

Congressional Budget Request

General Science and Research
Uranium Enrichment
Geothermal Resources Development Fund
Power Marketing Administrations
Departmental Administration

Volume 3

FY 1989



U.S. Department of Energy
Assistant Secretary,
Management and Administration
Office of the Controller

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DEPARTMENT OF ENERGY
FISCAL YEAR 1989 CONGRESSIONAL BUDGET REQUEST
GENERAL SCIENCE AND RESEARCH
URANIUM ENRICHMENT
GEOTHERMAL RESOURCES DEVELOPMENT FUND
POWER MARKETING ADMINISTRATIONS
DEPARTMENTAL ADMINISTRATION
VOLUME 3

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DEPARTMENT OF ENERGY
 FISCAL YEAR 1989 CONGRESSIONAL BUDGET REQUEST
 SUMMARY OF ESTIMATES BY APPROPRIATIONS
 BUDGET AUTHORITY IN THOUSANDS OF DOLLARS

	FY 1987 ACTUAL	FY 1988 ESTIMATE	FY 1989 REQUEST
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APPROPRIATIONS BEFORE THE ENERGY AND WATER DEVELOPMENT SUBCOMMITTEES:			
ENERGY SUPPLY RESEARCH AND DEVELOPMENT..	\$1,258,137	\$1,860,087	\$1,969,760
URANIUM ENRICHMENT.....	1,209,494	950,000	1,184,000
GENERAL SCIENCE AND RESEARCH.....	326,596	355,108	364,986
ISOTOPE PRODUCTION AND DISTRIBUTION FUND	509	89	16,243
BASIC RESEARCH USER FACILITIES.....	473,206	574,945	972,613
ATOMIC ENERGY DEENSE ACTIVITIES.....	7,481,852	7,749,364	8,100,000
DEPARTMENTAL ADMINISTRATION.....	226,874	164,243	177,814
ALASKA POWER ADMINISTRATION.....	2,881	3,026	3,159
BONNEVILLE POWER ADMINISTRATION.....	432,259	165,000	136,000
SOUTHEASTERN POWER ADMINISTRATION.....	19,647	27,400	36,267
SOUTHEASTERN - CONTINUING FUND.....	3,772	---	---
SOUTHWESTERN POWER ADMINISTRATION.....	25,337	16,648	15,389
WESTERN AREA POWER ADMINISTRATION.....	238,008	249,515	298,413
WESTERN AREA POWER EMERGENCY FUND.....	225	24	---
FEDERAL ENERGY REGULATORY COMMISSION....	99,079	100,000	106,760
NUCLEAR WASTE FUND.....	499,000	360,000	448,832
GEOHERMAL RESOURCES DEVELOPMENT FUND...	72	72	75
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SUBTOTAL, APPROPRIATIONS BEFORE THE ENERGY AND WATER DEVELOPMENT SUBCOMMITTEES.....	12,296,948	12,575,521	13,830,311

DEPARTMENT OF ENERGY
 FISCAL YEAR 1989 CONGRESSIONAL BUDGET REQUEST
 SUMMARY OF ESTIMATES BY APPROPRIATIONS
 BUDGET AUTHORITY IN THOUSANDS OF DOLLARS

	FY 1987 ACTUAL -----	FY 1988 ESTIMATE -----	FY 1989 REQUEST -----
APPROPRIATIONS BEFORE THE INTERIOR AND RELATED AGENCIES SUBCOMMITTEES:			
ALTERNATIVE FUELS PRODUCTION.....	437	---	---
CLEAN COAL TECHNOLOGY.....	---	50,000	525,000
FOSSIL ENERGY RESEARCH AND DEVELOPMENT..	293,171	326,975	166,992
NAVAL PETROLEUM AND OIL SHALE RESERVES..	122,177	159,663	185,071
ENERGY CONSERVATION.....	232,362	309,517	89,359
ENERGY REGULATION.....	23,400	21,565	20,772
EMERGENCY PREPAREDNESS.....	6,044	6,172	6,154
STRATEGIC PETROLEUM RESERVE.....	147,433	164,162	173,421
STRATEGIC PETROLEUM ACCOUNT.....	---	438,744	1,017,907
ENERGY INFORMATION ACTIVITIES.....	60,301	61,398	62,856
SUBTOTAL, INTERIOR AND RELATED AGENCIES SUBCOMMITTEES.....	885,325	1,538,196	2,247,532
SUBTOTAL, ENERGY AND WATER DEVELOPMENT SUBCOMMITTEES.....	12,296,948	12,575,521	13,830,311
SUBTOTAL, DEPARTMENT OF ENERGY.....	13,182,273	14,113,717	16,077,843
PERMANENT - INDEFINITE APPROPRIATIONS:			
PAYMENTS TO STATES.....	912	1,839	1,909
TOTAL, DEPARTMENT OF ENERGY.....	\$13,183,185 =====	\$14,115,556 =====	\$16,079,752 =====

DEPARTMENT OF ENERGY
 FY 1989 CONGRESSIONAL STAFFING REQUEST
 TOTAL WORK FORCE

	FY1987 FTE USAGE	FY1988 -FY87	FY1988 CONGR REQ	FY1989 -FY88	FY1989 CONGR REQ
ENERGY & WATER SUBCOMMITTEE					
HEADQUARTERS	4,697	264	4,961	73	5,034
FIELD	9,356	58	9,414	-75	9,339
SUBCOMMITTEE TOTAL	14,053	322	14,375	-2	14,373
INTERIOR SUBCOMMITTEE					
HEADQUARTERS	1,181	66	1,247	-111	1,136
FIELD	882	25	907	-140	767
SUBCOMMITTEE TOTAL	2,063	91	2,154	-251	1,903
GRAND TOTAL	16,116	413	16,529	-253	16,276
ADJUSTMENT		-263	-263	-209	-472
ADJUSTED TOTAL	16,116	150	16,266	-462	15,804

DEPARTMENT OF ENERGY
 FY 1989 CONGRESSIONAL STAFFING REQUEST
 TOTAL WORK FORCE

	FY1987 FTE USAGE	FY1988 -FY87	FY1988 CONGR REQ	FY1989 -FY88	FY1989 CONGR REQ
10:ENERGY SUPPLY RESEARCH AND DEV	922	14	936	10	946
HEADQUARTERS	644	7	651	10	661
FIELD	278	7	285	0	285
15:URANIUM ENRICHMENT	59	8	67	0	67
HEADQUARTERS	48	8	56	0	56
FIELD	11	0	11	0	11
20:GENERAL SCIENCE AND RESEARCH	42	-3	39	7	46
HEADQUARTERS	42	-3	39	7	46
25:ATOMIC ENERGY DEFENSE ACTIVITI	2,782	88	2,870	40	2,910
HEADQUARTERS	492	62	554	21	575
FIELD	2,290	26	2,316	19	2,335
30:DEPARTMENTAL ADMINISTRATION	3,333	133	3,466	6	3,472
HEADQUARTERS	1,756	79	1,835	6	1,841
FIELD	1,577	54	1,631	0	1,631
34:ALASKA POWER ADMINISTRATION	36	-1	35	0	35
FIELD	36	-1	35	0	35
36:BONNEVILLE POWER ADMIN	3,398	-18	3,380	-50	3,330
FIELD	3,398	-18	3,380	-50	3,330
38:SOUTHEASTERN POWER ADMIN	38	2	40	0	40
FIELD	38	2	40	0	40
42:SOUTHWESTERN POWER ADMIN	192	-6	186	0	186
FIELD	192	-6	186	0	186
46:WAPA - POWER MARKETING	1,160	-21	1,139	0	1,139
FIELD	1,160	-21	1,139	0	1,139
50:WAPA - COLORADO RIVER BASIN	219	21	240	0	240
FIELD	219	21	240	0	240
52:FEDERAL ENERGY REGULATORY COMM	1,562	97	1,659	0	1,659
HEADQUARTERS	1,562	97	1,659	0	1,659
54:NUCLEAR WASTE FUND	307	8	315	-15	300
HEADQUARTERS	152	14	166	29	195
FIELD	155	-6	149	-44	105
56:GEOTHERMAL RESOURCES DEV FUND	1	0	1	0	1
HEADQUARTERS	1	0	1	0	1
63:CLEAN COAL TECHNOLOGY	0	45	45	13	58
HEADQUARTERS	0	21	21	5	26
FIELD	0	24	24	8	32
65:FOSSIL ENERGY RESEARCH AND DEV	709	-6	703	-133	570
HEADQUARTERS	141	-3	138	-10	128
FIELD	568	-3	565	-123	442
70:NAVAL PETROL & OIL SHALE RES	89	6	95	0	95
HEADQUARTERS	17	5	22	0	22
FIELD	72	1	73	0	73
75:ENERGY CONSERVATION	320	32	352	-109	243
HEADQUARTERS	197	30	227	-84	143
FIELD	123	2	125	-25	100
80:EMERGENCY PREPAREDNESS	64	7	71	0	71
HEADQUARTERS	64	7	71	0	71
81:ECONOMIC REGULATION	288	-13	275	-22	253
HEADQUARTERS	288	-13	275	-22	253
85:STRATEGIC PETROLEUM RESERVE	147	0	147	0	147
HEADQUARTERS	28	-1	27	0	27
FIELD	119	1	120	0	120
90:ENERGY INFORMATION ACTIVITIES	466	20	466	0	466
HEADQUARTERS	466	20	466	0	466
94:ADVANCES FOR CO-OP WORK	2	0	2	0	2
FIELD	2	0	2	0	2
GRAND TOTAL	16,116	413	16,529	-253	16,276
ADJUSTMENT		-263	-263	-209	-472
ADJUSTED TOTAL	16,116	150	16,266	-462	15,804



VOLUME III
GENERAL SCIENCE PROGRAM DIRECTION

DEPARTMENT OF ENERGY
FY 1989 CONGRESSIONAL BUDGET REQUEST
GENERAL SCIENCE AND RESEARCH

OVERVIEW

GENERAL SCIENCE PROGRAM DIRECTION

This program provides the Federal staffing resources and associated funding to plan, direct, and manage a viable, high quality national program of basic research in the fields of high energy physics and nuclear physics. It supports the staff in the Office of the Associate Director for High Energy and Nuclear Physics, the High Energy Physics Division, the Nuclear Physics Division, the newly established Superconducting Super Collider (SSC) Division, and associated program and management support staff required to administer these programs.

The Department of Energy provides over 90 percent of the Federal support, and serves as the Executive Agent, for the nation's High Energy Physics programs. Approximately 80 percent of the total Federal support of basic nuclear research is provided through the Nuclear Physics programs. In carrying out these responsibilities, the staff funded by General Science Program Direction assesses the basic research needs of these programs with the advice and assistance of the High Energy Physics Advisory Panel (HEPAP) and the DOE/NSF Nuclear Science Advisory Committee (NSAC), participates actively in their meetings and subpanel studies, and provides administrative support for their operation. The staff also develops program plans and provides for budget justification and execution. It supports, plans, and provides for construction, maintenance, and operation of the large facilities on which research in high energy physics and nuclear physics depends. It oversees the operation of large and complex accelerator facilities which are used by qualified physicists throughout the Nation, provides technical oversight of the high energy physics and nuclear physics research programs at 15 major laboratories and well over one hundred universities throughout the nation, and interacts with other Federal agencies. This staff also participates extensively in international collaboration and cooperative programs with Japan, China, the Soviet Union, and Spain and possibly in the future, Italy and Canada.

The Office of High Energy and Nuclear Physics has implemented the SSC Division to direct and oversee the research, development, and construction activities of the SSC project. The requested budget increase provides additional personnel resources and associated funding to support this very important longterm project.

DEPARTMENT OF ENERGY
 FY 1989 CONGRESSIONAL BUDGET REQUEST
 GENERAL SCIENCE AND RESEARCH
 (dollars in thousands)

LEAD TABLE

GENERAL SCIENCE PROGRAM DIRECTION

Activity -----	FY 1987 Actual -----	FY 1988 Approp. -----	FY 1989 Base -----	FY 1989 Request -----	Program Change Request vs Base	
					Dollar -----	Percent -----
General Science Program Direction						
Operating Expenses.....	\$2,500	\$2,800	\$2,800	\$3,210	\$+ 410	+ 15%
Staffing Total FTE's.....	42	39	39	46		

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

DEPARTMENT OF ENERGY
FY 1989 CONGRESSIONAL BUDGET REQUEST
GENERAL SCIENCE AND RESEARCH
(dollars in thousands)

SUMMARY OF CHANGES

General Science Program Direction

FY 1988 Appropriation.....	\$ 2,800
- Increased costs for seven additional FTE's.....	<u>+ 410</u>
FY 1989 Congressional Budget Request.....	\$ 3,210

DEPARTMENT OF ENERGY
FY 1989 CONGRESSIONAL BUDGET REQUEST

GENERAL SCIENCE AND RESEARCH
(dollars in thousands)

KEY ACTIVITY SUMMARY

GENERAL SCIENCE PROGRAM DIRECTION

I. Preface: General Science Program Direction

This program provides the Federal staffing resources and associated funding to plan, direct, and manage a viable high quality national program of basic research in the fields of high energy physics and nuclear physics. It supports the staff in the Office of the Associate Director for High Energy and Nuclear Physics, the High Energy Physics Division, the Nuclear Physics Division, the newly established Superconducting Super Collider (SSC) Division, and associated program and management support staff required to administer these programs.

II. A. Summary Table

Program Activity -----	FY 1987 -----	FY 1988 -----	FY 1989 -----	% Change -----
General Science Program Direction.....	\$ 2,500	\$ 2,800	\$ 3,210	+ 15%
	-----	-----	-----	-----
Total, General Science Program Direction.....	\$ 2,500	\$ 2,800	\$ 3,210	+ 15%

III. Activity Descriptions

Program Activity -----	FY 1987 -----	FY 1988 -----	FY 1989 -----
General Science Program Direction	Provided funds for salaries, benefits, and travel for 42 full-time equivalents (FTE's) in the Office of High Energy and Nuclear Physics and	Provide funds for salaries and related costs to continue staff activities at a level of 39 FTE's. Provide for the normal	Provide funds for salaries, benefits, and travel for 46 FTE's in the Office of High Energy and Nuclear Physics and for related program and

III. GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)

Program Activity	FY 1987	FY 1988	FY 1989
General Science Program Direction (Cont'd)	for related program and management support staff. (\$2,450)	increased personnel costs such as within-grade and merit increases, impact of the 1987 pay raise and the increased agency contribution to the Federal Employees Retirement System. (FERS). (\$2,750)	management support staff. Provide for an increase of seven FTE's above the FY 1988 level. (\$3,160)
	<p>The High Energy Physics staff provided continued oversight of high energy accelerator centers at Brookhaven National Laboratory, Fermilab, and Stanford Linear Accelerator Center. The staff provided technical oversight for high energy physics research programs at 9 major laboratories, managed more than 100 university research tasks, and provided technical and project management oversight for 4 major construction projects. Provided oversight for bringing the new capabilities available from the Tevatron at Fermilab into operation for research, for pre-operational testing of the Stanford Linear Collider at SLAC, and for the fabrication of two large colliding beam detectors for more effective utilization of these new capabilities.</p>	<p>Continue oversight of facilities operation and contractor performance. Continue planning, research and development, program reviews, and briefings. Provide effective DOE oversight for the facilities having more extensive programs of experiments as a result of their achieving their first full year of operations. This requires increasing coordination of experimental collaborations among many different institutions, both domestic and foreign. Also, increased complexity of advanced technology R&D efforts which are entering the experimental verification stage requires close DOE oversight and project management control.</p>	<p>Continue oversight of a nearly \$567 million (excluding SSC) budget for High Energy Physics programs. Operating time and experiments at new facilities at the laboratories will increase. Staff will continue to oversee fabrication of further new detectors for effective utilization of new facilities, as well as construction of AGS Accumulator/Booster and Fermilab computing upgrade. Advanced technology programs in the experimental verification phase will continue to require management oversight.</p>
	<p>A separate Superconducting Super Collider (SSC) Division was formed to provide effective program</p>	<p>Continue staffing the SSC Division. Staff are required for the many technical, project management, and</p>	<p>Provide additional personnel resources for SSC Division. This is the first year of major (\$363</p>

III. GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)

Program Activity	FY 1987	FY 1988	FY 1989
General Science Program Direction (Cont'd)	<p>management and oversight of the multi-billion dollar SSC project. Recruitments were begun and several positions were filled by the end of FY 1987. In the interim, this project continued to bring exceptionally difficult workload pressures on the High Energy Physics staff.</p> <p>The Nuclear Physics staff provided continued oversight of seven large and complex national accelerator facilities. The staff provided technical oversight for nuclear physics research programs at 13 major laboratories, managed more than 100 university research tasks, and provided technical and project management oversight for 5 construction and major equipment projects. Managed R&D associated with the Continuous Electron Beam Accelerator Facility (CEBAF) and responded to inquiries and requests for briefings, conducted monthly project reviews, monitored the</p>	<p>administrative tasks to be performed as well as to deal with the extensive Congressional, state and local, and public interface activities. This staff analyzes technical designs and cost estimates resulting from the advanced technology R&D effort and assists in seeking to increase international collaboration in this new accelerator facility. It will also oversee initiation of a program of industrial involvement in magnet R&D and technology transfer, and provides technical support to the SSC Site Task Force (STF) as required.</p> <p>Continue to oversee facilities operation and contract performance. Review and monitor CEBAF activity as conventional construction expands in FY 1988. Interact with a variety of DOE, contractor, and other officials on the complex arrangements involved in establishing a new laboratory/accelerator facility. Assume overall management for Nuclear Data program which was transferred from Basic Energy Sciences beginning in FY 1988. Continue planning and R&D for the Relativistic Heavy Ion Collider (RHIC).</p>	<p>million) SSC funding. R&D will be enhanced and an extensive industrialization program for magnet production will be implemented. Technical experts in accelerator design, magnet design and fabrication, project management, and international programs are required. Staff will be required to prepare extensive program documentation, prepare briefings and budget justifications, conduct reviews, and participate in efforts to secure non-Federal cost sharing, particularly through international collaboration.</p> <p>Continue oversight of a \$264 million budget for Nuclear Physics programs. Continue to meet increased program management and oversight responsibilities, primarily in research and facilities activity in the heavy ion physics program. Increased activities in high spin physics, recoil mass spectrometry, and continued growth in the AGS program and relativistic heavy ion physics will lead to increased workload on the staff. Staff will continue to be heavily involved in CEBAF construction activity and planning and R&D for RHIC.</p>

III. GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)

Program Activity -----	FY 1987 -----	FY 1988 -----	FY 1989 -----
General Science Program Direction (Cont'd)	<p>construction activity initiated in FY 1987, and monitored the design and planning for acquisition of the experimental devices which need to be ready when the facility becomes operational.</p>		
	<p>Provided program and management support in the areas of budget and finance, personnel administration, acquisition and assistance, construction, environment and safety. Established and organized the SSC site task force (STF).</p>	<p>Continue to provide program and management support to the High Energy Physics and Nuclear Physics programs.</p>	<p>Continue program and management support at the FY 1988 level of effort.</p>
	<p>Provided program support such as printing, supplies and materials, time-sharing on various information systems and communications networks such as electronic mail, and contractual support for technical writing and editing. (\$50)</p>	<p>Continue the variety and level of program support required in FY 1987. (\$50)</p>	<p>Continue the variety and level of program support required in FY 1988. (\$50)</p>
Total General Science Program Direction	\$ 2,500	\$ 2,800	\$ 3,210