

DEPARTMENT OF ENERGY
FY 1992 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT

OVERVIEW

UNIVERSITY AND SCIENCE EDUCATION

There is a growing national consensus that one of the most serious problems facing the Nation over the next several years is the declining number of young Americans, including women and minorities, interested in pursuing careers in science and engineering. This problem is further compounded by the often poor and inadequate preparation received by young students interested in such careers. The crisis in science education has serious implications for the Nation's continued international economic and technological competitiveness. The Administration and the Governors have designated improving science and mathematics education as one of the goals for education reform by the turn of the century. This includes the goal of making U.S. students first in the world in mathematics and science achievement by the year 2000.

Future success in meeting the Department's science, energy and defense R&D missions is also heavily dependent on the quantity and quality of the Department's scientific and technical workforce. In order to carry out these missions, DOE is both a user and a patron of a large fraction of the Nation's scientific and technical workforce. The Department and its predecessor agencies have historically supported programs designed to help replenish the Nation's scientific manpower pool, while at the same time encouraging young students to pursue scientific and technical careers in fields of direct programmatic interest to the Department. The University and Science Education Program (USE) is the primary programmatic approach used by DOE to strengthen the Nation's science education and research infrastructure to ensure their effective contribution to the Department's long-range R&D missions. Much of this support involves the use of the unique facilities and resources at the Department's national laboratories and research facilities to assist in science education from the precollege through postdoctoral levels. The USE program also includes the Department's technology transfer program which encourages the development of links between the Department's laboratories and private industry for the purpose of accelerating the transfer of Department-supported technology to the private sector. Specifically, the USE program consists of five major subprograms and a set of interrelated program activities which focus on the following primary objectives:

- Utilize the unique resources of the Department's laboratories (scientists, facilities and equipment) to assist in the national effort to strengthen the Nation's economical and

technological competitiveness and to strengthen educational competitiveness by enhancing both university faculty and student research and precollege science education;

- Strengthen university capability to perform long-range R&D, including providing support for state-of-the-art instrumentation;
- Enhance the quality and increase the numbers of young people, including minorities and women, interested in pursuing energy-related scientific/technical careers; and
- Facilitate spin-off of technology from the national laboratories to U.S. industry and university sectors.

The first USE subprogram, Laboratory Cooperative Science Centers, includes support for precollege student and teacher research and training; and for undergraduate, graduate and faculty research appointments at DOE laboratories and DOE university consortia. The FY 1992 request builds on a historically strong base of involvement of the DOE laboratories in science education at both the precollege and university level and implements the Administration's commitment to improve mathematics and science education in the U.S. This commitment was also the focus of a Math/Science Education Action Conference cohosted by the Secretary of Energy James D. Watkins and Nobel Laureate Glenn T. Seaborg in Berkeley, California, early in FY 1990. Support will be provided for comprehensive programs at the national, regional and local level conducted at several laboratories that have made an institutional commitment to support science education through the establishment of Science Centers. This includes 1) summer and semester-length research appointments for undergraduate science and engineering students; 2) summer and academic-year appointments for university faculty and graduate students and 3) support for precollege student and teacher research appointments including the prestigious DOE High School Science Students Honors Research Program. Continued support is also requested in the FY 1992 budget for precollege mathematics science education initiatives conducted at the DOE laboratories in response to recommendations from the Mathematics Sciences Education Board of the National Academy of Sciences. Finally, funding is requested to support a number of rural/urban school partnerships developed by the DOE laboratories in response to the recommendations of the Berkeley Math/Science Education Action Conference.

The second USE subprogram, University Programs, includes support for university-based efforts directed at encouraging more young people, including minorities and women, to pursue energy-related scientific and technical careers. Continued cost-shared support will also be provided for the development of travelling museum exhibitions and related classroom educational materials on DOE-related scientific and technical program activities. Support is requested to continue the expansion of the Department's Prefreshman Enrichment Program (PREP) to involve 7,000 middle-school students in summer workshops on mathematics,

science, and engineering conducted by universities on their campuses. A new initiative is proposed to retain women/minority students in the math/science pipeline who are interested in careers as pre-college science or mathematics teachers. Finally support is requested for DOE laboratory/minority university alliances.

The third USE subprogram, University Reactor Fuel Assistance, provides support for refueling and related activities for university nuclear research and training reactors. Increased support is requested to continue the conversion of university reactors to Low Enriched Uranium (LEU) fuel.

The fourth USE subprogram, University Research Instrumentation (URI), will provide competitive support for the acquisition of state-of-the-art research instrumentation by DOE-sponsored university researchers. The URI program assists the Department's energy research and technology programs by helping universities purchase instruments which cost in excess of \$100,000, and which will be required by a number of faculty researchers. URI awards are made to universities based on both the merit and accomplishments of current DOE-sponsored university research projects and the degree to which the new equipment will enable university scientists to substantially advance understanding of energy-related phenomena. A total of 160 URI awards at a cost of \$33,990,000 have been made in the past seven years ranging from \$100,000 to \$500,000 (the average award being \$210,000). Total cost sharing provided by the universities has been \$9,750,000.

The fifth USE subprogram, R&D Laboratory Technology Transfer, provides support for Cooperative Research and Development Agreements (CRADAs) at the five Energy Research laboratories with a Spinoff Technology Applications and Partnerships Program. This spinoff technology transfer initiative is designed to increase substantially the contribution of the Energy Research laboratories to U.S. industrial competitiveness, and thereby respond directly to the National Energy Strategy technology transfer goal. Support is also provided for a centralized communication of opportunities and accomplishments in technology transfer at DOE laboratories as mandated by the Stevenson-Wydler Technology Innovation Act of 1980 (as amended by P.L. 99-502). In addition, this subprogram provides jointly funded support for industry scientists and engineers to work on assignments at DOE laboratories, with laboratory scientists, to transfer DOE-developed technology to the private sector for commercial applications.

DEPARTMENT OF ENERGY
 FY 1992 CONGRESSIONAL BUDGET REQUEST
 ENERGY SUPPLY RESEARCH AND DEVELOPMENT
 (dollars in thousands)

LEAD TABLE

University and Science Education Program

Activity	FY 1990 Enacted	FY 1991 Enacted	FY 1992 Base	FY 1992 Request	Program Change Request vs Base	
					Dollar	Percent
Laboratory Cooperative Science Centers.....	\$11,571	\$24,030	\$24,030	\$27,563	\$+ 3,533	+ 15%
University Programs.....	6,822	11,900	11,900	7,750	- 4,150	- 35%
University Reactor Fuel Assistance.....	4,020	3,205	3,205	3,730	+ 525	+ 16%
University Research Instrumentation.....	4,869	4,895	4,895	4,998	+ 103	+ 2%
R&D Laboratory Technology Transfer.....	2,192	2,586	2,586	4,900	+ 2,314	+ 89%
Total Program (OE).....	\$29,474 a/	\$46,616 b/	\$46,616	\$48,941	\$+ 2,325	+ 5%

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

- a/ Total has been reduced by \$371,000 which has been transferred to the SBIR program.
 b/ Includes \$35,930,000 for education programs funded in the Atomic Energy Defense Activities account.

DEPARTMENT OF ENERGY
 FY 1992 CONGRESSIONAL BUDGET REQUEST
 ENERGY SUPPLY RESEARCH AND DEVELOPMENT
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SUMMARY OF CHANGES

University and Science Education

FY 1991 Enacted Appropriation.....	\$ 46,616
- Broaden support for faculty/student and related education appointments, increase number of participants in precollege education programs at DOE labs, and expand laboratory rural/urban partnership programs.....	+3,533
- Broaden Pre-Freshman Enrichment Projects (PREP) to reach additional women/minority students and increase number of awards.....	+1,300
- Maintain efforts in manpower assessment.....	+ 150
- Provide support for DOE laboratory/minority university alliance with LBL/Jackson State University/Mendez Foundation.....	+1,000
- Provide support for a Science and Technology Alliance involving three DOE laboratories and three predominantly minority universities.....	+2,000
- Support pilot grants to retain women/minority students in math/science pipeline who are prepared to teach at precollege level.....	+ 400
- Increase support for university reactor refueling and conversion of reactors to LEU fuel.....	+1,519
- Maintain support for university research instrumentation awards.....	+ 103

- Provide support for Cooperative Research and Development Agreements (CRADAs) at DOE multiprogram laboratories with a Spinoff Technology Applications and Partnership Program.....	+2,314
- Discontinue nuclear engineering research and education program.....	-5,000
- Discontinue Experimental Program to Stimulate Competitive Research (EPSCoR).....	-4,000
- Discontinue reactor upgrade program.....	<u>- 994</u>
FY 1992 Congressional Budget Request.....	\$48,941

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 (dollars in thousands)

KEY ACTIVITY SUMMARY

UNIVERSITY AND SCIENCE EDUCATION

I. Preface: Laboratory Cooperative Science Centers

Support is provided for precollege science students and teachers and for university faculty, graduate, and undergraduate students to participate in summer and semester-length research and education activities at DOE laboratories. The objectives of this effort are to provide hands on research experience in cutting edge science thereby stimulating students to prepare for careers in science and technology fields and enhancing the knowledge and skills of their teachers and faculty. The principal approach of this program takes full advantage of the unique resources and facilities at the DOE laboratories for research and support of related education. Support is also provided for high school science student honors research, science teacher research appointments, undergraduate science semester program research, university level research, and for laboratory partnerships with rural and urban schools.

II. A. Summary Table: Laboratory Cooperative Science Centers

Program Activity	FY 1990 Enacted	FY 1991 Enacted	FY 1992 Request	% Change
Laboratory Cooperative Science Centers.....	\$ 11,571	\$ 24,030	\$ 27,563	+ 15
Total, Laboratory Cooperative Science Centers	\$ 11,571	\$ 24,030	\$ 27,563	+ 15

II. B. Major Laboratory and Facility Funding

Ames Laboratory	\$ 83	\$ 85	\$ 135	+ 59
Argonne National Laboratory	\$ 2,812	\$ 4,148	\$ 4,641	+ 12
Brookhaven National Laboratory	\$ 958	\$ 1,170	\$ 1,502	+ 28
Fermi National Accelerator Laboratory	\$ 432	\$ 765	\$ 1,000	+ 31
Lawrence Berkeley National Laboratory	\$ 859	\$ 1,180	\$ 1,229	+ 4
Lawrence Livermore National Laboratory	\$ 175	\$ 155	\$ 341	+120
Los Alamos National Scientific Laboratory	\$ 382	\$ 685	\$ 819	+ 20
Mound Facility	\$ 67	\$ 95	\$ 135	+ 42
Oak Ridge Associated Universities	\$ 1,792	\$ 2,150	\$ 2,730	+ 27
Oak Ridge National Laboratory	\$ 668	\$ 890	\$ 1,365	+ 53
Pacific Northwest Laboratory	\$ 315	\$ 650	\$ 950	+ 46
Savannah River Ecology Laboratory	\$ 88	\$ 88	\$ 135	+ 53
Savannah River Laboratory	\$ 17	\$ 70	\$ 135	+ 93

III. Activity Descriptions: (New BA in thousands of dollars)

Program Activity	FY 1990	FY 1991	FY 1992
Laboratory Cooperative Science Centers			
Laboratory Cooperative Science Centers	Support semester-length research appointments for 450 science/engineering undergraduate students at six laboratory science centers (ANL, BNL, LBL, ORNL, PNL and LANL) and 36 faculty/student research teams. Provides support for 2,000 summer faculty/student research appointments at 10 DOE laboratories. (\$9,402)	Consistent with the Secretary's commitment to more fully utilize the Department's lab resources in improving science education, support a variety of student and teacher/faculty research activities at DOE laboratories and support laboratory-university partnerships to undertake initiatives to increase minority student access to energy-related research careers. (\$11,970)	Support precollege and university-level student/teacher/faculty research appointments and related science education activities at DOE labs maintaining graduate activities at FY 1991 level while increasing precollege and undergraduate levels by 30% over the FY 1991 level. Includes summer and semester length research appointments for undergraduate students, with special emphasis on underrepresented minorities including women; and summer/academic year research appointments. (\$14,763)
	Support for laboratory-based precollege science student and teacher programs including seven DOE high school science student honors research programs involving 364 nationally-selected students. Also provides support for 150 high school science teacher research appointments at 14 DOE laboratories. (\$2,169)	Continue support for lab-based precollege science student programs and support an increase in highest priority programs involving precollege science teacher research associate appointments and additional minority high school research apprenticeship appointments to encourage more students to stay in the math/science pipeline. Also support initiation of a cost-shared program to encourage more science/engineering students to pursue careers in precollege science/math teaching and provide support for related collaborative projects with other Federal agencies. These efforts are in keeping with the priorities established during the Secretary's Math/Science Education Action Conference. (\$3,110)	Support precollege-level student/teacher research appointments and related science education activities at DOE labs at levels increased by 30% over FY 1991. Includes high school science student honors research, precollege teacher research appointments, and minority student research apprenticeships. (\$4,800)

III. Laboratory Cooperative Science Centers (Cont'd):

Program Activity	FY 1990	FY 1991	FY 1992
Laboratory Cooperative Science Centers (Cont'd)	No activity.	Initiate precollege mathematics science education program conducted at DOE labs. Provide support for summer research appointments for high school math teachers and summer institutes for middle school teachers and math coordinators on new concepts and techniques in math instruction. Provide support for cost-shared projects with NASA and NSF in development of new advanced computer graphics for use in middle-school science and math classes. Initiative includes major emphasis on participation of inner-city math teachers. (\$2,000)	Continue support for the precollege mathematics science education program at DOE laboratories. (\$2,000)
	No activity.	Initiate inner city/rural partnerships designed to revitalize math/science in targeted school districts as called for at the Secretary's Math/Science Education Action Conference and in the recent Task Force report on Women, Minorities and the Handicapped. Implements Secretary's commitment to near-term actions in support of improved science education for minorities and other disadvantaged groups. Provide support for collaborative projects, among DOE laboratories, other Federal agencies, and the public and private sectors. (\$6,950)	Provide support for 12-15 DOE laboratory rural/urban partnerships designed to strengthen precollege math/science education on local/regional basis. Provides expanded support for those partnership programs that have completed initial start-up phase. (\$6,000)
	\$ 11,571	\$ 24,030	\$ 27,563
Laboratory Cooperative Science Centers	\$ 11,571	\$ 24,030	\$ 27,563

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KEY ACTIVITY SUMMARY

UNIVERSITY AND SCIENCE EDUCATION

I. Preface: University Programs

Support is provided for science education and research-related efforts in areas of direct relevance to DOE where universities and colleges are the principal performers. Support is included for: scientific and technical manpower development efforts; the collection and analysis of data on the supply and demand of scientists and engineers for current and future energy R&D programs; and the summer institutes in science/math on college campuses for women and minority middle school students. Support is also provided for museum based exhibitions and related educational material on energy-related science.

II. A. Summary Table: University Programs

Program Activity	FY 1990 Enacted	FY 1991 Enacted	FY 1992 Request	% Change
University Programs.....	\$ 6,822	\$ 11,900	\$ 7,750	- 35
Total, University Programs	\$ 6,822	\$ 11,900	\$ 7,750	- 35

II. B. Major Laboratory and Facility Funding

Oak Ridge Associated Universities	\$ 551	\$ 400	\$ 500	+ 25
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III. Activity Descriptions: (New BA in thousands of dollars)

Program Activity	FY 1990	FY 1991	FY 1992
University Programs			
University Programs (Cont'd)	Continue nuclear engineering research program. (\$5,857)	Continue nuclear engineering research program at reduced level over FY 1990. (\$5,000)	No activity.
	Continue analyses of manpower in energy-related fields including assessment of needs for advanced degree professionals. (\$615)	Continue efforts at approximately FY 1990 level of activity. (\$550)	Support slightly increased efforts. (\$700)
	Support 20 Pre-Freshman Enrichment Program (PREP) reaching 1,500 junior high school women and minority students. (\$350)	Broaden focus of PREP to include all fields of science/math. Expand eligibility to include 6th grade students with repeat participation encouraged. Broadens focus of support provided for 33 awards, fully funded for two years at approximately \$20K per year. Enhanced program will reach 3,000 women/minority students in FY 1991 and 6,000 students in succeeding years. (\$1,350)	Increase number of awards to 40, reaching 7,000 students. (\$2,650)
	No activity.	Initiate museum-based science education program. Provide support for development of cost-shared museum science education exhibitions on major energy-related scientific programs. Exhibitions (including special precollege student/teacher materials) would travel to ten urban science museums over two year period reaching over one million adults, teachers and students. (\$1,000)	Provide continued funding for Museum Science Education Program at FY 1991 level. (\$1,000)

III. University Programs (Cont'd):

Program Activity	FY 1990	FY 1991	FY 1992
University Programs (Cont'd)	No activity.	No activity.	Provide support for DOE laboratory/minority university alliances which include precollege science education activities with emphasis on underrepresented minorities, including an alliance with LBL/Jackson State University/Mendez Foundation (\$1,000), and a Science and Technology Alliance involving three DOE laboratories and three predominantly minority universities (\$2,000).
	No activity.	No activity.	Provide support for 10 pilot grants to retain women/minority students in math/science pipeline who are prepared to teach at precollege level (\$400).
	No activity.	Initiate an Experimental Program to Stimulate Competitive Research (EPSCoR) by providing support for planning grants (\$2,000) for the development of a state-wide infrastructure improvement plan for energy related research and human resources development within designated NSF EPSCoR states; and by providing support in EPSCoR states for energy-related graduate traineeships in energy-related scientific and technical educational disciplines. (\$2,000)	No activity.
	\$ 6,822	\$ 11,900	\$ 7,750
University Programs	\$ 6,822	\$ 11,900	\$ 7,750

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KEY ACTIVITY SUMMARY

UNIVERSITY AND SCIENCE EDUCATION

I. Preface: University Reactor Fuel Assistance

Provides support associated with the fabrication and shipping of nuclear fuel for university-based 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. Support is provided through this program for the NRC-mandated conversion of university reactors to low enriched uranium (LEU) fuel. 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 without direct access to research reactors.

II. A. Summary Table: University Reactor Fuel Assistance

Program Activity	FY 1990 Enacted	FY 1991 Enacted	FY 1992 Request	% Change
University Reactor Fuel Assistance.....	\$ 4,020	\$ 3,205	\$ 3,730	+ 16
Total, University Reactor Fuel Assistance	\$ 4,020	\$ 3,205	\$ 3,730	+ 16

II. B. Major Laboratory and Facility Funding

Argonne National Laboratory	\$ 196	\$ 0	\$ 50	>999
Idaho National Engineering Laboratory - EG&G	\$ 1,770	\$ 1,770	\$ 2,900	+ 64

III. Activity Descriptions: (New BA in thousands of dollars)

Program Activity	FY 1990	FY 1991	FY 1992
University Reactor Fuel Assistance			
University Reactor Fuel Assistance	Provide refueling for two reactors requiring high enriched uranium (HEU) fuel (MIT and Missouri) and continues LEU conversion activities at four reactors (Virginia, Missouri-Rolla, Iowa State and Georgia Tech). Supports 20 reactor sharing grants. (\$1,647)	Provide continuing fuel support for University of Missouri and MIT and supports 20 reactor sharing grants. Supports LEU fuel fabrication for University of Michigan and Rhode Island reactors. (\$2,211)	Provide support for university reactor refueling and increased funding for LEU conversion, including initiation of safety analysis reviews for future conversion of four TRIGA reactors to LEU fuel. (\$3,730).
	Supports instrumentation upgrade for university reactors and provides reactor facility at Arkansas Technical University as mandated by Congress. (\$2,373)	Provides support for continuation of reactor instrumentation upgrade program. (\$994)	No activity.
	\$ 4,020	\$ 3,205	\$ 3,730
University Reactor Fuel Assistance	\$ 4,020	\$ 3,205	\$ 3,730

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KEY ACTIVITY SUMMARY

UNIVERSITY AND SCIENCE EDUCATION

I. Preface: University Research Instrumentation

Support is provided to universities for the purchase of state-of-the-art scientific research equipment costing over \$100,000. The principal objective of the program is to strengthen the ability of university scientists to conduct long-range research related to the high priority DOE fundamental science and energy technology research. 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: University Research Instrumentation

Program Activity	FY 1990 Enacted	FY 1991 Enacted	FY 1992 Request	% Change
----- University Research Instrumentation.....	\$ 4,869	\$ 4,895	\$ 4,998	+ 2
Total, University Research Instrumentation	\$ 4,869	\$ 4,895	\$ 4,998	+ 2
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III. Activity Descriptions: (New BA in thousands of dollars)

Program Activity	FY 1990	FY 1991	FY 1992
University Research Instrumentation			
University Research Instrumentation	Supports 20-22 competitively selected university research instrumentation awards.	Similar level to FY 1990.	Similar level to FY 1991.
	\$ 4,869	\$ 4,895	\$ 4,998
University Research Instrumentation	\$ 4,869	\$ 4,895	\$ 4,998

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KEY ACTIVITY SUMMARY

UNIVERSITY AND SCIENCE EDUCATION

I. Preface: R&D Laboratory Technology Transfer

This program provides support for: 1) coordination and communication of technology transfer opportunities at the DOE laboratories; 2) cost-shared personnel exchanges between the laboratories and the private sector; and 3) cost-shared Cooperative Research and Development Agreements (CRADAs) at the Energy Research laboratories. The centralized communication of DOE laboratory technology transfer opportunities and accomplishments is mandated by the Stevenson-Wydler Technology Transfer Act of 1980 (as amended by P.L. 99-502 and P.L. 101-189). This program provides for coordination of laboratory Offices of Research and Technology Applications (ORTAs) and database support. Person-to-person interactions to promote technology transfer between the laboratories and the private sector are carried out through cost-shared support of industry-laboratory and university-laboratory personnel exchanges at the major DOE laboratories. Consistent with the National Competitiveness Technology Transfer Act of 1989, the new Spinoff Technology Applications and Partnership Program will support cost-shared CRADAs at Energy Research multiprogram laboratories. This program is aimed at substantially increasing the spinoff technology transfer contribution of Energy Research laboratories to U.S. industrial competitiveness.

II. A. Summary Table: R&D Laboratory Technology Transfer

Program Activity	FY 1990 Enacted	FY 1991 Enacted	FY 1992 Request	% Change
R&D Laboratory Technology Transfer.....	\$ 2,192	\$ 2,586	\$ 4,900	+ 89
Total, R&D Laboratory Technology Transfer	\$ 2,192	\$ 2,586	\$ 4,900	+ 89

II. B. Major Laboratory and Facility Funding

Ames Laboratory	\$ 83	\$ 125	\$ 125	0
Argonne National Laboratory	\$ 281	\$ 210	\$ 710	+238
Brookhaven National Laboratory	\$ 29	\$ 210	\$ 710	+238
Fermi National Accelerator Laboratory	\$ 0	\$ 125	\$ 125	0
Idaho National Engineering Laboratory - EG&G	\$ 0	\$ 210	\$ 210	0
Lawrence Berkeley National Laboratory	\$ 305	\$ 210	\$ 710	+238
Lawrence Livermore National Laboratory	\$ 29	\$ 210	\$ 210	0
Los Alamos National Scientific Laboratory	\$ 0	\$ 210	\$ 210	0
Oak Ridge National Laboratory	\$ 162	\$ 210	\$ 710	+238
Pacific Northwest Laboratory	\$ 382	\$ 210	\$ 710	+238
Sandia National Laboratories	\$ 32	\$ 210	\$ 210	0
Solar Energy Research Institute	\$ 29	\$ 125	\$ 125	0

III. Activity Descriptions: (New BA in thousands of dollars)

Program Activity	FY 1990	FY 1991	FY 1992
R&D Laboratory Technology Transfer			
R&D Laboratory Technology Transfer	<p>Fund 30 industry-laboratory technology exchange assignments at multiprogram and major single program laboratories.</p> <p>Provide support for program activities, including communication of DOE laboratory technology transfer accomplishments, as mandated by P.L. 99-502.</p> <p>Fund additional highly leveraged laboratory technology transfer initiatives that have the prospect of broad applications in response to increased opportunities as laboratory technology transfer programs expand.</p>	<p>Fund 30 industry-laboratory exchange assignments and emphasize 2-way exchanges. Initiate university-laboratory exchange assignments for technology transfer purposes.</p> <p>Continue centralized communication of laboratory opportunities and accomplishments, as mandated by P.L. 99-502 and perform planning for a data base of research in progress and laboratory capabilities.</p> <p>Continue funding cost-shared laboratory technology transfer initiatives including the partnership concept with State economic development activities and jointly funded projects to bridge the gap between laboratory technology and development and industry needs.</p>	<p>Fund 30 industry-laboratory and university laboratory personnel exchanges for technology transfer.</p> <p>Provide a central communication point for opportunities and accomplishments as mandated by the Stevenson-Wydler Act. Provide for workshops of laboratory technology transfer personnel and development of databases, evaluations, exhibits and publications.</p> <p>Carry out the goals of the National Competitive Technology Transfer Act of 1989 by providing support for Cooperative Research and Development Agreements (CRADAs) at the five Energy Research multiprogram laboratories with a Spinoff Technology Applications and Partnerships Program, which would support applications development based on technology opportunities for spinoff technology transfer in such areas as biotechnology and materials sciences.</p>
	\$ 2,192	\$ 2,586	\$ 4,900
R&D Laboratory Technology Transfer	\$ 2,192	\$ 2,586	\$ 4,900