



Will Pollution Rights Trading Effectively Control Environmental Problems?

YES: Charles W. Schmidt, from "The Market for Pollution," *Environmental Health Perspectives* (August 2001)

NO: Brian Tokar, from "Trading Away the Earth: Pollution Credits and the Perils of 'Free Market Environmentalism,'" *Dollars & Sense* (March/April 1996)

ISSUE SUMMARY

YES: Freelance science writer Charles W. Schmidt argues that economic incentives such as emissions rights trading offer the most useful approaches to reducing pollution.

NO: Author, college teacher, and environmental activist Brian Tokar maintains that pollution credits and other market-oriented environmental protection policies do nothing to reduce pollution while transferring the power to protect the environment from the public to large corporate polluters.

Following World War II the United States and other developed nations experienced an explosive period of industrialization accompanied by an enormous increase in the use of fossil fuel energy sources and a rapid growth in the manufacture and use of new synthetic chemicals. In response to growing public concern about the pollution and other forms of environmental deterioration resulting from this largely unregulated activity, the U.S. Congress passed the National Environmental Policy Act of 1969. This legislation included a commitment on the part of the government to take an active and aggressive role in protecting the environment. The next year the Environmental Protection Agency (EPA) was established to coordinate and oversee this effort. During the next two decades an unprecedented series of legislative acts and administrative rules were promulgated, placing numerous restrictions on industrial and commercial activities that might result in the pollution, degradation, or contamination of land, air, water, food, and the workplace.

Such forms of regulatory control have always been opposed by the affected industrial corporations and developers as well as by advocates of a free-market policy. More moderate critics of the government's regulatory program recognize that adequate environmental protection will not result from completely voluntary policies. They suggest that a new set of strategies is needed. Arguing that "top down, federal, command and control legislation" is not an appropriate or effective means of preventing ecological degradation, they propose a wide range of alternative tactics, many of which are designed to operate through the economic marketplace. The first significant congressional response to these proposals was the incorporation of tradable pollution emission rights into the 1990 Clean Air Act amendments as a means for achieving the set goals for reducing acid rain-causing sulfur dioxide emissions. More recently, the 1997 international negotiations on controlling global warming in Kyoto, Japan, resulted in a protocol that includes emissions trading as one of the key elements in the plan to limit the atmospheric buildup of greenhouse gases.

Despite past difficulties in obtaining compliance with or enforcing strict statutory pollution limits, the idea of using such market-based strategies as the trading of pollution control credits or the imposition of pollution taxes has won limited acceptance from some major mainstream environmental organizations. Many environmentalists, however, continue to oppose the idea of allowing anyone to pay to pollute, either on moral grounds or because they doubt that these tactics will actually achieve the goal of controlling pollution. Diminishment of the acid rain problem is often cited as an example of how well emission rights trading can work, but in "Dispelling the Myths of the Acid Rain Story," *Environment* (July-August 1998), Don Munton argues that other control measures, such as switching to low-sulfur fuels, deserve much more of the credit for reducing sulfur dioxide emissions.

In "A Low-Cost Way to Control Climate Change," *Issues in Science and Technology* (Spring 1998), Byron Swift argues that the "cap-and-trade" feature of the U.S. Acid Rain Program has been so successful that a similar system for implementing the Kyoto Protocol's emissions trading mandate as a cost-effective means of controlling greenhouse gases should work. In March 2001 the U.S. Senate Committee on Agriculture, Nutrition, and Forestry held a "Hearing on Biomass and Environmental Trading: Opportunities for Agriculture and Forestry," in which witnesses urged Congress to encourage trading for both its economic and its environmental benefits. Richard L. Sandor, chairman and chief executive officer of Environmental Financial Products LLC, said that "200 million tons of CO₂ could be sequestered through soils and forestry in the United States per year. At the most conservative prices of \$20-\$30 per ton, this could potentially generate \$4-\$6 billion in additional agricultural income."

In the following selections, Charles W. Schmidt describes the use of economic incentives to motivate corporations to reduce pollution, and he argues that emissions trading schemes represent "the most significant developments" in this area. Brian Tokar has a much more negative assessment of sulfur dioxide pollution credit trading. He argues that such "free-market environmentalism" tactics fail to reduce pollution while turning environmental protection into a commodity that corporate powers can manipulate for private profit.



Charles W. Schmidt

The Market for Pollution

Throughout much of its short history, environmental protection in the United States has been guided by a traditional paradigm based on strict regulatory guidelines for reducing emissions and punishments for noncompliance. Experts credit this traditional approach with improvements in air and water quality evident since the U.S. Environmental Protection Agency (EPA) was created more than 30 years ago. Tough environmental standards imposed under programs such as the Clean Water Act and the Clean Air Act filled a regulatory void and forced industries to cut their emissions or face heavy fines. Many of the greatest gains were seen with respect to point sources such as smokestacks and effluent pipes that could be easily monitored. But beyond the avoidance of penalties, industries regulated under those so-called command-and-control programs had little motivation to develop advanced pollution control technologies, which produced little economic gain.

Today, many stakeholders believe a more modern framework based on economic incentives that allow companies to profit from achieving environmental goals will build on the achievements of the past and allow for even greater improvements in environmental protection. Types of incentives vary widely, but they all share one thing in common: they attach a monetary value to the act of reducing pollution. In a January 2001 document titled *The United States Experience with Economic Incentives for Protecting the Environment*, the EPA described several types of incentives, including fees and taxes levied on pollutant releases, tax rebates for environmental technologies, and the trading of air emissions permits on the open market.

Attention is increasingly turning to the use of economic incentives in the wake of President George W. Bush's pledge to make them a foundation of his environmental policy. During the 2000 presidential campaign, Bush said that under his watch government would "set high environmental standards and provide market-based incentives to develop new technologies . . . so that Americans could meet and exceed those standards."

Business organizations have responded warmly to the administration's support for incentives. For example, the Business Roundtable, a Washington, D.C.-based nonprofit organization of "CEOs committed to improving public policy," released a statement on 17 May 2001 that "applauds President Bush

for incorporating the use of new technologies, as well as incentives that spur technological innovation, as the cornerstone of the administration's national energy policy."

Among the environmental community, the idea that market instruments could be used to control pollution was initially greeted with skepticism and even hostility. But over time, support has risen to a level that Joseph Goffman, a senior attorney with the public interest group Environmental Defense in Washington D.C., describes as "lukewarm to enthusiastic in many cases."

According to Goffman, economic incentives motivate companies to reduce pollution quickly and to exceed environmental standards whenever possible. This is in contrast to command-and-control approaches, which he says stifle innovation while encouraging polluters to do little more than meet minimum requirements. Under a traditional system, the EPA not only sets environmental standards, it often describes how companies should achieve them—a scenario sometimes described as "technology forcing."

Goffman suggests the downside to this approach is that the EPA usually only sets standards that can be met with current technology. This means companies have to wait for the agency to finish a technology review before either the EPA or the states revise a given standard. "With incentive programs," he says, "you don't have this kind of chicken-and-egg mentality. The agency sets a target and leaves the means of compliance up to industry. Companies want to profit from pollution control, so they invest more resources in technology development." Furthermore, Goffman adds, market forces naturally gravitate toward the least-cost option for reducing pollution, while traditional regulatory strategies lock companies into technologies that become progressively less effective, and thus less attractive, over time.

Most experts suggest it's too soon to gauge where and how incentive programs will grow under the Bush administration. This is because a host of key positions at the EPA and other agencies remain unfilled, and policy directions have yet to be fully clarified. However, Bush's commitment to market forces is undiminished, as indicated by comments from White House spokesperson Marcy Viana, who, referring to the president's position on global warming during an interview on 4 June 2001, said, "[He is] committed to reducing greenhouse gas emissions by drawing on the power of the market and the power of technology."

Emissions Trading Schemes

The most significant developments in incentive programs have occurred in the area of emissions trading, through which air pollutants are viewed as tradable commodities, each with its own regional, national, and even international markets. In an emissions trading program, companies that emit less than their assigned limits, or caps, of a pollutant can sell residual allowances on the open market or bank them for future transactions. This gives other, higher-polluting facilities a choice: either buy allowances and continue releasing the same pollutant or clean their own emissions—which ever is cheaper. The only stipulation is that regional environmental quality continue to meet mandated standards.

These so-called cap-and-trade schemes aren't new. The best-known example is the Acid Rain Program established under the Clean Air Act amendments of 1990, which allows electric utilities to trade allowance credits in sulfur dioxide (SO₂). Many experts point to this initiative, which achieved dramatic reductions in SO₂ at lower costs than expected, as an emissions trading success story. The EPA estimates that since the program was formalized in 1995, annual emissions of SO₂ have fallen by 4 million tons, while rainfall acidity in the Northeast has dropped by 25%. Dallas Burtraw, a senior fellow at Resources for the Future in Washington, D.C., says the program works well because it's simple, it sets firm environmental targets, it keeps transaction costs to a minimum, and it's transparent—meaning that information on available allowances and credit trades is freely available to the public.

The success of the Acid Rain Program has fueled the development of similar initiatives within the private sector. Undeterred by President Bush's rejection of the Kyoto Protocol, a diverse group of 34 major companies called the Chicago Climate Exchange (CCX) recently announced an emissions trading scheme for carbon dioxide and other greenhouse gases. Boasting high-profile members such as BP, Ford Motor Company, DuPont, and International Paper, this effort aims to reduce greenhouse gas emissions to 5% below 1999 levels by 2005. The CCX's role will be similar to that of an organized commodity exchange—it will establish the requisite technical infrastructure, common standards, and a computerized platform through which participants can trade in emissions reductions.

Richard Sandor, project leader at the CCX, points to the following hypothetical trade as an example of how the system will work: Two companies, a manufacturer with advanced pollution control technology and a power plant with older controls, agree to cut their combined emissions of greenhouse gases by three tons each for a total of six tons. Taking advantage of its superior technology, the manufacturer can cut its own emissions by five tons at minimal cost while the power plant can only reduce its own emissions cost-effectively by one ton. But by purchasing the rights to the additional two tons from the manufacturer, the power plant pays for another company to reduce greenhouse gases on its behalf. In this win-win situation, the manufacturer takes in revenues for reducing pollution while the power plant avoids higher costs by passing off its emissions reductions agreement to another source.

According to Sandor, the CCX will facilitate trades among seven midwestern states that together comprise the fourth-largest trading bloc in the world. The CCX also plans to include Brazil as a member, indicating the organization hopes to achieve an international presence. Says Sandor, "We've had a fantastic response from industry. We expect to be in the design phase for 12 months and to begin trading by 2002."

The states have also gotten into the game. In Southern California, a cap-and-trade program known as the Regional Clean Air Incentives Market, or RECLAIM, is being used to control SO₂ and nitrogen oxide (NO_x) air emissions from 360 industrial facilities, including power plants, in Los Angeles and the San Bernardino Valley. A coalition known as the Ozone Transport Commission, comprising the environmental agencies from 13 northeastern and midwestern

states and the federal EPA, has developed a cap-and-trade program for NO_x. And elsewhere, in Chicago, a cap-and-trade program for volatile organic compounds was established by the Illinois EPA in early 2000.

The states have, for the most part, had a measure of success with these programs. The Ozone Transport Commission announced on 10 May 2001 that NO_x emissions for 1999 and 2000 were less than half those reported in 1990, before the cap-and-trade system was implemented. California's RECLAIM system has been in operation since 1993 but is just now beginning to demonstrate results. The reason for the delay, says Sam Atwood, spokesperson for the Diamond Bar-based South Coast Air Quality Management District, which coordinates RECLAIM, is that state-mandated "allocations" (a state term that defines the emissions that can be traded under the cap) for SO₂ and NO_x have only recently been set at levels below actual emissions released by industry. For several years after the program was initiated, facilities regulated under RECLAIM were allowed to emit SO₂ and NO_x at unusually high levels to cushion the economic shock of a recession that took place during the early 1990s. "By dropping the allocation levels below real emissions, we're just starting to cross over to the point where the incentive begins to kick in," says Atwood. "This is when we expect to see voluntary improvements in technology."

The Question of Mobile Sources

In a recent and somewhat controversial trend, emissions trading schemes have begun incorporating mobile sources, such as cars and trucks. Under this approach, stationary sources such as factories can obtain emission credits from regulators by paying to have old, highly polluting vehicles taken off the road. For example, RECLAIM recently issued a rule allowing stationary sources to receive mobile source credits by replacing diesel-fueled heavy-duty vehicles with cleaner-running alternatives.

Burtraw suggests this practice provides a major opportunity for cost savings. "It can be a lot less expensive to reduce emissions from mobile sources than stationary sources," he explains. But he concedes that adding mobile sources to the mix doesn't come without its own unique set of challenges. "People are all too willing to bring in an old lemon that barely runs so they can collect \$500 from a utility company," he says. In a case like this, the emissions reduction is negligible because the car isn't driveable anyway.

Goffman says programs that include mobile sources need to incorporate safeguards to prevent this kind of abuse. The challenges exist, he says, but solutions are available if the systems are well designed at the outset. The South Coast Air Quality Management District, for example, only agrees to pay credits for cars that could continue running for three years or more.

Trading Issues

Despite a generally positive response from the stakeholder community, emissions trading still raises a number of important concerns. Perhaps the greatest worry is that it might lead to "hot spots," or areas of high pollutant exposure. A

company that cuts its emissions in half might help reduce average air pollution concentrations in a particular region, but this means little to those who live close to an older facility that buys credits rather than upgrading its pollution control technology.

John Walke, director of clean air projects with the National Resources Defense Council in Washington, D.C., suggests that environmental justice problems could arise if the dirtier facilities are located close to poor communities. There are a lot of fundamental issues that need to be addressed with these systems," he says. "One is the extent to which pollution sources may be heavily localized in a particular area. It's important to consider how much pollution neighboring communities are already saddled with."

And what about facilities located upwind of residential communities? Would they be allowed to purchase air pollution credits if downwind populations don't experience the benefit of cleaner emissions? Experts suggest the answer is no, and that hot spots can be avoided with effective planning. Uellen Keiner, director of the Center for the Economy and the Environment at the National Academy of Public Administration, a public interest group based in Washington, D.C., says potential solutions include discouraging trades across long distances and on-site review of credit uses to protect against hot spots.

Another incentive category that tends to trouble environmentalists is "open market" emissions trading, which is a scheme developed by the EPA in 1995. Unlike cap-and-trade programs, neither the overall sectors nor the individual trading sources regulated under an open market trading system are subject to a cap. Rather, any source that finds that its actual rate of emissions is below permitted levels for even a short time is eligible for credit that it can save for later or sell to another source. A chief concern is that under these schemes industry sets the standard for emissions allowances—not the regulatory agency. This is critical, given widespread agreement among stakeholders that health-protective standards should be set by the government on behalf of the public, while the means of compliance is left to the regulated community.

Burtraw says monitoring emissions under an open market system is particularly challenging. "Unlike cap-and-trade programs, which are often targeted toward large stationary sources that can be monitored at the stack, open trading is geared toward smaller sources, for example dry cleaners," he explains. "It's difficult and expensive to monitor actual emissions from these sources, so they tend to be estimated based on economic activity and the use of a given technology. On paper, open market trading seems promising, but in practice monitoring is often poor, and emissions inventories are weak."

Responding to New Jersey's announcement of an open market trading system for NO_x, approved by the EPA in July 2001, Environmental Defense called on the agency to withhold additional pending approvals in states including Michigan, New Hampshire, and Illinois. Also critical of open market trading is the Washington, D.C.-based organization Public Employees for Environmental Responsibility. This group, which says it represents anonymous EPA employees who fear the repercussions of speaking out publicly, issued a white paper in June 2000 called *Trading Thin Air* in which they claim that state and fed-

the paper, open market trading could "cripple enforcement of the Clean Air Act against stationary sources of pollution."

Despite the uproar, many experts believe open market systems will prove over time. "I do have a healthy dose of skepticism about open market trading," says Burtraw. "It isn't based on sound policy and shouldn't be applied on a wide scale. But I also see it as a way to include in trading programs a number of smaller sources of emissions for which there do not exist emission trading facilities. At best, open market trading should be viewed as a transitional step, a stone to some better-developed institution that will emerge in the future."

Outlook for the Future

When applied to the nation as a whole, the EPA suggests in its April 2001 report that "the potential savings from widespread use of economic trading alternatives... could be almost one-fourth of the approximately \$200 billion per year currently spent on environmental pollution control in the United States. Applying these tools, the EPA recommends that regulators consider their use in the context of political acceptability, potential for stimulating technological improvements, and enforceability. A number of important questions need to be considered. How many sources are there for each pollutant? Does a pollutant from each source have the same health and ecologic impact regardless of where it's released? Who's being affected by the pollution, and will a program reduce these impacts?"

A key point raised by Burtraw is that incentives are a tool—not a solution. "You can compare incentives to a hammer," he says. "You can use a hammer to build a house, or you can use it to pull out the nails. This is the big issue we're facing now—if we use the incentives to back away from emissions reductions then we're using the hammer to pull out the nails. But if we use incentives to aggressively pursue emissions reduction in the most cost-effective way, then we're building a stronger house for the future."



Trading Away the Earth: Pollution Credits and the Perils of "Free Market Environmentalism"

The Republican takeover of Congress has unleashed an unprecedented assault on all forms of environmental regulation. From the Endangered Species Act to the Clean Water Act and the Superfund for toxic waste cleanup, laws that may need to be strengthened and expanded to meet the environmental challenges of the next century are instead being targeted for complete evisceration. For some activists, this is a time to renew the grassroots focus of environmental activism, even to adopt a more aggressively anti-corporate approach that exposes the political and ideological agendas underlying the current backlash. But for many, the current impasse suggests that the movement must adapt to the dominant ideological currents of the time. Some environmentalists have shifted their focus toward voluntary programs, economic incentives and mechanisms of the "free market" as means to advance the cause of environmental protection. Among the most controversial, and widespread, of these proposals are tradeable credits for the right to emit pollutants. These became enshrined in national legislation in 1990 with President George Bush's amendments to the 1970 Clean Air Act.

Even in 1990, "free market environmentalism" was not a new phenomenon. In the closing years of the 1980s, an odd alliance had developed among corporate public relations departments, conservative think tanks such as the American Enterprise Institute, Bill Clinton's Democratic Leadership Council (DLC), and mainstream environmental groups such as the Environmental Defense Fund. The market-oriented environmental policies promoted by this eclectic coalition have received little public attention, but have nonetheless significantly influenced debates over national policy.

Glossy catalogs of "environmental products," television commercials featuring environmental themes, and high profile initiatives to give corporate officials a "greener" image are the hallmarks of corporate environmentalism in the 1990s. But the new market environmentalism goes much further than these showcase efforts. It represents a wholesale effort to recast environmental protection based on a model of commercial transactions within the marketplace.

"A new environmentalism has emerged," writes economist Robert Stavins, "has been associated with both the Environmental Defense Fund and the DRI Progressive Policy Institute, "that embraces . . . market-oriented environmental protection policies."

Today, aided by the anti-regulatory climate in Congress, market schemes such as trading pollution credits are granting corporations new ways to circumvent environmental concerns, even as the same firms try to pose as champions of the environment. While tradeable credits are sometimes presented as a solution to environmental problems, in reality they do nothing to reduce pollution—at best they help businesses reduce the costs of complying with limits on emissions. Ultimately, such schemes abdicate control over critical environmental decisions to the very same corporations that are responsible for the greater environmental abuses.

How It Works, and Doesn't

A close look at the scheme for nationwide emissions trading reveals a particularly cleverness; for true believers in the invisible hand of the market, it may seem positively ingenious. Here is how it works: The 1990 Clean Air Act amendments were designed to halt the spread of acid rain, which has threatened lakes, rivers and forests across the country. The amendments required a reduction in total sulfur dioxide emissions from fossil fuel burning power plants, from just under 9 million tons per year by the year 2000. These facilities were targeted as the largest contributors to acid rain, and participation by other industries remains optional. To achieve this relatively modest goal for pollution reduction, utilities were granted transferable allowances to emit sulfur dioxide in proportion to their current emissions. For the first time, the ability of companies to buy and sell the "right" to pollute was enshrined in U.S. law.

Any facility that continued to pollute more than its allocated amount (roughly half of its 1990 rate) would then have to buy allowances from someone who is polluting less. The 110 most polluting facilities (mostly coal burners) were given five years to comply, while all the others would have until the year 2000. Emissions allowances were expected to begin selling for around \$500 per ton of sulfur dioxide, and have a theoretical ceiling of \$2000 per ton, which is the legal penalty for violating the new rules. Companies that could reduce emissions for less than their credits are worth would be able to sell them at a profit while those that lag behind would have to keep buying credits at a steadily rising price. For example, before pollution trading every company had to comply with environmental regulations, even if it cost one firm twice as much as another to do so. Under the new system, a firm could instead choose to exceed the mandated levels, purchasing credits from the second firm instead of implementing costly controls. This exchange would save money, but in principle would save the same overall level of pollution as if both companies had complied equitably. Thus, it is argued, market forces will assure that the most cost-effective means of reducing acid rain will be implemented first, saving the economy billions of dollars.

Defenders of the Bush plan claimed that the ability to profit from pollution credits would encourage companies to invest more in new environmental technologies than before. Innovation in environmental technology, they argued, was being stifled by regulations mandating specific pollution control methods. With the added flexibility of tradeable credits, companies could postpone costly controls—through the purchase of some other company's credits—until new technologies became available. Proponents argued that, as pollution standards are tightened over time, the credits would become more valuable and their owners could reap large profits while fighting pollution.

Yet the program also included many pages of rules for extensions and substitutions. The plan eliminated requirements for backup systems on smogstack scrubbers, and then eased the rules for estimating how much pollution is emitted when monitoring systems fail. With reduced emissions now a marketable commodity, the range of possible abuses may grow considerably, as utilities will have a direct financial incentive to manipulate reporting of their emissions to improve their position in the pollution credits market.

Once the EPA actually began auctioning pollution credits in 1993, it became clear that virtually nothing was going according to their projections. The first pollution credits sold for between \$122 and \$310, significantly less than the agency's estimated minimum price, and by 1995, bids at the EPA's annual auction of sulfur dioxide allowances averaged around \$130 per ton of emissions. As an artificial mechanism superimposed on existing regulatory structures, emissions allowances have failed to reflect the true cost of pollution controls. So, as the value of the credits has fallen, it has become increasingly attractive to buy credits rather than invest in pollution controls. And, in problem areas air quality can continue to decline, as companies in some parts of the country simply buy their way out of pollution reductions.

At least one company has tried to cash in on the confusion by assembling packages of "multi-year streams of pollution rights" specifically designed to defer or supplant purchases of new pollution control technologies. "What a scrubber really is, is a decision to buy a 30-year stream of allowances," John B. Bentley of Clean Air Capital Markets told the *New York Times*, with impeccable financial logic. "If the price of allowances declines in future years," paraphrased *the Times*, "the scrubber would look like a bad buy."

Where pollution credits have been traded between companies, the results have often run counter to the program's stated intentions. One of the first highly publicized deals was a sale of credits by the Long Island Lighting Company to an unidentified company located in the Midwest, where much of the pollution that causes acid rain originates. This raised concerns that places suffering from the effects of acid rain were shifting "pollution rights" to the very region it was coming from. One of the first companies to bid for additional credits, the Illinois Power Company, canceled construction of a \$350 million scrubber system in the city of Decatur, Illinois. "Our compliance plan is based almost totally on purchase of credits," an Illinois Power spokesperson told the *Wall Street Journal*. The comparison with more traditional forms of commodity trading came full circle in 1991, when the government announced that the

istered by the Chicago Board of Trade, long famous for its ever-frantic market in everything from grain futures and pork bellies to foreign currencies.

Some companies have chosen not to engage in trading pollution credits, proceeding with pollution control projects, such as the installation of scrubbers, that were planned before the credits became available. Others have switched to low-sulfur coal and increased their use of natural gas. If the Clean Air Act amendments are to be credited for any overall improvement in air quality, it is clearly the result of these efforts and not the market in tradeable allowances.

Yet while some firms opt not to purchase the credits, others, most notably North Carolina-based Duke Power, are aggressively buying allowances in the 1995 EPA auction. Duke Power alone bought 35% of the short-term "spare" allowances for sulfur dioxide emissions, and 60% of the long-term allowances redeemable in the years 2001 and 2002. Seven companies, including five utilities and two brokerage firms, bought 97% of the short term allowances were auctioned in 1995, and 92% of the longer-term allowances, which are deemed in 2001 and 2002. This gives these companies significant leverage over the future shape of the allowances market.

The remaining credits were purchased by a wide variety of people and organizations, including some who sincerely wished to take pollution allowances out of circulation. Students at several law schools raised hundreds of dollars and a group at the Glens Falls Middle School on Long Island raised \$3,170 to purchase 21 allowances, equivalent to 21 tons of sulfur dioxide emissions the course of a year. Unfortunately, this represented less than a tenth of percent of the allowances auctioned off in 1995.

Some of these trends were predicted at the outset. "With a tradeable permit system, technological improvement will normally result in lower costs and falling permit prices, rather than declining emissions levels," wrote Robert Stavins and Brad Whitehead (a Cleveland-based management consultant with ties to the Rockefeller Foundation) in a 1992 policy paper published by the Progressive Policy Institute. Despite their belief that market-based environmental policies "lead automatically to the cost-effective allocation of the pollution control burden among firms," they are quite willing to concede that a tradeable permit system will not in itself reduce pollution. As the actual pollution levels still need to be set by some form of regulatory mandate, the market tradeable allowances merely gives some companies greater leverage over pollution standards are to be implemented.

Without admitting the underlying irrationality of a futures market in pollution, Stavins and Whitehead do acknowledge (albeit in a footnote to Appendix) that the system can quite easily be compromised by large companies' "strategic behavior." Control of 10% of the market, they suggest, will be enough to allow firms to engage in "price-setting behavior," a goal apparently sought by companies such as Duke Power. To the rest of us, it should be clear that if pollution credits are like any other commodity that can be bought and sold and traded, then the largest "players" will have substantial control over the entire "game." Emissions trading, becomes yet another way to assure that

porate interests will remain free to threaten public health and ecological survival in their unchallenged pursuit of profit.

Trading the Future

Mainstream groups like the Environmental Defense Fund (EDF) continue to throw their full support behind the trading of emissions allowances, including the establishment of a futures market in Chicago. EDF senior economist Daniel Dudek described the trading of acid rain emissions as a "scale model" for a much more ambitious plan to trade emissions of carbon dioxide and other gases responsible for global warming. This plan was unveiled shortly after the passage of the 1990 Clean Air Act amendments, and was endorsed by then-Senator Al Gore as a way to "rationalize investments" in alternatives to carbon dioxide-reducing activities.

International emissions trading gained further support via a U.N. Conference on Trade and Development study issued in 1992. The report was authored by Kidder and Peabody executive and Chicago Board of Trade director Richard Sandor, who told the *Wall Street Journal*, "Air and water are simply no longer the 'free goods' that economists once assumed. They must be redefined as property rights so that they can be efficiently allocated."

Radical ecologists have long decried the inherent tendency of capitalism to turn everything into a commodity; here we have a rare instance in which the system fully reveals its intentions. There is little doubt that an international market in "pollution rights" would widen existing inequalities among nations. Even within the United States, a single large investor in pollution credits would be able to control the future development of many different industries. Expanded to an international scale, the potential for unaccountable manipulation of industrial policy by a few corporations would easily compound the disruptions already caused by often reckless international traders in stocks, bonds and currencies.

However, as long as public regulation of industry remains under attack, tradeable credits and other such schemes will continue to be promoted as market-savvy alternatives. Along with an acceptance of pollution as "a by-product of modern civilization that can be regulated and reduced, but not eliminated," to quote another Progressive Policy Institute paper, self-proclaimed environmentalists will call for an end to "widespread antagonism toward corporations and a suspicion that anything supported by business was bad for the environment." Market solutions are offered as the only alternative to the "inefficient," "centralized," "command-and-control" regulations of the past, in language closely mirroring the rhetoric of Cold War anti-communism.

While specific technology-based standards can be criticized as inflexible and sometimes even archaic, critics choose to forget that in many cases, they were instituted by Congress as a safeguard against the widespread abuses of the Reagan-era EPA. During the Reagan years, "flexible" regulations opened the door to widely criticized—and often illegal—bending of the rules for the benefit

of politically favored corporations, leading to the resignation of EPA administrator Anne Gorsuch Burford and a brief jail sentence for one of her more vocal legal assistants.

The anti-regulatory fervor of the present Congress is bringing a variety of other market-oriented proposals to the fore. Some are genuinely offered as further environmental protection, while others are far more cynical attempts to replace public regulations with virtual blank checks for polluters. Some have proposed a direct charge for pollution, modeled after the comprehensive pollution taxes that have proved popular in Western Europe. Writers as diverse as Supreme Court Justice Stephen Breyer, American Enterprise Institute economist Robert Hahn and environmental business guru Paul Hawken have defended pollution taxes as an ideal market-oriented approach to controlling pollution. Indeed, unlike tradeable credits, taxes might help reduce pollution beyond regulatory levels, as they encourage firms to control emissions as far as possible. With credits, there is no reduction in pollution below the threshold established in legislation. (If many companies were to opt for substantial new emissions controls, the market would soon be glutted and the allowed would rapidly become valueless.) And taxes would work best if combined with vigilant grassroots activism that makes industries accountable to the communities in which they operate. However, given the rapid dismissal of Bill Clinton's early plan for an energy tax, it is most likely that any pollution tax proposal would be immediately dismissed by Congressional ideologues as an outrageous new government intervention into the marketplace.

Air pollution is not the only environmental problem that free marketeers are proposing to solve with the invisible hand. Pro-development interests in Congress have floated various schemes to replace the Endangered Species Act with a system of voluntary incentives, conservation easements and other schemes through which landowners would be compensated by the government to protect critical habitat. While these proposals are being debated in Congress, the Clinton administration has quietly changed the rules for administering the Act in a manner that encourages voluntary compliance and offers some of the very same loopholes that anti-environmental advocates have sought. This, in turn, is being offered in the name of cooperation and "market environmentalism."

Debates over the management of publicly-owned lands have inspired far more outlandish "free market" schemes. "Nearly all environmental problems are rooted in society's failure to adequately define property rights as some resource," economist Randal O'Toole has written, suggesting a new "property rights for owls and salmon" developed to "protect them from poaching." O'Toole initially gained the attention of environmentalists in the Pacific Northwest for his detailed studies of the inequities of the U.S. Forest Service long-term subsidy programs for logging on public lands. Now he has proposed dividing the National Forest system into individual units, each governed by users and operated on a for-profit basis, with a portion of user fees allocated for such needs as the protection of biological diversity. Environmental value from clean water to recreation to scenic views, should simply be allocated to their proper value in the marketplace, it is argued, and allowed to out-compete unsustainable resource extraction. Other market advocates have suggested

more sweeping transfers of federal lands to the states, an idea seen by many in the West as a first step toward complete privatization.

Market enthusiasts like O'Toole repeatedly overlook the fact that ecological values are far more subjective than the market value of timber and minerals removed from public lands. Efforts to quantify these values are based on various sociological methods, market analysis and psychological studies. People are asked how much they would pay to protect a resource, or how much money they would accept to live without it, and their answers are compared with the prices of everything from wilderness expeditions to vacation homes. Results vary widely depending on how questions are asked, how knowledgeable respondents are, and what assumptions are made in the analysis. Environmentalists are rightly appalled by such efforts as a recent Resources for the Future study designed to calculate the value of human lives lost due to future toxic exposures. Outlandish absurdities like property rights for owls arouse similar skepticism.

The proliferation of such proposals—and their increasing credibility in Washington—suggest the need for a renewed debate over the relationship between ecological values and those of the free market. For many environmental economists, the processes of capitalism, with a little fine tuning, can be made to serve the needs of environmental protection. For many activists, however, there is a fundamental contradiction between the interconnected nature of ecological processes and an economic system which not only reduces everything to isolated commodities, but seeks to manipulate those commodities to further the single, immutable goal of maximizing individual gain. An ecological economy may need to more closely mirror natural processes in their stability, diversity, long time frame, and the prevalence of cooperative, symbiotic interactions over the more extreme forms of competition that thoroughly dominate today's economy. Ultimately, communities of people need to reestablish social control over economic markets and relationships, restoring an economy which, rather than being seen as the engine of social progress, is instead, in the words of economic historian Karl Polanyi, entirely "submerged in social relationships."

Whatever economic model one proposes for the long-term future, it is clear that the current phase of corporate consolidation is threatening the integrity of the earth's living ecosystems—and communities of people who depend on those ecosystems—as never before. There is little room for reconsideration of ecological integrity in a global economy where a few ambitious currency traders can trigger the collapse of a nation's currency, its food supply, or a centuries-old forest ecosystem before anyone can even begin to discuss the consequences. In this kind of world, replacing our society's meager attempts to restrain and regulate corporate excesses with market mechanisms can only further the degradation of the natural world and threaten the health and well-being of all the earth's inhabitants.

POSTSCRIPT

Will Pollution Rights Trading Effective? Control Environmental Problems?

Does pollution rights trading give major corporate polluters too much power to control and manipulate the market for emission credits? This is one of the key issues that continues to inspire developing countries to withhold their endorsement of the greenhouse gas emissions trading provisions of the Kyoto Protocol. The evidence that Tokar cites, which is primarily based on short-term experience with trading in sulfur dioxide pollution credits, does appear to fully justify the broad generalizations he makes about the ineffectiveness of market-based regulatory plans. Recent assessments of the Acid Program by the EPA and such organizations as the Environmental Defense Fund are more positive. So is the corporate world: In "Economic Man, Clean Planet," *The Economist* (September 29, 2001), it is asserted that economic incentives have proved very useful and that "market forces are only just beginning to make inroads into green policymaking." In March 2002 *Pipeline & Gas Journal* reported that "despite uncertainty surrounding U.S. and international environmental policies, companies in a wide range of industries—especially those in the energy field—are increasingly using emission reduction credits as a way to meet the challenges of cutting greenhouse gas emissions."

The position of those who are ideologically opposed to pollution rights is concisely stated in Michael J. Sandel's op-ed piece "It's Immoral to Buy the Right to Pollute," *The New York Times* (December 15, 1997). In "Selling Air Pollution," *Reason* (May 1996), Brian Doherty supports the concept of pollution rights trading but argues that the kind of emission cap imposed in the case of sulfur dioxide is an inappropriate constraint on what he believes should be a completely free-market program. Richard A. Kerr, in "Acid Rain Control: Success on the Cheap," *Science* (November 6, 1998), contends that emissions trading has greatly reduced acid rain and that the annual cost has been about a tenth of the \$10 billion initially forecast. According to Barry D. Solomon and Russell Leach, "Emissions Trading Systems and Environmental Justice," *Environment* (October 2000), "a significant part of the opposition to emissions trading programs is the perception that they do little to reduce environmental injustice and can even make it worse." However, Byron Swift, in "Allowance Trading and Potential Spots—Good News From the Acid Rain Program," *Environment Reporter* (May 2000), argues that the success of the EPA's emission trading program has not led to the creation of pollution "hot spots" as feared by some critics. On the other hand, EPA researchers recently reported that even though acid emissions have come down dramatically, lakes remain affected by past emissions. See Leslie Robinson, "Acid Rain: Forgotten, Not Gone," *U.S. News & World Report* (November 1, 1998).