DOE/MA-0274
Volume 2 of 4

Congressional Budget Request

Energy Supply Research and Development
Nuclear Waste Fund

Volume 2

FY 1988

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

January 1987

DEPARTMENT OF ENERGY

FISCAL YEAR 1988 CONGRESSIONAL BUDGET REQUEST

SUMMARY OF ESTIMATES BY APPROPRIATIONS

BUDGET AUTHORITY IN THOUSANDS OF DOLLARS

	FY 1986 Actual BA	FY 1987 Estimate BA	FY 1988 Request BA
Appropriations Before The Energy and Water Development Subcommittees:			
Energy Supply Research and Development	$ 1,701,351	$ 1,254,131	$ 1,914,710
Uranium Enrichment	1,549,015	1,210,400	1,070,000
General Science and Research	659,059	719,517	814,498
Atomic Energy Defense Activities	7,292,405	7,481,852	8,050,000
Departmental Administration	235,676	139,509	166,133
Alaska Power Administration	3,245	2,881	3,026
Bonneville Power Administration	404,329	327,659	205,800
Southeastern Power Administration	---	19,647	27,400
Southeastern - Continuing Fund	4,028	---	---
Southwestern Power Administration	29,180	25,337	16,648
Western Area Power Administration	195,842	240,309	295,515
Western Area Power Emergency Fund	147	225	---
Federal Energy Regulatory Commission	45,107	-3,465	-900
Nuclear Waste Fund	499,037	499,000	500,000
Geothermal Resources Development Fund	69	72	72
Subtotal, Appropriations Before the Energy and Water Development Subcommittees	$12,618,490	$11,917,074	$13,062,902

DEPARTMENT OF ENERGY

FISCAL YEAR 1988 CONGRESSIONAL BUDGET REQUEST

SUMMARY OF ESTIMATES BY APPROPRIATIONS

BUDGET AUTHORITY IN THOUSANDS OF DOLLAR

	FY 1986 Actual BA	FY 1987 Estimate BA	FY 1988 Request BA
Appropriations Before Interior and Related Agencies Subcommittees:			
Alternative Fuels Production	$ 2,775	$ ---	$ ---
Clean Coal Technology	---	---	50,000
Fossil Energy Research and Development	309,389	251,402	168,900
Naval Petroleum and Oil Shale Reserves	13,002	122,177	159,700
Energy Conservation	426,187	149,679	86,090
Energy Regulation	23,423	23,400	21,680
Emergency Preparedness	5,750	6,044	6,206
Strategic Petroleum Reserve	107,533	147,433	270,181
Energy Information Activities	57,724	60,301	61,599
Subtotal, Interior and Related Agencies Subcommittees	945,783	760,436	824,356
Subtotal, Energy and Water Development Subcommittees	12,618,490	11,917,074	13,062,902
Subtotal, Department of Energy	13,564,273	12,677,510	13,887,258
Permanent - Indefinite Appropriations:			
Payments to States	629	705	727
Total, Department of Energy	$13,564,902	$12,678,215	$13,887,985

DEPARTMENT OF ENERGY
FY 1988 CONGRESSIONAL STAFFING REQUEST
TOTAL WORK FORCE

	FY1986 FTE USAGE	FY1987 -FY86	FY1987 CONGR REQ	FY1988 -FY87	FY1988 CONGR REQ
ENERGY & WATER SUBCOMMITTEE					
HEADQUARTERS	4,663	170	4,833	47	4,880
FIELD	9,393	62	9,455	-4	9,451
SUBCOMMITTEE TOTAL	14,056	232	14,288	43	14,331
INTERIOR SUBCOMMITTEE					
HEADQUARTERS	1,254	-13	1,241	-104	1,137
FIELD	883	5	888	-143	745
SUBCOMMITTEE TOTAL	2,137	-8	2,129	-247	1,882
GRAND TOTAL	16,193	224	16,417	-204	16,213
ADJUSTMENT		-317	-317	54	-263
ADJUSTED TOTAL	16,193	-93	16,100	-150	15,950

DEPARTMENT OF ENERGY
FY 1988 CONGRESSIONAL STAFFING REQUEST
TOTAL WORK FORCE

	FY1986 FTE USAGE	FY1987 -FY86	FY1987 CONGR REQ	FY1988 -FY87	FY1988 CONGR REQ
10:ENERGY SUPPLY RESEARCH AND DEV	918	8	926	0	926
HEADQUARTERS	635	4	639	0	639
FIELD	283	4	287	0	287
15:URANIUM ENRICHMENT	65	2	67	0	67
HEADQUARTERS	54	2	56	0	56
FIELD	11	0	11	0	11
20:GENERAL SCIENCE AND RESEARCH	38	1	39	0	39
HEADQUARTERS	38	1	39	0	39
25:ATOMIC ENERGY DEFENSE ACTIVITI	2,710	142	2,860	30	2,890
HEADQUARTERS	491	52	543	19	562
FIELD	2,227	90	2,317	11	2,328
30:DEPARTMENTAL ADMINISTRATION	3,273	77	3,350	20	3,370
HEADQUARTERS	1,493	46	1,739	5	1,744
FIELD	1,580	31	1,611	15	1,626
34:ALASKA POWER ADMINISTRATION	36	2	38	-3	35
FIELD	36	2	38	-3	35
36:BONNEVILLE POWER ADMIN	3,491	-41	3,430	-50	3,380
FIELD	3,491	-41	3,430	-50	3,380
38:SOUTHEASTERN POWER ADMIN	38	2	40	0	40
FIELD	38	2	40	0	40
42:SOUTHWESTERN POWER ADMIN	193	-7	186	0	186
FIELD	193	-7	186	0	186
46:WAPA - POWER MARKETING	1,176	-16	1,160	0	1,160
FIELD	1,176	-16	1,160	0	1,160
50:WAPA - COLORADO RIVER BASIN	219	0	219	0	219
FIELD	219	0	219	0	219
52:FEDERAL ENERGY REGULATORY COMM	1,597	62	1,659	0	1,659
HEADQUARTERS	1,597	62	1,659	0	1,659
54:NUCLEAR WASTE FUND	291	20	311	44	355
HEADQUARTERS	154	3	157	23	180
FIELD	137	17	154	23	177
56:GEOTHERMAL RESOURCES DEV FUND	1	0	1	0	1
HEADQUARTERS	1	0	1	0	1
65:FOSSIL ENERGY RESEARCH AND DEV	706	-3	703	-113	590
HEADQUARTERS	141	-3	138	0	138
FIELD	565	0	565	-113	452
70:NAVAL PETROL & OIL SHALE RES	99	-4	95	0	95
HEADQUARTERS	20	2	22	0	22
FIELD	79	-6	73	0	73
75:ENERGY CONSERVATION	322	30	352	-109	243
HEADQUARTERS	201	26	227	-84	143
FIELD	121	4	125	-25	100
80:EMERGENCY PREPAREDNESS	64	7	71	0	71
HEADQUARTERS	64	7	71	0	71
81:ECONOMIC REGULATION	348	-53	295	-20	275
HEADQUARTERS	348	-53	295	-20	275
85:STRATEGIC PETROLEUM RESERVE	152	-5	147	-5	142
HEADQUARTERS	34	-12	22	0	22
FIELD	118	7	125	-5	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	16,193	274	16,417	-204	16,213
ADJUSTMENT		-317	-317	54	-263
ADJUSTED TOTAL	16,193	-93	16,100	-150	15,950

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 [18] 21 for replacement only), [$1,347,048,000,] $1,909,710,000, to remain available until expended; [in addition $684,158,000 shall be derived by transfer from Uranium Supply and Enrichment Activities provided in prior years and shall be available until expended; and of which $84,100,000 which shall be available only for the Center for New Industrial Materials; the Center for New Industrial Materials; the Center for Nuclear Imaging Research; the Energy Research Complex; Saint Christopher's Hospital for Children - Energy Demonstration Project; Center for Excellence in Education - Energy Utilization Performance Project; the Institute of Nuclear Medicine; the Advanced Science Center; the Center for Science and Engineering; and funds provided for byproducts utilization activities shall be available only for the following regional projects: Florida Department of Agriculture and Consumer Services; Hawaii Department of Planning and Economic Development; Iowa State University; Oklahoma, Red-Ark Develoment Authority; Washington, Port of Pasco; State of Alaska.] (Energy and Water Development Appropriations Act, 1987 as included in Public Laws 99-500 and 99-591, section 101(e),) and in addition, as authorities by section 201 of Public Law 95-238 and notwithstanding 31 U.S.C. 3302, revenues received as user fees for use of the Liquified Gaseous Fuels Spill Test Facility in Fiscal Year 1988 shall be retained and used to provide toxic and flammable spill test facilities and activities.

Explanation of Change

Deletes Language contained in Public Laws 99-500 and 99-591 which had specific application to fiscal year 1987.

Proposed Language provides fees from non-Federal users of the Liquified Gaseous Fuels Spill Test Facility in Nevada to be received into the account as reimbursable expenses to be retained and used to operate, manage and maintain the facility.

DEPARTMENT OF ENERGY

FISCAL YEAR 1988 CONGRESSIONAL BUDGET REQUEST

SUMMARY OF ESTIMATES BY APPROPRIATION BY MAJOR ACTIVITY

ENERGY SUPPLY RESEARCH AND DEVELOPMENT

BUDGET AUTHORITY IN THOUSANDS OF DOLLARS

	FY 1986 Actual	FY 1987 Estimate	FY 1988 Request
Solar Energy	$ 143,464	$ 123,532	$ 71,175
Cooperative Venture R&D Pools	---	---	5,000
Geothermal	26,495	20,830	15,935
Hydropower	481	450	---
Electric Energy Systems	11,387	11,276	6,500
Energy Storage Systems	17,142	16,589	7,500
Nuclear Energy R&D	372,037	327,474	334,170
Remedial Action & Waste Technology	229,915	276,870	251,500
Civilian Waste R&D	15,991	6,500	5,000
Environmental, Safety and Health	44,004	62,014	70,000
Biological and Environmental Research	178,000	193,992	217,500
Liquified Gaseous Spill Test Facility	1,732	2,000	500
Magnetic Fusion	361,480	345,313	345,600
Basic Energy Sciences	419,850	525,450	479,075
Energy Research Analysis	2,567	2,000	3,700

DEPARTMENT OF ENERGY

FISCAL YEAR 1988 CONGRESSIONAL BUDGET REQUEST

SUMMARY OF ESTIMATES BY APPROPRIATION BY MAJOR ACTIVITY

ENERGY SUPPLY RESEARCH AND DEVELOPMENT (CONTINUED)

BUDGET AUTHORITY IN THOUSANDS OF DOLLARS

	FY 1986 Actual	FY 1987 Estimate	FY 1988 Request
University Research Instrumentation.	6,176	5,000	5,000
University Research Support	10,168	15,775	13,400
Advisory and Oversight Program Direction	2,674	2,490	3,200
Multi-Program Laboratories 'Facilities Support	39,908	56,695	56,600
Small Business Innovation Research Program	29,137	---	---
In-House Energy Management	11,715	16,500	18,880
Strategic Facilities Utilization Program	---	---	2,175
Technical Information and Management	12,407	14,698	14,000
Policy and Management	3,497	3,874	4,300
Subtotal, Energy Supply R&D ...	1,940,227	2,029,322	1,930,710
Less Use of Prior Year Balances and Other Adjustment	-238,876	-775,191	-16,000
Total, Energy Supply R&D.....	$1,701,351	$1,254,131	$1,914,710

DEPARTMENT OF ENERGY
FY 1988 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT

OVERVIEW

University Research Support

It is generally recognized that both national security and economic growth and revitalization critically depend on a strong and expanding scientific and technological base. This base in turn is heavily dependent on a healthy university system capable of producing both new scientific knowledge and new technical talent. Support of university research by DOE's research programs and related education is an essential investment in the future. The National Energy Policy Plan recognizes the importance of this investment in establishing the following objectives for the Department's research and development programs:

- o To support academic research for the development of basic knowledge.
- o To help train scientific and technical personnel by supporting university research programs.
- o To facilitate the effective transfer of technology.

DOE is a major supporter of university research both through research grants and contracts with university scientists and through the use of unique laboratory-based research facilities and resources by university faculty and students. The Department, along with other Federal R&D mission agencies, also assists in the replenishment of the Nation's scientific and technical manpower pool through support of university research. DOE's statutory responsibility in manpower development is derived from the authorization legislation of DOE's predecessor agencies which authorized the conduct of education and training activities with universities and colleges (Public Law 83-703, Section 31.b) and required the agency to help ensure an adequate supply of manpower for the accomplishment of energy R&D programs (Public Law 93-483, Section 103 (11).

Since the establishment of the Department in 1977, DOE has strongly supported close interactions with the Nation's universities. This objective was reemphasized in 1984 with the issuance of policy guidelines from the Secretary. These Secretarial guidelines note the importance to DOE of stable and comprehensive university research and manpower development programs, both directly and through the Department's laboratories. Special emphasis was given to the importance of involving students in DOE-sponsored research.

The University Research Support Program (URS) and the related University Research Instrumentation Program (URI) are the primary approaches used by DOE to strengthen the institutional capabilities of universities and colleges to effectively and continually contribute to the Department's long range R&D mission. The URS Program consists of three major subprograms and a set of interrelated program activities focused on the following three primary objectives:

1. Strengthen university capability to perform long range energy R&D;

2. Enhance the quality and increase the numbers of young people interested in pursuing energy-related professional careers;

3. Take full advantage of the unique resources and facilities at the DOE national laboratories for university faculty and student research and training.

The first URS subprogram, University Laboratory Research, includes support for faculty and student research and training appointments at the DOE laboratories and for the maintenance of university-based nuclear research and training capabilities through the support of university research and training reactors. The essential roles played by the Department's laboratories in assisting in university research and manpower development have been underscored in recent ERAB reports on the health of U.S. colleges and universities. This latter report encourages the laboratories to provide much more access to their facilities by both universities and industry and to develop further the complementary role of the laboratories in university-related research and education.

Consistent with the President's goal of improving our national science and technology research and education base, and the 1984 Secretarial guidelines on the importance of strengthening DOE-university relationships, a major expansion is proposed for the URS Program in FY 1988. This expansion would initiate support for semester length research appointments at five DOE multiprogram laboratory science centers involved in science education in FY 1988. This activity would build upon the University Laboratory Cooperative Program (established in 1960) and provide significant additional opportunities for university faculty and students to use DOE laboratory facilities on a year round basis. Support would initially be provided for semester-length appointments for undergraduate science and engineering students selected nationally, based on academic merit and future research interests. The initial emphasis on undergraduate student support is directly responsive to the White House Science Council Report which recommends that Federal agencies provide additional opportunities for the best and brightest undergraduate science and engineering students.

During the appointment period, the participants will pursue a program with three basic elements: (1) research on a specific project in collaboration with laboratory scientists and visiting university faculty; (2) hands-on

experience with major, state-of-the-art scientific research instrumentation; and (3) an educational enrichment activity that supplements the research with seminars on advanced topics and exposure to different scientific activities at science centers at the participating laboratories.

The second URS subprogram, University Reactor Fuel Assistance, provides support for refueling and related activities for university nuclear research and training reactors. The National Academy of Science/National Research Council Energy Engineering Board is completing a study of the status and role of university reactors and is expected to make recommendations on DOE's future policies regarding nuclear university research reactors. The low enriched uranium (LEU) reactor fuel conversion program, as required by the Nuclear Regulatory Commission, will be approximately at its midpoint by FY 1988 with twelve university reactors having received support for their reactor safety studies and three having received Commission approval and order for conversion.

The third URS subprogram, Energy Manpower Development, includes efforts directed at increasing the number of young people pursuing energy-related scientific and technical careers. This subprogram also includes the Department's statutory responsibility for assessing the supply and demand of manpower for both current and future energy R&D programs. A significant expansion of support is proposed in the FY 1988 budget for precollege science student and teacher programs sponsored by the DOE laboratories. Five high school science student honors programs would be supported in FY 1988 at the Lawrence Livermore, Brookhaven, Lawrence Berkeley, Oak Ridge, and Fermi National Laboratories. Students would be selected for participation in these programs by the Governors of the respective States. Similar institutes sponsored in FY 1985 and FY 1986 have received national visibility and acclaim as ways of exposing the very best high school science students to the world-class research facilities and programs at the DOE laboratories.

The ongoing programs and activities and the expansion proposed for the URS Program represent the Department's long term commitment to ensuring stability and continuity in the support of student-related programs by taking full advantage of the unique resources and facilities of the Department's national laboratories for university research and scientific education.

DEPARTMENT OF ENERGY
FY 1988 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT
(dollars in thousands)

LEAD TABLE

University Research Support

	FY 1986 Actual		FY 1987 Appropriation	FY 1988 Base	FY 1988 Request	% Change from FY 1987 Approp.
University Laboratory Research	$ 5,714		$10,575 c/	$10,575	$ 9,800	- 7
University Reactor Fuel Assistance	3,626		3,900	3,900	1,900	-51
Energy Manpower Development	828		1,300	1,300	1,700	+31
Total	$10,168	a/ b/	$15,775	$15,775	$13,400	-15
Operating Expenses	($10,168)	a/ b/	($15,775)	($15,775)	($13,400)	-15
Total Program	($10,168)	a/ b/	($15,775) c/	($15,775)	($13,400)	-15
Staffing (FTEs)						

Authorization: Section 209, P.L. 95-91, Section 31, Atomic Energy Act of 1954, Section 103 P.L. 93-483.

a/ Total has been reduced by $128,000 which has been transferred to SBIR program.
b/ Total has been reduced by $404,000 in accordance with P.L. 99-177, the Balanced Budget and Emergency Deficit Control Act of 1985 (Gramm/Rudman/Hollings).
c/ Total includes $3,800,000 for Center for Excellence in Education, Indiana University, proposed for rescission by the Administration in FY 1987.

DEPARTMENT OF ENERGY
FY 1988 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT
(dollars in thousands)

SUMMARY OF CHANGES

University Research Support

FY 1987 Appropriation enacted	$15,775
- Expand the Lab Coop program budget to support semester length research appointments for advanced research opportunities for undergraduate science and engineering students at five DOE multiprogram laboratory science centers	+2,000
- Increase number of faculty and student research/education appointments at the DOE labs by 10%	+725
- Reduce support for refueling of university research reactors and for reactor sharing grants	-2,000
- Increase support for precollege science student/teacher programs at DOE labs	+400
- Completes support for Center for Excellence in Education at Indiana University (FY 1987 support proposed for rescission by the Administration)	-3,800
- Increase support for laboratory technology transfer activities, including visiting industrial scientists appointments	+300
FY 1988 Congressional Budget Request	$13,400

DEPARTMENT OF ENERGY
FY 1988 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT
(dollars in thousands)

KEY ACTIVITY SUMMARY

UNIVERSITY RESEARCH SUPPORT

I. Preface: University Laboratory Research

Support is provided to DOE laboratories and university consortia for the placement of faculty, graduate, and undergraduate students for summer or academic year research and education activities. One of the principal objectives is to take full advantage of the unique resources and facilities at the DOE laboratories for faculty and student research and related education. This subprogram also includes support for technology exchange research involving the major DOE multiprogram laboratories. This effort takes advantage of the scientific and technological capabilities at the DOE laboratories with the purpose of helping to enhance the Nation's industrial competitiveness.

II. A. Summary Table

Program Activity	FY 1986	FY 1987	FY 1988	% Change
University Laboratory Research....	$5,714	$10,575	$9,800	- 7

II. B. Major Laboratory and Facility Funding

Ames Laboratory.....	$ 135	$ 120	$ 200	+ 67
Argonne National Laboratory.....	1,522	1,575	1,700	+ 8
Brookhaven National Laboratory....	511	525	600	+ 14
DuPont E. I. Denemours.....	120	120	150	+ 25
Idaho National Engineering Lab....	71	60	0	--
Lawrence Berkeley Laboratory.....	330	175	375	+114
Los Alamos National Laboratory....	20	0	0	--
Oak Ridge National Laboratory.....	309	260	350	+ 35
Pacific Northwest Laboratories....	0	113	75	- 34
Sandia National Laboratory.....	0	50	0	--
Fermi National Laboratory.....	29	50	50	--
Monsanto Research Corporation.....	72	75	100	+ 33
Total.....	$3,119	$3,123	$3,600	+ 15

III. Activity Descriptions

Program Activity	FY 1986	FY 1987	FY 1988
University Laboratory Research	Supported 2,000 faculty/student research/education appointments at DOE labs and provided cost-shared support for four visiting industrial scientist research appointments at labs. Funded one joint lab/HBCU research and manpower development effort. ($5,714)	Increase number of faculty/student appointments at labs to 2,300 and fund research associated with 25 visiting industrial scientist appointments at DOE labs. Each appointment will be significantly cost-shared with the participating companies. This effort is part of the DOE technology transfer responsibility. ($6,775)	Supports 2,500 faculty/student research and education appointments at DOE laboratory and university consortia and two laboratory/HBCU joint research and manpower development projects ($6,800). Supports 25 to 30 cost-shared visiting industrial scientist research appointments and related technology transfer responsibilities at DOE laboratories. ($1,000)
	No activity.	No activity.	Expand lab coop program to support semester length research appointments for undergraduate science and engineering students at five DOE multiprogram laboratory science centers. ($2,000)
	No activity.	Provides support for Center for Excellence in Education, Indiana University. (Proposed for rescission in FY 1987 by the Administration.) ($3,800)	No activity.
Subtotal University Laboratory Research	$ 5,714	$10,575	$ 9,800

I. Preface: University Reactor Fuel Assistance

Provides support associated with the fabrication and shipping of nuclear fuel for university-based nuclear research/training reactors. The university-based nuclear research and manpower development effort is highly dependent on these specialized facilities, not only for nuclear related training, but also for research in the basic sciences. This subprogram also includes support on a competitive basis for university reactor sharing grants which provide research and training opportunities for faculty/students from nearby universities and colleges.

II. A. Summary Table

Program Activity	FY 1986	FY 1987	FY 1988	% Change
University Reactor Fuel Assistance	$ 3,626	$ 3,900	$ 1,900	- 51

II. B. Major Laboratory and Facility Funding

Argonne National Laboratory.....	$ 98	$ 215	$ 175	-19
Brookhaven National Laboratory....	162	15	15	--
DuPont E. I. Denemours.....	25	25	25	--
Hanford Engineering Develop. Lab..	150	0	0	--
Idaho National Engineering Lab....	1,301	2,455	1,300	-47
Pacific Northwest Laboratories....	110	0	0	--
Fermi National Laboratory.....	15	0	0	--
Total.....	$1,861	$2,710	$1,515	- 44

III. Activity Descriptions

Program Activity	FY 1986	FY 1987	FY 1988
University Reactor Fuel Assistance	Refueled five university nuclear reactors ($1,301) and supported 20 reactor sharing awards ($399).	Provide refueling for seven university reactors ($1,500) and fund 20 reactor sharing awards ($400).	Provide refueling for two HEU fueled university reactors and stretches out schedule for additional five reactors for which LEU fuel would be scheduled to be ordered in FY 1988 ($600) and fund 20 reactor sharing awards involving scientists from 50 colleges and universities ($400).
	Initiated support for NRC mandated conversion to Low Enriched Uranium (LEU) fuel. Supported seven conversion safety analysis studies, spent fuel shipping and shipping cask development. ($1,926)	Continued support for NRC mandated conversion to LEU fuel. Supported five new safety analysis studies, procured LEU fuel for three reactors, completed shipping cask certification and moved HEU fuel from four reactors. ($2,000)	Reduces support for NRC mandated conversion to LEU fuel, thereby stretching out original schedule. Supports three safety analysis reviews anticipating planned LEU conversion in the future ($900).
Subtotal University Reactor Fuel Assistance	$ 3,626	$ 3,900	$ 1,900

I. Preface: Energy Manpower Development

This program supports the continued collection and analysis of base line data on the employment, utilization, and supply of engineers and scientists relative to energy-related manpower supply/demand. This activity also supports the Department's longer term R&D mission by encouraging students to pursue energy-related scientific and technical careers through activities such as the Pre-Freshman Engineering Program (PREP), high school science teacher institutes, and the DOE high school science student honors program.

II. A. Summary Table

Program Activity	FY 1986	FY 1987	FY 1988	% Change
Energy Manpower Development.....	$ 828	$ 1,300	$ 1,700	+ 31

II. B. Major Laboratory and Facility Funding

Pacific Northwest Laboratories....	$ 0	$ 20	$ 0	-100

III. Activity Descriptions

Program Activity	FY 1986	FY 1987	FY 1988
Energy Manpower Development	Continued analyses of energy-related manpower supply/demand data. ($443)	Support energy/manpower supply/demand analyses. ($500)	Supports manpower analyses at same operating level as in FY 1987. ($500)
	Supported 21 Pre-Freshman Engineering (PREP) projects involving 2,300 minority and women precollege students. ($385)	Fund 21 PREP projects reaching 2,300 students. ($300)	Supports 25 PREP projects reaching 2,500 women and minority junior high school students. ($350)
	No activity.	Support laboratory-based precollege program including high school student honors programs at LLNL, BNL, and Fermi labs. Students are selected for participation in these programs by the respective state Governors. ($500)	Supports laboratory-based precollege science student/teacher programs including five national high school science student honors at LLNL, BNL, ORNL, Fermi Lab, and LBL. ($850)
Subtotal Energy Manpower Development	$ 828	$ 1,300	$ 1,700
Total University Research Support	$10,168	$15,775	$13,400