Appendix B
State Initiatives

In the last 2 years, some States have taken an active role in addressing greenhouse gas emissions without waiting for the Federal Government to act—usually through legislation or executive orders, most often with respect to energy efficiency and use of chlorofluorocarbons. Table B-1 provides titles, dates enacted, and general substance of several legislative and executive actions.

A few States have developed quantitative reduction goals for greenhouse gas emissions. For example, Vermont's policy calls for greenhouse gases to be reduced at least 15 percent below current levels by the year 2000; it promotes measures to reduce per-capita nonrenewable energy use, increase alternative fuel use, and develop renewable energy sources (table B-1; ref. 15). Oregon's goal is to reduce greenhouse gas emissions 20 percent below 1988 levels by the year 2005 (20).

Other States, while not formulating specific reduction targets, have established relatively broad goals related to global warming. New Jersey is seeking to reduce emissions by decreasing energy consumption and encouraging energy conservation, public education, and tree planting (table B-1; ref. 22). Its educational initiative is unique in calling for improved public education about the causes and effects of climate change; it asks colleges and universities that train teachers to integrate environmental education activities into course material. Connecticut's 1990 global warming act includes a range of energy-efficiency goals, requirements for transportation (e. g., passenger vehicle occupancy levels, telecommuting), buildings standards, State vehicle fuel efficiency, recycling, and long-term energy use (table B-1; refs. 7 and 30). A 1990 Iowa bill contains provisions addressing energy efficiency in buildings, alternative fuels demonstration grants, an Iowa Energy Center, and energy-efficiency planning by utilities (table B-1; ref. 4).

Many State programs are specifically designed to address CO_2 emissions from individual sectors. Most involve energy use and efficiency in the buildings, transportation, and energy supply sectors. Many States also developed programs during the 1970s and 1980s that, although not designed to address concerns about global warming, nonetheless can help reduce emissions. Most of these programs have focused on energy supply (e.g., least-cost utility planning) and buildings (e.g., efficiency standards) (16).

Table B-l—State Legislation and Orders Addressing Greenhouse Gas Emissions

State	Document	Date enacted	Subjects emphasized
Arizona	House Bill 2206	1988	Air quality, natural gas, transportation control measures
Connecticut	Public Act 219	1990	Transportation control measures, building codes, State vehicles, tree planting, State energy plan, recycling
Hawaii	Senate Bill 1344	May 11, 1989	CFCs
Iowa	Senate File 2403	1990	Building energy efficiency, alternative fuels demonstration grants, utility energy-efficiency planning
Maine	Public Law 622	Feb. 23, 1990	CFCs
Minnesota	Comprehensive Groundwater Protection Act	1989	Nitrous oxides, agriculture
New Jersey	Executive Order 219	Oct. 23, 1989	CO_2 emissions, State equipment purchases, energy use, CFCs, tree planting
New York	Executive Order 118	Dec. 28, 1988	State Energy Plan, energy use, CO_2 emissions
Oregon	Senate Bill 576	1989	Greenhouse gas emissions, energy conservation, renewable resources, alternative fuels
Texas	Senate Bill 740	1989	State vehicles
	Senate Bill 760	1989	Natural gas, alternative fuels, technologies
Vermont	Act 59	May 24, 1989	CFCs
	Executive Order 79	Oct. 23, 1989	CO_2 emission reduction goals, energy efficiency, renewable energy, alternative fuels
Washington	House Bill 2198	Feb. 5, 1990	Residential buildings
Wisconsin	Act 284	Apr. 21, 1990	CFCs
	Public Service Commission Order 05-EP-5	Apr. 7, 1989	Utilities, cost of reducing CO_2 emissions

SOURCE: Office of Technology Assessment, 1991.

Most of the specific greenhouse gas-related actions have occurred in the last year or two and some are not yet legally effective, so the extent to which they will be implemented and enforced remains to be seen. This appendix presents examples of these actions, based primarily on responses to an OTA survey of different regions of the country; it is not intended to be an exhaustive list.

Chlorofluorocarbons (CFCs) and Halons

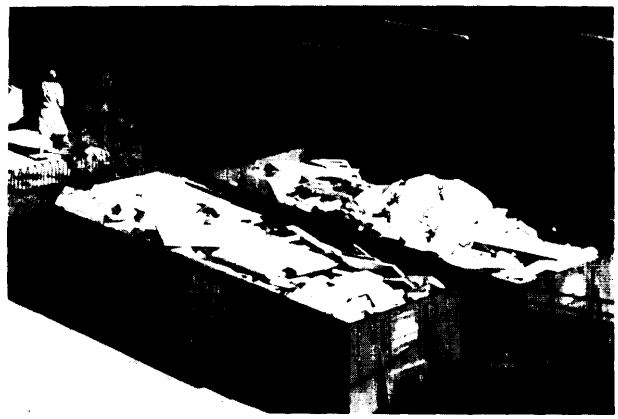
Of all the greenhouse gases, CFCs have been the most widely addressed by State legislatures. In 1989, Hawaii became the first State to enact legislation restricting the use of CFCs (table B-1; ref. 33). The statute, which goes into effect on January 1, 1991, requires mandatory recycling of CFCs and prohibits the sale of CFC coolants for air conditioners in containers smaller than 15 pounds (the latter as a means of deterring inexperienced installers).

Soon after Hawaii's action, Vermont enacted a statute that bans the sale of cleaning sprays, containers of CFCs smaller than 15 pounds, and halon fire extinguishers for home use (table B-1; ref. 15). The law also prohibits the sale of cars with CFC-using air conditioners, beginning with model year 1993, and requires service stations that repair automobile air conditioners to recycle CFCs.

Under Maine's CFC-related statute, new cars using CFCs may not be registered in the State after 1994, automobile CFCs must be recycled, and the sale of small quantities of CFCs is restricted (table B-1; ref. 17). The legislation bans the use of CFC foam board for household insulation, effective when alternative blowing agents are available. [1]

In Wisconsin, beginning in 1991, motor vehicle air conditioner refrigerant in containers holding less than 15 pounds will be banned (table B-1; ref. 31). Beginning in 1992, anyone servicing or installing refrigeration equipment containing at least 5 pounds of CFC refrigerant must use proper recycling procedures. In 1996, the distribution or registration of new motor vehicles using air conditioners that contain over a specified amount of CFCs will be prohibited.

Other States with legislation or directives that address CFC emissions include California (see box 5-A in ch. 5), Connecticut, Florida, Illinois, Iowa, Louisiana, Maryland,



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Minnesota, Missouri, New Jersey, New York, Rhode Island, and Oregon. [2] Legislation has been introduced in at least 7 other States (17).

Energy

Marty States have had energy planning and assistance programs since the early 1970s and 1980s, largely in response to the 1973 oil embargo. As of 1988, for example, 24 States had collaborative energy-efflciency projects with utilities, and 15 had State energy tax credits for renewable energy sources (e.g., photovoltaics, wind, biomass) (1, 16). Since the mid-1970s, many utilities and State regulators have increased their interest in least-cost planning (LCP), which aims to balance supply- and demand-side management alternatives to meet energy needs at the least possible cost (8a) (see box 3-C in ch. 3 for more discussion of demand-side management). As of 1990, 23 States had LCP strategies. [3] Almost all States also received funding from the Oil Overcharge fund, to be used in energy conservation grants administered by the U.S. Department of Energy. [4] More recently, several States have enacted energy policies that directly address greenhouse gas emissions.

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[1] we previously passed a law prohibiting the use of polystyrene foam food packaging made with CFCs; Minnesota and Rhode Island also passed similar laws (25).

[2] In addition, some municipalities have passed comprehensive ordinances regulating CFCs—including Irvine, California, in August 1989; and Denver, Colorado (refs. 6, 12) in April 1990.

[3] According t. ref. 8a, legislatures have passed LCP laws or given authority to utility commission to establish and enforce regulations in at least 16 States. Utilities also use LCP without legislative or regulatory mandates in a few other States.

[4] These funds are granted by the Department to the States for previously authorized conservation projects; they are derived from a 1986 U.S. District Court decision on alleged pricing violations by oil companies. The DOE grant programs are the Energy Extension Service, the State Energy Conservation Program, the Institutional Conservation Program, and the Weatherization Assistance program (these are discussed inch. 4).

As of September 1990, six State utility commissions had modified the selection procedures of their electric utility companies to account for residual environmental damages (32).[5] New York's Public Service Commission introduced guidelines for a competitive bidding process for new electricity supply that includes the estimated cost of environmental pollution, including CO_2 emissions; the cost is added to bids in order to make energy-efficient and environmentally cleaner technologies more competitive with traditional fossil fuel-fired generation technologies (21, 23, 24).[6] New York also has issued an Executive Order (table B-1; ref. 21) establishing a statewide energy planning process involving the State Energy Office, Department of Public Service, and Department of Environmental Conservation.

In Vermont, an Executive Order (table B-1) calls for increasing the effectiveness of energy-efficiency services provided by utilities, private businesses, and State agencies, and for increasing Vermont reliance on renewable energy supplies. The State Agency Task Force on Energy was created to oversee the implementation of energy efficiency and emission reduction strategies.

New Jersey's goal of reducing greenhouse gas emissions includes directives to State agencies to foster energy conservation-for example, by purchasing and using efficient heating, ventilation, air-conditioning, and lighting equipment; increasing reliance on lower emitting fuels; and using alternatives to CFC- and halon-containing equipment (22). New Jersey's initiative is distinguished from other State plans by its emphasis on public education, as noted above.

In Wisconsin, the Public Service Commission issued an order in 1989 that requires the Wisconsin Utilities to assess the cost of using existing technologies to reduce CO_2 emissions by 20 percent below 1985 levels (31).

Some States are using Oil Overcharge funds to establish energy-related programs. In Arizona, funds are being used to construct a solar village on State Trust Land (1 1). In New Mexico, some funds are being used for municipal solid waste reduction and recycling projects that result in net energy savings (10).

Transportation

As of 1988, a number of States had programs dealing with public transportation, ridesharing, vehicle inspection and maintenance, and high-occupancy lanes (16). For example, at least 15 States provided some funding for ridesharing. In the last few years, States such as Arizona, California, Connecticut, and Texas have enacted legislation specifically designed to reduce CO_2 emissions in the transportation sector.

California probably has the most comprehensive plan in the country regarding transportation policies, In particular, the South Coast Air Quality Management plan sets forth an ambitious and far-reaching program of control measures that could greatly affect transportation emissions (see box 5-F in ch. 5 for details).

Arizona's 1988 air legislation (table B-1) includes a tax break for use of compressed natural gas (CNG) and funding for pilot projects on oxygenated fuels (29).[7] It also includes a variety of transportation control measures, such as travel reduction programs, compensation for vanpool costs, and prohibition of parking in certain areas.

Connecticut 1990 legislation (table B-1) requires that new cars and trucks purchased by the State have an average MPG rating of 45 and 35, respectively, by 2000 (30) and that alternative fuel vehicles be considered in purchasing decisions. It also establishes a range of other transportation goals, including increasing average car occupancy levels, increasing use of public transportation, providing disincentives for free parking, and eventually, telecommuting for State agencies. The Department of Transportation must provide the State with an analysis of public transportation, paratransit (carpooling), and traffic management.

Two Texas acts are designed to reduce transportation CO_2 emissions (table B-1; ref. 26). One prohibits State agencies with 15 or more vehicles from purchasing or leasing vehicles (after September 1991) not capable of using CNG or other alternative fuels with lower emissions. By September 1994, 30 percent of a State agency's fleet must be capable of operating on CNG or other alternative fuels; the percentage will increase to 50 percent by 1996, The second act requires the Air Control Board to encourage use of natural gas, alternative fuels, and more efficient technologies. Some Oil Overcharge funds also have been allocated for transportation programs (e.g., traffic signal synchronization, traffic management, fleet management, alternative fuels).

[5]Massachusetts and New York are assigning specific costs to environmental damages, as described in this paragraph for New York; Colorado, New Jersey, and Vermont are using a point system that achieves a similar result without quantifying damages in monetary terms; and Wisconsin is assigning a penalty to account for environmental damages (32),

[6]The State (ref. 25) has estimated the additional cost of mitigating environmental impacts from coal-fired plants to be up to 1.405 cents/kWh; costs for specific damages were estimated at 0.10 cents/kWh for CO_2, 0.25 cents/kWh for SO_2, 0.55 cents/kWh for NO_X, 0.005 cents/kWh for particulate, 0.10 cents/kWh for water impacts, and 0.40 cents/kWh for land use (e.g., terrestrial impacts, fuel delivery, noise, transmission, solid waste, aesthetics).

[7]Use of unconventional automotive fuels for vehicles, such as natural gas or electricity, do not necessarily result in lesser climatic impacts. This depends on many variables, ranging from the type of energy source used, to leakage rates (in the case of natural gas) and efficiency levels (see ch. 5).

Buildings

Connecticut has several legislative provisions addressing energy use in buildings (table B-l). It requires stricter codes for commercial buildings; standards for State buildings that would reduce energy use **per square** foot by **30** percent by 2000 and 50 percent by 2010; and State purchases of energy-efficient appliances (30). It also requires that preference be given to energy-efficient projects in State housing grant and loan programs, and calls for utilities to charge higher rates for new energy-wasting buildings beginning in 1993.

Many States have started loan programs for retrofitting State, public school, and local government facilities, often using funds from the Oil Overcharge fund. The Loan-STAR program in Texas, which commenced in 1988, consists of a $98 million revolving loan program for energy conservation retrofits in Texas State, local government, and public school buildings (27).[8] The Governor's Energy Management Center expects that retrofits funded through November 1, 1990, will generate annual utility savings of $4.8 million and that retrofits now being funded will generate an additional savings of $4 million annually (26).

Both the California Energy Commission and the Northwest Power Planning Council (NPPC) have established model energy-efficient building codes for residential and commercial buildings (1 1), The California Legislature directed the California Energy Commission to prescribe, through regulations, various building design and construction standards (e.g., lighting, insulation, automatic control systems) that will increase energy efficiency in new buildings (8).[9] In 1990, the State of Washington enacted legislation adopting standards equivalent to the NPPC's Model Conservation Standards for residential buildings, requiring increased efficiency in new homes and apartments (table B-1; ref. 28).[10] The State estimates that resultant savings will beat least 200 megawatts of electrical power and 21 million annual therms of natural gas by 2010 (28). A State-utility collaborative program established by the act includes a public awareness and education element, as well as utility rebates.

Food and Forestry

We are unaware of any States with agricultural programs specifically designed to reduce greenhouse gas emissions. However, Minnesota has legislation addressing the use of nitrogen fertilizers (table B-1; ref. 5). A Nitrogen Fertilizer Task Force was established to study the effects of nitrogen fertilizer use on water resources so that the State can develop best management practices, a fertilizer management plan, and nitrogen fertilizer use regulations (14).

In Georgia, the State Office of Energy Resources has a program funded by Oil Overcharge funds to increase energy efficiency in the crop processing sector (19). The Agricultural Processor Energy Conservation Service provides technical know-how and audits to processing plants. For example, Georgia Tech University has noted that the energy used in processing peanuts, at a cost of around $11 million per year, could potentially be reduced by 10 to 20 percent if cost-effective technologies are used.

Many States have long had forest management programs of one sort or another and some are now establishing tree-planting programs in response to global warming and other concerns (11, 13, 16). For example, New Jersey's 1990 Executive Order (table B-1; ref. 9) calls for maximizing the number of trees in the State; a program requiring replacement of trees lost as result of State construction activities has been instituted through the order.

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[9] The Commission also is studying specific measures and policy options to reduce greenhouse gases, in response to Assembly Bill 4420 of 1988.

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