# FEDERAL AGENCY PROGRAMS SUPPORTING OIL CHAPTER 3

Many types of government programs subsidize oil, with different programs benefiting each stage of the oil fuel cycle. Government labs invest in research and development of direct benefit to the industry. Government employees gather and publish basic industry or geological data that helps oil producers decide where and when to invest. Government entities also build and maintain vital transportation infrastructure heavily used to move both crude and refined products, ensure safe and environmentally sound operations at oil extraction sites, and guarantee or subsidize loans used by the industry to invest in new operations or to sell equipment to higher risk customers. Unless the industry is charged for these services, government involvement reduces the risk of, or increases the returns to, oil-related activities. The effect is to encourage greater investment in, and production of, oil.

This chapter summarizes most federal program subsidies. Where programs receive funding from user fees, the net subsidy costs of the program are reduced accordingly. Exhibit 3-1 summarizes net program subsidies to oil. Exhibit 3-2 illustrates the programs with substantial cost recovery now in place. Government programs to ensure the stability of oil supplies are discussed in Chapter 4, and programs to oversee oil leasing activities are discussed in Chapter 6. A more detailed presentation of estimates for each individual agency program, as well as information on data sources, can be found in the Appendix to this report.

## 3.1 RESEARCH AND DEVELOPMENT

General support for research and development (R&D) can help industries identify promising approaches for oil exploration, production, and processing, and reduce the cost of researching new technologies. The federal government, through the U.S. Department of Energy (DOE) and its predecessor agencies, has a history of heavily funding energy research. Since 1980, only NASA, the Department of Defense, and the Department of Health and Human Services have spent more on R&D.[28]

[28] National Science Foundation, *Science and Engineering Indicators - 1996*, p. 25.

**Exhibit 3-1**

**FEDERAL PROGRAM SUBSIDIES TO OIL**
**(Millions of 1995 Dollars, Net of User Fees)**

| Department/Agency | Low Estimate | High Estimate | Primary Oil-Related Activities |
|---|---|---|---|
| **Department of Commerce** | | | |
| National Oceanic and Atmospheric Administration | NQ | NQ | Oil spill response; natural resource damage assessment related to oil spills. |
| **Department of Defense** | | | |
| Army Corps of Engineers | 239 | 259 | Maintenance of waterways heavily used by oil tankers and barges. |
| Navy Supervisor of Salvage | 0 | 18 | Maintenance of inventory of equipment for responding to oil spills, including commercial spills. |
| Defense of Oil Shipments -- All Branches | | | Defense of oil shipments. |
| Alaska | NQ | NQ | |
| Persian Gulf | (Note 1) | (Note 1) | |
| **Department of Energy** | | | |
| Energy Information Administration | 54 | 54 | Development and maintenance of basic information on petroleum markets |
| Fossil Energy-Related Programs | 118 | 118 | Research and development related to oil. |
| Federal Energy Regulatory Commission | (0) | (0) | Oversight of oil pipeline transport; supported through user fees. |
| Strategic Petroleum Reserve | (Note 1) | (Note 1) | Storage of crude oil to be sold during price shocks and supply disruptions to stablize domestic supply. |
| **Department of Health and Human Services** | | | |
| Low Income Home Energy Assistance Program | 274 | 274 | Block grants to assist low-income households in meeting their home energy needs. |
| **Department of the Interior** | | | |
| Bureau of Land Management | (Note 1) | (Note 1) | Management of onshore oil leases on public lands. |
| Fish and Wildlife Service | NQ | NQ | Environmental assessments of oil spill areas or areas under consideration for oil leasing. |
| Minerals Management Service | (Note 1) | (Note 1) | Management of offshore oil leasing; management of all oil royalties from oil extraction on public lands. |
| United States Geological Survey | 20 | 43 | Development of basic geological and hydrogeological information on oil reserves and other parameters of value for oil extraction. Research on oil contamination. |
| **Department of Transportation** | | | |
| Coast Guard | 455 | 455 | Maintenance of coastal shipping; provision of navigational support; ice clearing; oil spill response. |
| Maritime Administration | 84 | 84 | Provision of subsidies to U.S. built ships, including oil tankers. |
| Pipeline Safety | 0 | 0 | Oversight of oil pipeline safety; supported through user fees. |
| **Environmental Protection Agency** | NQ | NQ | Oversight of oil industries; oil spill response. |
| **Export-Import Bank** | 197 | 241 | |
| **Overseas Private Investment Corporation** | 10 | 31 | |
| **TOTAL, excl. Defense of Oil Shipments** | **1,452** | **1,578** | Note 3 |
| **TOTAL, incl. Defense of Oil Shipments** | **1,452** | **1,578** | Note 3 |

**Note:**
(1) Defense of oil shipments and the Strategic Petroleum Reserve are discussed in Chapter 4 on supply security. We estimate the value of these subsidies between $12 billion and $23 billion in 1995. Department of the Interior oil resource programs management programs are examined in Chapter 6 on the cost of access to oil resources. These programs cost approximately $125 million in 1995.
(2) NQ = not quantified
(3) Totals do not add due to rounding

**Exhibit 3-2**

**FEDERAL PROGRAMS BENEFITING OIL WITH LARGEST CONTRIBUTIONS FROM USER FEES, 1995**
**(Millions of Dollars)**

| | Gross Spending | Offsetting Collection | Share of Oil-Related Spending Paid for by User Fees | Primary Source of Collections |
|---|---|---|---|---|
| **Department of Defense** | | | | |
| Army Corps of Engineers | | | | Inland Waterway Trust Funds (fee on fuels in commercial vessels), Harbor Maintenance Trust Funds (fee on commercial users of specific ports), and other collections from federal agencies and non-federal interests. |
| Low Estimate | 564 | 325 | 58% | |
| High Estimate | 584 | 325 | 56% | |
| **Department of Energy** | | | | |
| Federal Energy Regulatory Commission | 25 | 25 | 101% | Regulated industries pay full cost of FERC's licensing, inspection, and other operations. |
| **Department of the Interior** | | | | |
| Mineral Management Service | 91 | 11 | 12% | Oil Spill Liability Trust Fund (fee on domestically-produced and imported oil) and unspecified federal and non-federal sources. See Chapter 5 for information about the fund, and Chapter 6 for information about MMS. |
| United States Geological Survey | | | | |
| Low Estimate | 28 | 8 | 27% | Primarily from other federal sources for services provided, plus some receipts from unspecified non-federal sources. |
| High Estimate | 66 | 23 | 35% | |
| **Department of Transportation** | | | | |
| Coast Guard | 527 | 72 | 14% | Oil Spill Liability Trust Fund (fee on domestically-produced and imported oil). |
| Pipeline Safety | 6 | 6 | 99% | Pipeline Safety Fund (fee on pipeline operators) and Oil Spill Liability Trust Fund (fee on domestically-produced and imported oil). |

The *pattern* of federal support for R&D can influence which energy technologies are commercialized and when. Historically, the pattern of federal R&D spending for energy has favored fossil and nuclear energy over renewables and efficiency. Between 1950 and 1993, the government allocated 22 percent of its energy R&D expenditures to fossil fuels, 63 percent to nuclear fission and fusion, and only 16 percent to renewables and efficiency combined.[29] This pattern had begun to shift by 1995, with funding moving away from nuclear energy to renewables and efficiency. However, fossil fuels, primarily coal and oil, still received almost one-quarter (23 percent) of total R&D spending, albeit of a much smaller federal R&D pie.[30] Nonetheless, decades of favoritism for petroleum has contributed to innovations and improvements that reduced the cost of oil extraction and development. During 1995, DOE continued to provide $808 million in subsidies to fossil fuels, of which $118 million supported oil.[31,32] This amount could easily have been borne by the oil companies themselves.

In terms of private R&D, the petroleum extraction and refining sector had one of the lowest R&D investment levels among all industries, averaging only 0.9 percent of sales between 1983 and 1993. The average for all manufacturing sectors during that same period was over 3 percent of sales.[33] One possible explanation for this low investment is that public support for R&D allowed the industry to reduce its spending. Another reason may be that oil service firms, rather than the major oil producers, have been the source of higher R&D spending levels, and that this spending is not reflected in aggregate statistics.

## 3.2 PROVISION OF BASIC INDUSTRY INFORMATION

Every business requires data on its competitive environment. In the oil industry, this information includes basic data on oil deposits and geology, production and distribution, and prices. The federal government has long provided these data at little or no charge. For example, the Energy Information Administration within the Department of Energy provides a host of basic data on oil prices, production, and investment that is of substantial benefit to both oil producers and consumers. Similarly, the U.S. Geological Survey has provided core data on mineral resources for most of this century. These two programs cost taxpayers between $74 and $97 million for oil-related activities in 1995. While industry often supplements the data they provide,

[29] Doug Koplow, "Energy Subsidies and the Environment," in Organization for Economic Cooperation and Development, *Subsidies and Environment: Exploring the Linkages*, 1996, p. 205.

[30] U.S. Department of Energy, "FY1996 Internal Statistical Table by Appropriation," November 8, 1995.

[31] The total for all fossil fuel subsidies includes DOE's Clean Coal Technology and Fossil Energy Research and Development Programs. U.S. Executive Office of the President, Office of Management and Budget, *Budget of the United States Government, Fiscal Year 1997*, pp. A-443 and A-451.

[32] DOE staff noted that federal spending on oil R&D has continued to decline since FY1995. William Hochheiser, U.S. Department of Energy, personal communication, January 13, 1998.

[33] National Science Foundation, p. 20.

the availability of baseline information helps firms to focus their efforts. In many other industries, these data are gathered by the private sector and sold to interested firms rather than financed by the taxpayer.

## 3.3 TRANSPORTATION INFRASTRUCTURE

Oil is often extracted thousands of miles from the point of consumption. Thus, transporting the oil is an extremely important factor in oil economics. Nearly all of the crude oil moved in the United States travels by pipeline or by water. Water shipments in the coastal areas of the country move by tanker, whereas shipments on the inland waterways move by both tanker and barge. Refined products are shipped via a wider range of modes, including barge, rail, road, and pipeline.

### 3.3.1 Coastal and Inland Waterways

Water transportation infrastructure is a good example of a general subsidy that substantially benefits oil and distorts energy markets. Although oil is not the only commodity shipped through U.S. ports and inland waterways, it is one of the main commodities. Crude oil and refined products comprised 38 percent of all waterborne tonnage transported in 1995. While crude oil comprises a much larger share of coastal shipping than refined products, the situation is reversed for inland transport.[34]

Historical subsidies to water infrastructure have helped to reduce the overall cost structure of water shipments for oil. Most of the costs of capital infrastructure development were financed through Congressional appropriations, and there has been no attempt to recover these historic costs through increased charges on current users. Between 1950 and 1977, an estimated $13.6 billion (1995 dollars) of federal spending on water infrastructure accrued to the petroleum sector.[35]

The government continues to provide substantial support for water transport. The Army Corps of Engineers is heavily involved with building and maintaining ports, harbors, and the nation's inland water transportation system. Dredging of harbors and waterways, as well as the construction and operation of locks, benefit oil shippers. The U.S. Coast Guard also plays an important role in regulating coastal shipping. Activities benefiting oil transport include shipping lane and navigational maintenance and improvements (including ice clearing); shipping channel patrol; oil spill prevention and response; and inspection of waterfront facilities, including transfer pipelines used to unload oil tankers. Although the share of these programs' costs borne by users has risen over time, subsidies remain.

[34] U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, 1995*, "Part 5 - Waterways and Harbors, National Summaries," Table 2-1.

[35] Cone et al., *An Analysis of Federal Incentives to Stimulate Energy Production*, Richland, WA: Battelle Memorial Institute, December 1978, p. 219.

Our subsidy estimates for both the Army Corps of Engineers and the Coast Guard pro-rate total subsidies for water transport based on oil's share of total tonnage shipped, and they deduct all user fees collected to support the programs.[36] In 1995, the Army Corps conferred over $235 million in subsidies to oil. Subsidies through the Coast Guard were over $450 million.

### 3.3.2 Shipping

In addition to subsidies for water infrastructure and services, the federal government provides shipping subsidies to U.S.-flag vessels, including oil tankers, through the Maritime Administration, or MARAD. MARAD's objective is to increase the competitiveness and productivity of the U.S. Merchant Marine. Toward that end, it provides operating subsidies to U.S.-flag ship operators engaged in foreign commerce in order to offset the differences in U.S. and foreign operating costs. In the past, MARAD also subsidized certain construction costs for merchant ships when U.S. costs exceeded those in other countries. We estimate that MARAD provided approximately $80 million in subsidies to oil-related shipping in 1995.

### 3.3.3 Pipelines

Government involvement with pipelines is centered on rate and safety regulation (described in the next section) and provision of rights-of-way (discussed in Chapter 6). We did not identify any examples at the federal level of public money being used to build or maintain pipeline infrastructure.

## 3.4 GOVERNMENT OVERSIGHT OF INDUSTRY BEHAVIOR

The federal government regulates occupational health and environmental issues of the oil industry, as well as oversees rate setting in pipeline natural monopolies. If oil requires a significantly higher level of public oversight than substitute energy sources, financing this oversight from general tax revenues rather than user fees will hide important price signals about the relative economics of energy alternatives.

A variety of federal agencies provide environmental oversight of oil. The Environmental Protection Agency regulates emissions to air, land, and water. The Fish and Wildlife Service and the National Oceanic and Atmospheric Administration both evaluate impacts of oil on ecosystems. The Coast Guard and the Office of Pipeline Safety oversee oil pipelines and transfer stations to prevent leaks and spills. Finally, the Coast Guard, EPA, and the Navy Supervisor of Salvage respond to oil spills and assist in clean-ups. Some, but not all, of these costs of environmental oversight are recovered from the industry through user fees. For example, the Oil Pollution Act (described in Chapter 5) allows agencies to recover costs related to oil spills from

[36] Note that allocating total subsidies by tonnage moved may understate the true subsidies to oil, especially in the case of ports and harbors. To the extent that oil tankers are the deepest ships using these facilities, proper cost accounting would assign oil the full cost of dredging or other harbor modifications required to handle this type of vessel.

responsible parties and the Oil Spill Liability Trust Fund, which was created through a tax on oil. However, no mechanism exists for recovering the costs of other types environmental oversight, such as EPA's responsibilities for ensuring the safety of the oil industry's emissions.

The Federal Energy Regulatory Commission regulates pipeline rates. However, the full cost of this oversight is recovered through user fees; thus, FERC does not provide a net subsidy to oil.

## 3.5 CREDIT PROGRAMS SUPPORTING EXPORT OF OIL-RELATED GOODS AND SERVICES

Most subsidies to oil encourage additional domestic production or consumption. However, a handful of lending programs provide subsidies to U.S. firms in the oil sector who wish to export their equipment or expertise to other countries. The U.S. Export-Import Bank (Eximbank) and the Overseas Private Investment Corporation (OPIC) both serve to promote U.S. industry abroad. The World Bank and the International Finance Corporation (IFC), to which the U.S. is a major contributor, focus on developing specific industrial sectors in specific countries. Although their primary focus is not on U.S. business, U.S. firms are substantial beneficiaries of their lending activity.

### 3.5.1 How Credit Subsidies Work

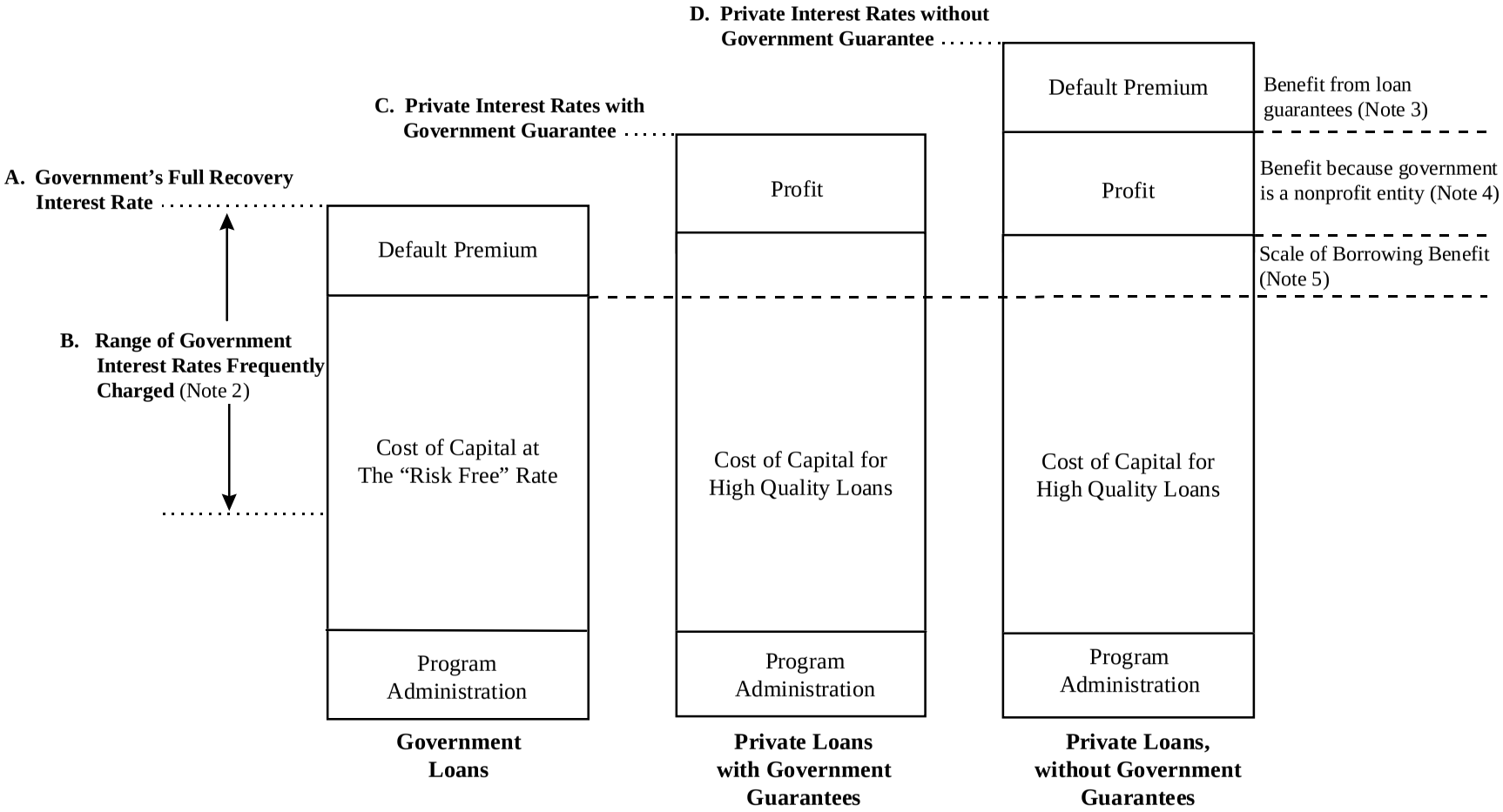
The lending institutions provide credit subsidies in three main ways: below-market loans, loan guarantees, and below-market credit insurance. Below-market loans provide borrowers with artificially low interest rates. In some cases interest rates are so low (as in the case of concessional loans) that the loan is essentially a grant. Loan guarantees also indirectly provide borrowers with lower interest rates. Guarantees by financially strong institutions such as Eximbank reduce the risks to commercial lending banks, allowing them to charge the borrower lower rates than would otherwise be available for a given level of risk. Finally, below-market credit insurance provides companies with artificially low costs of insuring against business and political risks.

All of these instruments have two levels of subsidy. The first, the cost to the taxpayer, measures the lending programs' losses. One source of losses is the difference between the interest rate (or insurance premium) that a borrower pays, and the cost of those funds (or insurance) to the federal government. If OPIC, for example, borrows money from the Treasury at an interest rate of eight percent and lends it to Joe's Oil Company at six percent to develop an oil field in Algeria, the immediate subsidy would be two percent. The total cost to the taxpayer would also include the cost of making and overseeing loans, which banks normally recover through the interest and fees they charge, as well as any uncovered losses from loan defaults or insurance claims. The percentage of the government's full cost of running a credit program that is recovered from beneficiaries varies widely by program. We depict this range of cost recovery in Exhibit 3-3.

## Exhibit 3-3

## SUBSIDIES THROUGH GOVERNMENT LENDING PROGRAMS

(Note 1)




Notes

(1) Chart is illustrative. Absolute and relative size of components will vary by type of loan and type of lender. The subsidy cost to taxpayers equals the government's full recovery interest rate minus what it actually charges (A-B). The value of the lending subsidy to recipients equals the private interest rate minus what the government charged (D minus B or C minus B, depending on the program). This difference is also referred to as the value of government intermediation.

(2) Depending on program goals, interest rates charged to borrowers can fall anywhere within this range.

(3) Appropriate default premium varies by loan. Premiums that are too small yield uncovered losses, which are common in many government lending programs. Federal loan guarantees shift default risks (they are not eliminated) from the private sector to the government, allowing private lenders to charge lower interest rates to borrowers. Default premium subsidies are very difficult to estimate ahead of time; however, historical data on actual defaults can provide a good proxy value.

(4) Private lenders need to earn a minimum return in order to continue lending. Government programs do not.

(5) Federal government's large size often enables it to obtain a lower interest rate than private companies, even before default premium is taken into account.

The second level of subsidy, also shown in Exhibit 3-3, is a bit more complicated. Even if the government-supported banks were to recover their costs of operations from borrowers, they might still confer a large subsidy to the recipient sectors. The banks are large institutions that can borrow at or very near the federal government's cost of funds. Investors view the risk of the federal government not paying back loans as so remote that the rate charged the Treasury is often called the "risk free rate." A similar situation holds true for insurance programs: the federal government's cost of capital to finance an insurance program is lower than what would be available to private firms. Because it has access to less expensive capital, the government can charge lower interest rates and insurance premiums than private companies. Costs are reduced still further by the fact that the government is a non-profit entity, and thus does not mark up its rates to earn a return. Finally, the government often provides higher risk loans and insurance policies than private institutions may be willing to make.

By going through a government-supported bank, Joe's Oil can borrow money or purchase insurance at lower rates than would be available to it from private institutions. It may also be able to obtain loans and insurance for business in high risk countries that its private bank is simply unwilling to offer. The difference between what the company pays the government-supported bank and what it would have to pay a private institution is captured in our high estimate (which we call the value of government intermediation) and provides the best measure of the value of the credit programs to the recipient.

Credit programs have been some of Congress' favorite ways to confer subsidies. Although the programs provide tangible benefits to recipients, the cost of the subsidies has historically been fairly invisible to outsiders. In some cases, the programs can confer benefits to industry without losses to the government. In other cases, programs (such as loan guarantees) do not require immediate outlays of cash, and program losses often do not become visible until many years later.

The attractiveness of these programs is apparent in the fact that outstanding direct loan and guaranteed loan balances for federal credit programs are approaching $1 trillion.[37] To better control these programs, a number of laws have been passed over the past ten years governing the measuring, reporting, and auditing of credit subsidies.[38] These laws eliminated the previous practice of recording lending on a cash basis -- an approach that makes loan guarantees all but invisible until they begin to default. Overall, the laws have greatly improved the federal government's ability to track the likely long-term financial impact of lending programs on the Treasury. However, credit reform provides few insights as to the value of government loans and guarantees to the private sector, the second level of subsidy described above.

[37] U.S. General Accounting Office, *Credit Reform: Review of OMB's Credit Subsidy Model*, GAO/AIMD-97-145, August 1997, p. 1.

[38] These included the Federal Credit Reform Act of 1990, the Chief Financial Officers Act of 1990, and the Government Management Reform Act of 1994.

### 3.5.2 Subsidies to Oil Through Credit Programs

Since not every energy firm has access to cheap loans or insurance from the governmental lending institutions, the banks' patterns of involvement can distort the relative economics of different forms of energy. The importance of distortions from these lending programs should not be underestimated: they have heavily favored established fossil fuels over emerging renewables and end-use efficiency. Between 1980 and 1989, for example, more than 70 percent of Eximbank's energy sector loans and guarantees went to fossil fuels; support for non-hydro renewables and efficiency during that same period was negligible. Support for the energy sector through the multilateral development banks followed a similar pattern for the 1980 to 1988 period, with 48 percent going to fossil fuel (three quarters of this to coal and oil) versus one percent for non-hydro renewables and efficiency.[39]

As shown in Exhibit 3-4, this pattern of support has continued into the 1990s. Especially within both OPIC and Eximbank, energy continues to be an extremely important component of their lending activity, yet very little financial support benefits end-use efficiency and non-hydro renewables. Support for oil exceeds 40 percent of the energy commitments of the International Finance Corporation and Eximbank's guarantees and insurance program. Oil comprised 24 and 40 percent of OPIC's and Eximbank's energy commitments, respectively.

The value of this support is quite large. Exhibit 3-5 compares the government and private costs of capital for 1995. Government debt is the least expensive source of funds by far, at 6.9 percent. The highest grade (i.e., lowest default risk) corporations had to pay nearly three-quarters of a percentage point more to borrow funds. In reality, corporate expansions are financed not only through debt but also through stock (equity), which is a more expensive source of funds. The weighted average cost of capital (WACC) estimates the cost of funds to a particular firm (or industry) given the existing mix of debt and equity. The WACC for the largest oil refining companies was 10.7 percent. The average cost of capital in the higher risk oil and gas extraction industry was over 14 percent, more than *double* the direct cost of government debt. Thus, the government can provide loans at interest rates considerably lower than the oil industry may otherwise be charged.

Measuring the subsidies to oil through international lending programs is a surprisingly difficult task. The basic information required is standard data used by the banks to track loan and insurance disbursements and performance. Since all the banks publish audited financial reports, all must use transaction-by-transaction data on non-performance to estimate annual losses and write-offs on their activities. Yet, very little of this data is contained in any of the banks' standard reports. In addition, formal requests for information that we submitted to both Eximbank and OPIC suggest that these basic data are dispersed across an array of bank databases and not tracked in any routine manner. Neither bank was able to fulfill our data requests in a timely or efficient manner. As a result, we were unable to aggregate total subsidies to oil using loan-specific data.

[39] Koplow, 1996, p. 207.

**Exhibit 3-4**

**INTERNATIONAL LENDING FOR OIL AND GAS**
**(Millions of U.S. Dollars)**

| | OPIC | | Eximbank | | World Bank IBRD & IDA | World Bank IFC |
|---|---|---|---|---|---|---|
| **Energy Type** | **Finance (Note 1)** | **Insurance (Note 1)** | **Loans Outstanding (Note 2)** | **Guarantees and Insurance Commitments (Note 2)** | **Lending (Note 3)** | **Investment Portfolio (Note 2)** |
| All Oil and Gas Commitments | 738 | 3,487 | 544 | 5,242 | 5,935 | 715 |
| Oil Only | 314 | 1,780 | 341 | 4,065 | NA | 642 |
| Total Energy Commitments | 1,921 | 6,710 | 1,337 | 9,577 | 25,621 | 1,436 |
| Total Commitments, All Sectors | 6,149 | 16,038 | 5,445 | 42,194 | 171,906 | 9,461 |
| *Oil/Total Energy* | 16.3% | 26.5% | 25.5% | 42.4% | NA | 44.7% |
| *Oil & Gas/Total Energy* | 38.4% | 52.0% | 40.7% | 54.7% | 23.2% | 49.8% |
| *Energy/Total Commitments* | 31.2% | 41.8% | 24.5% | 22.7% | 14.9% | 15.2% |
| *Oil/Total Commitments* | 5.1% | 11.1% | 6.3% | 9.6% | NA | 6.8% |
| *Oil & Gas/Total Commitments* | 12.0% | 21.7% | 10.0% | 12.4% | 3.5% | 7.6% |

**Notes:**

(1) Overseas Private Investment Corporation (OPIC) data are for financing implemented during fiscal years 1992 through 1996.

(2) Eximbank and International Finance Corporation (IFC) data represent total outstanding obligations as of the end of their 1995 fiscal years. Eximbank activity has been allocated to oil based on the loan/guarantee mix of commitments for FY1980 through 1989 using data in Koplow, 1993.

(3) International Bank of Reconstruction and Development (IBRD) and International Development Association (IDA) data are for financing implemented during fiscal years 1988 through 1995.

**Sources:**

Annual Reports: Overseas Private Investment Corporation (1992-1996), Export-Import Bank (1995), The World Bank (1997), and International Finance Corporation (1995).

Dennis Koromzay, Power Department, International Finance Corporation, personal communication, November 4, 1997.

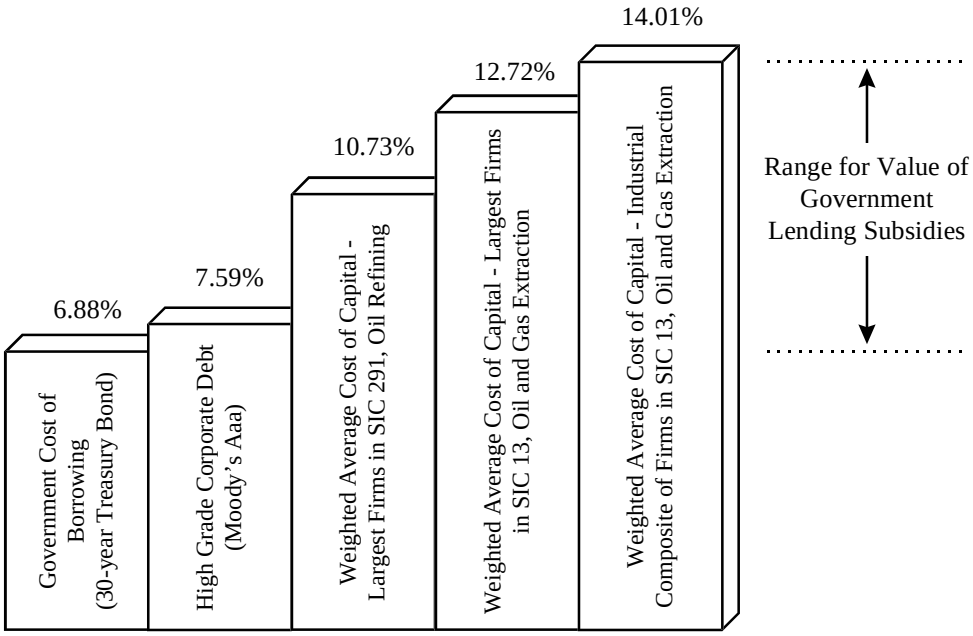
Ramin Shojai, Oil and Gas Division, The World Bank Group, personal communication, November 3, 1997.

Claus Westmeier, Oil, Gas, and Mining Division, International Finance Corporation, personal communication, November 10, 1997

Douglas Koplow, "Export-Import Bank: Summary Table on Energy Loan Portfolio, 1980-89," *Federal Energy Subsidies: Energy, Environmental and Fiscal Impacts, Appendix B,* April 1993, p. B4-143b.

## Exhibit 3-5

## THE PRICE OF RISK IN THE OIL INDUSTRY, 1995




**Notes:** The weighted average cost of capital (WACC) incorporates both debt and equity financing, a more accurate measure of the cost for large projects. There are a number of financial models used to calculate the WACC, with small variations in the resulting cost of equity. The WACC values shown here are an average of these approaches.

**Sources:** Ibbotson Associates, *Cost of Capital Quarterly*, 1996 Yearbook, p. 2-49.
Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*, June 1997, p. A23.

Data reported by both Eximbank and OPIC under the Credit Reform Act in their annual reports did enable us to make a rough estimate of those banks' overall direct credit subsidies for oil.[40] Due to the unavailability of transaction-specific data on lending and insurance performance, we have pro-rated the bank's overall losses according to oil's share of each bank's total commitments. The implicit assumption is that the banks' losses for individual sectors are proportionate to each sector's share of total commitments. We were not able to estimate subsidies from the World Bank and its affiliates because they did not report data on loan performance in a similar way.

Exhibit 3-6 shows our estimate of Eximbank's and OPIC's subsidies to oil. Our low estimate represents the cost to the Treasury in FY1995 of OPIC and Eximbank commitments related to oil. This cost has three components: anticipated losses on new commitments made during FY1995, the 1995 installment on losses from obligations in each bank's portfolio made prior to Credit Reform, and administrative costs not recovered through fees charged to clients. We estimate the sum of these costs for oil-related commitments at $10 million for OPIC and nearly $200 million for Eximbank. The vastly different sizes mirror the banks' different missions. OPIC expects to break even on operations. Eximbank serves to help U.S. exporters compete by setting terms "commensurate with those available from foreign export credit agencies," and it does not expect to break even.[41]

While our low estimate reflects the cost to the Treasury of the banks' oil-related commitments, our high estimate also incorporates the value of the commitments to the recipient companies. This estimate recognizes that because both OPIC and Eximbank can borrow money from the U.S. Treasury at extremely low interest rates, they are able to pass these savings through to their borrowers in the form of below-market interest rates and insurance premiums. It also recognizes that private banks are willing to provide loans at lower rates when guaranteed by government-supported banks. These benefits are independent of the subsidies provided by the government's failure to recover the costs of its programs. Following the approach used by the Organization for Economic Cooperation and Development, we estimate the value of these benefits at one percent of all outstanding commitments related to oil.[42] The total value of our high estimate is the sum of our low estimate (i.e., the cost to the Treasury) plus this incremental benefit to the recipient companies. As shown in Exhibit 3-6, our high estimate for the subsidies provided by OPIC and Eximbank are approximately $31 million and $241 million, respectively.

[40] Historical data on actual losses incurred on loans serves as a proxy for estimating the default premium that would have been included in a private sector interest rate.

[41] U.S. General Accounting Office, *Export-Import Bank: Options for Achieving the Possible Budget Reductions*, GAO/NSIAD-97-7, December 1996, p. 12.

[42] Ronald Steenblik, Organization for Economic Cooperation and Development, personal communication, February 25, 1998. A more accurate way to value the direct loans would be to compare the interest rate charged by the bank to a market cost of capital similar to those shown in Exhibit 3-5. Unfortunately, detailed data on interest rates charged by the banks were not available.

**Exhibit 3-6**

**SUBSIDIES TO OIL THROUGH INTERNATIONAL LENDING PROGRAMS**
**(Millions of U.S. Dollars)**

| | Eximbank | OPIC |
|---|---|---|
| **Direct Subsidies (Note 1)** | 2,134 | 110 |
| **Intermediation Benefits (Note 2)** | | |
| Commitments Outstanding, 1995 | | |
| Loans | 5,445 | |
| Loans and Guarantees | | 6,149 |
| Guarantees and Insurance | 42,194 | |
| Insurance | | 16,038 |
| *Total* | 47,639 | 22,187 |
| Minimum Intermediation Subsidy | | |
| 1% Interest Rate and Premium Benefit (Note 3) | 476 | 222 |
| **Total Subsidies** | | |
| Low Estimate (Note 4) | 2,134 | 110 |
| High Estimate (Note 5) | 2,610 | 332 |
| **Estimated Subsidy to Oil (Note 6)** | | |
| Low | 197 | 10 |
| High | 241 | 31 |

**Notes:**

(1) Direct subsidies (i.e., bank losses) include administrative costs that are not recovered through the rates charged by the bank to its clients, plus uncovered losses on loans, guarantees, and insurance.
(2) The intermediation benefit includes interest rate savings to private borrowers resulting from government guarantees, the government's lower cost of capital, and its non-profit status.
(3) The one percent value follows the practice utilized by the OECD in in its subsidy analysis. Actual savings to borrowers in the oil industry are likely to be larger, as shown in Exhibit 3-5.
(4) Includes only the direct subsidy (i.e., bank losses)
(5) Includes the direct subsidy plus intermediation benefits.
(6) Pro-rated by oil's weighted average share of loans, guarantees, and insurance commitments.

**Sources:**

Annual Reports: Overseas Private Investment Corporation (1992-1996) and Export-Import Bank (1995).
Douglas Koplow, "Table: Value of Government Intermediation in Borrowing," *Federal Energy Subsidies: Energy, Environmental and Fiscal Impacts, Appendix B,* April 1993, p. B7-4.
Ronald Steenblik, Organisation for Economic Cooperation and Development, personal communication, February 25, 1998.

## 3.6 CONSUMPTION SUBSIDIES

The primary program used to subsidize oil consumption is the Low Income Home Energy Assistance Program (LIHEAP), run by the Department of Health and Human Services. As its name implies, LIHEAP helps low-income households to heat and cool their homes. Part of the funding also supports weatherization assistance. Although not directly targeted at oil, about $275 million in LIHEAP funds were used to purchase the fuel in 1995. An increased emphasis on weatherization in the short term could help reduce the need for subsidized oil purchases over the long term.

## 3.7 SUMMARY

Numerous federal agencies provide services of value to the oil industry. Some of the most valuable subsidies, such as loan guarantees, are also among the most difficult to track and quantify. Federal programs providing research and development support, basic industry information, industry oversight, transportation infrastructure, export financing, and consumption subsidies provide between $1.5 billion and $1.6 billion per year in subsidies to oil. These subsidized services reduce the cost of oil-related investment and consumption while increasing the federal budget deficit.

**Exhibit A-3a**

**FEDERAL PROGRAMS BENEFITING OIL IN FY1995, GROSS AND NET VALUES**
**(Millions of 1995 dollars)**

| | Gross | Offsetting Collection | Net | Primary Oil-Related Activities |
|---|---|---|---|---|
| **Department of Commerce** | | | | |
| National Oceanic and Atmospheric Administration | NQ | | | Oil spill response; natural resource damage assessment related to oil spills. |
| **Department of Defense** | | | | |
| Army Corps of Engineers | | | | Maintenance of waterways heavily used by oil tankers |
| Low Estimate | 564 | 325 | 239 | and barges. |
| High Estimate | 584 | 325 | 259 | |
| Navy Supervisor of Salvage | | | | Maintainance of inventory of equipment for responding to |
| Low Estimate | 16 | 16 | 0 | oil spills, including commercial spills. |
| High Estimate | 18 | 0 | 18 | |
| All Branches | | | | Defense of oil shipments and Infrastructure |
| Defense of Alaskan Oil Shipping | NQ | | | |
| Defense of Persian Gulf Oil Shipping | | | | |
| Low Estimate | 10,459 | 0 | 10,459 | |
| High Estimate | 23,333 | 0 | 23,333 | |
| **Department of Energy** | | | | |
| Energy Information Administration | 54 | 0 | 54 | Development and maintenance of basic information on petroleum markets |
| Fossil Energy Related Programs | 118 | 0 | 118 | Research and development related to oil. |
| Federal Energy Regulatory Commission | 25 | 25 | 0 | Oversight of oil pipeline transport; supported through user fees. |
| Strategic Petroleum Reserve | | | | Storage of crude oil to be sold during price shocks and |
| Low Estimate | 1,560 | 0 | 1,560 | supply disruptions to stablize domestic supply. |
| High Estimate | 5,427 | 0 | 5,427 | |
| **Department of Health and Human Services** | | | | |
| Low Income Home Energy Assistance Program | 287 | 13 | 274 | Block grants to assist low-income households in meeting their home energy needs. |
| **Department of the Interior** | | | | |
| Bureau of Land Management | 48 | 1 | 47 | Management of onshore oil leases on public lands. |
| Fish and Wildlife Service | NQ | | | Environmental assessments of oil spill areas or areas under consideration for oil leasing. |
| Mineral Management Service | 91 | 11 | 80 | Management of offshore oil leasing; management of all oil royalties from oil extraction on public lands. |
| United States Geological Survey | | | | Development of basic geological and hydrogeological information on oil reserves and other parameters of value for oil extraction. Projects related to subsurface oil contamination. |
| Low Estimate | 28 | 8 | 20 | |
| High Estimate | 66 | 23 | 43 | |
| **Department of Transportation** | | | | |
| Coast Guard | 527 | 72 | 455 | Maintenance of coastal shipping; provision of navigational support; ice clearing; oil spill response. |
| Maritime Administration | 86 | 2 | 84 | Provision of subsidies to U.S. built ships, including oil tankers. |
| Office of Pipeline Safety | 6 | 6 | 0 | Oversight of oil pipeline safety; supported through user fees. |
| **Environmental Protection Agency** | NQ | | | Oversight of oil industry; oil spill response. |
| **Export-Import Bank** | | | | Loans, guarantees, and insurance for U.S. exports. |
| Low Estimate | NQ | NQ | 197 | |
| High Estimate | NQ | NQ | 241 | |
| **Overseas Private Investment Corporation** | | | | Loans, guarantees, and insurance for U.S. business abroad. |
| Low Estimate | NQ | NQ | 10 | |
| High Estimate | NQ | NQ | 31 | |
| **TOTAL, excluding Defense of Oil Shipping** | | | | |
| **Low Estimate** | **3,410** | **478** | **3,139** | |
| **High Estimate** | **7,336** | **477** | **7,132** | |
| **TOTAL, including Defense of Oil Shipping** | | | | |
| **Low Estimate** | **13,869** | **478** | **13,599** | |
| **High Estimate** | **30,670** | **477** | **30,465** | |

* Totals differ from Exhibit 3-1 because they include all federal programs, including defense and the Strategic Petroleum Reserve, discussed in Chapter 4, and the Bureau of Land Management and Minerals Management Service, discussed in Chapter 6.

**Exhibit A-3b**

**DEPARTMENT OF DEFENSE**
**Army Corps of Engineers**
**(millions of dollars)**

| | | | Beneficiary Sector | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PROGRAM** | **FY95 Obligations** | **Total Power or Transport** | **Hydro** | **Inland Transport** | **Coastal Transport** (1) | **Allocation** | **Inland Oil** | **Coastal Oil** | **Total Oil** | **Allocation** | **Description** | **Source** |
| **General Construction** | | | | | | | | | | | Construction and rehabilitation components of water resources projects. | |
| Navigation Projects | | | | | | | | | | | | |
| Channels and Harbors | 117 | 117 | | | 117.0 | All to coastal | 0.0 | 51.2 | 51.2 | Oil share of coastal shipping | | OMB, A-379 / Bitner |
| Locks and Dams | 247 | 247 | | 247.0 | | All to inland transport | 56.6 | 0.0 | 56.6 | Oil share of inland shipping | | OMB, A-379 |
| Flood Control | | | | | | | | | | | | |
| Multiple-Purpose Power Projects | 99 | 99 | 99 | | | All hydro | 0.0 | 0.0 | 0.0 | No Oil | | OMB, A-379 |
| Major Rehab. and Dam Safety Assurance | | | | | | | | | | | | |
| Navigation | 21 | 21 | | 21.0 | | All to inland transport | 4.8 | 0.0 | 4.8 | Oil share of inland shipping | | OMB, A-379 |
| Multiple-Purpose Power Projects | 40 | 40 | 40 | | | All hydro | 0.0 | 0.0 | 0.0 | No Oil | | OMB, A-379 |
| Aquatic Plant Control | 12 | 12 | | 4.0 | 8.0 | Inland/coastal mix | 0.9 | 3.5 | 4.4 | Oil share of inland or coastal shipping | | OMB, A-379 |
| **Subtotal, Construction** | **1038** | **536** | **139** | **272.0** | **125.0** | | **62.3** | **54.7** | **117.0** | | Sum of line items does not equal subtotal b/c not all line items listed here. | |
| **Construction Spending Mix** | | 51.6% | 13.4% | 26.2% | 12.0% | | | | | | | |
| Employee Compensation | 16 | 8.3 | 2.1 | 4.2 | 1.9 | Construction spending Mix | 1.0 | 0.8 | 1.8 | Oil share of inland or coastal shipping | | OMB, A-379 |
| Project Modification for Envir. Restor. | 11 | 5.7 | 1.5 | 2.9 | 1.3 | Construction spending Mix | 0.7 | 0.6 | 1.2 | Oil share of inland or coastal shipping | | OMB, A-379 |
| Reimbursable Program | 350 | 180.7 | 46.9 | 91.7 | 42.1 | Construction spending Mix | 21.0 | 18.4 | 39.5 | Oil share of inland or coastal shipping | | OMB, A-379 |
| **Total Construction** | **1415** | **730.7** | **189.5** | **370.8** | **170.4** | | **85.0** | **74.6** | **159.6** | | Not all line items listed here. Total is reported in OMB source. | OMB, A-379 |
| **Operation and Maintenance** | | | | | | | | | | | Activities include dredging, repair, operation of structures and facilities, collection of waterborne commerce statistics, aquatic plant control, project monitoring, and removal of sunken vessels. | OMB, A-381 |
| Navigation Projects | | | | | | | | | | | | |
| Channels and Harbors | 532 | 532 | | | 532.0 | All to coastal | 0.0 | 232.9 | 232.9 | Oil share of coastal shipping | This item consists of coastal and Great Lakes navigation projects. | OMB, A-381 / Bitner |
| Locks and Dams | 349 | 349 | | 349.0 | | All to inland | 80.0 | 0.0 | 80.0 | Oil share of inland shipping | This item consists of inland navigation projects. | OMB, A-381 |
| Flood Control Projects | | | | | | | | | | | | |
| Channel Improvements, Inspections, and Miscellaneous Maintenance | 26 | 26 | | 26.0 | | All to inland | 6.0 | 0.0 | 6.0 | Oil share of inland shipping | | OMB, A-381 |
| Multiple-Purpose Power Projects | 409 | 409 | 409 | | | All to hydro | 0.0 | 0.0 | 0.0 | Oil share of inland or coastal shipping | | OMB, A-381 |
| Protection of Navigation | 34 | 34 | | 11.4 | 22.6 | Inland/coastal mix | 2.6 | 9.9 | 12.5 | Oil share of inland or coastal shipping | | OMB, A-381 |
| **Subtotal, O&M** | 1665 | 1350.0 | 409.0 | 386.4 | 554.6 | | | | | | Sum of line items does not equal subtotal b/c not all line items listed here. | |
| **O&M Spending Mix** | | 81.1% | 24.6% | 23.2% | 33.3% | | | | | | | |

**Exhibit A-3b**

**DEPARTMENT OF DEFENSE**
**Army Corps of Engineers**
**(millions of dollars)**

| | FY95 Obligations | Total Power or Transport | Beneficiary Sector: Hydro | Beneficiary Sector: Inland Transport | Beneficiary Sector: Coastal Transport | Allocation | Inland Oil | Coastal Oil | Total Oil | Allocation | Description | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Reimbursable Program | 8 | 6.5 | 2.0 | 1.9 | 2.7 | O&M Spending Mix | 0.4 | 1.2 | 1.6 | Oil share of inland or coastal shipping | | OMB, A-381 |
| **Total O&M** | **1673** | **1356.5** | **411.0** | **388.2** | **557.3** | | **89.0** | **243.9** | **332.9** | | Not all line items listed here. Total is reported in OMB source. | OMB, A-381 |
| **Oil Spill Research** | 1 | 1 | | 0.3 | 0.7 | Inland/coastal mix | 0.3 | 0.7 | 1.0 | All oil | Development of management tools for use by on-scene oil spill coordinators. | OMB, A-389 |
| **Total Direct Spending for Power or Navigation** | | **2,088.2** | **600.4** | **759.4** | **728.3** | | **174.3** | **319.2** | **493.5** | | | |
| **Total Army Corps Spending** | **3123** | | | | | | | | | | Total spending, reported in OMB, less the budget areas allocated below. | OMB, A-377 - A-385 |
| **Percentage of Program Spending** | | 66.9% | 19.2% | 24.3% | 23.3% | | | | | | | |
| **General Investigations** | | | | | | | | | | | Activities to "determine the need, engineering feasibility, economic justification, and the environmental and social suitability of solutions to water and related land resource problems." | OMB, A-378 |
| Surveys and Planning | | | | | | | | | | | | |
| Navigation, flood damage prevention, and shoreline protection studies | 46 | 30.8 | 8.8 | 11.2 | 10.7 | Share of Corps direct spending | 2.6 | 4.7 | 7.3 | Oil share of inland or coastal shipping | | OMB, A-378 |
| Comprehensive Basin Studies | 0 | 0.0 | 0.0 | 0.0 | 0.0 | Share of Corps direct spending | 0.0 | 0.0 | 0.0 | Oil share of inland or coastal shipping | | OMB, A-378 |
| Special Studies | 7 | 4.7 | 1.3 | 1.7 | 1.6 | Share of Corps direct spending | 0.4 | 0.7 | 1.1 | Oil share of inland or coastal shipping | | OMB, A-378 |
| Review of Authorized Projects | 11 | 7.4 | 2.1 | 2.7 | 2.6 | Share of Corps direct spending | 0.6 | 1.1 | 1.7 | Oil share of inland or coastal shipping | | OMB, A-378 |
| Cooperation with other Fed. agencies and non-Federal Interests | 9 | 6.0 | 1.7 | 2.2 | 2.1 | Share of Corps direct spending | 0.5 | 0.9 | 1.4 | Oil share of inland or coastal shipping | | OMB, A-378 |
| Preconstruction Engineering and Design | 67 | 44.8 | 12.9 | 16.3 | 15.6 | Share of Corps direct spending | 3.7 | 6.8 | 10.6 | Oil share of inland or coastal shipping | | OMB, A-378 |
| Collection and Study of Basic Data | | | | | | | | | | | | |
| Flood Plain Management Services | 9 | 6.0 | 1.7 | 2.2 | 2.1 | Share of Corps direct spending | 0.5 | 0.9 | 1.4 | Oil share of inland or coastal shipping | | OMB, A-378 |
| Other Programs | 8 | 5.3 | 1.5 | 1.9 | 1.9 | Share of Corps direct spending | 0.4 | 0.8 | 1.3 | Oil share of inland or coastal shipping | | OMB, A-378 |
| Research and Development | 35 | 23.4 | 6.7 | 8.5 | 8.2 | Share of Corps direct spending | 2.0 | 3.6 | 5.5 | Oil share of inland or coastal shipping | | OMB, A-378 |
| Reimbursable Program | 2 | 1.3 | 0.4 | 0.5 | 0.5 | Share of Corps direct spending | 0.1 | 0.2 | 0.3 | Oil share of inland or coastal shipping | | OMB, A-378 |
| **Total General Investigations** | **194** | **129.7** | **37.3** | **47.2** | **45.2** | | **10.8** | **19.8** | **30.6** | | | |
| **Regulatory Program** | 100 | **66.9** | **19.2** | **24.3** | **23.3** | Share of Corps spending | **5.6** | **10.2** | **15.8** | Oil share of inland or coastal shipping | Costs of administering laws that regulate activities affecting navigable waters and wetlands. | OMB, A-382 |
| **General Expenses** | | | | | | | | | | | | |
| Executive Direction and Management | | | | | | | | | | | | |
| Chief of Engineers Office | 53 | 35.4 | 10.2 | 12.9 | 12.4 | Share of Corps spending | 3.0 | 5.4 | 8.4 | Oil share of inland or coastal shipping | Supervise work in 36 district offices. | OMB, A-384 |

**Exhibit A-3b**

**DEPARTMENT OF DEFENSE**
**Army Corps of Engineers**
**(millions of dollars)**

| | FY95 Obligations | Total Power or Transport | Beneficiary Sector: Hydro | Beneficiary Sector: Inland Transport | Beneficiary Sector: Coastal Transport | Allocation | Inland Oil | Coastal Oil | Total Oil | Allocation | Description | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Division Offices | 79 | 52.8 | 15.2 | 19.2 | 18.4 | Share of Corps spending | 4.4 | 8.1 | 12.5 | Oil share of inland or coastal shipping | Supervise work in 36 district offices. | OMB, A-384 |
| Engineer Strategic Studies Center | 1 | 0.7 | 0.2 | 0.2 | 0.2 | Share of Corps spending | 0.1 | 0.1 | 0.2 | Oil share of inland or coastal shipping | Conducts studies of engineering management functions. | OMB, A-384 |
| Support Centers | | | | | | | | | | | | |
| Humphreys Engineer Center Support Activity | 14 | 9.4 | 2.7 | 3.4 | 3.3 | Share of Corps spending | 0.8 | 1.4 | 2.2 | Oil share of inland or coastal shipping | Administrative and logistical support. | OMB, A-384 |
| Water Resources Support Center | 5 | 3.3 | 1.0 | 1.2 | 1.2 | Share of Corps spending | 0.3 | 0.5 | 0.8 | Oil share of inland or coastal shipping | Develops planning techniques for management and development of water resources. | OMB, A-384 |
| **Total General Expenses** | 152 | **101.6** | **29.2** | **37.0** | **35.4** | | **8.5** | **15.5** | **24.0** | | | |
| **TOTAL SPENDING** | | **2,386.4** | **686.2** | **867.9** | **832.3** | | **199.1** | **364.7** | **563.9** | | | |
| **OFFSETTING COLLECTIONS** | | | | | | | | | | | | |
| **General Construction** | | | | | | | | | | | | |
| Inland Waterway Trust Funds | 88 | 88 | | 88.0 | | All to inland transport | 20.2 | 0.0 | 20.2 | Oil share of inland shipping | Derived from taxes on fuel in vessels engaged in commercial waterway transportation. | OMB, A-378, A-387 |
| Rivers and Harbors Contributed Funds | 77 | 77 | | 25.8 | 51.2 | Inland/coastal mix | 5.9 | 22.4 | 28.3 | Oil share of inland or coastal shipping | Funds contributed by non-Federal interests | OMB, A-378, A-387 |
| Reimbursable Program | 350 | 180.7 | 46.9 | 91.7 | 42.1 | Construction spending mix | 21.0 | 18.4 | 39.5 | Oil share of inland or coastal shipping | $348 million collected from federal sources, and $2 million from non-federal sources. | OMB, A-379 - A-380 |
| **Operation and Maintenance** | | | | | | | | | | | | |
| Harbor Maintenance Trust Funds | 521 | 521 | | | 521.0 | All to coastal | 0.0 | 228.1 | 228.1 | Oil share of coastal shipping | Derived from user fee charged to commercial users of specific U.S. ports | OMB, A-380, A-387 |
| Rivers and Harbors Contributed Funds | 7 | 7 | | 2.3 | 4.7 | Inland/coastal mix | 0.5 | 2.0 | 2.6 | Oil share of inland or coastal shipping | Funds contributed by non-Federal interests | OMB, A-380, A-387 |
| Reimbursable Program | 8 | 6.5 | 2.0 | 1.9 | 2.7 | O&M Spending Mix | 0.4 | 1.2 | 1.6 | Oil share of inland or coastal shipping | | OMB, A-381 |
| **General Investigations** | | | | | | | | | | | | |
| Rivers and Harbors Contributed Funds | 19 | 12.7 | 3.7 | 4.6 | 4.4 | Share of Corps direct spending | 1.1 | 1.9 | 3.0 | Oil share of inland or coastal shipping | Funds contributed by non-Federal interests | OMB, A-377, A-387 |
| Reimbursable Program | 2 | 1.3 | 0.4 | 0.5 | 0.5 | Share of Corps direct spending | 0.1 | 0.2 | 0.3 | Oil share of inland or coastal shipping | | OMB, A-378 |
| **Oil Spill Research** | 1 | 1 | | 0.3 | 0.7 | Inland/coastal mix | 0.3 | 0.7 | 1.0 | All oil | Financed through Oil Spill Liability Trust Fund | OMB, A-389 |
| **TOTAL OFFSETS** | **1073** | **895.3** | **52.9** | **215.2** | **627.2** | | **49.6** | **274.9** | **324.5** | | | |
| **GROSS SUBSIDYminimum** | | | | | | | **199.1** | **364.7** | **563.9** | | Note 2 | |
| **GROSS SUBSIDYmaximum** | | | | | | | **206.1** | **377.5** | **583.6** | | Note 2 | |
| **OFFSETTING COLLECTIONS** | | | | | | | **49.6** | **274.9** | **324.5** | | | |

**Exhibit A-3b**

**DEPARTMENT OF DEFENSE**
**Army Corps of Engineers**
**(millions of dollars)**

| | FY95 Obligations | Total Power or Transport | Beneficiary Sector: Hydro | Beneficiary Sector: Inland Transport | Beneficiary Sector: Coastal Transport | Allocation | Inland Oil | Coastal Oil | Total Oil | Allocation | Description | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NET SUBSIDYminimum** | | | | | | | **149.6** | **89.8** | **239.3** | | Note 3 | |
| **NET SUBSIDYmaximum** | | | | | | | **156.5** | **102.5** | **259.1** | | Note 3 | |

| **Breakout by Type of Benefit to Oil** | **Gross Subsidy** | **Offsetting Collections** | **Net Subsidy to Oil** |
|---|---|---|---|
| Subtotal, Transportation | | | |
| Low Estimate | 563.9 | 324.5 | 239.3 |
| High Estimate | 583.6 | 324.5 | 259.1 |

**NOTES**

1) Coastal/harbor includes coastal and harbor transport and transport on the Great Lakes and St. Lawrence River. This definition is based on Army Corps of Engineers distinctions between inland and coastal projects.
2) The minimum estimate gross subsidy equals gross obligations. The maximum estimate approximates the value of the gross subsidy if it were provided by a private company because the effective size of the subsidy equals not only net government spending on water infrastructure, but the forgone profit margin that would otherwise be included in the costs if the same services were provided privately. A profit margin of 3.5 percent is applied to the minimum gross subsidy estimate (i.e. total spending) to calculate the maximum estimate. This profit margin is based on the return on sales for industry number SIC-1629, Heavy Construction, Not Elsewhere Classified. This industry group composes general and special trade contractors for dam, dike, dock, drainage project, and flood control project construction as well as dredging.
3) Net subsidies equal the minimum or maximum gross subsidy values minus offsetting collections.

**SOURCES**


Dun and Bradstreet Information Services, *Industry Norms & Key Business Ratios: Desk-Top Edition 1995-96 -- Statistics in Over 800 Lines of Business*, p. 19.
Dun and Bradstreet Information Services, *Industry Norms & Key Business Ratios: Desk-Top Edition 1996-97 -- Statistics in Over 800 Lines of Business*, p. 19.
Bitner, Joseph, Programs Management, U.S. Army Corps of Engineers, Personal Communication, August 5, 1997.
U.S. Executive Office of the President, Office of Management and Budget. *Budget of the U.S. Government, FY 1997*, A-377 - A-389.
U.S. Executive Office of the President, Office of Management and Budget, *Standard Industrial Classification Manual*, 1987, p. 59.

**Exhibit A-3c**

**DEPARTMENT OF DEFENSE**
**Navy Supervisor of Salvage and Diving**
**(millions of dollars)**

**Part 1: Oil Spill Cleanup Equipment Held by Navy But Available for Commercial Spills**

| | Source |
|---|---|
| 24 Skimming systems | |
| 18 Storage bladders | GAO/RCED-91-68, pp. 19-20 |
| 21 Submersible pumping systems | |

**Part 2: Estimate of Benefits Accruing to the Commercial Oil Sector**

| | Low Est. | High Est. | |
|---|---|---|---|
| Estimated Value: | 240.2 | 240.2 | GAO/RCED-91-68, pp. 19-20, scaled to 1995$ (Note 1) |
| 1995 Financing rate (Note 2) | 6.6% | 7.6% | U.S. Department of Commerce, *Statistical Abstract of the United States: 1996*, Table 804. |
| Annual holding cost on equipment | 15.8 | 18.2 | |
| Pct. of Capital Cost Assumed Recovered Through Charges to Industry (Note 3) | 100.0% | 0.0% | |
| **Gross Estimated Subsidy** | 15.8 | 18.2 | |
| **Estimated Collections from User Fees** | 15.8 | 0.0 | |
| **Net Estimated Subsidy** | 0.0 | 18.2 | |

**Note**

1) Low and high estimates are inflated to 1995 dollars using the GDP Implicit Price Deflator.
2) Long-term financing rates are used to reflect the long-term nature of these capital purchases. The low estimate uses a 10-year Treasury bond rate, since oil spill equipment is unlikely to last the 30 years necessary to justify using a 30-year rate. The high estimate uses a Corporate Aaa bond, assuming that the petroleum companies would fall into this highest category and that they would have to purchase the equipment if the service were not provided by the government.
3) The low estimate assumes the private sector repays the Navy the full capital holding charges when relying on Navy stock during spills. The high estimate assumes the private sector can avoid purchasing equipment by relying on Navy stock during spills. The estimate should be scaled up to reflect avoided training and manpower costs as well, but data were not available.

**Sources:**

U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States: 1996*, Table 804.
U.S. General Accounting Office, "Coast Guard: Coordinating and Planning for National Oil Spill Response," Sept. 1991. GAO/RCED-91-212.

**Exhibit A-3d**

**DEPARTMENT OF ENERGY**
**Energy Information Administration**
**(millions of dollars)**

| Program | 1995 Budget Authority | Oil Total | Allocation | Description |
|---|---|---|---|---|
| Oil and Gas | 13.9 | | | |
| Petroleum Supply | 5.3 | 5.3 | All Oil | Provide information on supply of crude oil and refined petroleum products. |
| Petroleum Marketing | 5.1 | 5.1 | All Oil | Provide information on crude oil and petroleum product sales and prices. |
| Reserves and Natural Gas | 3.5 | 1.7 | 1/2 oil; 1/2 gas (arbitary) | Provide information on reserves and production of crude oil and natural gas. |
| Coal, Nuclear, Electric, and Alternate Fuels | 4.9 | 0.0 | No Oil | Provide statistical information on coal, electric power, nuclear, and renewable energy. |
| Energy Markets and End Use | 5.8 | | | |
| Energy Markets and Contingency Information | 1.2 | 0.8 | Spending Mix | Provide information on international energy markets. |
| Energy End Use and Integrated Statistics | 4.6 | 3.0 | Spending Mix | Provide statistical information on energy prices and end use consumption. |
| Integrated Analysis and Forecasting | 6.9 | | | |
| Investment/Global Climate Change | 1.6 | --- | | Greenhouse gas reductions program |
| Energy Demand and Integration | 2.6 | 1.7 | Spending Mix | Maintain macroeconomic, international, demand, and integrating components of National Energy Modeling System. |
| Energy Supply and Conversion | 2.7 | 1.8 | Spending Mix | Maintain energy supply and conversion model components of National Energy Modeling System. |
| ADP Services | 8.2 | 5.3 | Spending Mix | Operate EIA computer facility. |
| Information Services | 0.7 | 0.4 | Spending Mix | Operate National Energy Information Center. |
| Statistical Standards | 1.0 | 0.6 | Spending Mix | Develop and maintain stastical standards and monitor EIA's conformance with standards. |
| Program Direction | 43.4 | 28.1 | Spending Mix | |
| **Gross** | **84.6** | **53.7** | | |
| **Offsetting Collections** | **0.0** | **0.0** | | |
| **Net Subsidy to Oil** | | **53.7** | | |

| Breakout by Type of Benefit to Oil | Gross Subsidy | Offsetting Collections | Net Subsidy |
|---|---|---|---|
| Subtotal, Provision of Basic Market Information | 53.7 | 0.0 | 53.7 |

**NOTES**

1) The figures above are for EIA's FY95 Net Budget Authority, which was $85 million. In FY95, EIA incurred new obligations worth $82 million and had outlays worth $86 million.
2) Page numbers or unique table identifiers are not provided in the source.

**SOURCE**

U.S. Department of Energy, Energy Information Administration, *FY1997 Congressional Budget Request*.

**Exhibit A-3e**

**DEPARTMENT OF ENERGY**
**Fossil Energy Research and Development**
**(millions of dollars)**

| Program | FY95 Obligations | Estimated FY95 Obligations (Note 1) | Oil Share | Allocation Base | Description | Source |
|---|---|---|---|---|---|---|
| Fossil Energy R & D | | | | | | |
| Coal | 147 | | 0.0 | No Oil | | OMB, A-443 |
| Oil, gas, and shale research and development | 226 | | | | | OMB, A-443 |
| Natural Gas | | 134.0 | 0.0 | No Oil | | |
| Oil Technology | | 92.0 | | | | |
| Processing Research and Downstream Operations | | 8.3 | 8.3 | All Oil | Research on petroleum processing technology and environmental effects. | |
| Exploration & Production Environmental Research | | 5.7 | 5.7 | All Oil | Research on environmental effects of oil production. Promotion of environmentally sound practices and policies. | |
| Exploration & Production Supporting Research and Recovery Field Demonstrations | | 78.0 | 78.0 | All Oil | Maintain information on oil resources and reservoir producibility; research to advance oil recovery; funding for field demonstration projects | |
| Program Direction and Management | 73 | | 17.9 | Program Spending Mix | | OMB, A-443 |
| Plant & Capital Equipment | 6 | | 1.5 | Program Spending Mix | | OMB, A-443 |
| Environmental Restoration | 16 | | 3.9 | R&D Spending Mix | Clean-up contamination and ensure environmental compliance at past and current sites and operations. | OMB, A-443 |
| Cooperative R&D | 9 | | 2.2 | R&D Spending Mix | Funding for fossil energy research of relevance to the U.S. market. | OMB, A-443 |
| Fuels Program (Regulatory) | 3 | | 0.0 | No Oil | Provides oversight and regulatory reviews of natural gas and electricity activities | OMB, A-443 |
| Clean Coal Technology | 328 | | 0.0 | No Oil | | OMB, A-451 |

| | |
|---|---|
| **Gross** | 117.6 |
| **Offsetting Collections** | 0.0 |
| **Net Subsidy to Oil** | 117.6 |

| Breakout by Type of Benefit to Oil | Gross Subsidy | Offsetting Collections | Net Subsidy |
|---|---|---|---|
| Subtotal, Research and Development | 117.6 | 0.0 | 117.6 |

**NOTES**

1) Estimated obligations for the natural gas and oil technology programs are based on their relative FY1995 bugdet authorities, as reported in DOE's *Congressional Budget Request*.

**SOURCES**

U.S. Department of Energy, Office of Chief Financial Officer, *FY1997 Congressional Budget Request*, Volume 4, March 1996.
U.S. Executive Office of the President, Office of Management and Budget, *Budget of the United States Government, Fiscal Year 1997*, A-443.

**Exhibit A-3f**

**DEPARTMENT OF ENERGY**
**Federal Energy Regulatory Commission (FERC)**
**(millions of dollars)**

| | 1995 Obligations | Oil | Allocation | Notes | Source |
|---|---|---|---|---|---|
| **PROGRAM SPENDING** | | | | | |
| Natural Gas and Oil Pipelines | 69 | 25.0 | Oil share of total O&G filings | | OMB, A-450 |
| Hydropower Licensing and Regulation | 57 | 0.0 | No Oil | | OMB, A-450 |
| Electric Power Regulation | 38 | 0.0 | No Oil | | OMB, A-450 |
| **Total Expenditures** | 164 | 25.0 | | | |
| **OFFSETTING COLLECTIONS** | | | | | |
| Annual Charges and Fees | | | | | |
| Natural Gas and Oil Pipelines | 69.8 | 25.3 | Oil share of total O&G filings | Note 1 | |
| Hydropower Licensing and Regulation | 57.7 | 0.0 | No Oil | Note 1 | |
| Electric Power Regulation | 38.5 | 0.0 | No Oil | Note 1 | |
| **Total User Fees** | 166 | 25.3 | | | OMB, A-450 |

| | |
|---|---|
| **Gross Subsidy to Oil** | 25.0 |
| **Offsetting Collections** | 25.3 |
| **Net Subsidy to Oil** | -0.3 |

| **Breakout by Type of Subsidy** | **Gross** | **Offsets** | **Net** |
|---|---|---|---|
| Regulatory Oversight | 25.0 | 25.3 | -0.3 |

**NOTES**

1) The program's share of FERC's annual charges and fees is estimated based on the program's share of FERC's total 1995 obligations.

**SOURCES**

U.S. Department of Energy, Federal Energy Regulatory Commission, *FY98 Congressional Budget Request*, p. 10.
U.S. Executive Office of the President, Office of Management and Budget, *Budget of the United States Government, FY 1997*, A-450.

**Exhibit A-3g**

**DEPARTMENT OF HEALTH AND HUMAN SERVICES**
**Low Income Home Energy Assistance Program (LIHEAP)**
**(millions of dollars)**

**Part 1: 1995 Federal Program Support ($Millions)**

| | 1995 |
|---|---|
| LIHEAP Funds Used for Energy Support | |
| Heating benefits | 880 |
| Cooling benefits | 44 |
| Crisis benefits | 213 |
| Weatherization Benefits | 159 |
| Program Admin. | 133 |
| **Total** | **1,429** |
| LIHEAP Funds Not Used For Energy Purposes (not counted in totals) | |
| HHS Block Grant Transfers | NA |

**Notes:**
(1) Grantees were previously allowed to transfer up to 10 percent of the LIHEAP funds payable to them to one or more of five other HHS social and community service block grants. Starting in FY1994, such transfers were no longer permitted.
(2) Grantees have statutory authority to transfer up to 10 percent of their Social Services Block Grant funds and up to five percent of their Community Services Block Grant funds into LIHEAP; none did so in FY95. (Report to Congress, p. ii)
(3) Weatherization assistance is limited to a maximum of 15 percent of the LIHEAP funds available to a grantee, unless grantees request and HHS approves a waiver to increase the maximum amount to 25 percent. (Report to Congress, p. iii)

**Source:**
U.S. Department of Health and Human Services, Administration for Children and Families, Low Income Home Energy Assistance Program. Report to Congress for Fiscal Year 1995. Table 2: Annual Report Statistics on HHS Energy Assistance Programs, Fiscal Years 1981-1995."

**Part 2: 1993 Energy Mix of Particular Uses**

| | 1995 Shares (Note 1) | Heating Benefits (Note 2) | Cooling Benefits (Note 2) | Weather-ization |
|---|---|---|---|---|
| Natural Gas | | 45.6% | 0.0% | |
| Electricity | | 27.6% | 97.8% | |
| Coal | 55.2% | 15.2% | 54.0% | |
| Natural Gas | 10.3% | 2.8% | 10.0% | |
| Petroleum | 2.0% | 0.6% | 2.0% | |
| Hydroelectric | 9.8% | 2.7% | 9.6% | |
| Fission | 22.5% | 6.2% | 22.0% | |
| Renewable Geothermal and Other (Note 4) | 0.2% | 0.1% | 0.2% | |
| Oil | | 23.2% | 0.0% | |
| Fuel Oil | | 13.2% | | |
| Kerosene | | 2.7% | | |
| LPG | | 7.3% | | |
| Efficiency | | | 0.0% | 100.0% |
| Other (Note 5) | | 3.6% | 0.0% | |
| None (Note 6) | | | 2.3% | |
| **Oil Share** | | 23.8% | 2.0% | |
| **Total, All Energy Types (Note 7)** | | 100.1% | 100.1% | 100.0% |

**Notes:**

**Exhibit A-3g**

**DEPARTMENT OF HEALTH AND HUMAN SERVICES**
**Low Income Home Energy Assistance Program (LIHEAP)**
**(millions of dollars)**

1) Electricity is allocated to base fuels using the national electricity mix in 1995 (*Annual Energy Review*, Table 8.3)
2) Energy mix data is based on LIHEAP recipient households only.
3) Energy crisis intervention provides relief for household-level energy emergencies, and is allocated on the same basis as heating benefits.
4) Includes geothermal, wood, waste, wind, photovoltaic, and solar thermal energy. (*Annual Energy Review*, Table 8.3) Electricity from renewables in 1989 was 9.0% biomass, 8.4% waste-to-energy, 82.6% geothermal; and 0.02% solar. (EIA, Powerplant).
5) "Other" fuels refer to wood, coal, and other minor fuels.
6) Households do not use air conditioning, evaporative coolers, whole house cooling fans, or window or ceiling fans.
7) Totals do not add due to rounding.

**Sources:**

U.S. Department of Health and Human Services, Administration for Children and Families, Low Income Home Energy Assistance Program. Report to Congress for Fiscal Year 1995, pp. 22, 25.
U.S. Department of Energy, Energy Information Administration. *Annual Energy Review: 1996*, Table 8.3.
U.S. Department of Energy, Energy Information Administration. *Monthly Powerplant Report*. Data provided by Melvin Johnson, EIA, 6/91.

**Part 3: Allocation to Oil, FY 1995**

| | Heating Benefits | Cooling Benefits | Weather-ization | Crisis | Direct Total | Percent Share | Program Admin. | Gross Total | Offset (Note 1) | Net Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Funding | 880 | 44 | 159 | 213 | 1,296 | | 133 | 0 | | |
| Electricity | | | | | | | | | | |
| Petroleum | 5 | 1 | 0 | 1 | 7 | 0.54% | 1 | 8 | | |
| Oil | 204 | 0 | 0 | 49 | 254 | 19.57% | 26 | 280 | | |
| **Total Oil Spending** | 209 | 1 | 0 | 51 | 261 | 20.11% | 27 | **287** | **13** | **274** |

**Note:**

1) DOE holds funds in escrow from settlements of oil price overcharge cases under the Emergency Petroleum Allocation Act of 1973. DOE distributes part of these funds to states and other areas, which obligated $13 million of such funds for LIHEAP in 1995 (*Report to Congress*, p. ii).

**Exhibit A-3h**

**DEPARTMENT OF THE INTERIOR**
**United States Geological Survey**
**(millions of dollars)**

| | FY95 Net Budget Authority (Note 1) | Estimated 1995 Budget Authority (Note 2) | Oil Share | Allocation | Description | Sources |
|---|---|---|---|---|---|---|
| National Mapping, Geography, and Surveys | 124.0 | | | | Make map and geographic data available to the public and private sectors. Maps used for resource management and other purposes. | USGS, 4 |
| National Map and Digital Data Production | 56.0 | | 1.4 | Spending Mix | Ensures availability of current and accurate cartographic data and maps. | USGS, 38 |
| Information and Data Systems | 21.6 | | 0.5 | Spending Mix | Manage and distribute geographic data in digital and graphic databases for use by the public and private sector. | USGS, 38 |
| Research and Technology | 22.0 | | 0.6 | Spending Mix | Conduct research to enhance data collection and mapping techniques. | USGS, 38 |
| Advanced Cartographic Systems | 24.3 | | 0.6 | Spending Mix | Advance data production and dissemination methods and maintain existing map production and distribution systems. | USGS, 38 |
| Geologic and Mineral Resource Surveys and Mapping | 213.5 | | | | Provides information about geologic hazards, resources, and processes. | USGS, 4 |
| Geologic Framework and Processes | 26.5 | | | | | USGS, 38 |
| National Geologic Mapping Program | | 21.9 | 0.5 | Spending Mix | Provides geologic maps for the U.S. | USGS, 143 |
| Continental Surveys | | 2.8 | 0.3 | Equal split of program functions; oil share of oil and gas | Activities include assessing petroleum energy resources. | USGS, 143 |
| Geomagnetism | | 1.8 | 0.0 | Spending Mix | Provide geomagnetic information. Uses for this data include oil exploration. | USGS, 143 |
| Marine and Coastal Geologic Surveys | 36.4 | | 0.5 | Program spending mix; oil share of oil and gas. | Activities include surveying offshore resources. | USGS, 38 |
| Mineral Resource Surveys | 44.6 | | 0.0 | No Oil | Provide information concerning mineral resource supplies, environmental impacts, and management. This program does not appear to be linked to petroleum resources, but some of the geologic information may be useful for oil EDT. | USGS, 38 |
| Energy Resource Surveys | 25.2 | | 5.0 | Energy Resource Surveys spending mix by commodity | Provides information that includes assessments and estimates of the quality, quanitity, and location of natural gas, coal, and oil resources. | USGS, 38 |
| Water Resources Investigations | 185.9 | | | | Provides scientific information about surface and ground water supply, hazards, pollution, and remediation. | USGS, 4 |
| National Water Resources Research and Information System - Federal Program | 119.2 | | | | | USGS, 38 |
| Data Collection and Analysis | | 19.5 | 0.6 | Water resources spending mix | Provides information about surface and groundwater quantity and quality. One application for this information is land use and resource planning on public land. | USGS, 222 |
| Core Program Hydrologic Research | | 10.0 | 0.3 | Water resources spending mix | Research that advances the state of water-resource studies and understanding by the USGS. | USGS, 232 |
| Toxic Substances Hydrology | | 13.4 | 2.7 | Toxic substances project breakout | Produces information needed to treat resources affected by toxic substances. One study focuses on how crude oil travels In the subsurface. | USGS, 239 |
| Scientific and Technical Publications | | 2.1 | 0.1 | Water resources spending mix | | USGS, 251 |
| National Water Resources Research and Information System - Federal/State Cooperative Program | 62.1 | | | | | USGS, 38 |
| Data Collection and Analysis | | 58.1 | 5.3 | Oil share of project breakout | Provides matching funds for studies of the quantity, quality, and use of surface-water and ground-water resources. | USGS, 274 |
| Water Use | | 4.0 | 0.0 | No Oil | Compiles, analyzes, and disseminates information on water use to supplement information on available water supplies. | USGS, 285 |
| National Water Resources Research and Information System - State Research Institutes and Research Grants Program | 4.6 | | 0.7 | Oil share of project breakout | Funding for research into water quality problems, some of which may be oil related. None allocated to oil in this study. | USGS, 38 |
| General Administration | 24.3 | | 0.6 | Spending Mix | | USGS, 4 |

**Exhibit A-3h**

**DEPARTMENT OF THE INTERIOR**
**United States Geological Survey**
**(millions of dollars)**

| | FY95 Net Budget Authority (Note 1) | Estimated 1995 Budget Authority (Note 2) | Oil Share | Allocation | Description | Sources |
|---|---|---|---|---|---|---|
| Facilities | 22.8 | | 0.6 | Spending Mix | | USGS, 4 |
| Reimbursable Program | 304 | | 7.6 | Spending Mix | | OMB A-577 |
| **Total Spending Authority** | 874.5 | | 27.9 | | | |
| **OFFSETTING COLLECTIONS** | | | | | | |
| Reimbursable Program | 304 | | 7.6 | Spending Mix | | OMB A-577 |
| **Total Offsetting Collections** | 304 | | 7.6 | | | |

| | | |
|---|---|---|
| **GROSS SUBSIDY -- low estimate** | **27.9** | Note (3) |
| **GROSS SUBSIDY -- high estimate** | **65.6** | Note (3) |
| **OFFSETTING COLLECTIONS -- low estimate** | **7.6** | |
| **OFFSETTING COLLECTIONS -- high estimate** | **22.8** | Note (3) |
| **NET SUBSIDY -- low estimate** | **20.2** | |
| **NET SUBSIDY -- high estimate** | **42.8** | Note (3) |

| **Breakout by Type of Subsidy** | **Gross** | **Offset** | **Net** | |
|---|---|---|---|---|
| **USGS R&D related to oil contamination** | | | | |
| Low Estimate | 14.0 | 3.8 | 10.2 | Water resources program and proportionate share of general expenses and reimbursable program. |
| High Estimate | 29.2 | 10.1 | 19.0 | Product of USGS budget or offsetting collections and an estimate of the percentage of its work related to oil contamination. |
| **USGS mapping, resource surveys, and research supporting oil exploration and development** | | | | |
| Low Estimate | 13.8 | 3.8 | 10.1 | Mapping and resource survey programs and proportionate share of general expenses and reimbursable program. |
| High Estimate | 36.4 | 12.7 | 23.8 | Product of USGS budget or offsetting collections and an estimate of oil's share of the natural resources with which USGS works. |

**NOTES**

1) USGS numbers are for budget authority. Gross FY1995 budget authority was $874.5 million, compared to FY1995 obligations of $885 million.
2) Estimated 1995 budget authority is calculated based on the breakdown of spending between program elements in 1996.
3) The low estimate is based on detailed budgetary information that is specifically labeled as relating to oil. Many of the agency's activities may help the oil industry without directly targeting that industry. We expect that the low estimate does not account for the agency's full contribution to oil activities. For our high estimate we used an alternative approach. Based on information provided in the source below, USGS has four primary areas of work: natural hazards, resources, environment, and information management. The latter supports the other three work areas. To reach our estimate, we divided the agency's budget authority and offsetting collections equally among those three areas. We then divided the resources portion of spending equally among the resources with which USGS works: land, surface water, ground water, metallic minerals, non-metallic minerals, coal, oil, and gas. Thus, 12.5 percent of one third of the budget (4.2 percent) goes to oil. Based on descriptions of projects in the Water Resources Investigations program, we also estimate that approximately 10 percent of USGS's environmental work (or 3.3 percent of the total budget) is related to oil contamination. Using these estimates, we allocated 7.5 percent of the USGS budget authority and offsetting collections to oil.

SOURCE: U.S. Department of the Interior, United States Geological Survey, *Budget Justifications, F.Y. 1997.*

**Exhibit A-3i**

**DEPARTMENT OF TRANSPORTATION**
**U.S. Coast Guard**
**(millions of dollars)**

| | Total FY95 Obligations (a) | Est. Merchant Marine Share (1) | Energy Share of Merchant Shipping (2) | Net Share to Energy (3)=(1*2) | Subsidy to Energy (a*3) | Oil Share | Allocation | Description | Source |
|---|---|---|---|---|---|---|---|---|---|
| **Operating Expenses** | | | | | | | | | |
| Search and Rescue | 387 | 40% | 55.3% | 22.1% | 85.6 | 73.2 | Petroleum fuels share of coastal energy shipments | Operations to save lives and prevent personal injury and property damage in the maritime regions of the U.S. | OMB, A-751 |
| Aids to Navigation | 526 | 60% | 55.3% | 33.2% | 174.5 | 149.3 | Petroleum fuels share of coastal energy shipments | Lighthouse automation and buoys to help ocean shipping. | OMB, A-751 |
| Marine Safety | 331 | 60% | 55.3% | 33.2% | 109.8 | 94.0 | Petroleum fuels share of coastal energy shipments | Vessel inspections, review of plans and specifications for construction or alteration of merchant vessels, and merchant mariner licensing. | OMB, A-751 |
| Marine Environmental Protection | 236 | 80% | 55.3% | 44.2% | 104.4 | 89.3 | Petroleum fuels share of coastal energy shipments | Prevention of marine environmental degradation, enhancing environmental quality, approving oil spill response plans, and responding to pollution incidents. | OMB, A-751 |
| Enforcement of Laws and Treaties | 951 | N/A | | N/A | | | | Assume not related to oil | OMB, A-751 |
| Ice Operations | 91 | 80% | 55.3% | 44.2% | 40.2 | 34.4 | Petroleum fuels share of coastal energy shipments | Ice clearing activities. | OMB, A-751 |
| Defense Readiness | 111 | N/A | | N/A | | | | Assume not related to oil | |
| **Subtotal** | 2633 | | | | 514.4 | 440.3 | | | |
| **Operating Expenses Spending Mix** | | | | | 19.5% | 16.7% | | Percentage of Subtotal | |
| Reimbursable Program | 53 | | | | 10.4 | 8.9 | Operating Expenses Spending Mix | | OMB, A-751 |
| **Total Operating Expenses** | 2686 | | | | 524.8 | 449.1 | | | |
| **Acquisition, Construction and Improvements** | | | | | | | | Acquisition, construction, rebuilding, and improvement of navigation aids, facilities, vessels, and aircraft. | |
| Search and Rescue | 43 | 40% | 55.3% | 22.1% | 9.5 | 8.1 | Petroleum fuels share of coastal energy shipments | | OMB, A-752 |
| Aids to Navigation | 100 | 60% | 55.3% | 33.2% | 33.2 | 28.4 | Petroleum fuels share of coastal energy shipments | | OMB, A-752 |
| Marine Safety | 30 | 60% | 55.3% | 33.2% | 10.0 | 8.5 | Petroleum fuels share of coastal energy shipments | | OMB, A-752 |
| Marine Environmental Protection | 35 | 80% | 55.3% | 44.2% | 15.5 | 13.2 | Petroleum fuels share of coastal energy shipments | | OMB, A-752 |
| Enforcement of Laws and Treaties | 90 | N/A | | N/A | | | | Assume not related to oil | OMB, A-752 |

**Exhibit A-3i**

**DEPARTMENT OF TRANSPORTATION**
**U.S. Coast Guard**
**(millions of dollars)**

| | Total FY95 Obligations (a) | Est. Merchant Marine Share (1) | Energy Share of Merchant Shipping (2) | Net Share to Energy (3)=(1*2) | Subsidy to Energy (a*3) | Oil Share | Allocation | Description | Source |
|---|---|---|---|---|---|---|---|---|---|
| Ice Operations | 30 | 80% | 55.3% | 44.2% | 13.3 | 11.4 | Petroleum fuels share of coastal energy shipments | | OMB, A-752 |
| Defense Readiness | 7 | N/A | | N/A | | | | Assume not related to oil | |
| **Subtotal** | 335 | | | | 81.4 | 69.6 | | | |
| **Acquisition, Construction, and Improvements Spending Mix** | | | | | 24.3% | 20.8% | | Percentage of subtotal | |
| Reimbursable Program | 0 | | | | 0.0 | 0.0 | Acquisition, Construction, and Improvements Spending Mix | | OMB, A-752 |
| **Total Acquisition, Construction, and Improvements** | 335 | | | | 81.4 | 69.6 | | | |
| **Envir. Compliance and Restoration** | 24 | | | | 3.8 | 3.2 | Oil share of total budget | Funds for environmental compliance and restoration related obligations. | OMB, A-753 |
| **Alteration of Bridges** | 0 | 60% | 55.3% | 33.2% | 0.0 | 0.0 | Petroleum fuels share of coastal energy shipments | Costs of altering or removing railroad bridges that obstruct navigation. | OMB, A-754 |
| **Research, Development, Test, and Evaluation** | | | | | | | | Development of techniques and technology that contribute to the Coast Guard's operating missions. | |
| Search and Rescue | 3 | 40% | 55.3% | 22.1% | 0.7 | 0.6 | Petroleum fuels share of coastal energy shipments | | OMB, A-755 |
| Aids to Navigation | 3 | 60% | 55.3% | 33.2% | 1.0 | 0.9 | Petroleum fuels share of coastal energy shipments | | OMB, A-755 |
| Marine Safety | 6 | 60% | 55.3% | 33.2% | 2.0 | 1.7 | Petroleum fuels share of coastal energy shipments | | OMB, A-755 |
| Marine Environmental Protection | 3 | 80% | 55.3% | 44.2% | 1.3 | 1.1 | Petroleum fuels share of coastal energy shipments | | OMB, A-755 |
| Enforcement of Laws and Treaties | 3 | N/A | | N/A | | | | Assume not related to oil | OMB, A-755 |
| Ice Operations | 1 | 80% | 55.3% | 44.2% | 0.4 | 0.4 | Petroleum fuels share of coastal energy shipments | | OMB, A-755 |
| Defense Readiness | 1 | N/A | | N/A | | | | Assume not related to oil | |
| **Subtotal** | 20 | | | | 5.4 | 4.6 | | | |

**Exhibit A-3i**

**DEPARTMENT OF TRANSPORTATION**
**U.S. Coast Guard**
**(millions of dollars)**

| | Total FY95 Obligations (a) | Est. Merchant Marine Share (1) | Energy Share of Merchant Shipping (2) | Net Share to Energy (3)=(1*2) | Subsidy to Energy (a*3) | Oil Share | Allocation | Description | Source |
|---|---|---|---|---|---|---|---|---|---|
| **Research, Development, Test, and Evaluation Spending Mix** | | | | | 27.1% | 23.2% | | | |
| Reimbursable Program | 1 | | | | 0.3 | 0.2 | Research, Development, Test, and Evaluation Spending Mix | | OMB, A-755 |
| **Total Research, Development, Test, and Evaluation** | 21 | | | | 5.7 | 4.9 | | | |
| **Spending, Partially Energy-Related** | **3,066** | | | | **616** | **527** | | | |
| **Spending, All Coast Guard** | **3,888** | Not all items are listed above. | | | | | | | |
| **OFFSETTING COLLECTIONS** | | | | | | | | | |
| **Operating Expenses** | | | | | | | | | |
| Oil Spill Liability Trust Fund | 25 | | | | 25 | 25 | All to Oil | | OMB, A-758 |
| Reimbursable Program | 53 | | | | 10.4 | 8.9 | Operating Expenses Spending Mix | | OMB, A-751 |
| **Acquisition, Construction and Improvements** | | | | | | | | | |
| Oil Spill Liability Trust Fund | 33 | | | | 33 | 33 | All to Oil | | OMB, A-758 |
| Reimbursable Program | 7 | | | | 1.7 | 1.5 | Acquisition, Construction, and Improvements Spending Mix | | OMB, A-752 |
| **Research, Development, Test, and Evaluation** | | | | | | | | | |
| Oil Spill Liability Trust Fund | 3 | | | | 3 | 3 | All to Oil | | OMB, A-758 |
| Reimbursable Program | 1 | | | | 0.3 | 0.2 | Research, Development, Test, and Evaluation Spending Mix | | OMB, A-755 |
| **Total Offsetting Collections** | **122.0** | | | | **73.3** | **71.5** | | | |

**Exhibit A-3i**

**DEPARTMENT OF TRANSPORTATION**
**U.S. Coast Guard**
**(millions of dollars)**

| | Total FY95 Obligations (a) | Est. Merchant Marine Share (1) | Energy Share of Merchant Shipping (2) | Net Share to Energy (3)=(1*2) | Subsidy to Energy (a*3) | Oil Share | Allocation | Description | Source |
|---|---|---|---|---|---|---|---|---|---|
| **GROSS SUBSIDY TO OIL** | | | | | | **526.9** | | | |
| **OFFSETTING COLLECTIONS** | | | | | | **71.5** | | | |
| **NET SUBSIDY TO OIL** | | | | | | **455.3** | | | |

**Breakout by Type of Benefit to Oil**

| | Gross | Offsets | Net | |
|---|---|---|---|---|
| Transportation Infrastructure and Services | 314.0 | 6.3 | 307.7 | Search and Rescue, Aids to Navigation, Ice Operations, and proportionate share of Environmental Compliance, Reimbursable Program |
| Regulatory Oversight | | | | |
| Transportation | 106.7 | 2.1 | 104.5 | Marine Safety and proportionate share of Environmental Compliance and Reimbursable Program. |
| Environmental | 106.2 | 63.1 | 43.1 | Marine Environmental Protection and proportionate share of Environmental Compliance and Reimbursable Program. |

**Notes:**

**(1)** These fractions follow the methodology used in earlier studies (Heede, Koplow). A better allocation would be based on the share of port calls by coastal ships. Lower shares for search and rescue reflect the likelihood of larger merchant ships having better navigational equipment and more skilled captains. The higher share for marine environmental protection reflects the magnitude of oil spill problems. 20% is assumed to account for other hazardous substances. Similarly, a higher allocation for ice operations accounts for the heavy use of Arctic shipping lanes for oil movemer

**(2)** Reflects energy shares of shipments in waters overseen by the Coast Guard, including ocean shipping (imports plus exports) and coastwise shipping. Shipments by tonnage rather than value are used since value is not a strong indicator of the need for marine support services.

**Sources:**

Heede, Rick, *Federal Energy Subsidies, Agency Obligations*, 1986, pp. 96-99, Rocky Mountain Institute.
Koplow, Douglas N., *Federal Energy Subsidies: Energy, Environmental, and Fiscal Impacts*, 1993, The Alliance to Save Energy.
U.S. Executive Office of the President, Office of Management and Budget. *Budget of the United States Government, Fiscal Year 1997*, A-751 - A-759.

**Exhibit A-3j**

**DEPARTMENT OF TRANSPORATION**
**Maritime Administration**
**(millions of dollars)**

| PROGRAM | FY95 Spending | Oil Share | Allocation | Description | Source |
|---|---|---|---|---|---|
| Operating Differential Subsidies | 209 | 86.3 | Petroleum share of imports and exports | Funds operating subsidies to U.S.-flag ship operators engaged in foreign commerce to offset differences in U.S. and foreign operating costs. | MARAD, MA-9 / OMB A-760 |
| Construction Differential | 0 | 0.0 | 70% (percentage of U.S. fleet capable of transporting oil) | Account is inactive except for closing costs and other lingering expenses. Subsidized certain construction costs for merchant ships when U.S. costs exceeded foreign. | OMB, A-760 |
| Ocean Freight Differential | 63 | 0.0 | No Oil | Funds agricultural commodities only | OMB, A-760 |
| **OFFSETTING COLLECTIONS** | | | | | |
| Construction Differential | 3 | 2.1 | 70% (percentage of U.S. fleet capable of transporting oil) | | OMB, A-760 |

| | |
|---|---|
| **GROSS SUBSIDY TO OIL** | 86.3 |
| **OFFSETTING COLLECTIONS** | 2.1 |
| **NET SUBSIDY TO OIL** | 84.2 |

**Breakout by Type of Benefit to Oil**

| | Gross | Offset | Net |
|---|---|---|---|
| Transportation | 86.3 | 2.1 | 84.2 |

**SOURCES**

U.S. Office of Management and Budget, *Budget of the U.S. Government, FY 1997*, A-760 - A-766.
U.S. Department of Transportation, Maritime Administration, *Budget Estimates, F.Y. 1997*.

**Exhibit A-3k**

**DEPARTMENT OF TRANSPORTATION**
**Research and Special Programs Administration**
**Office of Pipeline Safety**
**(millions of dollars)**

The Office of Pipeline Safety oversees the transportation of natural gas, petroleum, and other hazardous liquids. The office's activities involve data collection and analysis, risk assessment, regulation, enforcement, research and development, and grants for state pipeline safety programs. Its programs are funded by two special funds, the Pipeline Safety Fund and the Oil Spill Liability Trust Fund. Pipeline operators are charged a user fee based on pipeline mileage and the amount of the office's annual appropriation.

**EXPENDITURES**

| | FY1995 Obligations | Oil Share | Allocation Base | Source |
|---|---|---|---|---|
| Pipeline Safety | | | | |
| Operations | 21.001 | 2.0 | Oil Share of Pipeline M | RSPA, 115 |
| Research and Development | 2.157 | 0.2 | Oil Share of Pipeline M | RSPA, 115 |
| Grants | 11.9 | 1.1 | Oil Share of Pipeline M | RSPA, 115 |
| Oil Spill Liability Trust Fund | 2.433 | 2.4 | All Oil | RSPA, 119 |
| **Total Spending** | 37.491 | 5.7 | | |

**REVENUE**

| | | | | |
|---|---|---|---|---|
| Collections from Pipeline User Fees | 34.682 | 3.2 | Oil Share of Pipeline M | RSPA, 114 |
| and the Oil Spill Liability Trust Fund | 2.433 | 2.4 | All Oil | RSPA, 119 |
| **Total Offsets** | 37.115 | 5.7 | | |

| | |
|---|---|
| **GROSS SUBSIDY** | **5.7** |
| **OFFSETTING COLLECTIONS** | **5.7** |
| **NET SUBSIDY** | **0.0** |

| **Breakout by Subsidy Category** | **Gross** | **Offset** | **Net** |
|---|---|---|---|
| Subtotal, Transportation | 5.7 | 5.7 | 0.0 |

**SOURCE**

U.S. Department of Transportation, Research and Special Programs Administration, Budget Estimates: Fiscal Year 1997.

# FUELING GLOBAL WARMING: FEDERAL SUBSIDIES TO OIL IN THE UNITED STATES

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June 1998