989 about 0.1°C cooler than 1988, which was the warmest year in the record. And that is just what happened. That La Niña's cooling did not break the warm spell, sending the global temperature back near normal, suggests that an increasing abundance of heat-trapping greenhouse gases could be behind the warming during the past 15 years.

Although the global warming trend is consistent with an increasing contribution by the greenhouse effect, direct signs that the greenhouse effect is intensifying are still hard to come by in the temperature record. Greenhouse models agree that if that is happening, the temperature increase should be most pronounced around the Arctic. Jones sees no such consistent pattern. Alaska, northwestern Canada, and northern Siberia warmed sharply in the 1980s, but the region from eastern Canada through Greenland and into Scandinavia cooled markedly.

The scarceness of corroborating signs aside, Jones retains a strong gut feeling about the recent temperature trend. "Personally, I still think the greenhouse is the most likely cause" of the global warming, he says. "The more there are of these warm years, the more the skeptics will have to find excuses." ■ RICHARD A. KERR



One very small step. *At 0.23°C above the mean, the 1989 global temperature falls short of a record but maintains the warming trend of the past 15 years.*