

Congressional Budget Request

Energy Supply Research and Development

Volume 3

FY 1987



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Management and Administration
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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 ...	2,029,690	1,939,528	1,899,951
Less Use of Prior Year Balances and Other Adjustments	-62,400	-243,230	-645,789
Total, Energy Supply R&D.....	<u>\$1,967,490</u>	<u>\$1,696,298</u>	<u>\$1,254,162</u>

SUPPORTING RESEARCH AND TECHNICAL ANALYSIS

DEPARTMENT OF ENERGY
FY 1987 CONGRESSIONAL BUDGET REQUEST
LEAD TABLE

ENERGY RESEARCH ANALYSIS

Energy Supply Research and Development - Operating Expenses
 (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>
Energy Research Analysts					
Operating Expenses..	\$ 2,970 ^{a/}	\$ 2,598	\$ 2,598	\$ 3,550	\$+ 952

^{a/} FY 1985 total does not include \$30,000 transferred to the SBIR program.

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

DEPARTMENT OF ENERGY
FY 1987 CONGRESSIONAL BUDGET REQUEST

SUMMARY OF CHANGES
 Energy Research Analysis
 (dollars in thousands)

FY 1986 Appropriation enacted.....	\$2,700
FY 1985 Gramm-Rudman reduction.....	- 102
1986 adjusted.....	<u>2,598</u>
Program increases and decreases:	
- Increased funding for FY 1987 National Acid Rain Assessment....	+550
- Increased funding for peer review.....	<u>+402</u>
1987 budget request.....	\$3,550

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)	Gram- Rudman- Hollings (6)	GSA (Transfer/ Reprogramming) (7)	Subtotal (8)	Comparability Adjustments (9)	Total (10)
<u>Energy Research Analysis</u>										
Operating Expenses	\$ 2,700					\$ -102		\$ 2,598		\$ 2,598
Subtotal, Energy Research Analysis	2,700					-102		2,598		2,598
General Reduction										
Management Initiatives										
Pay Restoration										
Use of Prior Year Balances (BAA)										
Use of Prior Year Balances (Other Energy Support)										
Total, Energy Research Analysis	\$ 2,700					\$ -102		\$ 2,598		\$ 2,598

The Energy Research Analysis (ERA) program budget request is \$3,550,000 and provides DOE with the capability for independent, objective analysis of the Department's technical needs and opportunities. ERA fulfills the Director of Energy Research's responsibility "to monitor the Department's Energy R&D programs in order to advise the Secretary with respect to any undesirable duplication or gaps in such program," Section 209(b)(2), Public Law 95-91. In addition, funding and staff are required to support technical assessment and coordination needs within the sharply increased interagency research relating to acid rain.

Recent Accomplishments

- o Assessments of Departmental research during FY 1985 and FY 1986 include the following:
 - Assessment of research needs in Surface Coal Gasification technology (University of California)
 - Other research needs (JASON)
 - Assessment of research needs in Heavy Ion Fusion (Lawrence Berkeley Laboratory and others)
- o Program assessments, important for establishing research objectives, recently accomplished were:
 - Assessment of the Geothermal research and technology development projects in Solar Renewables programs.
- o Acid precipitation research coordination and liaison responsibilities for DOE with other Federal agencies were supported by the Energy Research Analyses program and included the following specific efforts:
 - Preparation of the 1985 Assessment of the National Acid Precipitation Assessment Program (Oak Ridge National Laboratory, Brookhaven National Laboratory, et. al.).
 - Assessment of research needs in acid precipitation (Brookhaven National Laboratory, Oak Ridge National Laboratory, Pacific Northwest Laboratory, and Argonne National Laboratory).

FY 1987 objectives and associated budget levels are: (1) Performing independent analyses of DOE R&D programs to evaluate technical merit and future directions. One full program, depending upon the number of projects involved, can be analyzed within the Departmental Request (\$400,000); (2) Performing independent assessments of technologies that may be contained within more than one program. Two or three technology assessments can be provided for within the Departmental Request (\$500,000); (3) Support for Departmental research and coordination elements within the National Acid Precipitation Assessment Program (NAPAP), including \$500,000 to support the Acid Deposition Assessment Staff and \$150,000 to fund DOE's share of the Program Coordination Office support, and assessments leading to the 1987 NAPAP National Assessment (\$700,000) for a total of \$1,350,000; (4) Support of the assessments and advice provided by groups such as the Energy Research Advisory Board and JASON, to the Secretary, DOE (\$1,000,000); and (5) Accomplishments assessments of R&D programs within Energy Research (\$300,000).