

# Congressional Budget Request

Energy Supply Research and Development

Volume 3

FY 1987



U.S. Department of Energy

Assistant Secretary,  
Management and Administration  
Office of the Controller  
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DEPARTMENT OF ENERGY  
FISCAL YEAR 1987 CONGRESSIONAL BUDGET REQUEST  
ENERGY SUPPLY RESEARCH AND DEVELOPMENT  
VOLUME 3  
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DEPARTMENT OF ENERGY  
FISCAL YEAR 1987 CONGRESSIONAL BUDGET REQUEST

SUMMARY OF ESTIMATES BY APPROPRIATIONS

(in thousands of dollars)

	<u>FY 1985 Actual BA</u>	<u>FY 1986 Estimate BA</u>	<u>FY 1987 Request BA</u>
Appropriations Before The Energy and Water Development Subcommittees:			
Energy Supply Research and Development .....	1,967,490	1,696,298	1,254,162
Uranium Enrichment .....	237,956	190,512	---
General Science and Research .....	724,860	655,928	773,400
Atomic Energy Defense Activities ..	7,322,321	7,231,664	8,230,000
Departmental Administration .....	128,602	150,319	151,082
Alaska Power Administration .....	3,233	3,245	2,881
Bonneville Power Administration ...	284,771	330,000	276,100
Southeastern Power Administration .	35,744	---	19,647
Southwestern Power Administration .	31,208	29,191	25,337
Western Area Power Administration .	218,230	195,910	240,309
Western Area Power Emergency Fund .	---	---	---
Federal Energy Regulatory Commission .....	54,543	41,989	20,325
Nuclear Waste Fund .....	327,669	499,037	769,349
Geothermal Resources Development Fund .....	<u>121</u>	<u>69</u>	<u>72</u>
Subtotal, Appropriations Before the Energy and Water Development Subcommittees .....	<u>\$11,336,748</u>	<u>\$11,024,162</u>	<u>\$11,762,664</u>

DEPARTMENT OF ENERGY  
FISCAL YEAR 1987 CONGRESSIONAL BUDGET REQUEST

SUMMARY OF ESTIMATES BY APPROPRIATIONS

(in thousands of dollars)

	<u>FY 1985</u> <u>Actual</u> <u>BA</u>	<u>FY 1986</u> <u>Estimate</u> <u>BA</u>	<u>FY 1987</u> <u>Request</u> <u>BA</u>
Appropriations Before Interior and Related Agencies Subcommittees:			
Alternative Fuels Production .....	\$ 1,169,895	\$ ---	\$ ---
Clean Coal Technology .....	---	---	---
Fossil Energy Research and Development .....	289,048	311,954	82,767
Naval Petroleum and Oil Shale Reserves .....	156,874	13,002	127,108
Energy Conservation .....	457,436	427,512	39,433
Energy Regulation .....	27,139	23,423	21,850
Emergency Preparedness .....	6,045	5,750	6,044
Strategic Petroleum Reserve .....	2,049,550	107,533	---
Energy Information Activities .....	<u>60,919</u>	<u>57,724</u>	<u>59,651</u>
Subtotal, Interior and Related Agencies Subcommittees .....	4,216,906	946,898	336,853
Subtotal, Energy and Water Development Subcommittees .....	<u>11,336,748</u>	<u>11,024,162</u>	<u>11,762,664</u>
Subtotal, Department of Energy .....	15,553,654	11,971,060	12,099,517
Permanent - Indefinite Appropriations:			
Payments to States .....	<u>1,052</u>	<u>570</u>	<u>570</u>
Total, Department of Energy .....	<u>\$15,554,706</u>	<u>\$11,971,630</u>	<u>\$12,100,087</u>

DEPARTMENT OF ENERGY  
 FY 1987 CONGRESSIONAL STAFFING REQUEST  
 TOTAL WORK FORCE

	FY1985 FTE USAGE	FY1986 CONGR REQ	FY1987 -FY86	FY1987 CONGR REQ
ENERGY & WATER SUBCOMMITTEE				
HEADQUARTERS	4,865	4,965	-10	4,947
FIELD	9,133	9,185	111	9,296
SUBCOMMITTEE TOTAL	13,998	14,150	93	14,243
INTERIOR SUBCOMMITTEE				
HEADQUARTERS	1,353	1,304	-166	1,138
FIELD	907	896	-226	670
SUBCOMMITTEE TOTAL	2,260	2,200	-392	1,808
GRAND TOTAL	16,258	16,350	-299	16,051
ADJUSTMENT		-132	-198	-330
ADJUSTED TOTAL	16,258	16,218	-497	15,721

DEPARTMENT OF ENERGY  
 FY 1987 CONGRESSIONAL STAFFING REQUEST  
 TOTAL WORK FORCE

	FY1985 FTE USAGE	FY1986 CONGR REQ	FY1987 -FY86	FY1987 CONGR REQ
10: ENERGY SUPPLY RESEARCH AND DEV	937	934	-34	900
HEADQUARTERS	811	820	-28	792
FIELD	126	114	-4	108
15: URANIUM ENRICHMENT	69	66	1	67
HEADQUARTERS	58	55	1	56
FIELD	11	11	0	11
20: GENERAL SCIENCE AND RESEARCH	37	39	0	39
HEADQUARTERS	37	39	0	39
25: ATOMIC ENERGY DEFENSE ACTIVITI	2,618	2,702	131	2,833
HEADQUARTERS	456	918	9	927
FIELD	2,122	2,184	122	2,306
30: DEPARTMENTAL ADMINISTRATION	3,307	3,352	-9	3,327
HEADQUARTERS	1,721	1,726	0	1,726
FIELD	1,586	1,604	-5	1,601
34: ALASKA POWER ADMINISTRATION	37	38	0	38
FIELD	37	38	0	38
36: BONNEVILLE POWER ADMIN	3,910	3,480	0	3,480
FIELD	3,510	3,480	0	3,480
38: SOUTHEASTERN POWER ADMIN	38	40	0	40
FIELD	38	40	0	40
42: SOUTHWESTERN POWER ADMIN	186	186	0	186
FIELD	186	186	0	186
46: WESTERN AREA POWER ADMIN	1,181	1,160	0	1,160
FIELD	1,181	1,160	0	1,160
50: WAPA - COLDRADO RIVER BASIN	219	219	0	219
FIELD	219	219	0	219
52: FEDERAL ENERGY REGULATORY COMM	1,617	1,659	0	1,659
HEADQUARTERS	1,617	1,659	0	1,659
54: NUCLEAR WASTE FUND	238	292	0	292
HEADQUARTERS	123	147	0	147
FIELD	115	145	0	145
56: GEOTHERMAL RESOURCES DEV FUND	2	1	0	1
HEADQUARTERS	2	1	0	1
65: POSSIL ENERGY RESEARCH AND DEV	714	700	-161	539
HEADQUARTERS	151	135	-26	100
FIELD	563	565	-135	430
70: NAVAL PETROL & OIL SHALE RES	104	104	-9	95
HEADQUARTERS	23	23	0	23
FIELD	81	81	-9	72
75: ENERGY CONSERVATION	333	352	-134	218
HEADQUARTERS	208	227	-79	148
FIELD	125	129	-55	70
80: EMERGENCY PREPAREDNESS	74	71	0	71
HEADQUARTERS	74	71	0	71
81: ECONOMIC REGULATION	377	340	-50	290
HEADQUARTERS	377	340	-50	290
85: STRATEGIC PETROLEUM RESERVE	178	152	-32	120
HEADQUARTERS	40	27	-5	22
FIELD	138	125	-27	98
90: ENERGY INFORMATION ACTIVITIES	480	481	-6	475
HEADQUARTERS	480	481	-6	475
94: ADVANCES FOR CO-OP WORK	2	2	0	2
FIELD	2	2	0	2
GRAND TOTAL	16,258	16,350	-299	16,051
ADJUSTMENT		-132	-198	-330
ADJUSTED TOTAL	16,258	16,218	-497	15,721

DEPARTMENT OF ENERGY  
Proposed Appropriation Language  
Energy Supply, Research and Development Activities  
(Including Transfer of Funds)

For expenses of the Department of Energy activities including the purchase, construction and acquisition of plant and capital equipment and other expenses incidental thereto necessary for energy supply, research and development activities, and other activities in carrying out the purposes of the Department of Energy Organization Act (Public Law 95-91), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction or expansion; purchase of passenger motor vehicles (not to exceed [17] 18 for replacement only), [\$1,989,671,000] \$1,254,162, to remain available until expended [of which \$200,000,000]; in addition, \$584,158,000 shall be derived by transfer from Uranium Supply and Enrichment Activities provided in prior years[, and of which \$17,400,000 shall be derived by transfer from Operation and Maintenance, Southeastern Power Administration; and of which \$25,000,000 shall be available only for construction of]: Provided, That funds available under this head in Public Law 99-141 for the Advanced Science Center, the Center for Science and Technology, the Center for Energy and Biomedical Technology, the Energy and Mineral Research Center, and the Demonstration Center for Information Technologies [as described in the report accompanying this Act; together with not to exceed \$6,000,000, to be derived from revenues from activities of the Technical Information Services, which shall be credited to this account and used for necessary expenses and shall remain available until expended], shall be available for other expenses of energy supply, research and development activities. (Public Law 99-141, making appropriations for energy and water development, 1986.)

DEPARTMENT OF ENERGY  
 FISCAL YEAR 1987 CONGRESSIONAL BUDGET REQUEST  
 SUMMARY OF ESTIMATES BY APPROPRIATION BY MAJOR ACTIVITY  
 ENERGY SUPPLY RESEARCH AND DEVELOPMENT  
 (Budget Authority in Thousands of Dollars)

	FY 1985 Actual	FY 1986 Estimate	FY 1987 Request
Solar Energy .....	\$ 171,587	\$ 144,624	\$ 72,292
Geothermal .....	29,698	26,681	17,930
Hydropower .....	447	481	---
Electric Energy Systems .....	19,717	11,548	7,619
Energy Storage Systems .....	18,642	17,292	8,000
Nuclear Energy R&D .....	432,612	374,684	330,900
Remedial Action & Waste Technology ..	170,365	230,047	294,100
Civilian Waste R&D .....	25,806	16,064	6,500
Environmental, Safety and Health ...	38,053	46,921	76,098
Biological and Environmental Research .....	187,746	179,950	196,565
Liquified Gaseous Spill Test Facility .....	4,289	1,732	1,200
Magnetic Fusion .....	429,553	365,469	333,000
Basic Energy Sciences .....	410,000	433,770	441,370
Energy Research Analysis .....	2,970	2,598	3,550
University Research Instrumentation ..	4,950	6,254	5,000
University Research Support .....	10,059	10,296	10,075
Advisory and Oversight Program Direction .....	2,900	2,674	2,900
Multi-Program Laboratories Facilities Support .....	33,200	39,824	60,190
Small Business Innovation Research Program .....	24,724	---	---
In-House Energy Management .....	14,821	11,709	16,500
Technical Information and Management .....	13,442	12,413	10,775
Policy and Management .....	3,380	3,497	3,887
Subtotal, Energy Supply R&D ...	<u>2,029,690</u>	<u>1,939,528</u>	<u>1,899,951</u>
Less Use of Prior Year Balances and Other Adjustments .....	<u>-62,400</u>	<u>-243,230</u>	<u>-645,789</u>
Total, Energy Supply R&D .....	<u>\$1,967,490</u>	<u>\$1,696,298</u>	<u>\$1,254,162</u>



# SUPPORTING SERVICES

DEPARTMENT OF ENERGY  
FY 1987 CONGRESSIONAL BUDGET REQUEST  
LEAD TABLE  
POLICY AND MANAGEMENT - ENERGY RESEARCH  
ENERGY SUPPLY RESEARCH AND DEVELOPMENT  
 (Tabular dollars in thousands. Narrative material in whole dollars.)

	FY 1985 Appropriation	FY 1986 Appropriation	FY 1987 Base	FY 1987 Request	Request vs Base
Policy and Management - Energy Research					
Operating Expenses.....	\$ 530	\$ 84	\$ 84	\$ 550	\$+ 466
Total.....	<u>\$ 530<sup>a/</sup></u>	<u>\$ 84<sup>a/b/</sup></u>	<u>\$ 84</u>	<u>\$ 550<sup>a/</sup></u>	<u>\$+ 466</u>
Staffing Total FTE's.....	8	8	8	8	

<sup>a/</sup> Totals reflect a reduction of \$3,000 in FY 1985, \$4,000 in FY 1986, and \$5,000 in FY 1987 for management initiative savings.

<sup>b/</sup> Total reduced by \$3,000 in accordance with P.L. 99-177, the Balanced Budget and Emergency Deficit Control Act of 1985 (Gramm/Rudman/Hollings). Also, general reduction of \$412,934 to be offset by use of prior years carryover.

Authorization: Section 209, P.L. 95-91.

DEPARTMENT OF ENERGY  
1987 CONGRESSIONAL BUDGET REQUEST  
SUMMARY OF CHANGES  
POLICY AND MANAGEMENT - ENERGY RESEARCH  
 (In thousands of dollars)

1986 Appropriation enacted.....	\$ 87
1986 Gramm-Rudman reduction.....	-
1986 adjusted.....	<u>84</u>
Program increases and decreases:	
o Funding required to maintain FTE level.....	+ 466
1987 budget request .....	<u>\$ 550</u>

Department of Energy  
 FY 1987 Congressional Budget Request  
 Adjustments to FY 1986 Appropriations

	FY 1986 Confer. (1)	General Reduction (2)	Management Initiatives (3)	Pay Cost Restoration (4)	FTE General Reduction (5)	Grant- Reim- Holdings (6)	ES&H Transfer/ Reprogramming (7)	Subtotal (8)	Comperability Adjustments (9)	Total (10)
<u>Policy and Management - IEU</u>										
Operating Expenses .....	\$ 500	\$ -413				-3		84		84
Subtotal, Policy & Management .....	<u>500</u>	<u>-413</u>				<u>-3</u>		<u>84</u>		<u>84</u>
General Reduction .....	-413	413								
Management Initiatives .....										
Pay Restoration .....										
Use of Prior Year Balances (PDR, BR)										
Use of Prior Year Balances (Other Energy SmoY)										
Total, Policy & Management (10)	<u>87</u>	<u>-</u>				<u>-3</u>		<u>84</u>		<u>84</u>

### Policy and Management - Energy Research

The FY 1987 request for Policy and Management - Energy Research is \$550,000. These funds are required to provide for personnel and other costs associated with continuation of eight full-time equivalents in the Office of the Director of Energy Research.

This staff directs the Office of Energy Research responsibilities carried out under the following specific programs: High Energy Physics; Nuclear Physics; Biological and Environmental Research; Magnetic Fusion Energy; Basic Energy Sciences; Energy Oversight, Research Analysis and University Support; Multiprogram Energy Laboratories-Facilities Support; and University Research Instrumentation.

In addition to directing the Office's research programs, the Director, Energy Research, also serves as the Department's principal science advisor in formulating basic research policy. In this capacity, the Director provides independent reviews, analyses and recommendations concerning a wide range of activities which require scientific counsel. These activities include, for example, national research and development strategies, plans and policies, including the establishment of budgetary priorities for energy research and development programs. They also include advising on policy issues regarding the best utilization of the nonweapons multipurpose laboratories assigned to Energy Research for oversight and management. These responsibilities are carried out through meetings with top management and program officials as necessary throughout the year; interactions with laboratories; presentations to the Energy Research Advisory Board; participation in Congressional hearings; and interactions with the scientific community. This staff is also responsible for implementing uniform systems and procedures for overall coordination and management of ER's continually increasing international activities which represent a significant workload and a very substantial investment of ER resources.

DEPARTMENT OF ENERGY  
FY 1987 CONGRESSIONAL BUDGET REQUEST

LEAD TABLE  
NUCLEAR

ENERGY SUPPLY RESEARCH AND DEVELOPMENT

(Tabular dollars in thousands. Narrative material in whole dollars.)

	<u>FY 1985</u> <u>Appropriation</u>	<u>FY 1986</u> <u>Appropriation</u>	<u>FY 1987</u> <u>Base</u>	<u>FY 1987</u> <u>Request</u>	<u>Request</u> <u>vs Base</u>
Policy and Management (ME)					
Operating expenses .....	\$ 1,323 <sup>1/</sup>	\$ 1,732 <sup>2/</sup>	\$ 1,732	\$ 1,810	\$ +78
Total .....	<u>\$ 1,323</u>	<u>\$ 1,732</u>	<u>\$ 1,732</u>	<u>\$ 1,810</u>	<u>\$ +78</u>
Staffing .....	31 <sup>3/</sup>	24	24	15	-9

Authorization: Section 31, P.L. 83-703

- <sup>1/</sup> Reflects a reduction of \$150,000 for management initiatives and \$50,000 for Advanced Data Processing reductions.  
<sup>2/</sup> Adjustments to the FY 1986 appropriation are shown on the table on the following page.  
<sup>3/</sup> Reflects actual Full Time Equivalent (FTE) usage versus allocation of 24 FTE.

SUMMARY OF CHANGES  
POLICY AND MANAGEMENT (ME)  
(In thousands of dollars)

FY 1986 Budget Appropriation .....	\$ 1,732
- Decrease of nine support personnel .....	-315
- Severance pay .....	+285
- Increase in computer support .....	<u>+100</u>
FY 1987 Budget Request .....	\$ 1,810

Department of Energy  
 FY 1987 Congressional Budget Request  
 Adjustments to FY 1986 Appropriations

	<u>FY 1986</u> <u>Confer.</u>	<u>600-</u> <u>Rudman-</u> <u>Hollings</u>	<u>Total</u>
<u>Policy and Management - (NE)</u>			
Operating Expenses .....	<u>\$1,000</u>	<u>\$-60</u>	<u>\$1,732</u>
Subtotal, Policy & Management (NE) .....	\$1,000	\$-60	\$1,732
Operating .....	\$7,000	\$-60	\$1,732

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Department of Energy  
FY 1987 CONGRESSIONAL BUDGET REQUEST  
(tabular dollars in thousands)  
Policy and Management

Narrative Justification

The major change from FY 1986 to FY 1987 is the reduction of nine Full Time Equivalent's (FTE's). This action requires a reduction of support personnel with the corresponding savings in salaries and benefits. This reduction, however, is offset in part by required severance pay for these employees. A minimal increase in computer support is also required.

The objective of the Policy and Management activity is to provide adequate staffing and financial resources for the Assistant Secretary, Nuclear Energy (NE), and the supporting functions of policy development, plans formulation, resource management, and program assessment.

Staffing provides the technical and management expertise needed to direct and administer varied R&D and operational programs encompassing both civilian and defense activities. These efforts require the combined skills of technical managers, administrators, and clerical staff. The R&D activities encompass different technologies, at various stages of development, and are performed at different contractor locations to include national laboratories, universities, industrial concerns, and foreign governments. The operational activities involving uranium enrichment are also performed at decentralized locations. Defense activities include the Naval Reactors development program at Pittsburgh, Pennsylvania; Schemectady, New York; and Idaho Falls, Idaho.

The funding provides financial resources (i.e., salary, benefits, travel, etc.) to enable the Assistant Secretary and the office staff to perform the requisite functions of the organization. The required funds will permit performance of program and policy reviews at contractor or field office locations, interaction with the Congressional, OMB, and other Departmental elements, involvement with nuclear energy source selection boards, attendance at public meetings either sponsored by the Department or others, furtherance of employee development, and participation in the employment cycle. This latter effort includes invitational travel and change of station orders. With respect to change of station, the requested funds cover employee and family transportation costs, per diem costs, and temporary quarters costs. Computer acquisition and operations support are also covered.

<u>FY 1986</u> <u>Appropriation</u>	<u>Departmental Request</u>
\$ 1,732	\$ 1,810

General Management: (7 FTE) This level supports positions required for the Assistant Secretary (AS), the principal Deputy Assistant Secretary (DAS) and their immediate staff.

Program Support: (8 FTE) Provides for staffing in the following principle areas.

Plans and Evaluation: (4 FTE) Provides professional and clerical staff needed for the development of plans and strategy in the nuclear sector, the preparation of testimony and special correspondence, the analysis of legislation, and the coordination of the program planning efforts. The Office also supports computer acquisition and operation support. Although computer acquisition is nearing completion, the need to maintain this equipment and to produce software packages to optimize their application to a wide range of Nuclear Energy requirements results in increased near term funding.

Resource Management: (4 FTE) Supports such overall management activities as personnel, budget formulation, budget execution, administrative management of funds, procurement, and contract administration, business management, and program/project management, including major systems acquisition, cost estimating, and project reviews. Overall ASNE training is also supported.

The funding of \$1,810,000 is comprised of \$950,000 for personnel compensation, \$100,000 for benefits, \$285,000 for benefits for former personnel, \$75,000 for travel, and \$400,000 for contractual services for computer acquisition and support.



DEPARTMENT OF ENERGY  
FY 1987 CONGRESSIONAL REQUEST  
LEAD TABLE  
POLICY AND MANAGEMENT  
 Energy Supply Research and Development - Operating Expenses  
 (Tabular dollars in thousands. Narrative material in whole dollars.)

	<u>FY 1985</u> <u>Approp.</u>	<u>FY 1986</u> <u>Adj. Approp.</u>	<u>FY 1987</u> <u>Base</u>	<u>FY 1987</u> <u>Request</u>	<u>Request</u> <u>vs. Base</u>
<u>Energy Supply R&amp;D</u>					
Operating Expenses	\$ 1,527	\$ 1,681	\$ 1,681	\$ 1,527	-154
Total	\$ 1,527	\$ 1,681	\$ 1,681	\$ 1,527	-154
Staffing Total FTEs	19	14	14	14	0

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Authorization: Section 209 P.L. 95-91, "Department of Energy Organization Act."

Department of Energy  
 FY 1987 Congressional Budget Request  
 Adjustments to FY 1986 Appropriations

	FY 1986 Conference	General Reduction	Pay Cost Restoration	FTE General Reduction	Gross- Retiree Holdings Reduction	Subtotal	Comparability Adjustments	Adj. Approp. Total
<u>Policy and Management - (CE) (ESR&amp;D)</u>								
operating expenses .....	\$1,000	\$ -41	\$ -51	\$ -10	\$ -68	\$1,630	\$ 51	\$1,31
General Reduction .....	-41	+41	---	---	---	---	---	---
FTE reduction .....	-10	---	---	10	---	---	---	---
Pay Restoration .....	-51	---	51	---	---	---	---	---
Use of Prior Year Balances (P&M,CE)	51	---	---	---	---	51	-51	---
Total, Policy & Management (CE)	\$1,749	\$ ---	\$ ---	\$ ---	\$ -68	\$1,681	\$ ---	\$1,681

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DEPARTMENT OF ENERGY  
FY 1987 CONGRESSIONAL BUDGET REQUEST  
SUMMARY OF CHANGES  
POLICY AND MANAGEMENT  
 (In Thousands of Dollars)

FY 1986 Adjusted Appropriation.....	\$1,0681
Reduced level of support.....	-154
FY 1987 Congressional Request.....	\$1,527
Policy and Management.....	\$1,527,000

The Policy and Management FY 1987 Congressional Request is \$1,527,000 and 14 full time equivalent staff years of effort which provides for overall management guidance to Conservation and Renewable Energy (CE) programs. Staffing levels provide the executive and overall program direction for all CE programs to ensure effective management. These activities include executive management, policy formulation, program review and approval, and liaison with senior officials in DOE, White House, Congressional, OMB, other Departmental Agencies, private industry, and State and local governments. In addition, the staff will carry out analyses of the CE programs needed to assess performance and effectiveness.

The FY 1987 request also provides for the support for functions such as planning, policy development and analysis, program planning and evaluation, budget preparation and execution, program and personnel management and administrative support performed by the Offices of the Assistant Secretary and Policy and Management. Activities performed include development of planning guidance, analysis of program options for achieving planned objectives, evaluation of performance against program objectives, handling and/or coordination of program/budget submissions and execution of approved budgets and ongoing support functions in the areas of: administrative services, procurement, personnel, space management and related support services. In addition, funds are included for the continuation of a procurement tracking system and an automated support system which provides text processing, electronic mail, data base management, communication and other program applications.