Chapter Three

Domestic Discretionary Spending

Domestic discretionary programs include all federal programs funded through appropriations except those in defense and international affairs. An extremely varied category results, comprising the areas of science and space, transportation, energy, agriculture, environmental protection, housing, education and training, medical research, and law enforcement (see Box 3-1). The agencies that receive significant funding from domestic discretionary appropriations are among the most visible in government; they include the Departments of Agriculture, Education, Energy, Health and Human Services, Housing and Urban Development, and Justice, as well as the Environmental Protection Agency and the National Aeronautics and Space Administration. Many of the programs and activities funded under the domestic discretionary category are also prominent and, in many cases, popular. Some examples are the space station and space shuttle, Superfund, support for U.S. farm exports, small business loans, aid to Amtrak and mass transit, support for elementary and secondary education, the National Cancer Institute, and various programs to control illegal drugs.

Spending for domestic discretionary programs in 1995 will reach an estimated $253.2 billion, or about 17 percent of federal outlays. Spending for four budget functions--transportation (400), health (550), income security (600), and education, training, employment, and social services (500)--will account for about half of the total (see Table 3-1). Cutting across budget functions, pay for the federal workforce will make up about 25 percent of total discretionary spending for domestic programs, and aid to state and local governments will account for 35 percent of the total.

The 1995 level of spending for domestic discretionary programs represents a $10.8 billion--or 4.5 percent--increase over spending for the same purposes in 1994. That increase was sufficient to continue the mild upward trend evident since the late 1980s in the percentage of gross domestic product (GDP) accounted for by discretionary spending for domestic programs (see Figure 3-1). The climb in spending for 1995 exceeded the rate of inflation and occurred at the same time that limits imposed on all spending by the Budget Enforcement Act of 1990 and continued under the Omnibus Budget Reconciliation Act of 1993 reduced total discretionary spending (a larger grouping that includes spending for discretionary defense and international programs). Such spending fell by $1 billion--from $545 billion in 1994 to $544 billion in 1995. During 1995, increases in spending for domestic discretionary programs were accommodated within the overall spending limits for discretionary programs by decreasing discretionary spending for defense.

The outcome for 1996 is likely to be different. The spending limits established by law for 1996 permit only an $8 billion (less than 2 percent) increase in all discretionary spending. CBO estimates that a $9 billion increase would be necessary in 1996 just to maintain the 1995 funding level in the domestic discretionary category after adjusting for inflation. Moreover, the priorities of the new Congress are different from those of its predecessor. The Contract with America, for example, supported by the Republican majority in the House of Representatives, calls for simultaneously cutting taxes, increasing defense spending, and moving toward a balanced budget. To achieve those goals, reductions would be necessary

Box 3-1.
Categories of Domestic Discretionary Spending

250 General Science, Space, and Technology--Research supported by the National Science Foundation, the bulk of the spending by the National Aeronautics and Space Administration, and the general science research supported by the Department of Energy.

270 Energy--Domestic energy programs of the Department of Energy and activities of the Rural Electrification Administration and the Nuclear Regulatory Commission, including programs to increase the supply of energy, encourage energy conservation, provide an emergency stockpile of energy, and regulate energy production.

300 Natural Resources and Environment--Programs administered by the Army Corps of Engineers, the Department of Agriculture, the Department of the Interior, the Environmental Protection Agency, and the Department of Commerce's National Oceanic and Atmospheric Administration, among others, for water resources, conservation and land management, pollution control, and other natural resources programs.

350 Agriculture--Programs administered by the Department of Agriculture to promote economic stability in agriculture and increase agricultural output. Farm income stabilization--loans, subsidies, and other payments to farmers--and agricultural research are funded under this function.

370 Commerce and Housing Credit--Funding for the regulation and promotion of commerce and the housing credit and deposit insurance industries. Also included in this category are subsidies to the Postal Service, programs providing loans and other aid to small businesses, and support for the government's efforts to gather and disseminate economic and demographic data.

400 Transportation--Most of the programs of the Department of Transportation and the National Aeronautics and Space Administration's support for aeronautical research, including funding to aid and regulate ground, air, and water transportation. Among the prominent programs supported under this function are grants to states for highways and airports and federal subsidies to Amtrak.

450 Community and Regional Development--Programs that support the development of physical and financial infrastructure intended to promote viable community economies, including activities of the Department of Commerce and the Department of Housing and Urban Development. This function also includes expenditures to help communities and families recover from natural disasters and supports the rural development activities of the Department of Agriculture, the Bureau of Indian Affairs, and other agencies.

500 Education, Training, Employment, and Social Services--Funding for a diverse group of education and training programs extending from the preschool level (the Head Start program, for example) to elementary and secondary education (grants to states, for instance) to postsecondary education and vocational training. Most of the programs included in this category are administered by the Departments of Labor and Education.

550 Health--Research (in the form of grants, largely to universities) supported by the Department of Health and Human Services through the National Institutes of Health, and programs funded by several different federal agencies to promote food and drug safety, consumer product safety, and occupational safety.

570 Medicare--The administrative expenses of the program, which are classified as discretionary. (Medicare provides health care services to people age 65 and older and to disabled beneficiaries.)

600 Income Security--Housing assistance, administered by the Department of Housing and Urban Development, and other major discretionary programs including assistance to needy individuals for food and energy.

700 Veterans Benefits and Services--Funding for veterans' hospitals and the construction of veterans' health facilities.

750 Administration of Justice--Programs that provide judicial services, law enforcement, and prison operation. The Federal Bureau of Investigation, the Customs Service, the Drug Enforcement Administration, and the federal court system are all supported under this function.

800 General Government--Funding for the central management and policy responsibilities of both the legislative and executive branches of the federal government. The bulk of the expenditures in this category cover legislative functions and central fiscal operations, including those of the General Services Administration and the Internal Revenue Service.

SOURCE: General Accounting Office, *A Glossary of Terms Used in the Federal Budget Process* (January 1993), pp. 103-126.

in discretionary spending for domestic programs and in entitlements. The Administration is also offering proposals to reduce domestic discretionary spending as a source of savings to offset a proposed set of tax cuts. Accordingly, the competition for limited funds that was evident in 1995 is likely to intensify in 1996, bringing to the fore the spending reduction options that make up this volume.

Other Pressures

From a big-picture perspective, the simple arithmetic of the budget places cuts in spending for the agencies and programs included in the domestic discretionary category "on the table" in efforts to trim the federal deficit. In addition, the movement to reduce the size and scope of government, and the related effort to reinvent it, in many cases--although not always--apply complementary pressure for reducing domestic discretionary spending. The possibilities of turning to the private sector for services currently provided by the federal government and of selling assets that the government owns are related themes that also have implications for such spending.

The announced intention of many members of the new Congress to reduce the size and scope of government, and the Administration's now two-year-old reinventing government initiative, require federal agencies both to change the way they do business and, in some instances, to shed parts of their current mission. Some proposals consistent with those themes would lead to deficit reduction; others would not. A government that did less and thereby cost

Table 3-1.
Budget Authority and Outlays for Domestic Discretionary Programs, by Budget Function, 1995
(In billions of dollars)

Budget Function	Budget Authority	Outlays
General Science, Space, and Technology (250)	17.5	17.3
Energy (270)	6.3	6.6
Natural Resources and Environment (300)	21.9	21.5
Agriculture (350)	4.0	4.2
Commerce and Housing Credit (370)	3.0	3.0
Transportation (400)	15.0	38.4
Community and Regional Development (450)	8.6	9.0
Education, Training, Employment, and Social Services (500)	42.0	39.3
Health (550)	22.8	22.3
Medicare (570)	3.0	3.0
Income Security (600)	34.0	38.9
Social Security (650)	0	2.5
Veterans Benefits and Services (700)	18.3	18.3
Administration of Justice (750)	18.1	16.7
General Government (800)	12.1	12.1
Total	226.8	253.2

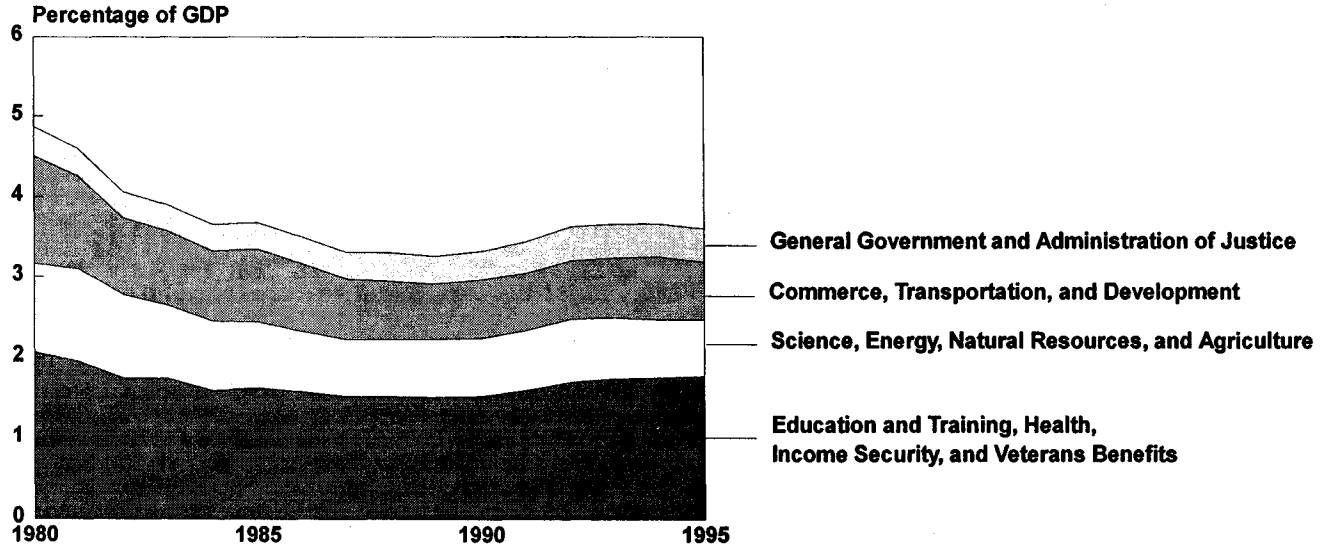
SOURCE: Congressional Budget Office.

less would not lead to a lower deficit were revenues to fall more steeply than spending. A government that was more efficient might deliver more benefits for a given level of expenditures, yet leave the deficit unchanged. Eliminating a major department by moving its programs intact to other departments would not substantially decrease federal spending. Substituting block grants for directed spending programs would reduce outlays only if the total funds allocated to grants were less than what would have been spent in the directed spending program. Moreover, the experience of the private sector in "downsizing" indicates that success may be preceded by costly investments to determine how best to economize.

In some cases, proposals have been offered to eliminate entire agencies (for example, the Department of Energy) or to banish the federal government from areas in which it has long participated (for example, elementary and secondary education). Although this volume does not include an option that eliminates a large government department, many of the alternatives it presents call for substantial curtailment of federal activity and spending in specific areas. Furthermore, in some cases, the budgetary result of eliminating an agency would be approximated by combining options from this chapter that reduce spending with options from the next chapter that increase the fees charged to users of services provided by the federal government. For example, if existing excise taxes are left in place, a substantial part of the potential to reduce the deficit that would come from privatizing some or all of the Federal Aviation Administration lies in reducing subsidies for air travel--which is the essence of DOM-24 and DOM-25 eliminating airport grants-in-aid and the Essential Air Service program, respectively--and in increasing fees, as in ENT-20 for air traffic control and ENT-24 for services provided to general aviation.

Selling assets owned by the federal government relates to both reducing the deficit and asking fundamental questions about the size and scope of government. The Administration has proposed asset sales that include several power marketing associations and the naval petroleum reserves. Current Congressional scorekeeping rules do not permit the proceeds from an asset sale to count directly toward satisfying the statutory limits on discretionary spending. Un-

Figure 3-1.
Domestic Discretionary Spending as a Share of GDP



SOURCE: Congressional Budget Office.

derlying those rules is the idea that an asset sale leaves the financial position of the government unchanged because the current inflow of dollars is offset by a future loss--the discounted value of lost future receipts or added future costs. Accordingly, this volume does not include most of the major proposed asset sales. Some of those sales, however, in conjunction with "privatization," would lead to less federal spending in cases in which direct appropriations are required to cover the operational cost of employing the asset to deliver a specific good or service. Selling the Strategic Petroleum Reserve (see DOM-07) is included as an option in this year's volume under that reasoning.

Rationales For and Against Spending Reductions

Discussions this year of how to reduce federal spending for domestic discretionary programs seem more intense than in past years, as proposals to eliminate agencies, entire programs, and the federal role in some areas of activity are more prominent than those calling for incremental decreases in funding for selected programs. But the aggressiveness of some current proposals should not obscure the constancy over the years in the general rationales offered in support of reductions in discretionary spending for domestic programs, nor in the arguments that call for maintaining current programs and spending.

Three general rationales for cutting federal spending on domestic discretionary programs stand out in the present environment. First, federal outlays could be reduced when programs are found to be ineffective or inefficient in meeting their objectives. For instance, the argument that past spending has been ineffective in achieving program goals is offered in support of DOM-55, an option that would reduce expenditures by closing or converting inefficient or underused facilities in veterans' hospitals. Second, federal spending could be scaled back for programs that arguably have outlived their usefulness, a point made in the case for eliminating the credit subsidies provided by the Rural Utilities Service (see DOM-09). Third, federal spending could be pared down by eliminating programs that benefit local areas, industries, firms, or groups of consumers but that do not deliver benefits beyond the directly affected group. The argument for DOM-25, an option to end the Essential Air Service program, is an example of that position, pointing out that programs that generate primarily local benefits ought to be locally funded. DOM-30, an option to eliminate applied research and development support for the producers of commercial aircraft, illustrates the case to be made for cutting a program when the federal government pays for research that produces benefits that could, for the most part, be captured by directly affected private businesses making comparable investments.

At the heart of the third major rationale supporting many options that would reduce domestic discretionary spending is a negative answer to the question, "Is this an appropriate activity for the federal government?" As such, that long-standing basis for eliminating a federal activity and reducing spending joins with currently popular ideas about reinvention, privatization, or scaling back of the federal government. It is also the other side of the budgetary coin from the current discussion about federal laws that force states, localities, and private businesses to spend money to conform with federal mandates. The reexamination of federalism occurring in the discussions of unfunded mandates and their impact on the private sector would be incomplete if it did not consider the prospect of decreasing the flow of federal funds to programs and activities that deliver primarily local benefits or that produce benefits that could be secured by private investors pursuing the highest returns on their investments.

Balancing the general arguments for specific spending reductions are equally general defenses of current programs and spending. The supporters of activities that are criticized as outmoded, ineffective, or unlikely to produce benefits large enough to justify their costs sometimes simply reject those characterizations. (For example, advocates of continued spending for the international space station--discussed in DOM-01--argue that the benefits from the facility far exceed its costs.) In other cases, advocates of spending that directly benefits a specific area, group, or industry contend that the benefits also accrue indirectly to the nation at large. According to those proponents, spending that supports a specific

industry--for example, the research and development spending questioned in DOM-02, DOM-03, and DOM-64--may, from society's point of view, compensate for inadequate market signals that would lead private investors to invest too little in such activities. Similar claims of benefits beyond those granted to direct recipients of funds are offered in support of programs that raise health, education, or housing standards for a particular locality or group to meet a national goal. Reductions in those programs will generally fall most heavily on current recipients who have little or no ability to adjust--poor, elderly, or disabled people. In those cases, the appropriateness of the federal government's role is as likely to be offered as an argument for an expenditure as against it.

Process and Presentation

Because all of the options in this chapter would affect discretionary spending, achieving the budgetary savings they offer would require legislation in the form of appropriation acts. In some cases, however, the options describe changes in the laws authorizing the programs in addition to reductions in the amounts appropriated for them. Options that propose alterations in authorizing legislation would change the goals of a program or the methods of achieving them. An example of such an option is DOM-13, which would reduce the level of cleanup required in the Superfund program. The effect of the program change combined with reduced appropriations would be different from the effect of cuts in appropriations alone.

The text accompanying each option contains a description of the option's programmatic changes and their effects, and arguments for and against the changes. The estimated savings for most of the options to reduce discretionary spending for domestic programs are presented as reductions from both the 1995 funding level held constant from 1996 through 2000 and the 1995 funding level adjusted for inflation over the same period. Prominent exceptions are DOM-60 and DOM-61, which deal with personnel management. In those options, reductions are taken from projections that incorporate assumptions about expected employment levels and include scheduled adjustments for inflation, spelled out in the Federal Employees Pay Comparability Act of 1990. Other exceptions are noted in the individual options as necessary.

Estimates of savings from the 1995 funding level held constant from 1996 through 2000 are included in this year's volume in response to concerns expressed in the Congress about the usefulness of budget projections that have been adjusted for inflation. Critics point out that calculating spending reductions from such projections could lead to a claim of savings credited to a program that continues to enjoy increased funding in nominal terms. Conversely, a frozen baseline carries with it an appearance of maintaining the status quo when it is actually delivering less as prices rise. Programs in the domestic discretionary area would have to be adjusted, diminished, or made to work more efficiently to fit within constant funding at the 1995 level from 1996 through 2000. With discretionary spending for domestic programs frozen at the 1995 level through 2000, projections show that the real resources allocated for those purposes would decrease by about 14 percent. Even the most optimistic advocates of the power of budget tightening to induce gains in efficiency would be likely to concede that budgets frozen for an extended period of time ultimately buy less.

Care should be taken in constructing a deficit reduction plan to match estimates of savings with the correct corresponding overall budget projection--that is, the total projection for all spending figured from either the adjusted or unadjusted 1995 level. For example, subtracting savings calculated against an inflation-adjusted baseline from a projection of overall spending that freezes discretionary spending at the 1995 level would overstate the savings associated with the reduction because the frozen level has not taken inflation into account to begin with.

DOM-01 CANCEL THE INTERNATIONAL SPACE STATION PROGRAM

	Annual Savings (Millions of dollars)					Cumulative Five-Year Savings
	1996	1997	1998	1999	2000	
From the 1995 Funding Level						
Budget Authority	2,100	2,100	2,100	2,100	2,100	10,500
Outlays	1,323	1,953	2,100	2,100	2,100	9,576
From the 1995 Funding Level Adjusted for Inflation						
Budget Authority	2,169	2,243	2,323	2,402	2,486	11,623
Outlays	1,367	2,064	2,288	2,367	2,450	10,536

Canceling the international space station program would reduce outlays by $1.3 billion in 1996 and by $9.6 billion over the 1996-2000 period measured against the 1995 funding level. Measured against the 1995 funding level adjusted for inflation, savings would be $1.4 billion in 1996 and $10.5 billion from 1996 through 2000.

During 1994, the space station program achieved a degree of stability compared with the upheavals of 1993. The program's cost, content, and schedule are now all more certain than in the past. The National Aeronautics and Space Administration (NASA) and the Boeing Corporation, the space station's prime contractor, have signed a contract after lengthy negotiations. Russia has assumed a major role in the program, and agreements defining ownership, rights, and responsibilities are being finalized between the United States, Canada, European participants, Japan, and Russia.

Significant progress toward the launch, deployment, and operation of the space station weakens the argument for cancellation that emphasizes the uncertainty and unpredictability that have at times characterized the effort. But fundamental arguments against retaining the program are unchanged. NASA's progress toward completion and its sunk costs of $13 billion notwithstanding, the opponents of continuing the program question whether its future benefits are sufficiently large to justify the cost of completing and operating the facility.

In support of their position, critics cite the general lack of enthusiasm for the space station among individual scientists and scientific societies. The program's opponents also note that the cost of the program has continually increased, although its capabilities and scope of activities have decreased. Finally, critics point to the uncertainty surrounding the costs of operating and supporting the facility once it has been developed and launched. On that score, opponents are skeptical of NASA's assurance that the station's operating costs will be low, noting that the agency made similar claims about the space shuttle that proved overly optimistic.

Advocates of continued spending for the space station program emphasize the importance of its effects on employment in the aerospace industry at a time when declining defense budgets are reducing the demand for the industry's products and services. Supporters of the space station also argue that the participation of Russia has strengthened the foreign policy reason for continuing the program. They assert that drawing Russia, and particularly its aerospace industry, into a cooperative venture will help to stabilize the Russian economy and provide incentives for Russia to adhere to international agreements concerning the spread of missile technology. Supporters of the space station further note the long-standing arguments about the value of the project as a laboratory in orbit with unknown but positive scientific potential and as a test bed to learn how people in space live and work, in anticipation of future piloted explo-

ration of the solar system. Program advocates point out that the project's cancellation would force the United States to renege on agreements signed with European nations, Japan, and Canada. That withdrawal could hurt the prospects for future international cooperative agreements on space, science, and other areas of mutual interest.

DOM-02 SCALE BACK AND DELAY NASA'S EARTH OBSERVATION SYSTEM

	Annual Savings (Millions of dollars)					Cumulative Five-Year Savings
	1996	1997	1998	1999	2000	
From the 1995 Funding Level						
Budget Authority	73	73	73	73	73	365
Outlays	39	68	73	73	73	326
From the 1995 Funding Level Adjusted for Inflation						
Budget Authority	75	78	81	83	86	403
Outlays	40	71	79	82	85	357
From the Administration's 1995 Plan						
Budget Authority	109	169	191	237	281	988
Outlays	58	133	176	214	257	839

The Earth Observation System (EOS) is the centerpiece of the National Aeronautics and Space Administration's (NASA's) participation in the multiagency Global Change Research Program. The current plan for EOS envisions many satellites launched over a number of years and a massive data information system. The first EOS satellite is scheduled for launch in the late 1990s. Scaling back and delaying parts of the system could reduce spending by $39 million in 1996 and by $326 million from 1996 through 2000 measured against the 1995 funding level, and by $40 million in 1996 and $357 million from 1996 through 2000 measured against the 1995 level adjusted for inflation.

The Administration's plan for NASA for the 1995-1999 period called for increasing the agency's budget at a rate just below that of inflation. Yet at that same time, the EOS budget was projected to almost double, from $740 million in 1995 to $1.2 billion in 1999. Compared with the Administration's plan for EOS, this option would generate savings of $839 million from 1996 through 2000, an amount significantly larger than the savings estimated against either the 1995 funding level or the 1995 funding level adjusted for inflation.

The purpose of the Global Change Research Program is to improve knowledge about the natural and anthropogenic processes and forces that influence global climate over the long term. Specifically, the program focuses on global warming, ozone depletion, changes in biodiversity, forest distribution, and desertification. EOS will be the primary eyes, ears, and nervous system of the program's efforts, gathering data by satellite and making those data available to researchers through a sophisticated information storage and retrieval system.

The EOS program has gone through several planning exercises that have reduced its scope and cost. When the program began in 1989, its design consisted primarily of two large spacecraft in polar orbit carrying 30 instruments at a projected cost of $17 billion through 2000. A 1992 restructuring plan reduced the cost of the program to about $11 billion by breaking up the large spacecraft, reducing the number of instruments, and stretching out the program's life. Another restructuring in 1993 further reduced the cost of the program to $8 billion for the 1990s. Marginal adjustments in 1994, known as a "rebaselining," decreased the estimated cost of the program to $7.2 billion.

This option lays out additional reductions in the EOS program. In particular, it would delay the third of the program's first three major satellites, the Chemistry-1, for five years from its scheduled launch in late 2002 and reduce funding for the EOS data information system (EOSDIS) by 25 percent from the levels in the current plan. Carrying out the option would delay the availability of the data that the Chemistry-1 satellite is designed to provide and limit the volume of and access to data that EOSDIS could offer. Other strategies for reducing spending could be substituted for the specific approach featured in this option. For example, the large multiple-instrument satellites included in the program's current plan could be broken down into smaller single-instrument satellites--which would delay observations and stretch out the program. Another budget reduction option would be to slow down production of all three of the program's larger satellites, AM and PM as well as Chemistry-1.

The primary argument for further reductions in spending for EOS holds that delaying the collection and analysis of EOS data will not substantially decrease the benefits that the program is designed to deliver. Scientists do not expect EOS to provide data and analysis to support environmental policy decisions over the next decade; rather, the focus of EOS's applied and basic science is on the longer term. Thus, the loss of benefits from deploying the Chemistry satellite in 2007 instead of in 2002 is arguably small. In a similar vein, reductions in spending for EOSDIS that limit access by researchers or slow the entry of new data may merely delay rather than deny the benefits produced by the project. A secondary argument is that EOS as currently planned does not take full advantage of evolving small-satellite technology or the prospect that private sources, if offered the proper incentives, could provide a larger part of the data that EOS is meant to obtain.

The case for continuing with the current program plan and budget holds that EOS has been repeatedly examined and that the present program constitutes the minimum acceptable effort. Moreover, although scaling back and stretching out the project would decrease spending in the next five years, the total cost of the program would be likely to increase. In addition, because EOS is integrated with the global change research programs of other nations, adopting this option (or virtually any other that would noticeably decrease spending) could well force international commitments to be renegotiated and might call into question the reliability of the United States as a partner in large-scale scientific ventures.

DOM-03 REDUCE DEPARTMENT OF ENERGY FUNDING FOR ENERGY TECHNOLOGY DEVELOPMENT EFFORTS

	Annual Savings (Millions of dollars)					Cumulative Five-Year Savings
	1996	1997	1998	1999	2000	
Reduce Fossil Energy R&D						
From the 1995 Funding Level						
Budget Authority	66	133	199	266	332	996
Outlays	27	80	146	239	279	771
From the 1995 Funding Level Adjusted for Inflation						
Budget Authority	82	164	247	331	415	1,239
Outlays	33	98	181	297	348	957
Reduce Nuclear Energy R&D						
From the 1995 Funding Level						
Budget Authority	30	61	91	122	152	456
Outlays	14	38	69	108	129	358
From the 1995 Funding Level Adjusted for Inflation						
Budget Authority	37	75	113	151	190	566
Outlays	17	47	85	134	161	444
Reduce Fusion R&D						
From the 1995 Funding Level						
Budget Authority	56	112	168	224	279	839
Outlays	25	70	126	198	238	657
From the 1995 Funding Level Adjusted for Inflation						
Budget Authority	68	137	207	278	349	1,039
Outlays	31	86	155	246	295	813
Reduce Energy Conservation and Solar and Renewable Energy R&D						
From the 1995 Funding Level						
Budget Authority	83	165	248	331	414	1,241
Outlays	28	94	174	306	339	941
From the 1995 Funding Level Adjusted for Inflation						
Budget Authority	111	223	336	451	567	1,688
Outlays	37	126	235	414	462	1,274
Total, All Programs						
From the 1995 Funding Level						
Budget Authority	235	471	706	942	1,177	3,532
Outlays	93	281	514	851	985	2,723
From the 1995 Funding Level Adjusted for Inflation						
Budget Authority	298	599	904	1,211	1,521	4,532
Outlays	117	356	655	1,090	1,267	3,485

The Department of Energy (DOE) and its predecessors have been funding technology development projects for several different sources of energy since the first oil crisis in 1973. Since 1978, DOE has spent more than $30 billion to develop new energy sources. Given the magnitude of that investment, many lawmakers have questioned the value to the economy of those research and development (R&D) programs. To reduce spending, DOE could cut back on programs for near-term development of energy technologies and instead concentrate its efforts on basic and applied science in those fields.

Spending for new energy technologies can be reduced in a number of ways; the table on the previous page presents the savings associated with four such choices. The estimates assume that funding for the fossil, nuclear, and fusion energy R&D programs would be reduced to 25 percent of its 1995 level and that the reductions would be phased in over the 1996-2000 period. In the case of energy conservation and solar and renewable energy R&D, funding would be gradually reduced over the five years to 50 percent of its 1995 level. In total, those reductions would save $93 million in outlays in 1996 and $2.7 billion over the 1996-2000 period relative to 1995 funding levels. Should the options presented here all be implemented, they would save $117 million in 1996 and $3.5 billion in the 1996-2000 period relative to the 1995 funding level adjusted for inflation. (The two sets of estimates of savings differ because program services would have to be cut to maintain the programs at the 1995 funding level. Both sets of cuts would reduce the programs to the same level of funding in 2000. Reducing energy conservation and solar and renewable energy R&D by a smaller percentage is partly to compensate for the wide array of technologies involved in that option.)

The justification for adopting each of these options rests primarily on the appropriate division of labor between federal programs and related activities in the private sector. In many instances, embarking on large-scale technology development projects may be premature; supporting basic and applied science projects instead would allow a better understanding of the phenomena at issue before trying to harness them to a technology. In several areas, DOE has a comparative advantage in developing the basic and applied science around a new energy source but is at a comparative disadvantage in the costly technology development and demonstration phases. Federal agencies typically lack the sensitivity to see when a new technology is too expensive (or esoteric) for commercial purposes.

Arguments have been advanced to support each of the reduction options. In the area of fossil energy R&D, the first option in the table, commercial firms already spend a great deal of money to develop new technologies. The major new technologies for enhanced oil recovery, for example, have come from private industry, not DOE. In other instances, DOE continues to develop technologies in which the market clearly has no interest. As an illustration, DOE spent hundreds of millions of dollars on coal-powered magnetohydrodynamics--without any indication of interest in the product. (This option does not include the Clean Coal Technology Program, which is covered separately in DOM-04.)

For the second option, which involves nuclear energy R&D, the wisdom of pursuing new technologies is questionable as long as electric utilities, the intended recipients, have no interest in new nuclear plants. Construction of the last nuclear power plant still on order was canceled in 1994. (This lack of interest among utilities may rest in part on the fact that national policy for addressing nuclear wastes remains undeveloped.) DOE has spent $9 billion on nuclear fission R&D since 1978 and has little in the way of commercial applications to show for its investment. Moreover, policymakers recently began to open the electricity generation market by obliging utilities to buy electricity from a group of suppliers. Given those circumstances, it may be time to let the newly opened market encourage the private sector to develop its own technology. (The estimate of savings for this option excludes the already scheduled termination of existing research facilities and of the operations of the isotope production fund. Neither involves technology development.)

The third option deals with magnetic fusion R&D whose commercial markets may be decades away and for which large-scale technology demonstration projects may be premature. One reason is that the scientific phenomenon is not completely understood.

Critics of this program also charge that only one main approach to fusion is being considered, which increases the riskiness of the program.

Reducing funding for energy conservation and solar and renewable energy R&D, the fourth option, would affect many projects that are small and discrete enough--and in many cases have a clear enough market--to warrant private investment. In such instances, DOE may be crowding out private-sector firms or, alternatively, conducting R&D that those private sectors are likely to ignore--a common fate of the technology generated within DOE's national laboratories. Furthermore, spending for energy conservation and solar and renewable energy R&D has almost tripled since 1990. (Funds for energy conservation R&D are distinct from technical and financial assistance programs, which would not be included in this option.)

Proponents of these programs argue that energy markets are still far from perfect and that, consequently, federal intervention is still justified. The utilities area, for example, remains bounded by a wide array of federal and state regulations; those controls might distort the incentives facing private firms that want to undertake the necessary R&D for a new technology. Supporters also note that progress is certainly being made, although it has taken more time than planners originally estimated to develop new energy sources. The development of fusion science during the past year, for instance, has made great strides, although as a power source fusion is still only a distant hope. Advocates also note that some energy conservation and solar and renewable technologies developed at DOE laboratories have moved into the commercial market. In other cases, commercialization is being facilitated by further federal subsidies, such as high prices paid by federal power marketing authorities for the purchase of electricity generated by solar power. Researchers contend as well that government-supported R&D allows national goals to be met, an outcome that the private sector would not necessarily pursue.

Given the reduction in DOE's programs for developing nuclear weapons, cuts in energy R&D may be difficult to make. Many lawmakers and DOE officials have been counting on such civilian spending to help in converting DOE's R&D personnel and facilities from military to commercial uses. Cutting these energy R&D programs would leave fewer conversion alternatives for DOE's R&D infrastructure. In response, however, one could argue that going from one unneeded federal program to another would not be a helpful economic conversion.

DOM-04 ELIMINATE FURTHER FUNDING FOR THE CLEAN COAL TECHNOLOGY PROGRAM

	Annual Savings (Millions of dollars)					Cumulative Five-Year Savings
	1996	1997	1998	1999	2000	
From the 1995 Funding Level						
Budget Authority	0	0	288	288	288	864
Outlays	0	0	0	3	32	35
From the 1995 Funding Level Adjusted for Inflation						
Budget Authority	0	0	298	308	319	925
Outlays	0	0	0	3	33	36

The Clean Coal Technology Program (CCTP) was created in 1984 to assist private industry in developing commercial technologies that would use coal in environmentally sound ways. After five rounds of bid solicitations, the Department of Energy (DOE) will spend over $2.7 billion to fund and administer selected CCTP projects. The government's spending on those demonstration projects is limited to 50 percent of total costs. This option would complete projects already selected in rounds one through five of CCTP bid solicitations but eliminate any future funding for new projects. Savings would total less than $40 million in projected outlays over the 1996-2000 period measured from both the 1995 funding level and the 1995 level adjusted for inflation.

An initial goal of the CCTP was to reduce acid rain by supporting technologies that could lower the emissions of sulfur dioxide (SO_2) and nitrogen oxides (NO_x) that result from coal combustion. President Reagan declared that his Administration would honor an agreement with Canada to spend $2.5 billion on clean coal technologies aimed at helping curb acid rain in Canada. Other important goals of the program have been to promote the use of coal to replace imports of crude oil and to bolster the economies of coal-producing regions. Concerns about global warming and emissions of carbon dioxide have recently whetted policymakers' interest in increasing the efficiency of coal use.

Current practices that reduce SO_2 and NO_x emissions include cleaning the coal before burning it, scrubbing combustion gases to remove sulfur, switching to types of coal with a lower sulfur content, and switching to other fuels altogether. The new technologies that the CCTP supports fall into three general categories:

- Retrofit technologies that lower harmful emissions from existing coal-fired plants by cleaning the coal before combustion, reducing the level of gases emitted during combustion, or removing (or scrubbing) the gases emitted during combustion;
- Repowering technologies that replace all or part of existing boilers with advanced combustion systems that both reduce emissions and increase power output; and
- Conversion technologies that change coal into a liquid or gas.

Most of the projects funded by the CCTP will demonstrate technologies to retrofit or repower coal-burning electricity generating plants.

Federal support for new clean coal technologies may no longer be necessary. In the past, supporters of the CCTP viewed it as an alternative to legislation

controlling acid rain: the enactment of ill-timed controls could force industry to invest in current, high-cost abatement technologies when new, low-cost ones might be just around the corner. Since the passage of the Clean Air Act Amendments of 1990, however, the private sector has faced a clear legislative mandate for lowering coal emissions. Electric utilities and large industrial users of coal now have a clear economic motive for selecting from among current practices and new technologies the lowest-cost options for reducing emissions. DOE efforts may also be redundant in the light of independent research efforts by utilities themselves and by states that produce high-sulfur coal and want to maintain the product's sales. Moreover, the energy security benefit of increased coal use would be negligible, because coal today substitutes for oil in very few applications.

Alternatively, continued CCTP funding could hasten deployment of control and abatement technologies that would provide social benefits beyond what electric utilities would be willing to pay for under the Clean Air Act Amendments. Those benefits could come in the form of cleaner air and economic support for electricity consumers in general and for coal-producing regions in particular.