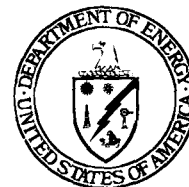


Congressional Budget Request

Energy Supply Research and Development
Nuclear Waste Fund
Isotope Production and Distribution Fund
Basic Research User Facilities

Volume 2

FY 1989



U.S. Department of Energy

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

February 1988

DEPARTMENT OF ENERGY
FISCAL YEAR 1989 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT
NUCLEAR WASTE FUND
ISOTOPE PRODUCTION AND DISTRIBUTION FUND
BASIC RESEARCH USER FACILITIES

VOLUME 2

TABLE OF CONTENTS

Summary of Estimates by Appropriation	3
Summary of Staffing by Subcommittee	5
Summary of Staffing by Appropriation	6
Energy Supply Research and Development	7
Nuclear Waste Fund	533
Isotope Production and Distribution Fund	591
Basic Research User Facilities	603

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 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
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	446	20	466	0	466
HEADQUARTERS	446	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

DEPARTMENT OF ENERGY
FY 1989 CONGRESSIONAL BUDGET REQUEST
OFFICE OF ENERGY RESEARCH

OVERVIEW

UNIVERSITY RESEARCH INSTRUMENTATION

The objective of University Research Instrumentation (URI) program is to strengthen the ability of universities to conduct long-range research related to the high priority energy technologies by assisting these institutions in acquiring the required state-of-the-art instrumentation. Another objective of the URI program is to provide graduate students with hands-on experience in the use of sophisticated research instrumentation.

The Department of Energy's URI program is an annual competitive program, which involves substantial cost-sharing from the institution. The URI awards are made to universities both on the merit and accomplishments of current DOE-supported research projects and the degree to which the new equipment will enable the scientists to substantially advance the understanding of energy-related phenomena. A total of 70 URI awards have been made in the past three years, ranging from \$98,000 to \$466,000 (the average award being \$215,000).

The URI program is an integral part of the Department's long-range and applied research efforts. In general, the DOE technical program research grants/contracts to universities provide support only for research operating costs (i.e., salaries, computer time, etc.). Funding for new instrumentation is generally limited to those smaller instruments costing on the average of \$30,000 or less. The URI program assists the Department's energy research and technology programs by helping universities purchase instruments which cost in excess of \$100,000, which will be required by a number of faculty researchers. Because of their size and cost, if used by a single investigator these instruments could not be justified on an individual research award. Each year the Department's program managers help select the high priority energy topic areas which are emphasized in the URI program announcement. During the past few years, the URI program has given special attention to the need for advanced scientific equipment for research on metallurgy, ceramics, solid state materials, catalysis, fluid mechanics, heat transfer, geophysics, fermentation, plant growth, atmospheric pollutants, combustion and nuclear waste storage.

Since FY 1986 the URI program has encouraged the submission of proposals involving "innovative" instrumentation (equipment generally not available at U.S. universities). In FY 1989, special emphasis will continue to be placed on "innovative" instrumentation needs for advanced topics in energy research. This emphasis will enable the Department to encourage the nation's best scientists to undertake advanced energy research requiring state-of-the-art, often unique research instrumentation. A recent survey estimated that the overall short term need for advanced scientific instrumentation for university energy research was approximately \$150 million. Of this amount, about \$15 to \$20 million was for "innovative" equipment.

DEPARTMENT OF ENERGY
 FY 1989 CONGRESSIONAL BUDGET REQUEST
 OFFICE OF ENERGY RESEARCH
 (dollars in thousands)

LEAD TABLE

University Research Instrumentation

Activity -----	FY 1987 -----	FY 1988 -----	FY 1989 Base -----	FY 1989 Request -----	Program Change Request vs Base	
					Dollar -----	Percent -----
University Research Instrumentation (OE).....	\$4,938 a/	\$5,000	\$5,000	\$5,000	\$0	0

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

a/ Total reduced by \$62,000 which has been transferred to SBIR.

DEPARTMENT OF ENERGY
FY 1989 CONGRESSIONAL BUDGET REQUEST
OFFICE OF ENERGY RESEARCH
(dollars in thousands)

SUMMARY OF CHANGES

University Research Instrumentation

FY 1988 Appropriation	\$ 5,000
Program increases and decreases:	
Instrumentation awards remain the same as FY 1988.....	<u>0</u>
FY 1989 Congressional Budget Request.....	\$ 5,000

DEPARTMENT OF ENERGY
 FY 1989 CONGRESSIONAL BUDGET REQUEST
 OFFICE OF ENERGY RESEARCH
 (dollars in thousands)

KEY ACTIVITY SUMMARY

UNIVERSITY RESEARCH INSTRUMENTATION

I. Preface: UNIVERSITY RESEARCH INSTRUMENTATION

Support is provided to universities for the purchase of state-of-the-art research equipment costing over \$100,000. The principal objective of the program is to strengthen the ability of universities to conduct long-range research related to the high priority energy technologies by assisting these institutions in acquiring the required state-of-the-art instrumentation. An ancillary objective of the URI program is to provide graduate students with hands-on experience in the use of sophisticated research instrumentation.

II. A. Summary Table

Program Activity -----	FY 1987 -----	FY 1988 -----	FY 1989 -----	% Change -----
University Research Instrumentation.....	\$ 4,938	\$ 5,000	\$ 5,000	0
	-----	-----	-----	-----
Total, University Research Instrumentation.....	\$ 4,938	\$ 5,000	\$ 5,000	0

III. Activity Descriptions

Program Activity -----	FY 1987 -----	FY 1988 -----	FY 1989 -----
University Research Instrumentation	Will support about 18-20 awards competitively selected from 188 applications received from 104 universities across the country. applications. (\$4,938)	Will support about 18-20 instrumentation awards. (\$5,000)	Will support about 18-20 instrumentation awards. (\$5,000)