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Special to H. R. Dwyer

Dr. 256

**U.S. Department of Energy
FY 1979 Budget to Congress**

Budget Highlights

MASTER

January, 1978

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FY 1979 BUDGET HIGHLIGHTS

The Department of Energy (DOE) was established on October 1, 1977, to bring together the various energy activities dispersed throughout the Federal government and to provide unified leadership to the Nation's energy policies and programs. Principal functions transferred to the Department include those previously undertaken by the Energy Research and Development Administration, the Federal Energy Administration and the Federal Power Commission, as well as selected functions of the Departments of Interior, Navy, and Commerce and the Interstate Commerce Commission. Combined resources total 19,100 personnel and \$10.3 billion in Fiscal Year 1978, excluding supplemental requests.

Ten primary missions were used to consolidate this first DOE budget:

- Energy Supply - Research and Technology Development (R&TD)
- Energy Supply - Production, Demonstration, and Distribution (PD&D)
- Conservation
- Regulation
- Emergency Preparedness
- Energy Information
- Environment
- Basic Sciences
- Atomic Energy Defense Activities
- Policy and Management

Each mission area provided the basis for review and ranking of zero-base budget decision packages. In addition, resources were allocated among the mission areas, consistent with the intent of the National Energy Plan (NEP).

The Department's FY 1979 budget totals \$12.6 billion in budget authority and \$10 billion in outlays. This is a 22 percent increase in budget authority and 14 percent increase in outlays over the FY 1978 funding of DOE's constituent agencies. Increases in the FY 1979 budget center primarily on the Conservation, Emergency Preparedness, Regulation and Energy Information missions. A distribution of the FY 1979 budget request by mission area is reflected in the table below:

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Energy Supply R&TD	\$ 2,696	\$ 2,670	\$ -26
Energy Supply PD&D	908	692	-216
Conservation	692	1,010	+318
Regulation	83	104	+21
Emergency Preparedness	3,595	4,255	+660
Energy Information	48	63	+15
Environment	218	209	-9
Basic Sciences	397	426	+29
Atomic Energy Defense Activities	2,512	2,829	+317
Policy and Management	388	505	+117
Subtotal	<u>11,537</u>	<u>12,763</u>	<u>+1,226</u>
Less: Supplementals/Other Adjustments	<u>-1,254</u>	<u>-170</u>	<u>-</u>
Total DOE Funding	<u>\$ 10,283</u>	<u>\$ 12,593</u>	<u>\$ +2,310</u>

The FY 1979 budget together with the pending National Energy Act legislation will:

- provide significant increases in Conservation, including grants, incentives and technology development.
- continue the purchase and storage of 500 million barrels of oil by the end of 1980 for strategic petroleum reserve and initiate design and construction of storage facilities leading to the President's goal of one billion barrels by 1985.
- recognize the Department's regulatory role in enhancing energy conservation and supply, while providing for a reduction in the administrative burden borne by public and industry.
- continue the aggressive technology development in fossil, solar, geothermal and fusion energy, including resource assessments, R&D and demonstration plants.
- continue development of nuclear waste storage technology directed toward permanent disposition by 1985.
- maintain a strong capability for the production and delivery of new and future weapons systems.

A discussion of the FY 1979 activities to be undertaken in each mission is provided in the sections that follow.

ENERGY SUPPLY
RESEARCH AND TECHNOLOGY DEVELOPMENT

The Research and Technology Development mission is directed toward:

- increasing the supply of energy by developing new technologies.
- improving the efficiency and acceptability of existing technologies.
- assessing the availability of energy resources.

This mission includes basic research, technology and engineering development, and technology demonstrations.

FY 1979 funding totals \$2.670 billion in budget authority. While essentially the FY 1978 level, increases have been provided in several activities including coal, geothermal, nuclear research and applications, and basic energy sciences. These increases are offset by a reduction of \$150 million in the breeder reactor program.

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Coal	\$ 579	\$ 618	\$ +39
Petroleum	74	80	+6
Gas	31	26	-5
Solar	303	309	+6
Geothermal	106	130	+24
Magnetic Fusion	325	334	+9
Fuel Cycle R&D	285	247	-38
Breeder Reactor	517	367	-150
Nuclear Research and Applications ...	227	278	+51
Light Water Reactor Facilities	28	10	-18
International Spent Fuel Storage	5	3	-2
Hydroelectric	10	8	-2
Biomass	21	27	+6
Basic Energy Sciences	177	212	+35
Advanced Technology and Assessment ..	8	21	+13
Total Energy Supply - R&TD	<u>\$ 2,696</u>	<u>\$ 2,670</u>	<u>\$ -26</u>

COAL

Coal offers the greatest potential for achieving less dependence on foreign oil due to the magnitude of domestic reserves. The FY 1979 request for this program is \$618 million, a \$39 million increase over FY 1978.

The budget provides for continued research and development of environmentally acceptable technology to convert coal to liquid and gaseous fuels. Major pilot and demonstration plant activities include:

- final design and initial construction of the Donor Solvent Liquefaction pilot plant.
- design and site selection of a demonstration plant to produce a solvent refined coal.
- design and construction of demonstration plants to convert coal to low-Btu fuel and high-Btu synthetic pipeline gas.

Work will continue to improve methods for direct combustion of coal, investigating both atmospheric and pressurized fluidized beds. The FY 1979 budget includes two test and integration units and a 30 megawatt (MW) atmospheric boiler. Efforts to foster the rapid development of advanced power conversion systems, such as magnetohydrodynamics, will move forward with construction of the Component Development and Integration Facility. A significant increase is provided for advanced concepts and supporting research activities, including development of new coal conversion processes and improved materials and components.

At the front end of the coal fuel cycle, systems are under development to:

- increase the productivity of coal mining operations.
- contribute to the increased utilization of coal through improved coal preparation technologies.

PETROLEUM AND GAS

The Petroleum and Gas programs continue at an aggressive pace in FY 1979. A total of \$68 million is included for enhanced oil and enhanced gas recovery. These activities represent near-term available options to lessen dependence on imports and increase the production of gas from unconventional geologic resources. The FY 1979 request will provide:

- field tests of three major enhanced oil extraction technologies, emphasizing thermal recovery.
- resource characterization and field tests to develop enhanced gas recovery technology in both eastern gas shales and western gas sands.

The budget provides \$35 million to develop technology for economic and environmentally acceptable production of gas and oil from oil shale. Major activities include continuation of four in situ oil shale projects as well as additional tests in the Michigan Antrim Shale project.

SOLAR

The Solar program has been separated into two phases in the FY 1979 budget - technology development and demonstration. The demonstration phase is funded under the Energy Supply - PDandD mission.

	<u>Budget Authority</u> (In Millions)	
	<u>FY 1978</u>	<u>FY 1979</u>
Thermal Applications	\$ 40	\$ 45
Technical Support & Utilization	9	14
Solar Electric Applications:		
Solar Thermal	104	100
Photovoltaics	77	76
Wind Energy	37	41
Ocean Thermal	36	33
Subtotal	<u>254</u>	<u>250</u>
TOTAL SOLAR	<u>\$ 303</u>	<u>\$ 309</u>

The budget provides for:

- technology development in support of the Solar Heating and Cooling Demonstration program, funded in the Energy Supply - PDandD mission.
- construction of the LOMWe central receiver power plant to test, demonstrate, and produce solar thermal generated electricity. The project will emphasize solar boiler retrofit of conventional gas and oil-fired steam plants of comparable size.
- a major procurement of prototype photovoltaic systems and continued research into novel material and approaches to reduce system cost per peak watt.
- continued development of small wind machines started in FY 1978 with the National Energy Plan and large scale, multi-unit wind energy systems.
- conversion of the Hughes Mining Barge for use as an ocean thermal energy conversion test facility.

GEOHERMAL

The FY 1979 budget request includes \$130 million to stimulate development of the hydrothermal, geopressured, and hot dry rock geothermal resources by utilities and industry. The request represents a 23% increase over the FY 1978 level of \$106 million. Activities will be accelerated to:

- develop technology for effective utilization of geothermal resources.
- undertake resource assessment activities in cooperation with industry.
- determine technical and economic feasibility of gas and electricity production from geopressured resources.
- establish the technical and economic feasibility of hot dry rock resources in varied geologic settings.
- address barriers to geothermal energy commercialization.

Design will be completed and construction initiated on the 50MWe project to demonstrate the readiness of hydrothermal technology for commercial application.

MAGNETIC FUSION

Funding of \$334 million is provided in FY 1979 to continue progress toward the long-term goal of developing and demonstrating fusion central electric power generation while meeting environmental, economic, health, and safety requirements. Recent results indicate tangible assurance that scientific feasibility of the fusion process will be attained. The requested funding will continue to move the program toward achievement of conditions that confirm feasibility.

Activities in the FY 1979 request include:

- upgrading the capability of tokamak experimental devices to verify further plasma physics principles and achieve reactor-like conditions.
- intensified mirror program research to address problems of power balance, enhancement, scaling, and steady state operations.
- efforts to identify, investigate and evaluate alternate approaches to plasma confinement.
- increased theoretical support for both mainline and alternate confinement approaches.

FUEL CYCLE R&D

The FY 1979 budget provides \$247 million for commercial nuclear fuel cycle research and development.

Major program concerns include:

- development and evaluation of fuel processing technology.
- provision of interim storage for domestic spent fuel while geologic facilities are being developed.
- development of acceptable terminal storage technology for commercial radioactive waste.

The budget will permit continued research, development, and evaluation of fuel processing alternatives to facilitate a decision with regard to nuclear non-proliferation policy, and economic and environmental characteristics. Progress will continue toward the development of a National waste repository by 1985 and acceptable waste forms for storage. Interim storage space for spent fuel will be identified and the means to assure availability pursued.

BREEDER REACTOR

The FY 1979 request of \$367 million maintains an aggressive U.S. breeder technology development program, preserving the option for improved uranium/thorium resource utilization through the use of breeder reactors for electricity production. Also maintained is the ability to establish a technical and engineering basis for selection and demonstration of a breeder system consistent with non-proliferation objectives and anticipated energy demand.

Major FY 1979 activities include:

- completion of the Fast Flux Test Facility, achieving criticality in August 1979.
- continuation of the Fuel Storage and the Fuels and Material Examination facilities.
- studies to integrate base program research and development, non-proliferation concerns, and safety characteristics leading to program reorientation in accordance with conclusions reached.

NUCLEAR RESEARCH AND APPLICATIONS

The FY 1979 budget request for this activity is \$278 million, an increase of 22% over the previous year. The program is directed toward the assessment, development and demonstration of a wide range of promising technologies, as detailed in the following table:

	<u>Budget Authority</u> (In Millions)	
	<u>FY 1978</u>	<u>FY 1979</u>
Water-Cooled Breeder Reactor	\$ 42	\$ 63
Gas-Cooled Thermal Reactor	32	31
Gas-Cooled Fast Breeder Reactor	16	32
Light Water Reactor Technology	19	24
Technology Development and Special Projects	16	5
Space Applications	34	43
Advanced Isotope Separation Technology	52	54
Nuclear Energy Assessments	16	6
Alternative Advanced Reactor Systems	-	20
TOTAL NUCLEAR RESEARCH AND APPLICATIONS	<u>\$ 227</u>	<u>\$ 278</u>

Emphasis in FY 1979 is focused on development of advanced water and gas cooled breeder reactor concepts, the new alternate advanced reactor systems program recommended by the Non-Proliferation Alternative Systems Assessment Program study, and space applications.

HYDROELECTRIC

The FY 1979 budget includes \$8 million to encourage commercial development of low-head hydroelectric power resources at existing and new U.S. dam sites. Efforts will continue to assess economic potential and accelerate development and introduction of small-power technology. Funding is provided for environmental and safety assessments, legal, economic and institutional studies, and small scale demonstrations.

BIOMASS

The request for Biomass in FY 1979 is \$27 million, a 29% increase over FY 1978. The aim is to develop the capability to convert renewable biomass resources into clean fuels, petrochemical substitutes, and other energy products.

The FY 1979 request emphasizes experimental facilities for gasification and direct combustion. Major activities include:

- operation of an experimental facility to convert wood to oil.
- design of systems and facilities to convert wood and agricultural residues into synthetic gas.
- development of 1,000 acre pilot energy farms to study the most efficient methods for growing and harvesting biomass including aquatic species.

BASIC ENERGY SCIENCES

The FY 1979 budget request of \$212 million is an increase of 20% over FY 1978, and breaks down as follows:

	<u>Budget Authority</u> (In Millions)	
	<u>FY 1978</u>	<u>FY 1979</u>
Nuclear Sciences	\$ 27	\$ 30
Materials Sciences	76	94
Chemical Sciences	57	58
Engineering, Mathematics, and Geosciences	12	24
Advanced Energy Projects	3	4
Other Capital Equipment	2	2
TOTAL BASIC ENERGY SCIENCES	<u>\$ 177</u>	<u>\$ 212</u>

The purpose of these programs is to:

- expand the science and engineering knowledge base underlying all energy supply missions.
- support theoretically sound energy related concepts which require verification.
- operate isotope preparation facilities to produce special research materials for sale or loan.

In FY 1979, emphasis will be placed on applied mathematical sciences, geosciences, and a new category of research, engineering sciences. Research efforts will be initiated or expanded in solar photoconversion, organic characterization of fossil fuels, and advanced investigation of combustion systems. Mechanical properties of materials will be studied using high voltage electron microscopes. Construction will begin on the Intense Pulsed Neutron Source at Argonne National Laboratory.

ADVANCED TECHNOLOGY AND ASSESSMENT PROJECTS

The request of \$21 million will be administered by the Office of Energy Research and will support R&D projects and assessment studies that are not being pursued elsewhere in the Department. These studies will:

- allow independent issue evaluation.
- provide a mechanism for program critique.
- enable the Office of Energy Research to carry out its statutory responsibility for monitoring and oversight of the Department's R&D programs.

ENERGY SUPPLY PRODUCTION, DEMONSTRATION AND DISTRIBUTION

Also dealing with energy supply, this mission is oriented toward the development, private sector adoption, production, utilization and distribution of currently available energy resources. Specific activities include:

- development and production of oil from the Naval Petroleum and Oil Shale Reserves.
- production and sale of enriched uranium services for use in nuclear powered electrical generating plants.
- distribution and sale of electric power in five power marketing areas.
- demonstrations or other financial incentives to accelerate the introduction of new energy supply sources into the market place.

In the FY 1979 budget, \$692 million is requested for the Production, Demonstration and Distribution mission. However this total reflects offsetting uranium enrichment revenues of \$1.209 billion. Thus, combined mission resources total \$1.901 billion, as shown below:

<u>Budget Authority</u>			
(In Millions)			
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Coal	\$ 10	\$ 3	\$ -7
Naval Petroleum and Shale Reserves	152	199	+47
Solar	87	64	-23
Uranium Enrichment Activities	1,437	1,411	-26
Uranium Resource Assessment	65	95	+30
Multi-Resource	1	1	-
Geothermal Resources Development Fund	15	-	-15
Power Marketing Administration	107	128	+21
Subtotal	1,874	1,901	+27
Less: Uranium Enrichment Revenues	-966	-1,209	-243
TOTAL ENERGY SUPPLY - PD&D	<u>\$ 908</u>	<u>\$ 692</u>	<u>\$ -216</u>

COAL UTILIZATION

Funding of \$3 million is requested in FY 1979 to continue efforts to:

- encourage utilities and industries using oil and gas to switch to alternate fuels.
- encourage production of low-sulfur underground coal by small producers.

These activities are intended to reduce U.S. dependence on foreign oil through lowering industry consumption of oil and gas.

NAVAL PETROLEUM RESERVES

The FY 1979 budget requests \$199 million to operate, conserve, develop, maintain and produce from the Nation's three petroleum reserves. The estimate provides for routine operation and maintenance, drilling and equipping oil and gas wells for production, and installation of on-site facilities necessary to operate the reserve at the maximum efficient rate of production.

SOLAR

Funding of \$64 million is requested in FY 1979 for programs designed to stimulate the demonstration and early introduction of economically competitive, environmentally acceptable solar energy systems. Programs funded include:

	<u>Budget Authority</u> (In Millions)	
	<u>FY 1978</u>	<u>FY 1979</u>
Heating and Cooling Demonstration Program	\$ 66	\$ 36
Federal Buildings Program	20	25
Solar Commercialization	1	3
TOTAL SOLAR	<u>\$ 87</u>	<u>\$ 64</u>

The FY 1979 budget provides for:

- a final cycle of solar cooling demonstrations as well as completion, maintenance and evaluation of demonstrations initiated in prior years.
- initiation of 75 to 125 additional Federal Buildings projects.
- selected studies and experiments to identify barriers to commercialization and formulate market incentives and strategies.
- continuation of standards development, certification, training, information gathering and public information activities.

URANIUM ENRICHMENT ACTIVITIES

The FY 1979 budget provides \$202 million to produce enriched uranium for nuclear power reactor fuel, as described below:

	<u>Budget Authority</u> (In Millions)	
	<u>FY 1978</u>	<u>FY 1979</u>
U-235 Production	\$ 1,283	\$ 1,290
Process Development	130	100
All Other U-235	24	21
Subtotal	1,437	1,411
Less: Revenues	-966	-1,209
TOTAL URANIUM ENRICHMENT ACTIVITIES	<u>\$ 471</u>	<u>\$ 202</u>

The requested funding will allow:

- production of 18 million separative work units at DOE's three gaseous diffusion plants.
- process development work on the gaseous diffusion and gas centrifuge enrichment processes.
- continuation of the gas centrifuge enrichment plant project and the cascade improvement program.

URANIUM RESOURCE ASSESSMENT

The budget request for this activity in FY 1979 totals \$95 million, which represents a 46% increase over the FY 1978 level of \$65 million. This increase will allow acceleration of efforts to assess domestic uranium and thorium resources and to resolve uncertainties regarding their availability, extent and economics. A joint government-industry drilling program will be initiated to enhance the reliability of current resource estimates.

GEOHERMAL RESOURCES DEVELOPMENT FUND

The Fund provides for Federally guaranteed loans to exploit new geothermal resources. Although no request is included in FY 1979, funding to support loan guarantee authority up to \$300 million was provided in the FY 1977 and FY 1978 appropriations.

POWER MARKETING ADMINISTRATIONS

The FY 1979 budget for these activities totals \$128 million, an increase of \$21 million over the previous year. No budget authority is included for the Bonneville Power Administration, which operates as a revolving fund.

The Power Marketing Administrations market power produced at certain Federal hydroelectric generating projects in the U.S. utilizing high voltage transmission systems. The five Administrations included in this activity are the Alaska Power Administration; Bonneville Power Administration serving the northwest; and the Southeastern, Southwestern and Western Area Power Administrations.

CONSERVATION

Activities in the Energy Conservation mission are designed to reduce the growth of energy demand by improving energy use efficiency through technology development, grant programs, public education, and certain mandatory requirements.

The FY 1979 budget request for conservation activities is \$1.010 billion, an increase of \$318 million above the FY 1978 funding level. Distribution of that increase is shown in the following table:

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Utilities	\$ 55	\$ 55	\$ 0
Residential and Commercial	125	263	+138
Industrial	30	49	+19
Transportation	65	98	+33
Federal	1	10	+9
State/Local	297	368	+71
Multi-Sector	119	167	+48
TOTAL CONSERVATION	<u>\$ 692</u>	<u>\$ 1,010</u>	<u>\$ +318</u>

Nearly half of this increase is in support of the low income Weatherization Grant Program in the Residential and Commercial sector. Other major increases are directed toward the School and Hospital Grant Program, heat engine highway systems, and improved energy conservation technologies. Discussion of specific conservation activities proposed for FY 1979 is provided below.

UTILITIES

The FY 1979 funding level for the Utilities program is \$55 million, equivalent to the FY 1978 level. Program activities are designed to:

- encourage more efficient load management through technology development and rate reform.
- improve bulk power delivery and systems reliability.
- advise and intervene in local public utility commission hearings to ensure that rate structures reflect National conservation goals.

The major emphasis in the utilities sector in FY 1979 will be:

- to assist state public utility commissions and non-regulated utilities implement utility structures which will further the purposes of the National Energy Act in promoting efficient use of facilities and equity in consumer prices.
- to provide a National perspective at state public utility commission evidentiary hearings.
- to continue grants for state offices of consumer services.

RESIDENTIAL AND COMMERCIAL

The FY 1979 request for this activity totals \$263 million, more than double the previous year's funding of \$125 million.

<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>
Buildings and Community Systems	\$ 55	\$ 59
Weatherization	64	199
Mandatory Appliances	4	4
Utility Insulation Service	2	1
TOTAL RESIDENTIAL AND COMMERCIAL	<u>\$ 125</u>	<u>\$ 263</u>

Most of the increase is for the Weatherization assistance program, which provides assistance to states to weatherize low income homes, especially those owned by elderly and handicapped individuals. The FY 1979 request for this program is \$199 million, which will fund modification of 857,000 homes at an annual energy savings of 2.3 million barrels of oil.

The Buildings and Community Systems program ultimately will have a far reaching effect on energy conservation. Activities are directed toward:

- developing energy efficient designs and standards for application to new and existing residential and commercial buildings.
- community energy and urban waste utilization.

The Mandatory Appliance program is developing minimum efficiency standards for furnaces, central and room air conditioners, water heaters, kitchen ranges, refrigerators, and freezers. Manufacturers' products which do not meet these standards may not be sold in interstate commerce.

INDUSTRIAL

The FY 1979 request provides \$49 million for conservation activities in the industrial sector, an increase of \$19 million over FY 1978. The budget places continued emphasis on:

- utilization of waste heat from industrial processes.
- cost-shared research, development and demonstration of process efficiency improvements in energy intensive industries.

Funding for industrial cogeneration activities is significantly accelerated in FY 1979.

TRANSPORTATION

Funding in FY 1979 totals \$98 million, a \$33 million increase when compared to FY 1978. This program is responsible for developing technologies, operational strategies, and institutional concepts with the potential to significantly reduce the consumption of energy in the transportation sector if implemented. Specific efforts in heat engines, electric and hybrid vehicles and alternate fuels utilization will be accelerated to meet National energy objectives.

STATE/LOCAL

The FY 1979 budget provides \$368 million for State/Local activities. The majority of these funds is requested for the School and Hospital and Local Government Buildings programs. Under this activity, grants are provided to government and non-profit institutions to conduct energy audits. In the case of schools and hospitals, energy efficient capital improvements will be installed where appropriate.

MULTI-SECTOR

In the FY 1979 budget request, \$167 million is provided for conservation programs of a cross-sectoral nature. Included are efforts to develop reliable and inexpensive energy storage systems such as advanced batteries and flywheel regenerative braking systems, develop improved energy conversion technologies, and support energy inventions.

FY 1979 funding will be utilized to:

- develop a prototype thermochemical storage system for use in solar thermal power generation.
- develop a 4.8 MW fuel cell power plant in a utility grid.
- establish a Nationwide Energy Extension Service to provide information to the public.

The Extension Service is intended to encourage adoption of energy conservation measures and increased use of renewable energy sources such as solar heating.

REGULATION

The Regulatory mission is the responsibility of the Federal Energy Regulatory Commission (FERC) and the Economic Regulatory Administration (ERA). The mission is directed toward:

- protecting the consumer against unwarranted energy prices.
- ensuring that energy supplies are available in all regions of the country at an equitable price.
- assuring petroleum industry compliance with pricing, allocation, import and reporting regulations.
- regulation of oil and natural gas pipelines.
- natural gas and electric rate setting.
- licensing and inspection of hydroelectric projects.

The FY 1979 funding requested in support of this mission is \$104 million, an increase of 25% when compared to FY 1978. This increase is distributed as follows:

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Petroleum	\$ 3	\$ 5	\$ +2
Gas	13	18	+5
Hydro	7	10	+3
Multi-Resource	60	71	+11
TOTAL REGULATION	<u>\$ 83</u>	<u>\$ 104</u>	<u>\$ +21</u>

The FY 1979 budget will permit continuation of activities initiated in FY 1978 to reduce the FERC backlog of unresolved cases and make necessary procedural and structural modifications to expedite the regulatory process. Enforcement efforts will be accelerated to audit the major oil refiners for conformance with price and allocation regulations. Price controls will be administered for crude oil, while providing the necessary incentives for maximum domestic production. Existing and standby regulations will be reformed to reduce the administrative burden on industry and the public.

EMERGENCY PREPAREDNESS

Activities in the Emergency Preparedness mission area are directed toward:

- providing a Strategic Petroleum Reserve through storage of large quantities of petroleum in underground facilities in order to diminish the vulnerability of the United States to the effects of a severe foreign petroleum supply interruption.
- development of emergency petroleum conservation measures, a standby gasoline and diesel oil rationing system, and contingency plans for natural gas shortages, electricity brownouts and coal supply interruptions.
- development of a real-time information system to respond effectively to National and regional energy emergencies.

FY 1979 funding requested in support of this mission totals \$4.255 billion. The estimate assumes favorable Congressional action on the pending FY 1978 supplemental as well as a second supplemental for \$415 million to be proposed. The FY 1979 budget provides funds to complete the purchase of 500 million barrels of crude oil previously authorized, and initiates design and construction of storage facilities leading to the President's goal of one billion barrels by 1985. It is planned that the first 500 million barrels will be in storage by the end of 1980.

ENERGY INFORMATION

The Energy Information mission is directed toward:

- providing statistical and analytical support for energy decision making by the Executive Branch, Congress, state and local governments, the public and other private sector groups.
- collecting and disseminating information on energy supply and consumption.

Relationships between energy alternatives and the economy are quantified and a centralized, up-to-date source of energy-related information is maintained to identify problems, conduct analyses, and prepare reports and forecasts.

FY 1979 funding requested in support of this mission totals \$63 million, an increase of 31% over the FY 1978 level of \$48 million. As can be seen below, the majority of this increase is for collection and dissemination of energy information.

<u>Budget Authority</u> (In Millions)			
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Information Analysis	\$ 17	\$ 18	\$ +1
Collection and Dissemination	20	33	+13
ADP Services to Other Functions	11	12	+1
TOTAL ENERGY INFORMATION	<u>\$ 48</u>	<u>\$ 63</u>	<u>\$ +15</u>

The requested funding in FY 1979 will permit:

- collection of accurate energy consumption data through surveys and special studies.
- implementation of a financial reporting system to assess energy industry performance in resource production and distribution.
- continued validation of Federal energy data systems.
- support of Federal agencies, Congress and the public by the Emergency Management Information System (EMIS), Project Independence Evaluation System (PIES), and operation of the National Energy Information Center (NEIC).

ENVIRONMENT

Activities within the Environment mission focus on the identification and evaluation of environmental impacts associated with the development of energy supply and conservation technologies. Program activities can be seen as two parallel thrusts, namely:

- overview and assessment to identify and analyse environmental health and safety concerns related to DOE programs and activities.
- biomedical and environmental research to investigate uncertainties and conflicts.

FY 1979 funding requested for the Environment mission totals \$209 million, as depicted below:

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Overview and Assessment	\$ 52	\$ 51	\$ -1
Biomedical and Environmental Research	<u>166</u>	<u>158</u>	<u>-8</u>
TOTAL ENVIRONMENTAL RESEARCH AND DEVELOPMENT	<u>\$ 218</u>	<u>\$ 209</u>	<u>\$ -9</u>

OVERVIEW AND ASSESSMENT

The purpose of this program is to insure proper emphasis on environmental, health and safety considerations in formulating and executing energy supply and conservation technology programs. In FY 1979, \$51 million will be devoted to this effort. A major thrust will be upgrading the operational and environmental safety program to provide technical assistance and guidance to both nuclear and non-nuclear DOE facilities. Other activities include:

- examination of environmental controls in the coal fuel cycle.
- liquified natural gas safety and control.
- advanced radiation waste disposal.

BIOMEDICAL AND ENVIRONMENTAL RESEARCH

These activities provide the supportive research necessary to address health and environmental problems associated with energy technology development and production. Included are integrated studies of the characterization, measurement and monitoring of energy related effluents and their effects on health and the environment. FY 1979 funding for this activity totals \$158 million.

BASIC SCIENCES

The Basic Sciences mission includes activities which are not related to any specific energy technology, but provide fundamental knowledge in the physical and life sciences. The FY 1979 request is \$426 million, an increase of \$29 million over FY 1978.

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Life Sciences Research and Biomedical Applications	\$ 43	\$ 41	\$ -2
High Energy Physics	274	294	+20
Nuclear Physics	80	91	+11
TOTAL BASIC SCIENCES	<u>\$ 397</u>	<u>\$ 426</u>	<u>\$ +29</u>

These activities are directed toward:

- attaining an understanding of how physical and chemical agents interfere with life processes.
- developing probes using radiation to detect subtle pathological changes leading to human disease.
- acquiring a deeper understanding of the structure and properties of atomic nuclei.
- exploring the nature of energy and matter in their most basic forms.

LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS

The FY 1979 request of \$41 million will provide for:

- continued research in general life sciences for better understanding of the risks to human health from energy related pollutants.
- facilitating the transfer of nuclear technology to medicine.
- development of advanced diagnostic and therapeutic methodologies for the medical community.

HIGH ENERGY PHYSICS

The FY 1979 request of \$294 million is an increase of \$20 million over FY 1978. Major activities in FY 1979 include construction work on the following projects:

- the intersecting Storage Accelerator (ISABELLE) at Brookhaven National Laboratory.
- an energy saver project at FERMILAB.
- the joint Lawrence Berkeley Laboratory-Stanford Linear Accelerator Center positron-electron project (PEP).

In addition, existing accelerator facilities will be utilized in FY 1979 to exploit recent major theoretical and experimental advances in the nature of energy and matter.

NUCLEAR PHYSICS

The FY 1979 request of \$91 million will permit important experiments on nuclei at the Clinton Anderson Meson Physics Facility, and a broad-based heavy ion nuclear research effort at the Lawrence Berkeley Laboratory (LBL). Funds are also requested for the high intensity uranium beams project at LBL, which will open new regions of nuclear research with energetic heavy ion projectiles.

ATOMIC ENERGY DEFENSE ACTIVITIES

The Atomic Energy Defense Activities mission is directed toward research, development, and production undertaken to support national security requirements. Activities include:

- development, production, and maintenance of nuclear weapons.
- production of special nuclear materials.
- development of improved naval nuclear propulsion plants and reactor cores.
- research and development in support of arms control verification technologies.
- development of cost effective systems for safeguarding special nuclear materials.
- inertial confinement fusion technology development as a long-term inexhaustible energy source.

The FY 1979 request for this mission totals \$2.829 billion, an increase of \$317 million over the FY 1978 level.

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Inertial Confinement Fusion	\$ 129	\$ 126	\$ -3
Naval Reactor Development	247	290	+43
Weapons Activities	1,395	1,461	+66
Intelligence and Arms Control	25	28	+3
Special Materials Production	675	904	+229
Nuclear Materials Security and Safeguards	41	43	+2
Unobligated Balances	0	-23	-23
TOTAL ATOMIC ENERGY DEFENSE ACTIVITIES	<u>\$ 2,512</u>	<u>\$ 2,829</u>	<u>\$ 317</u>

INERTIAL CONFINEMENT FUSION

The objective of this program is to determine the feasibility of laser and electron beam initiated fusion through inertial confinement. The FY 1979 request of \$126 million continues the design of laser components, and initiates construction and procurement for the NOVA high energy laser facility at Lawrence Livermore Laboratory (LLL). This facility is expected to demonstrate scientific feasibility by the mid-1980's. Experiments will be undertaken using the SHIVA laser, completed in November 1977 at LLL. Funds are provided for construction of the high energy laser facility at the Los Alamos Scientific Laboratory.

NAVAL REACTORS DEVELOPMENT

The FY 1979 request of \$290 million will provide for:

- continued improvements to existing submarine and surface ship reactor core and plant technology.
- support to operating fleet submarines and surface ships.
- operation, testing, and training at land-based prototypes.

Also included will be development of advanced reactor concepts and propulsion plants, including the design, development, and testing of a propulsion plant for the Trident ballistic submarine.

WEAPONS ACTIVITIES

The FY 1979 request for Weapons Activities totals \$1.461 billion as follows:

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Research and Development	\$ 433	\$ 490	\$ +57
Test	246	228	-18
Production and Surveillance	707	734	+27
Other Capital Equipment	9	9	0
TOTAL WEAPONS ACTIVITIES	<u>\$ 1,395</u>	<u>\$ 1,461</u>	<u>\$ 66</u>

The requested funding will allow for:

- delivery to stockpile of new weapons, as well as preproduction costs for delivery of weapons in future years.
- design, development, testing, and production of nuclear weapons for the TRIDENT, MINUTEMAN III, CRUISE MISSILES and several tactical systems.
- continued research, development and testing of advanced weapons concepts.

INTELLIGENCE AND ARMS CONTROL

The FY 1979 request of \$28 million will place emphasis on those capabilities and technologies in support of the proposed comprehensive test ban treaty.

SPECIAL MATERIALS PRODUCTION

This activity provides for the production of special nuclear materials, principally plutonium, and management of defense radioactive wastes. The increased FY 1979 funding level of \$904 million results from:

- full funding of four construction projects, including the fluorine dissolution process and fuel receiving improvements at the Idaho Chemical Processing Plant.
- continuation of the waste tank transfer program at Savannah River.
- expanded research into advanced technologies for the long-term management of high level radioactive wastes.
- design, procurement and land acquisition for the Waste Isolation Pilot Plant at Albuquerque.

NUCLEAR MATERIALS SECURITY AND SAFEGUARDS

In FY 1979, the safeguards program has been redirected toward support of the non-proliferation policy. The requested funding of \$43 million will provide for:

- development of integrated safeguards systems for nuclear power fuel cycle facilities.
- initiation of international safeguards systems design for gas centrifuge and gaseous diffusion uranium enrichment plants.
- development and testing of generic international safeguards system for nuclear critical test facilities.
- provision of all data required for the IAEA application of safeguards in the U.S. under the Non-Proliferation Treaty.

POLICY AND MANAGEMENT

Activities in this mission include management and administration, institutional relations, public and consumer affairs, international activities, and general legal support.

Also included are:

- studies and analyses concerned with the identification and evaluation of alternative strategies for defining and achieving national energy objectives.
- energy conservation program for in-house facilities.

The FY 1979 funding requested in support of this mission totals \$505 million, an increase of \$117 million over the FY 1978 level. The increase results from:

- the effect of the October 1977 pay raise.
- expansion of the in-house energy management program.
- decontamination and decommissioning activities.
- a reduction in estimated miscellaneous revenues.

Details of the request can be seen below:

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
General Systems Studies	\$ 15	\$ 20	\$ +5
Program Direction and Management Support	327	339	+12
Institutional Relations	29	31	+2
Consumer Affairs and Special Impact	1	1	0
In-House Energy Management	2	37	+35
Security Investigations	12	14	+2
Public Awareness	4	4	0
EEO Contractor Compliance	4	4	0
Decontamination and Decommissioning	18	25	+7
International Cooperation Non-Nuclear Technologies	5	5	0
Other Supporting Activities	14	21	+7
Cost of Work for Others	18	23	+5
Miscellaneous Revenues	-101	-54	-47
Changes in Inventories and Working Capital	40	35	-5
TOTAL POLICY AND MANAGEMENT	<u>\$ 388</u>	<u>\$ 505</u>	<u>\$ +117</u>

GENERAL SYSTEMS STUDIES

The FY 1979 funding level of \$20 million will provide for long and short-range planning, evaluation and analysis of alternative energy policy, legislation, and broad technical program issues. These activities will ensure the formulation and implementation of a comprehensive energy program and National Energy Plan.

PROGRAM DIRECTION AND MANAGEMENT SUPPORT

This program provides for the salaries, travel and related personnel expenses associated with program direction and administration of the Department of Energy. The budget request is based on reaching a total employment of 8,261 regular full-time employees paid out of this account by the end of FY 1979, a decrease of 391 positions. Total DOE employment at that time will be 19,100.

INSTITUTIONAL RELATIONS, CONSUMER AFFAIRS AND PUBLIC AWARENESS

The FY 1979 level for these programs is \$36 million. Efforts will be directed toward:

- exchanging energy-related information with business, state and local governments, academia, and individual citizens.
- expansion of the DOE centralized technical and practical information services.
- continued operation of DOE science museums, traveling exhibits, and other public communications.

IN-HOUSE ENERGY MANAGEMENT

The FY 1979 request of \$37 million reflects the initiation of a major effort to reduce DOE energy consumption by 20% in existing facilities. The program consists of:

- surveys to develop retrofit projects for existing DOE buildings.
- studies of central heating plants for fuel conversion.
- possible application of selective energy concepts.

The FY 1979 request includes a \$25 million line item project, Modifications for Energy Management, which is comprised of relatively small retrofit projects selected on the basis of energy saved per investment dollar, total dollar return on investment, and quickness of payback. The average payback for this project is about three years.

DECONTAMINATION AND DECOMMISSIONING

The FY 1979 funding level of \$25 million represents a \$7 million increase over FY 1978. Efforts include the initiation of major disposition projects for the Management of Surplus Radioactively Contaminated DOE Facilities. Remedial action on inactive mill tailings sites will continue to eliminate unacceptable radiological conditions. Funds are provided for:

- preparation of environmental impact assessments.
- evaluation of alternative sites for tailings relocation.
- research and development of stabilization methods.

OTHER SUPPORTING ACTIVITIES

The remaining portion of the Policy and Management mission consists of small, level of effort programs such as EEO-Contract Compliance, Security Investigations, International Cooperation in Non-nuclear Technology, Plant Engineering and Design, and other adjustments. The aggregate FY 1979 funding request for these items is \$102 million.

MISCELLANEOUS REVENUES

The FY 1979 estimate includes \$54 million in miscellaneous revenues as compared to \$101 million in FY 1978. This reduction results from returning a major portion of revenues to the U.S. Treasury instead of using them to offset appropriation requirements.

LEGISLATIVE PROPOSALS

DOE will be submitting two legislative proposals to the Congress:

- Uranium Enrichment

DOE is resubmitting legislation considered as part of the FY 1978 ERDA Authorization Bill to permit DOE to change the basis for computing uranium enrichment services charges. The proposal would allow normal business type expenses such as insurance, taxes, and return on investment to be included. This change will assure that operators of nuclear power plants are paying an equitable price for government furnished services. Passage would increase DOE uranium enrichment revenues by \$163 million, resulting in a corresponding reduction in appropriation requirements.

- Decontamination of Former Manhattan Engineering District and Atomic Energy Commission Sites and Inactive Uranium Mill Tailings Sites.

This proposal would provide DOE with the authority to take remedial action to decontaminate former government and government-contractor facilities and private uranium mill tailings sites. Surveys have indicated that 22 mill tailing sites in eight western states, as well as about 80 other locations, have radiation levels above established standards. A five-year program is proposed with FY 1979 budgetary impact of \$5 million.

STATISTICAL APPENDIX

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

SUMMARY BY MISSION

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
ENERGY SUPPLY -				
RESEARCH AND TECHNOLOGY				
DEVELOPMENT	\$ 2,696	\$ 2,448	\$ 2,670	\$ 2,628
ENERGY SUPPLY -				
PRODUCTION, DEMONSTRATION AND				
DISTRIBUTION	908	800	692	766
CONSERVATION	692	473	1,010	902
REGULATION	83	86	104	101
EMERGENCY PREPAREDNESS	3,595	2,029	4,255	3,285
ENERGY INFORMATION	48	46	63	61
ENVIRONMENT	218	203	209	201
BASIC SCIENCES	397	363	426	415
ATOMIC ENERGY DEFENSE ACTIVITIES	2,512	2,308	2,829	2,536
POLICY AND MANAGEMENT	<u>388</u>	<u>394</u>	<u>505</u> ^{1/}	<u>460</u> ^{1/}
SUBTOTAL	11,537	9,150	12,763	11,355
PENDING/PROPOSED SUPPLEMENTALS .	-1,126	-110	-	-1,016
LEGISLATIVE PROPOSALS	-	-	-158	-160
OTHER ADJUSTMENTS	<u>-128</u>	<u>-218</u>	<u>-12</u>	<u>-158</u>
TOTAL DEPARTMENT OF ENERGY .	<u>\$ 10,283</u>	<u>\$ 8,822</u>	<u>\$ 12,593</u>	<u>\$ 10,021</u>

^{1/} On a comparable basis, the estimate would be \$439 million budget authority and \$394 million budget outlays.

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: ENERGY SUPPLY - RESEARCH & TECHNOLOGY DEVELOPMENT

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
COAL	\$ 579.1	\$ 520.1	\$ 618.2	\$ 609.4
PETROLEUM	74.1	62.5	79.7	73.7
GAS	31.0	26.5	25.9	30.0
SOLAR	302.7	225.2	309.2	281.4
GEOTHERMAL	106.2	81.9	129.7	118.9
MAGNETIC FUSION	325.4	279.1	334.0	327.0
FUEL CYCLE R&D	284.9	212.8	247.4	227.7
BREEDER REACTOR	517.1	610.6	367.4	445.0
NUCLEAR RESEARCH & APPLICATIONS ..	226.7	206.8	278.5	253.8
LIGHT WATER REACTOR FACILITIES ...	28.1	24.6	10.0	19.0
INTERNATIONAL SPENT FUEL STORAGE .	5.0	5.0	3.0	3.0
HYDROELECTRIC	10.0	7.5	8.0	6.0
BIOMASS	20.7	15.2	26.9	15.3
BASIC ENERGY SCIENCES	177.4	164.1	211.5	201.1
ADVANCED TECHNOLOGY & ASSESSMENT .	7.5	5.7	21.0	17.0
 TOTAL ENERGY SUPPLY - R&TD	 <u>\$2,695.9</u>	 <u>\$2,447.6</u>	 <u>\$2,670.4</u>	 <u>\$2,628.3</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ENERGY SUPPLY - R&TD RESOURCE SUMMARIES

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
<u>COAL</u>				
Mines R&D	\$ 62.8	\$ 63.4	\$ 70.8	\$ 65.8
Liquefaction	110.6	113.2	125.1	116.2
Gasification	212.0	150.3	186.6	197.2
Advanced Power Systems	25.7	24.0	26.9	25.5
Direct Combustion	70.4	68.6	54.9	64.5
Advanced Research & Supporting Technology.	49.9	47.8	67.6	62.3
Magnetohydrodynamics	71.5	52.8	72.3	70.9
Advanced Environmental Control Technology.	-	-	14.0	7.0
Less: General Reduction	-23.8	-	-	-
TOTAL COAL	\$579.1	\$520.1	\$618.2	\$609.4
<u>PETROLEUM</u>				
Enhanced Oil Recovery	\$ 46.2	\$ 40.1	\$ 46.7	\$ 41.2
Oil Shale	24.9	19.0	30.2	29.4
Drilling, Exploration & Offshore Recovery.	1.6	2.0	1.6	1.8
Product Characterization & Utilization ...	1.4	1.4	1.2	1.3
TOTAL PETROLEUM	\$ 74.1	\$ 62.5	\$ 79.7	\$ 73.7
<u>GAS</u>				
Enhanced Gas Recovery	\$ 27.1	\$ 23.5	\$ 21.5	\$ 25.5
Gas from Oil Shale	3.9	3.0	4.4	4.5
TOTAL GAS	\$ 31.0	\$ 26.5	\$ 25.9	\$ 30.0

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ENERGY SUPPLY - R&TD RESOURCE SUMMARIES - cont.

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>SOLAR</u>				
Thermal Applications	\$ 40.4	\$ 35.7	\$ 45.1	\$ 45.4
Technical Support & Utilization	9.0	6.0	14.1	9.9
Solar Electric Applications:				
Solar Thermal	104.1	78.4	100.0	72.1
Photovoltaics	76.5	54.0	76.1	83.3
Wind Energy	36.7	26.2	40.7	40.8
Ocean Thermal	36.0	24.9	33.2	29.9
Subtotal Solar Electric Applications ...	\$253.3	\$183.5	\$250.0	\$226.1
 TOTAL SOLAR	 \$302.7	 \$225.2	 \$309.2	 \$281.4
 <u>GEO THERMAL</u>				
Engineering R&D	\$ 16.2	\$ 13.9	\$ 22.5	\$ 21.0
Resource, Exploration & Assessment	18.1	16.2	30.0	26.0
Hydrothermal Technology Applications	28.7	22.1	28.0	27.5
Advanced Technology Applications	23.0	18.1	30.2	27.2
Utilization Experiments	12.0	3.5	7.5	6.5
Environmental Control & Institutional Studies	8.2	7.1	11.5	10.7
Other Capital Equipment	-	1.0	-	-
 TOTAL GEOTHERMAL	 \$106.2	 \$ 81.9	 \$129.7	 \$118.9
 <u>MAGNETIC FUSION</u>				
Confinement Systems	\$120.4	\$ 99.4	\$152.9	\$128.2
Development & Technology	54.1	48.3	61.5	58.5
Applied Plasma Physics	50.9	50.5	57.5	57.9
Reactor Projects	100.0	80.9	62.1	82.4
 TOTAL MAGNETIC FUSION	 \$325.4	 \$279.1	 \$334.0	 \$327.0

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ENERGY SUPPLY - R&TD RESOURCE SUMMARIES - cont.

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
<u>FUEL CYCLE R&D</u>				
Domestic Spent Fuel Storage	\$ -	\$ -	\$ 3.0	\$ 3.0
Support of Nuclear Fuel Cycle	104.4	86.7	57.6	61.4
Commercial Waste Management	<u>180.5</u>	<u>126.1</u>	<u>186.8</u>	<u>163.3</u>
TOTAL FUEL CYCLE R&D	\$284.9	\$212.8	\$247.4	\$227.7
 <u>BREEDER REACTOR</u>				
Technology Integration Studies	\$ -	\$ -	\$ 15.0	\$ 15.0
Clinch River Breeder Reactor Project	33.0	162.0	13.4	77.8
Fast Flux Test Facility Project	126.9	126.5	70.1	96.3
Breeder Technology	213.6	189.9	127.0	138.9
Test Facilities	134.3	109.4	134.9	112.4
Other Capital Equipment	<u>9.3</u>	<u>22.8</u>	<u>7.0</u>	<u>4.6</u>
TOTAL BREEDER REACTOR	\$517.1	\$610.6	\$367.4	\$445.0
 <u>NUCLEAR RESEARCH & APPLICATIONS</u>				
Water Cooled Breeder Reactor	\$ 41.7	\$ 43.5	\$ 63.0	\$ 51.7
Gas Cooled Thermal Reactor	32.0	27.3	31.0	27.1
Gas Cooled Fast Breeder Reactor	16.0	14.0	32.0	28.2
Light Water Reactor Technology	18.8	16.8	23.9	22.8
Technology Development & Special Projects	16.1	14.6	4.9	5.0
Space Applications	34.4	28.6	43.2	40.2
Advanced Isotope Separation Technology ...	52.1	49.0	54.2	53.0
Nuclear Energy Assessments	15.6	13.0	6.3	7.2
Alternative Advanced Reactor Systems	<u>-</u>	<u>-</u>	<u>20.0</u>	<u>18.6</u>
TOTAL NUCLEAR RESEARCH & APPLICATIONS ..	\$226.7	\$206.8	\$278.5	\$253.8
 <u>LIGHT WATER REACTOR FACILITIES</u>	\$ 28.1	\$ 24.6	\$ 10.0	\$ 19.0
 <u>INTERNATIONAL SPENT FUEL STORAGE</u>	\$ 5.0	\$ 5.0	\$ 3.0	\$ 3.0
 <u>HYDROELECTRIC</u>	\$ 10.0	\$ 7.5	\$ 8.0	\$ 6.0

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ENERGY SUPPLY - R&TD RESOURCE SUMMARIES - cont.

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>FUELS FROM BIOMASS</u>	\$ 20.7	\$ 15.2	\$ 26.9	\$ 15.3
<u>BASIC ENERGY SCIENCES</u>				
Nuclear Sciences	\$ 27.1	\$ 26.1	\$ 29.7	\$ 28.8
Materials Sciences	76.1	68.4	94.3	81.1
Chemical Sciences	56.6	53.2	57.8	62.3
Engineering, Mathematics, and Geosciences	12.4	11.2	24.0	23.5
Advanced Energy Projects	3.2	3.0	4.0	3.7
Other Capital Equipment	2.0	2.2	1.7	1.7
TOTAL BASIC ENERGY SCIENCES ...	\$ 177.4	\$ 164.1	\$ 211.5	\$ 201.1
<u>ADVANCED TECHNOLOGY & ASSESSMENT PROJECTS</u>	\$ 7.5	\$ 5.7	\$ 21.0	\$ 17.0
TOTAL ENERGY SUPPLY - R&TD RESOURCE SUMMARIES	<u>\$2,695.9</u>	<u>\$2,447.6</u>	<u>\$2,670.4</u>	<u>\$2,628.3</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: ENERGY SUPPLY - PRODUCTION, DEMONSTRATION AND DISTRIBUTION

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
COAL	\$ 10.6	\$ 2.9	\$ 2.9	\$ 3.6
NAVAL PETROLEUM AND SHALE RESERVES	152.1	83.0 ^{1/}	199.0	212.2 ^{1/}
SOLAR	87.2	83.7	64.4	69.4
URANIUM ENRICHMENT ACTIVITIES (NET) ...	471.0	409.3	201.6	233.7
URANIUM RESOURCE ASSESSMENT	64.8	54.7	95.2	78.1
MULTI-RESOURCE	0.5	0.6	1.0	0.6
GEOTHERMAL RESOURCES DEVELOPMENT FUND .	15.0	6.6	-	6.0
POWER MARKETING ADMINISTRATION	<u>107.3</u>	<u>159.8</u>	<u>127.5</u>	<u>162.7</u>
 TOTAL ENERGY SUPPLY - PRODUCTION, DEMONSTRATION AND DISTRIBUTION	 <u>\$908.5</u>	 <u>\$800.6</u>	 <u>\$691.6</u>	 <u>\$766.3</u>

1/ Total program outlays are estimated at \$278.8 million in FY 1978 and \$324.7 million in FY 1979. Of these amounts, \$195.8 million and \$112.5 million respectively are included in the "Petroleum Reserve" account of the Funds Appropriated to the President chapter of the Budget.

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ENERGY SUPPLY - PD&D RESOURCE SUMMARIES

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>COAL</u>				
Coal Utilization - Industrial ..	\$ 2.3	\$ 1.5	\$ 2.0	\$ 2.0
Coal Utilization - Utility	1.4	0.9	0.9	1.2
Coal Loan Guarantee Program	6.9	0.5	-	0.4
TOTAL COAL	\$ 10.6	\$ 2.9	\$ 2.9	\$ 3.6
<u>NAVAL PETROLEUM AND SHALE RESERVES</u>				
Petroleum Reserves 1 and 2 (California)	\$ 126.3	\$ 66.5	\$ 169.6	\$ 190.6
Petroleum Reserve 3 (Wyoming) ..	24.5	15.5	28.1	20.6
Shale Reserves	1.3	1.0	1.3	1.0
TOTAL NAVAL RESERVES	\$ 152.1	\$ 83.0 ^{1/}	\$ 199.0	\$ 212.2 ^{1/}
<u>SOLAR</u>				
Heating and Cooling Demonstration Program	\$ 65.8	\$ 62.0	\$ 36.0	\$ 53.0
Federal Buildings Program	20.0	19.8	25.7	15.5
Solar Commercialization	1.4	1.9	2.7	0.9
TOTAL SOLAR	\$ 87.2	\$ 83.7	\$ 64.4	\$ 69.4
<u>URANIUM ENRICHMENT ACTIVITIES</u>				
U-235 Production	\$1,282.5	\$1,252.7	\$1,290.1	\$1,316.1
Process Development	130.4	99.4	100.0	106.0
All Other U-235	23.9	23.0	20.5	20.6
Subtotal	1,436.8	1,375.1	1,410.6	1,442.7
Less: Revenues	-965.8	-965.8	-1,209.0	-1,209.0
TOTAL URANIUM ENRICHMENT ACTIVITIES	\$ 471.0	\$ 409.3	\$ 201.6	\$ 233.7

^{1/} Same as previous page.

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ENERGY SUPPLY - PD&D RESOURCE SUMMARIES (CONTINUED)

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>URANIUM RESOURCE ASSESSMENT</u>				
Geologic and Related				
Investigations	\$ 54.3	\$ 45.0	\$ 74.5	\$ 60.6
Technology Development	6.5	5.8	7.9	7.2
Supporting Services	4.0	3.9	12.8	10.3
TOTAL URANIUM RESOURCE				
ASSESSMENT	\$ 64.8	\$ 54.7	\$ 95.2	\$ 78.1
<u>MULTI-RESOURCE</u>				
Electricity	\$ 0.5	\$ 0.6	\$ -	\$ -
Alternate Fuels Demonstration				
Program	-	-	1.0	0.6
Federal Leasing	-	-	-	-
TOTAL MULTI-RESOURCE	\$ 0.5	\$ 0.6	\$ 1.0	\$ 0.6
<u>GEO THERMAL RESOURCES</u>				
<u>DEVELOPMENT FUND</u>	\$ 15.0	\$ 6.6	\$ -	\$ 6.0
<u>POWER MARKETING ADMINISTRATION</u>				
Alaska Power Administration	\$ 2.1	2.2	\$ 2.6	\$ 2.6
Bonneville Power Administration	-	51.5	-	39.8
Southeastern Power Administration	1.1	1.2	1.2	1.2
Southwestern Power Administration	12.5	13.3	19.9	16.9
Western Area Power Administration	91.6	91.6	103.8	102.2
TOTAL POWER MARKETING				
ADMINISTRATION	\$ 107.3	\$ 159.8	\$ 127.5	\$ 162.7
TOTAL ENERGY SUPPLY - PD&D				
RESOURCE SUMMARIES	<u>\$ 908.5</u>	<u>\$ 800.6</u>	<u>\$ 691.6</u>	<u>\$ 766.3</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: CONSERVATION

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
UTILITIES	\$ 54.6	\$ 43.9	\$ 54.7	\$ 52.2
RESIDENTIAL AND COMMERCIAL	125.5	109.6	263.2	184.0
INDUSTRIAL	29.6	21.7	49.1	36.2
TRANSPORTATION	65.0	51.0	97.5	83.8
FEDERAL	0.6	0.7	10.2	10.2
STATE/LOCAL	297.1	147.9	368.3	399.4
MULTI-SECTOR	119.5	98.7	166.5	136.4
 TOTAL CONSERVATION	 \$ 691.9	 \$ 473.5	 \$1,009.5	 \$ 902.2

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

CONSERVATION - SECTOR SUMMARIES

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>UTILITIES</u>				
Electric Energy Systems	\$ 40.3	\$ 34.0	\$ 40.0	\$ 38.0
Utilities Demonstration	1.4	1.8	-	0.9
District Heating	-	-	0.6	0.3
Consumer Offices	1.9	2.7	1.9	1.9
Rate Reform	11.0	5.4	12.2	11.1
TOTAL UTILITIES	\$ 54.6	\$ 43.9	\$ 54.7	\$ 52.2
<u>RESIDENTIAL AND COMMERCIAL</u>				
Buildings and Community Systems	\$ 55.2	\$ 44.8	\$ 59.0	\$ 52.0
Weatherization	64.2	58.6	199.0	128.5
Mandatory Appliances	4.3	4.3	3.7	1.9
Utility Insulation Service	1.6	1.8	1.0	1.3
Other Commercial	0.2	0.1	0.5	0.3
TOTAL RESIDENTIAL AND COMMERCIAL	\$ 125.5	\$ 109.6	\$ 263.2	\$ 184.0
<u>INDUSTRIAL</u>				
Waste Energy Reduction	\$ 10.5	\$ 8.4	\$ 14.2	\$ 12.1
Industrial Process Efficiency ..	13.4	9.6	17.8	12.2
Industrial Cogeneration	5.4	3.4	16.5	11.3
Industrial Monitoring and Analysis	0.1	0.1	0.3	0.3
Commercialization and Technology Transfer	0.2	0.2	0.3	0.3
TOTAL INDUSTRIAL	\$ 29.6	\$ 21.7	\$ 49.1	\$ 36.2
<u>TRANSPORTATION</u>	\$ 65.0	\$ 51.0	\$ 97.5	\$ 83.8
<u>FEDERAL</u>				
Federal Energy Management and Program	\$ 0.6	\$ 0.7	\$ 0.5	\$ 0.5
Federal Vanpooling	-	-	9.7	9.7
TOTAL FEDERAL	\$ 0.6	\$ 0.7	\$ 10.2	\$ 10.2

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

CONSERVATION - SECTOR SUMMARIES (CONTINUED)

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>STATE/LOCAL GRANT PROGRAMS</u>				
Energy Policy and Conservation Act	\$ 47.8	\$ 51.3	\$ 47.8	\$ 47.8
Energy Conservation and Production Act	23.7	28.8	10.0	13.6
Hospital and School	<u>225.6</u>	<u>67.8</u>	<u>310.5</u>	<u>338.0</u>
TOTAL STATE/LOCAL	\$ 297.1	\$ 147.9	\$ 368.3	\$ 399.4
<u>MULTI-SECTOR</u>				
Energy Storage Systems	\$ 50.2	\$ 41.1	\$ 58.0	\$ 49.0
Improved Conversion Efficiency .	58.8	48.4	78.0	63.0
Energy Extension Service	7.5	6.0	25.0	20.0
Marketing	-	0.2	0.5	0.4
Inventors Program Support	-	-	2.0	1.0
Appropriate Technology	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>
TOTAL MULTI-SECTOR	\$ <u>119.5</u>	\$ <u>98.7</u>	\$ <u>166.5</u>	\$ <u>136.4</u>
TOTAL CONSERVATION	<u>\$ 691.9</u>	<u>\$ 473.5</u>	<u>\$ 1,009.5</u>	<u>\$ 902.2</u>

DEPARTMENT OF ENERGY
 FY 1979 BUDGET
 (\$ IN MILLIONS)

MISSION: REGULATION

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
PETROLEUM	\$ 2.9	\$ 2.9	\$ 4.5	\$ 3.9
GAS	12.9	13.2	18.3	17.6
HYDRO	7.6	7.6	9.6	9.2
MULTI-RESOURCE	<u>59.9</u>	<u>62.1</u>	<u>71.3</u>	<u>70.4</u>
TOTAL REGULATION	<u>\$ 83.3</u>	<u>\$ 85.8</u>	<u>\$103.7</u>	<u>\$101.1</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

REGULATION - RESOURCE SUMMARIES

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
<u>PETROLEUM</u>				
Crude Oil Allocations	\$ 1.4	\$ 1.5	\$ 2.0	\$ 1.6
Crude Oil Pricing	<u>1.5</u>	<u>1.4</u>	<u>2.5</u>	<u>2.3</u>
TOTAL PETROLEUM	\$ 2.9	\$ 2.9	\$ 4.5	\$ 3.9
<u>GAS</u>				
Pipeline Regulation	\$ 8.8	\$ 9.1	\$ 12.4	\$ 11.9
Producer Regulation	<u>4.1</u>	<u>4.1</u>	<u>5.9</u>	<u>5.7</u>
TOTAL GAS	\$ 12.9	\$ 13.2	\$ 18.3	\$ 17.6
<u>HYDRO</u>				
Water Resources Analysis	\$ 2.1	\$ 2.1	\$ 2.2	\$ 2.1
Hydroelectric Project Licenses	<u>5.5</u>	<u>5.5</u>	<u>7.4</u>	<u>7.1</u>
TOTAL HYDRO	\$ 7.6	\$ 7.6	\$ 9.6	\$ 9.2
<u>MULTI-RESOURCE</u>				
Petroleum Products and Natural				
Gas Liquids	\$ 5.1	\$ 5.1	\$ 5.1	\$ 4.6
Compliance	38.8	40.8	47.4	47.4
Private Grievances and Redress	2.4	2.5	3.0	3.0
Electric Utility Regulation	3.2	3.3	4.5	4.3
Compliance and Enforcement	<u>10.4</u>	<u>10.4</u>	<u>11.3</u>	<u>11.1</u>
TOTAL MULTI-RESOURCE	\$ 59.9	\$ 62.1	\$ 71.3	\$ 70.4
TOTAL REGULATION	<u>\$ 83.3</u>	<u>\$ 85.8</u>	<u>\$ 103.7</u>	<u>\$ 101.1</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: EMERGENCY PREPAREDNESS

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
STRATEGIC PETROLEUM RESERVE	\$3,589.6	\$2,024.1 ^{1/}	\$4,244.8	\$3,274.5
MULTI-RESOURCE:				
MATERIALS	0.2	0.1	-	0.1
EMERGENCY PREPAREDNESS	5.7	4.6	10.6	10.0
SUBTOTAL - MULTI-RESOURCE	<u>5.9</u>	<u>4.7</u>	<u>10.6</u>	<u>10.1</u>
TOTAL EMERGENCY PREPAREDNESS	<u>\$3,595.5</u>	<u>\$2,028.8</u>	<u>\$4,255.4</u>	<u>\$3,284.6</u>

^{1/} Total program outlays in FY 1978 are \$2,269.1 billion. Of this amount, \$245 million is included in the "Petroleum Reserves" account of the Funds Appropriated to the President chapter of the Budget.

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: ENERGY INFORMATION

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
INFORMATION ANALYSIS	\$ 17.4	\$ 17.8	\$ 18.5	\$ 19.3
COLLECTION AND DISSEMINATION ...	19.6	17.7	32.6	29.8
ADP SERVICES TO OTHER FUNCTIONS	11.1	11.0	12.3	12.1
TOTAL ENERGY INFORMATION	<u>\$ 48.1</u>	<u>\$ 46.5</u>	<u>\$ 63.4</u>	<u>\$ 61.2</u>

ENERGY INFORMATION - RESOURCE SUMMARIES

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>INFORMATION AND ANALYSIS</u>				
Modeling and Forecasting	\$ 7.1	\$ 7.6	\$ 8.5	\$ 8.8
Industry Systems Analysis	6.1	6.1	6.7	6.5
Impact Analysis	4.2	4.1	3.3	4.0
TOTAL INFORMATION AND ANALYSIS	\$ 17.4	\$ 17.8	\$ 18.5	\$ 19.3
<u>COLLECTION AND DISSEMINATION</u>				
Data Collection/Validation	\$ 17.6	\$ 15.7	\$ 29.5	\$ 27.1
Information Dissemination	2.0	2.0	3.1	2.7
TOTAL COLLECTION AND DISSEMINATION	\$ 19.6	\$ 17.7	\$ 32.6	\$ 29.8
<u>ADP SERVICES TO OTHER FUNCTIONS</u>	<u>\$ 11.1</u>	<u>\$ 11.0</u>	<u>\$ 12.3</u>	<u>\$ 12.1</u>
TOTAL ENERGY INFORMATION - RESOURCE SUMMARIES	<u>\$ 48.1</u>	<u>\$ 46.5</u>	<u>\$ 63.4</u>	<u>\$ 61.2</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: ENVIRONMENT

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
<u>ENVIRONMENTAL RESEARCH AND DEVELOPMENT</u>				
Overview and Assessment	\$ 51.4	\$ 44.8	\$ 51.1	\$ 48.9
Biomedical and Environmental Research	<u>166.4</u>	<u>158.0</u>	<u>157.5</u>	<u>152.1</u>
 TOTAL ENVIRONMENTAL RESEARCH AND DEVELOPMENT	 <u>\$217.8</u>	 <u>\$202.8</u>	 <u>\$208.6</u>	 <u>\$201.0</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: BASIC SCIENCES

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS	\$ 42.5	\$ 41.0	\$ 40.8	\$ 40.0
HIGH ENERGY PHYSICS	274.2	238.4	294.7	288.1
NUCLEAR PHYSICS	80.4	83.3	90.8	86.7
TOTAL BASIC SCIENCES	\$397.1	\$362.7	\$426.3	\$414.8

BASIC SCIENCES - RESOURCE SUMMARIES

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
<u>LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS</u>				
General Life Sciences	\$ 26.1	\$ 25.2	\$ 25.6	\$ 25.1
Biomedical Applications	16.4	15.8	15.2	14.9
TOTAL LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS	\$ 42.5	\$ 41.0	\$ 40.8	\$ 40.0

HIGH ENERGY PHYSICS

Fermi National Accelerator	\$ 86.1	\$ 70.6	\$ 81.8	\$ 87.4
Alternating Gradient Synchrotron	44.3	39.4	63.6	50.2
Zero Gradient Synchrotron	17.5	17.4	16.1	16.1
Stanford Linear Accelerator	67.9	55.3	55.1	67.2
General Research and Development	55.9	53.6	75.6	65.0
Other Capital Equipment	2.5	2.1	2.5	2.2
TOTAL HIGH ENERGY PHYSICS	\$274.2	\$238.4	\$294.7	\$288.1

NUCLEAR PHYSICS

Medium Energy Physics	\$ 38.4	\$ 38.3	\$ 41.3	\$ 41.9
Heavy Ion Physics	35.3	38.8	42.9	38.5
Nuclear Theory	5.5	5.2	5.6	5.5
Other Capital Equipment	1.2	1.0	1.0	0.8
TOTAL NUCLEAR PHYSICS	\$ 80.4	\$ 83.3	\$ 90.8	\$ 86.7

TOTAL BASIC SCIENCES - RESOURCE

SUMMARIES	<u>\$397.1</u>	<u>\$362.7</u>	<u>\$426.3</u>	<u>\$414.8</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: ATOMIC ENERGY DEFENSE ACTIVITIES

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
INERTIAL CONFINEMENT FUSION	\$ 129.6	\$ 122.2	\$ 126.0	\$ 122.0
NAVAL REACTOR DEVELOPMENT	247.4	251.8	290.6	262.1
WEAPONS ACTIVITIES	1,395.3	1,270.9	1,460.6	1,386.6
INTELLIGENCE & ARMS CONTROL	24.7	23.3	28.4	27.4
SPECIAL MATERIALS PRODUCTION	674.7	602.9	903.9	699.6
NUCLEAR MATERIALS SECURITY & SAFEGUARDS	40.7	36.7	43.1	38.1
UNOBLIGATED BALANCES	-	-	-23.5	-
 TOTAL ATOMIC ENERGY DEFENSE ACTIVITIES	 <u>\$2,512.4</u>	 <u>\$2,307.8</u>	 <u>\$2,829.1</u>	 <u>\$2,535.8</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ATOMIC ENERGY DEFENSE ACTIVITIES - RESOURCE SUMMARIES

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>INERTIAL CONFINEMENT FUSION</u>	\$ 129.6	\$ 122.2	\$ 126.0	\$ 122.0
<u>NAVAL REACTOR DEVELOPMENT</u>				
Submarine Propulsion Reactors	\$ 159.5	\$ 163.1	\$ 191.9	\$ 176.0
Surface Ship Propulsion Reactors .	55.0	54.9	77.0	64.6
Supporting R&D/GPP	32.9	33.8	21.7	21.5
TOTAL NAVAL REACTOR DEVELOPMENT	\$ 247.4	\$ 251.8	\$ 290.6	\$ 262.1
<u>WEAPONS ACTIVITIES</u>				
Research & Development	\$ 432.6	\$ 412.7	\$ 490.2	\$ 443.7
Test	246.5	242.3	227.9	232.4
Production & Surveillance	707.3	607.2	734.1	703.4
Other Capital Equipment	8.9	8.7	8.4	7.1
TOTAL WEAPONS ACTIVITIES	\$1,395.3	\$1,270.9	\$1,460.6	\$1,386.6
<u>INTELLIGENCE & ARMS CONTROL</u>	\$ 24.7	\$ 23.3	\$ 28.4	\$ 27.4
<u>SPECIAL MATERIALS PRODUCTION</u>				
Production	\$ 371.5	\$ 331.0	\$ 539.7	\$ 405.2
Process Development	15.5	14.0	14.2	12.8
Defense Waste Management	287.7	257.9	350.0	281.6
TOTAL SPECIAL MATERIALS PRODUCTION	\$ 674.7	\$ 602.9	\$ 903.9	\$ 699.6
<u>NUCLEAR MATERIALS SECURITY & SAFEGUARDS</u>	\$ 40.7	\$ 36.7	\$ 43.1	\$ 38.1
TOTAL ATOMIC ENERGY DEFENSE ACTIVITIES - RESOURCE SUMMARIES	<u>\$2,512.4</u>	<u>\$2,307.8</u>	<u>\$2,829.1</u>	<u>\$2,535.8</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: POLICY AND MANAGEMENT

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
GENERAL SYSTEMS STUDIES	14.9	15.5	19.9	18.8
PROGRAM DIRECTION AND MANAGEMENT				
SUPPORT	326.9	359.7	339.3	339.3
INSTITUTIONAL RELATIONS	29.4	30.8	30.5	30.5
CONSUMER AFFAIRS AND SPECIAL IMPACT ..	0.6	0.5	1.2	0.5
IN-HOUSE ENERGY MANAGEMENT	1.7	0.8	37.4	10.8
SECURITY INVESTIGATIONS	12.2	12.6	13.9	13.8
PUBLIC AWARENESS	3.8	3.8	3.4	3.4
EEO CONTRACTOR COMPLIANCE	3.8	4.0	4.3	4.3
DECONTAMINATION AND DECOMMISSIONING ..	18.2	16.3	25.2	23.7
INTERNATIONAL COOPERATION NON-NUCLEAR				
TECHNOLOGIES	5.2	5.6	5.3	5.2
OTHER SUPPORTING ACTIVITIES	14.0	7.8	20.6	17.9
COST OF WORK FOR OTHERS	18.3	18.2	22.6	21.4
MISCELLANEOUS REVENUES	-100.7	-100.7	-54.0	-54.0
CHANGES IN INVENTORIES AND WORKING				
CAPITAL	<u>40.0</u>	<u>19.5</u>	<u>35.3</u>	<u>23.9</u>
 TOTAL POLICY AND MANAGEMENT	 <u>\$388.3</u>	 <u>\$394.4</u>	 <u>\$504.9</u>	 <u>\$459.5</u>

FY 1979 DOE BUDGET TO CONGRESS

Plant and Capital Equipment
(\$ IN THOUSANDS)

<u>Construction Projects</u>	<u>Total Estimated Cost</u>	<u>Authorization</u>	<u>Appropriation</u>
<u>FY 1979 Construction Projects</u>			
79-1-i AWBA Test and Examination Facilities, Bettis Atomic Power Laboratory, West Mifflin, Pennsylvania	\$ 9,000	\$ 9,000	\$ 9,000
79-4-a Modifications for energy management, various locations	25,000	25,000	25,000
79-7-c Protron storage ring, Los Alamos Scientific Laboratory, New Mexico	16,700	16,700	16,700
79-7-g Facilities for B43 moderniz- ation, various locations	18,000	18,000	18,000
79-7-k Waste management facilities, Savannah River, South Carolina	75,000	75,000	75,000
79-9-b Energy Saver, Fermi National Accelerator Laboratory, Batavia, Illinois	38,900	38,900	10,000
<u>Prior Year Projects</u> (Authorization increased or appropriation requested for projects previously authorized)			
78-2-c Low Btu fuel gas small industrial demonstration plant	25,000	19,000	9,000
78-2-d Solvent refined coal demonstra- tion plant, site undetermined (A-E long lead procurement and limited construction)	30,000	0	20,000
78-3-a Mirror fusion test facility, Lawrence Livermore Laboratory, California	94,200	0	40,000

FY 1979 DOE BUDGET TO CONGRESS

Plant and Capital Equipment
(\$ IN THOUSANDS)

<u>Construction Projects</u>	<u>Total Estimated Cost</u>	<u>Authorization</u>	<u>Appropriation</u>
<u>Prior Year Projects - Continued</u> (Authcrization increased or appropriation requested for projects previously authorized)			
78-4-a High energy laser facility (NOVA), Lawrence Livermore Laboratory, New Mexico	\$ 195,000	\$ 187,000	\$ 20,000
78-5-a Facilities for the National waste terminal storage program, site undetermined (land acquisition, A-E and long-lead procurement)	55,000	45,000	25,000
78-6-f Fuels and materials examination facility, Richland, Washington	117,000	117,000	15,000
78-10-b Intersecting storage accelerator (ISABELLE) 400 X 400 GeV, Brookhaven National Laboratory, Upton, New York	275,000	264,500	23,000
78-13-a National Synchrotron light source, Brookhaven National Laboratory, Upton, New York ..	24,000	0	10,000
78-14-a Centrifuge facilities modifications, various locations	30,000	0	16,000
78-18-b High-level waste storage facilities, Savannah River, South Carolina	42,000	0	26,000
78-18-e Environmental, safety and security improvements to waste management and materials processing facilities, Richland, Washington	40,000	24,500	30,000

FY 1979 DOE BUDGET TO CONGRESS

Plant and Capital Equipment
(\$ IN THOUSANDS)

<u>Construction Projects</u>	<u>Total Estimated Cost</u>	<u>Authorization</u>	<u>Appropriation</u>
<u>Prior Year Projects - Continued</u> (Authorization increased or appropriation requested for projects previously authorized)			
77-13-a Fluorinel dissolution process and fuel receiving improvements, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho	\$ 115,400	\$ 100,400	\$ 100,400
78-13-f Waste isolation pilot plant, Delaware Basin, Southeast, New Mexico	68,000	40,000	40,000
76-1-b High Btu synthetic pipeline gas demonstration plant	246,000	191,000	40,000
76-1-c Low/Medium Btu fuel gas industrial demonstration plant	150,000	0	14,000
76-2-b Ten megawatt central receiver solar thermal power plant, Barstow, California	108,000	24,250	28,000
76-5-a Tokamak fusion test reactor, Princeton Plasma Physics Laboratory, Plainsboro, New Jersey	238,600	0	42,000
76-8-g Enriched uranium production facilities, Portsmouth, Ohio	582,630	220,000	250,000
75-6-c Positron-electron joint project, Lawrence Berkeley Laboratory and Stanford Linear Accelerator Center, Stanford, California	78,000	0	14,700

FY 1979 DOE BUDGET TO CONGRESS

Plant and Capital Equipment
(\$ IN THOUSANDS)

<u>Construction Projects</u>	<u>Total Estimated Cost</u>	<u>Authorization</u>	<u>Appropriation</u>
<u>Prior Year Projects - Continued</u> (Authorization increased or appropriation requested for projects previously authorized)			
71-1-f Process equipment modifications, gaseous diffusion plants	\$ 990,000	\$ 70,000	\$ 97,000

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

FUNDING SUMMARY

	FY 1977		FY 1978		FY 1979	
	BA	BO	BA	BO	BA	BO
Federal Funds						
Operating expenses						
(Gross).....	\$ 5,954	\$ 5,233	\$ 9,652	\$ 8,552	\$ 12,224	\$ 9,964
Less: Revenues	-738	-748	-1,066	-1,066	-1,263	-1,263
Operating expenses (Net)	5,216	4,485	8,586	7,486	10,961	8,701
Less: Transfer to other agencies	-1	0	-1	0	0	0
Total operating expenses adjusted	5,215	4,485	8,585	7,486	10,961	8,701
Plant and capital equipment :						
Capital equipment	310	234	373	313	373	310
Construction projects	1,338	741	1,325	1,023	1,417	1,169
Total plant and capital equipment	1,648	975	1,598	1,336	1,790	1,479
Total operating expenses and plant and capital equipment	6,863	5,460	10,283	8,822	12,751	10,180
Other Federal Funds						
Legislative Programs						
Uranium enrichment services charges ..	0	0	0	0	-163	-163
Decontamination and decommissioning ...	0	0	0	0	5	3
Total legislative programs	0	0	0	0	-158	-160
Pending supplemental	0	0	711	110	0	602
Proposed supplemental	0	0	415	0	0	415
Total Other Federal Funds	0	0	1,126	110	-158	857
Total Federal Funds	6,863	5,460	11,409	8,932	12,593	11,037
Trust Funds						
Advances for cooperative work	14	13	6	6	3	3
Less: Offset receipts	-14	-13	-6	-6	-3	-3
Net Trust Funds	0	0	0	0	0	0
TOTALS	\$ 6,863	\$ 5,460	\$ 11,409	\$ 8,932	\$ 12,593	\$ 11,037