

# Congressional Budget Request

General Science and Research  
Uranium Enrichment  
Geothermal Resources Development Fund

Volume 4

FY 1987



**U.S. Department of Energy**

Assistant Secretary,  
Management and Administration  
Office of the Controller  
Washington, D.C. 20585

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DEPARTMENT OF ENERGY  
FISCAL YEAR 1987 CONGRESSIONAL BUDGET REQUEST  
GENERAL SCIENCE AND RESEARCH  
URANIUM ENRICHMENT  
GEOHERMAL RESOURCES DEVELOPMENT FUND  
VOLUME 4  
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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</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 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>
<b>Appropriations Before Interior and Related Agencies Subcommittees:</b>			
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
<b>Permanent - Indefinite Appropriations:</b>			
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
<b>ENERGY &amp; WATER SUBCOMMITTEE</b>				
HEADQUARTERS	4,865	4,965	-18	4,947
FIELD	9,133	9,185	111	9,296
<b>SUBCOMMITTEE TOTAL</b>	<b>13,998</b>	<b>14,150</b>	<b>93</b>	<b>14,243</b>
<b>INTERIOR SUBCOMMITTEE</b>				
HEADQUARTERS	1,353	1,304	-166	1,138
FIELD	907	896	-226	670
<b>SUBCOMMITTEE TOTAL</b>	<b>2,260</b>	<b>2,200</b>	<b>-392</b>	<b>1,808</b>
<b>GRAND TOTAL</b>	<b>16,258</b>	<b>16,350</b>	<b>-299</b>	<b>16,051</b>
<b>ADJUSTMENT</b>		<b>-132</b>	<b>-198</b>	<b>-330</b>
<b>ADJUSTED TOTAL</b>	<b>16,258</b>	<b>16,218</b>	<b>-497</b>	<b>15,721</b>

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	-6	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	496	518	9	527
FIELD	2,122	2,184	122	2,306
30:DEPARTMENTAL ADMINISTRATION	3,307	3,332	-5	3,327
HEADQUARTERS	1,721	1,726	0	1,726
FIELD	1,586	1,606	-5	1,601
34:ALASKA POWER ADMINISTRATION	37	38	0	38
FIELD	37	38	0	38
36:BONNEVILLE POWER ADMIN	3,510	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:NAPA - COLORADO 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:FOSSIL ENERGY RESEARCH AND DEV	714	700	-161	539
HEADQUARTERS	151	139	-24	109
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	353	352	-134	218
HEADQUARTERS	208	227	-79	148
FIELD	125	125	-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	-9	22
FIELD	138	125	-27	98
90:ENERGY INFORMATION ACTIVITIES	480	481	-6	475
HEADQUARTERS	480	481	-6	475
94:ADVANCES FOR CO-OP WDRK	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

# General Science and Research

DEPARTMENT OF ENERGY  
FISCAL YEAR 1987 CONGRESSIONAL BUDGET REQUEST  
GENERAL SCIENCE AND RESEARCH  
VOLUME 4  
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# PROGRAM DIRECTION

DEPARTMENT OF ENERGY  
 FY 1987 CONGRESSIONAL BUDGET REQUEST  
 LEAD TABLE  
 GENERAL SCIENCE PROGRAM DIRECTION  
 GENERAL SCIENCE AND RESEARCH

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

	FY 1985 Appropriation	FY 1986 Appropriation	FY 1987 Base	FY 1987 Request	Request vs Base
General Science Program Direction					
Operating Expenses...	\$ 2,205	\$ 2,092	\$ 2,092	\$ 2,500	\$ +408
Total.....	<u>\$ 2,205<sup>a/</sup></u>	<u>\$ 2,092<sup>a/b/</sup></u>	<u>\$ 2,092</u>	<u>\$ 2,500<sup>a/</sup></u>	<u>\$ +408</u>
Staffing Total FTE's..	37	39	39	39	

<sup>a/</sup> Totals reflect a reduction of \$5,000 in FY 1985, \$15,000 in FY 1986, and \$25,000 in FY 1987 for management initiative savings.

<sup>b/</sup> Total reduced by \$102,000 in accordance with P.L. 99-177, the Balanced Budget and Emergency Deficit Control Act of 1985 (Gram/Rudman/Hollings).

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

DEPARTMENT OF ENERGY  
 1987 CONGRESSIONAL BUDGET REQUEST  
 SUMMARY OF CHANGES  
 GENERAL SCIENCE PROGRAM DIRECTION  
 (In thousands of dollars)

1986 Appropriation enacted.....	\$ 2,194
1986 Gram-Rudman reduction.....	- 102
1986 adjusted.....	<u>\$ 2,092</u>
Program increases and decreases:	
o Funding required to maintain FTE level .....	+ 408
1987 budget request.....	<u>\$ 2,500</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- Admin- Holdings (6)	ES&H Transfer/ Reprogramming (7)	Subtotal (8)	Comparability Adjustments (9)	Total (10)
<u>General Science Program Direction</u>										
Operating Expenses .....	\$ 2,400				\$ -206	\$ -102		\$ 2,092		\$ 2,092
Subtotal, General Science Program Direction.....	2,400				-206	-102		2,092		2,092
General Reduction .....										
Management Initiatives .....										
Pay Restoration .....										
Use of Prior Year Balances (GSPD)										
Use of Prior Year Balances (Other General Science)										
Total, General Science Program Direction.....	\$ 2,400				-206	\$ -102		\$ 2,092		\$ 2,092

### General Science Program Direction

The FY 1987 request for General Science Program Direction is \$2,500,000. These funds are required to provide for the personnel and other costs associated with continuation of 39 full-time equivalents. These funds support the staff in the Office of the Associate Director for High Energy and Nuclear Physics, the Division of High Energy Physics, the Division of Nuclear Physics, and associated support staff required to administer these programs.

The staff budgeted under this program is responsible for providing effective management, planning and direction to ensure that a viable, high quality national program of basic research and supporting advanced technology R&D is carried out in the fields of high energy physics and nuclear physics. To carry out these responsibilities, the staffs assess the basic research needs in these areas with advice from the appropriate advisory committees, the High Energy Physics Advisory Panel (HEPAP) and the DOE/NSF Nuclear Science Advisory Committee (NSAC). The DOE staff participates actively in both HEPAP and NSAC meetings and special subpanel studies and provides administrative support for their operation. (NOTE: Administrative support responsibility for NSAC is rotated between NSF and DOE; DOE staff has administrative responsibility again in FY 1986 and FY 1987.)

The staff develops and coordinates with appropriate agency and external communities a coherent policy and long-range plan for support of balanced national programs in high energy and nuclear physics; develops budget requests and justification for funding to implement program plans; optimizes the allocation of resources to the laboratories and universities supported by the Department to achieve maximum research productivity, cost effectiveness and efficiency of operation; provides technical oversight for high energy and nuclear physics research programs of 15 major laboratories and about 200 university contractors; and provides technical and project management oversight for three major construction projects.

Effective oversight of high energy and nuclear physics activities requires staff participation in formal annual on-site program reviews of contractors; semiannual on-site reviews of major projects; meetings of laboratory program advisory committees; special facility and research planning meetings; and regional, national, and international research meetings and technical workshops. The staff also participates extensively in international cooperative efforts, which involve the development and management of activities under three formal agreements for cooperation, including participation of U.S. scientists both in experiments at foreign facilities with unique capabilities not available in the U.S. and in conferences and workshops abroad.

The High Energy Physics staff oversees the operation of three large, complex high energy accelerator centers at BNL, Fermilab, and SLAC which are used by qualified physicists from throughout the Nation. The staff will provide technical oversight for the AGS Accumulator/Booster at BNL (\$26,400,000 TEC). The upgrade of Fermilab's central computing capability (\$23,900,000 TEC), which is essential for effective exploration of Tevatron physics, will continue. Two new world-class facilities, the Tevatron collider at Fermilab and the Stanford Linear Collider at SLAC, will begin their first year of operation for research in FY 1987. The staff will provide technical oversight for the operation of existing facilities and for startup of operation of the new capabilities available from the startup of the Tevatron and SLAC. It will provide management oversight for fabrication of two large colliding beam detectors (approximately \$40,000,000 each) for more effective utilization of the new Tevatron and SLAC research capabilities.

The High Energy Physics staff manages more than 100 university research tasks, and the number is increasing. The staff also oversees an extensive program in advanced technology R&D including activities in support of ongoing construction projects, activities related to enhancing scientific capability and operating effectiveness of existing facilities, and studies of advanced concepts. This includes advanced accelerator R&D for future facilities.

Success of the Nuclear Physics program depends upon effective operation of seven large and complex national accelerator facilities. Nuclear Physics staff will continue to oversee high priority, new research capabilities at BNL (Tandem/AGS Heavy Ion Transfer Line), SLAC (off-axis injector), and ANL (ATLAS Construction Project). The University of Washington and Yale University will begin using the new enhanced capabilities of the University Accelerator Upgrade Project. The HENP staff will also be responsible for managing R&D associated with the Continuous Electron Beam Accelerator Facility, with construction planned to be initiated in FY 1987 at Newport News, Virginia. This project will be built by a consortium of universities unfamiliar with Departmental construction procedures. Staff work will also be required to respond to the large number of inquiries directly related to CEBAF and for briefings of senior staff of Congressional Committees, OMB, and OSTP, as well as members of Congress. In addition the staff must conduct monthly project reviews, review and monitor the actual construction activity, and monitor the design and acquisition of the experimental devices so that they are ready when the facility makes the transition from a construction project to an operating research facility. Nuclear Physics staff will also manage a university-based user program and a theory program to support the CEBAF electron scattering programs and the new heavy ion capabilities at BNL. Workload involving the theory program will include controlling use of time to be made available for theory calculations on a large computer, including review of proposals at LAMC and LLNL, and evaluation of the needs of theorists for smaller on-site computers. The Nuclear Physics staff manages more than 100 university research tasks covering a very broad and diverse range of activities. The Nuclear Physics program staff also manages the Nuclear Data activity which is budgeted under Basic Energy Sciences.

In addition to the program-specific activities above, the Office of High Energy and Nuclear Physics is continuing to be impacted by increased emphasis on international collaboration, cooperative programs and formal agreements with foreign countries, which result in heavy workload and travel requirements. This, together with site visits required for day-to-day management activities, advisory committee activities, and other outside conferences and programmatic interfaces, places substantial burdens on the small Federal staff available for managing these large and complex programs. The Department of Energy provides over 90 percent of the Federal support and serves as the Executive Agent for the national High Energy Physics program. Approximately 80 percent of the total Federal support of basic nuclear research is provided through the Nuclear Physics program.