2. Government Policy on Economic Incentives

From the early days of the EPA, policy makers have recognized that economic instruments held the potential to improve the cost effectiveness of environmental management. The Nixon administration proposed to use emission fees to limit sulfur dioxide, however this initiative failed in Congress. Gradually, as allowed by its governing statutes, EPA began to experiment with the use of economic incentives, introducing emissions trading in the early 1980s. The Clean Air Act Amendments of 1990, a product of the Bush administration, greatly increased the use of economic incentives in environmental management. The Clinton administration has continued strong support for the use of economic incentives in environmental management. This chapter highlights some of the key reports, executive orders, environmental management innovations, and legislation that demonstrate the growing commitment to expanding the use of innovative, cost-effective approaches to environmental management.

2.1 Reports and Strategies

2.1.1 Project 88 Report

Sponsored by Senators Heinz and Wirth, a group of public policy scholars prepared the Project 88 Report in 1988.[4] It identified 36 proposals for "innovative solutions to major environmental and natural resource problems." Among the economic incentives included in these proposals were

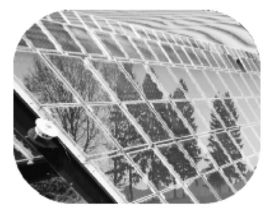
- a national market for CO_2 offsets;
- internationally marketable permits for greenhouse gases;
- marketable permits for potential ozone-depleting substances, SO_2, NO_x, and point and non-point sources of water pollution;
- a deposit-refund system for hazardous wastes that can be placed in containers;
- taxes on fuel-inefficient vehicles with rebates for fuel-efficient vehicles;
- taxes on certain pesticides; and
- air emissions charges for mobile sources.

Round II of the *Project 88 Report* evaluates in detail implementation issues regarding three areas where incentives might be applied: global climate change, solid and hazardous waste management, and natural resource management. Many of the initiatives proposed in the *Project 88 Report* subsequently were enacted: solid waste management unit pricing, the Gas-Guzzler tax on fuel-inefficient vehicles, and marketable permits for SO_2, NO_x, and water effluents. The proposal for an international market in greenhouse gases that was contained within the Kyoto Protocol also flows directly from this report.


Pollution Charges, Fees, Taxes


Deposit-Refund Systems


Trading Programs


Subsidies for Pollution Control


Liability Approaches


Information Disclosure


Voluntary Programs

2.1.2 Report of the EPA Economic Incentives Task Force

The 1991 report by the EPA Economic Incentives Task Force, entitled *Economic Incentives: Options for Environmental Protection* studied existing and potential incentive mechanisms for the purpose of stimulating discussion on the role of such mechanisms in environmental policy.[5] The report focused on four areas where incentives might be applied: municipal solid waste management, global climate change, water resource management, and multi-media concerns. In the preface to the report, the EPA Administrator stated, "To maintain progress toward our environmental goals, we must move beyond a prescriptive approach by adding innovative policy instruments such as economic incentives. Properly employed, economic incentives can be a powerful force for environmental improvement."

2.1.3 President's Council on Sustainable Development

Created in May 1993, the Council on Sustainable Development includes of representatives from the Cabinet, industry, and environmental groups. The Council has the task of developing a strategy to achieve long-term economic growth without harming natural resources.

In its March 1996 final report, the Council recommended the use of performance targets in lieu of technology standards, commending Project XL for allowing companies to develop innovative methods to control pollution. It also recommended the adoption of incentives and the elimination of disincentives for environmental protection in a number of areas, as well as more cooperation between industry and government in controlling pollution. One example of cooperation that was endorsed by the report was the Common Sense Initiative, under which industry and environmental groups worked with EPA to study ways to improve environmental regulations affecting six specified industries.

2.1.4 Economic Report of the President

Under the terms of the Employment Act of 1946, the President's Council of Economic Advisors prepares an *Economic Report of the President* every year. Among the topics discussed in the 1996 report was regulatory reform and its application to environmental policy.

The report offers several ideas for "reinventing regulation," which it defines as "taking a new look at regulation and the regulatory process to ensure that regulations meet legitimate social needs, and where necessary changing both content and process to improve efficiency and effectiveness." Efforts to reinvent regulations take several forms, including the "better targeting of regulatory efforts to where the need is greatest," "a shift in emphasis from prescribing methods of compliance to specifying desired outcomes," and "harnessing economic incentives through market-based regulatory mechanisms."

A significant portion of the report is devoted to reinventing regulation of the environment and natural resources. "The Administration is improving the way we protect the environment," states the report, "making government a partner rather than an overseer." The report cites "cooperation with States and localities, partnerships with the private sector that engender creative solutions as well as set standards, and careful assessment of the advantages and disadvantages of alternative government action" as a means by which "environmental protection can be achieved at an affordable cost."

Stating that environmental rules should impose the least possible burden and that their benefits should justify their costs, the report discusses a number of incentive approaches that have been or could be used to protect natural resources. The section entitled "Creating Cost-Effective Policies: Economic Incentives for Environmental Protection" includes liability for environmental damages, fees and charges, trading systems, conservation easements, and the provision of information. Trading systems for water pollution, air pollution, and fishing quotas are discussed at length. On the subject of water pollution, the report contains Administration estimates that several hundred million dollars to several billion dollars a year could be saved if effluent trading programs were expanded.

2.2 Executive Orders and Initiatives

2.2.1 Executive Order 12291

President Reagan's E.O. 12291 of February 17, 1981, required a Regulatory Impact Analysis (RIA) for proposed "major rules." The definition of "major rule" was similar to that of "significant regulatory action" in E.O. 12866, which replaced E.O. 12291. E.O. 12291 required that no regulatory action be taken "unless the potential benefits to society for the regulation outweigh the potential costs to society." Each RIA was required to contain a "description of alternative approaches that could substantially achieve the same regulatory goal at lower cost, together with an analysis of this potential benefit and costs and a brief explanation of the legal reasons why such alternatives, if proposed, could not be adopted."

After E.O. 12291 was adopted, EPA developed guidelines for conducting RIAs, according to which "each RIA should calculate the benefits and costs of a proposed regulation's full range of effects and should compare them with those of other regulatory and non-regulatory approaches." In the section entitled "Considering Alternative Approaches," the guidelines called for the consideration of "market-oriented regulatory alternatives (whether or not they are explicitly authorized in the Agency's legislative mandate)." Such alternatives "include using information or labeling to enable consumers or workers to evaluate hazards themselves and using economic incentives, such as fees or charges, marketable permits or offsets, changes in insurance provisions, or changes in property rights." EPA was required to submit all RIAs and proposed regulations to OMB for review. EPA's RIA guidelines were intended to increase the use of incentive mechanisms in environmental regulation.

E.O. 12291 built on a number of earlier Executive Orders and regulations dating back to President Nixon's "Quality of Life" reviews that required an assessment of alternatives and cost comparisons for proposed regulations. President Ford's E.O. 11821 of 1974 and E.O. 11949 of 1976 required inflation impact statements for major regulations. President Carter's E.O. 12044 of 1978 required Regulatory Analyses of the economic consequences of proposed regulations and alternatives under consideration, and the Executive Order instructed agencies to select the least burdensome alternative.

2.2.2 Executive Order 12866

A central idea of President Clinton's Executive Order (E.O.) 12866 of September 30, 1993 is that regulations should be adopted only after a reasoned determination concludes that quantified and nonquantified benefits justify the costs of the regulation. Further, E.O. 12866 states that, "in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach." This order replaced President Reagan's E.O. 12291. Under E.O. 12866, agencies are required to assess the benefits and costs of any "significant regulatory action."

Actions deemed "significant" include those that "have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments, or communities" or that meet certain other criteria.

E.O. 12866 also requires that agencies consider the possibility of using incentive-based approaches for any significant regulatory action. Two specific "Principles of Regulation" in E.O. 12866 refer to incentive-based approaches:

> 1b3: "Each agency shall identify and assess available alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made by the public."
>
> 1b8: "Each agency shall identify and assess alternative forms of regulation and shall, to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt."

In January 1996, an interagency group convened by the Office of Management and Budget (OMB) issued a document entitled *Economic Analysis of Federal Regulations* that provided guidelines for performing economic analysis of proposed federal regulations under E.O. 12866.[6] Among the topics discussed in these guidelines were the importance of performance-based standards, alternative compliance methods, information approaches, and economic incentives.

On the first of these topics, the guidelines state, "Performance standards are generally to be preferred to engineering or design standards because performance standards provide the regulated parties the flexibility to achieve the regulatory objective in a more cost-effective way." "Performance standards," the guidelines continue, "should be applied with a scope appropriate to the problem the regulation seeks to address. For example, to create the greatest opportunities for the regulated parties to achieve cost savings while meeting the regulatory objective, compliance with air emission standards can be allowed on a plant-wide, firm-wide, or region-wide basis rather than vent by vent, provided this does not produce unacceptable air quality outcomes (such as 'hot spots' from local pollution concentration)."

On the subject of ensuring compliance, the guidelines state, "When alternative monitoring and reporting methods vary in their costs and benefits, promising alternatives should be considered in identifying the regulatory alternative that maximizes net benefits."

The guidelines mention various "informational measures," including "government establishment of a standardized testing and rating system (the use of which could be made mandatory or left voluntary), mandatory disclosure requirements (e.g., by advertising, labeling, or enclosures), and government provision of information (e.g., by government publications, telephone hotlines, or public interest broadcast announcements)."

The guidelines also call for consideration of economic incentives: "In general, alternatives that provide for more market-oriented approaches, with the use of economic incentives replacing traditional regulatory requirements, are more cost effective and should be explored." Incentives "that may be considered include fees, subsidies, penalties, marketable permits or offsets, changes in liabilities or property rights (including policies that alter the incentive of insurers and insured parties), and required bonds, insurance or warranties."

In March 2000, OMB issued new *Guidelines to Standardize Measures of Costs and Benefits and the Format of Accounting Statements.*[7] OMB explains the relationship between this document and the *Best Practices Manual* as follows:

> *These Guidelines draw from the "Best Practices" document developed in 1994 and 1995 by an interagency group co-chaired by the Department of Transportation and the Council of Economic Advisers. That "Best Practices" document in turn revised the "Regulatory Impact Analysis Guidance" published by OMB in 1990 after a two-year notice and comment period. You should use this document in estimating and presenting the benefits and costs of regulations. While it does not represent OMB guidance, you may use the "Best Practices" (Q: shouldn't the document title here be surrounded with quotes as shown in other instances in this paragraph?) document as supplementary material to illustrate further specific issues or techniques. (page 2)*

2.2.3 Climate Change Initiative

The Climate Change Action Plan relies largely on voluntary incentives to achieve reductions in greenhouse gas emissions. Among its initiatives are Green Lights and Energy Star, Climate Wise, and at least four voluntary programs to promote methane recovery (Natural Gas Star, AgStar, Coalbed Methane Outreach, and Landfill Methane Outreach). Several of these programs are described in more detail in Chapter 10.

The more recent Climate Change Technology Initiative (CCTI) supplements these purely voluntary programs with targeted subsidies to improve technologies, so fewer greenhouse gases are produced. Shortly after the Kyoto agreement to reduce greenhouse gas emissions of December 1997, the Clinton administration proposed the CCTI and asked for congressional approval of \$3.6 billion in tax credits as incentives and \$2.7 billion for research and development.[8] Congress authorized \$1.021 billion in R&D and \$85 million in tax credits for FY 1999 and \$1.095 in R&D for FY 2000. The 2001 budget proposed spending over \$1.4 billion for R&D in FY 2001 and \$4 billion in tax credits for the CCTI over the next five years.

2.2.4 Greening the Government

Executive Order 13148, issued by President Clinton on April 22, 2000, instructs the head of each federal agency to ensure that actions are taken to integrate environmental accountability into routine agency decision making and long-term planning. Many of the directives of the order could be classified as economic incentives because they help to provide information, take full costs into account in decision making, and reduce the use of toxic chemicals where cost-effective. Among other things, the order calls for federal agencies to develop and implement environmental management systems and to ensure compliance with environmental regulations by implementing audit programs and policies on environmental compliance that emphasize pollution prevention. The order also directs agency heads to keep the communities in which federal facilities are located informed as to possible sources of pollution, to make efforts to reduce the use of toxic chemicals by 10% per year, to engage in pollution prevention efforts, and to conduct life cycle cost analysis. The order is the latest of several issued by the Administration on "greening the government," including E.O. 13101 of September 14, 1998, E.O. 13123 of June 3, 1999, and E.O. 13134 of August 12, 1999.

2.2.5 National Performance Review

Vice President Gore's National Performance Review released a report in 1993 entitled *Creating a Government That Works Better & Costs Less*.[9] Focused on reinventing government, the report included a number of recommendations for improving environmental protection, some of which advocated the use of economic incentives. The document's authors suggested that EPA work with Congress to encourage the use of incentives to reduce water pollution, including wastewater discharge fees. It also recommended that the conditions for accessing federal resources for activities such as grazing and mining be modified. The purpose of this suggestion was twofold: first, to ensure that the government obtains a fair return on its land, and, second, to provide incentives for improving federal land management.

2.2.6 Reinventing Environmental Regulations

On March 16, 1995, the President announced the first government-wide regulatory reforms designed to improve environmental regulation, so the nation achieves a better environment at lower cost. The President emphasized economic incentives in these reforms. For example, the document entitled *Reinventing Environmental Regulation* provides 10 principles for reinventing environmental protection. One of these principles is that environmental regulations must be "performance based" and must allow flexibility while requiring accountability in attaining goals. Another principle is that "market incentives should be used to achieve environmental goals, whenever appropriate." The document also includes "25 High Priority Actions," a section in which open-market air emissions, effluent trading in watersheds, and other topics are discussed.[10] (Subsequent initiatives by EPA to implement these recommendations are described in Chapter 6.)

In addition, the document describes actions that can improve compliance, accountability, and enforcement. EPA now coordinates these activities through its Environmental Leadership Program, a voluntary program that focuses on the role of compliance management systems in enforcement. It also provides incentives for auditing, disclosure, and correction. (This program is described in Chapter 10.) The document characterizes Project XL (another voluntary program discussed in Chapter 10) as one of the "Building Blocks for a New System" of environmental regulation.

2.2.7 National Environmental Technology Strategy

On March 18, 1995, the Vice President announced a National Environmental Technology Strategy to "create high-wage jobs and exports and stimulate overall economic growth; reduce the cost of cleaning up past pollution; and help prevent future damage to the environment." The strategies advocated the use of economic instruments to promote innovations in pollution control technologies that enhance the effectiveness of pollution control efforts or reduce cost, or both.

2.3 Recent Environmental Management Initiatives

2.3.1 Performance Track Approach at EPA

How to obtain more environmental protection more efficiently is the focus of recent EPA innovations in environmental management.[11] Noteworthy among the new innovative approaches are rewards for superior environmental performance. The current system of environmental regulation offers little incentive for firms to go beyond compliance. EPA now views this approach as a missed opportunity to encourage top environmental performers. Through a new "Performance Track" approach, firms would receive a standard package of incentives such as public recognition for meeting environmental criteria. Firms that routinely do much more than meet established requirements would be placed on a smaller second track and receive a higher level of recognition and incentives more closely tailored to their individual needs. EPA views this two-tiered reward structure as a significant step toward a more performance-based system that stimulates superior environmental achievement.

2.3.2 EPA Air and Water Policy Initiatives

Among the many initiatives within EPA that concern economic instruments, one on air quality and one on water quality are particularly noteworthy. Beginning in the late 1970s, EPA explored the ways in which flexibility could be integrated into air quality regulation, so cost effectiveness would be enhanced. These activities, which are described in Chapter 6, culminated in the Emission Trading Policy Statement and laid the groundwork for the broader use of economic incentive approaches in the Clean Air Act Amendments of 1990. Since then, EPA has provided trading opportunities in many air programs and rules to combat a variety of air pollution problems. In addition, the EPA Office of Water has actively promoted effluent trading as a means of improving the cost effectiveness of attaining its goals on water quality.

2.3.3 EPA Research Activities

Through the years, the Office of Research and Development (ORD), the EPA policy office, and several program offices have supported research on economic incentives for environmental management. Much of that research is available on the Economy and Environment home page at www.epa.gov/economics. At present, ORD is supporting a program in Market Mechanisms and Incentives Research.[12]

2.3.4 Promotion of Economic Instruments Abroad

On April 9, 1999, Vice President Gore and Premier Zhu Rongji announced a cooperative agreement designed to increase markets for U.S. environmental technology in China. The agreement will increase opportunities for U.S. investment in the Chinese energy-producing sector and promote the reduction of greenhouse gas emissions in China through a program to trade sulfur dioxide (SO_2) emissions. "In an agreement that will move China closer to a system of emissions trading, the EPA and China's State Environmental Protection Administration signed a Statement of Intent on development of a Sulfur Dioxide Emissions Trading Feasibility Study. The agreement calls for developing a study to test the effectiveness of emissions trading in China as a market-based approach to reducing greenhouse gas emissions."[13]

2.4 Legislation: Clean Air Act Amendments of 1990

While other environmental legislation also creates programs based on economic incentives, the Clean Air Act Amendments of 1990, enacted during the Bush administration, are particularly noteworthy. With the passage of these amendments, the legislative branch of government showed strong support for economic incentives and expanded the regulatory toolbox beyond traditional regulatory requirements, which had dominated air pollution control policy in previous years. Among the incentive mechanisms authorized in these amendments are the Acid Rain Trading Program, provisions for offsets and other trading programs in ozone non-attainment areas, early reduction credits for hazardous pollutants, fees based on pollutant emissions, the possibility of marketable credits for certain fuel constituents, marketable production allowances for ozone-depleting substances, and labeling of ozone-depleting substances.