

ficient (because the costs vary greatly among firms) and expensive to society. Since 1984, the cost of compliance with U.S. environmental regulations has increased nearly 40 percent and now stands at about \$90 billion a year. Set against a backdrop of fiscal austerity and concern about improving U.S. firms' productivity and competitiveness, the high cost of command-and-control environmental protection has made political leaders and environmentalists much more receptive to market-oriented ways of pursuing the same goal. The Environmental Defense Fund, for example, has become "an enthusiastic proponent" of such approaches, the authors say, and the Sierra Club and the National Audubon Society now back "selective use" of them.

Economic-incentive methods have been employed in the past on a limited basis. In 1982-87, the EPA, in its successful drive to reduce use of lead in gasoline, used a permit system that let fuel refiners "bank"

and "trade" their lead-content savings. Other market-oriented devices have been put into use here and abroad. Nine states, for example, seeking to reduce litter, have mandatory deposit laws in effect for bottles and cans. France, the Netherlands, and Germany curb water pollution by means of fees or taxes.

Hahn and Stavins say they are "bullish" on the use of economic incentives but still think they will remain limited. EPA bureaucrats, environmentalists, and others have a great deal invested in the status quo. Even industry lobbyists in Washington display a "curious resistance" to market-oriented reforms. Like their opponents, their stock-in-trade is manipulation of the existing system; new rules for playing the game are a threat (and might, at least at first, cost some industries more). But despite all the resistance, the authors say, economic-incentive proposals are going to get "a warmer reception" from policymakers in the years ahead.

## Too Hot To Handle

"Risk Perception, Trust, and Nuclear Waste: Lessons from Yucca Mountain" by Paul Slovic, Mark Layman, and James H. Flynn, in *Environment* (Apr. 1991), Heldref Publications, 4000 Albemarle St. N.W., Washington, D.C. 20016.

When it comes to the disposal of highly radioactive nuclear waste, expert appraisal and public opinion could not be more opposed. Government and industry scientists say that spent fuel from the nation's 111 commercial nuclear reactors—each one generating about 30 tons of high-level nuclear waste every year—can be safely stored in deep, underground repositories for tens of thousands of years. The risks involved are negligible, most specialists say. Yet the public regards those risks as immense and unacceptable. In Nevada, intense opposition from both state officials and residents has stymied the U.S. Energy Department's efforts to evaluate Yucca Mountain as a potential site for a permanent nuclear waste storage facility.

Surveys that psychologist Slovic, president of Decision Research, and his colleagues conducted in 1988-90 asked people to reveal the thoughts or images that

came to mind in response to the term *underground nuclear waste repository*. More than half the 10,000 responses were negative, and the words most often expressed were *dangerous*, *danger*, *death*, and *pollution*. Positive images were rare.

The public's fears, the authors say, represent "a profound breakdown of public trust in the scientific, governmental, and industrial managers of nuclear technologies." Restoring this trust will not be easy, they observe, especially in light of past Energy Department "mismanagement" of the Yucca Mountain project.

The only feasible course, they conclude, "is to delay the siting of a permanent repository for several decades and to store the wastes wherever they are produced in the interim in dry-cask storage." According to the National Research Council, they note, such storage is "as safe as underground storage" for 120-150 years.