

DEPARTMENT OF ENERGY
FY 1993 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT

OVERVIEW

UNIVERSITY AND SCIENCE EDUCATION

There is a 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, indicating interest in pursuing careers in science, mathematics 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 therefore 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 (USE) Program 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. Specifically, the USE program consists of four 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 and the refueling of university nuclear research reactors; and
- Enhance the quality and increase the numbers of young people, including minorities and women, interested in pursuing energy-related scientific/technical careers.

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 1993 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. as described in the report "By The Year 2000" prepared by the FCCSET Committee on Education and Human Resources (EHR) in January 1991. 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 comprehensive science education 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 and the DOE Teacher Research Associates Program. Support is requested in the FY 1993 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. Support is requested for a number of rural/urban school partnerships developed by the DOE laboratories in response to the recommendations of the 1989 Berkeley Math/Science Education Action Conference and in relation to the priorities developed by the FCCSET/EHR Committee.

Overview - UNIVERSITY AND SCIENCE EDUCATION (Cont'd)

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 as well as support for energy-related manpower analyses and assessments. 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 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. Funds are requested to initiate ten nationally competitive postdoctoral research appointments in energy related scientific and technical disciplines and support is requested for continued support of DOE laboratory/minority university collaborative research and education programs.

The third USE subprogram, University Reactor Fuel Assistance, provides support for refueling and related activities for university nuclear research and training reactors and continuation of 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.

This budget includes \$40.8M in FY 1992 and \$46.3M in FY 1993 in support of education activities.

**DEPARTMENT OF ENERGY
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(dollars in thousands)**

LEAD TABLE

University and Science Education Program

<u>Activity</u>	<u>FY 1991 Enacted</u>	<u>FY 1992 Enacted</u>	<u>FY 1993 Base</u>	<u>FY 1993 Request</u>	<u>Program Change Request vs Base</u>	
					<u>Dollar</u>	<u>Percent</u>
Laboratory Cooperative Science Centers	\$23,910	\$26,063	\$26,063	\$36,563	\$10,500	40%
University Programs	13,020 a/	18,750	18,750	9,750	(9,000)	-48%
University Reactor Fuel Assistance	3,181	4,730	4,730	3,730	(1,000)	-21%
University Research Instrumentation	4,834	4,998	4,998	5,647	649	13%
Total Program (OE)	\$44,945 a/b	\$54,541	\$54,541	\$55,690	\$1,149	2%
Less activities funded in Atomic Energy and Defense Activities/Materials						
Production and Other Defense Programs	(35,930)	(22,400)	(22,400)	(22,400)	0	0%
Total Energy Supply R&D	\$9,015	\$32,141	\$32,141	\$33,290	\$1,149	4%

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

a/ Includes reprogramming from Conservation and Renewable Energy (\$700,000) and Nuclear Energy (\$300,000) for Clark/Atlanta University.
b/ Total has been reduced by \$89,000 which has been transferred to the SBIR program, \$90 for FY 1991 sequester, and \$44,000 for General Reduction.

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SUMMARY OF CHANGES

University and Science Education

FY 1992 Appropriation	\$54,541
- Continued support for precollege and university-level research appointments and related activities at a level slightly above FY 1992	+1,477
- Continue support for laboratory rural/urban partnerships at a level slightly above FY 1992	+3,023
- Increased support for precollege student/teacher research appointments	+1,000
- Initiate postdoctoral fellowship program to support 10 postdoctoral appointments in related scientific and technical disciplines	+2,000
- Provide support for teacher training institutes for middle/high school science/math teachers at DOE laboratories.	+5,000
- Discontinue nuclear engineering program	-5,000
- Reduce support for laboratory/minority university alliances	-1,000
- Discontinue EPSCoR program	-5,000
- Discontinue reactor instrumentation upgrade program	-1,000
- Increase in instrumentation grants	<u>+649</u>
FY 1993 Congressional Budget Request	\$55,690

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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 math/science education. Support is also provided in this activity element for high school science student honors research, science teacher research appointments and other precollege science/math education activities. The following activities are part of the Education FCCSET crosscut.

II. A. Summary Table: Laboratory Cooperative Science Centers

Program Activity	FY 1991 Enacted	FY 1992 Enacted	FY 1993 Request	% Change
Laboratory Cooperative Science Centers.....	\$ 23,910	\$ 26,063	\$ 36,563	+ 40
Total, Laboratory Cooperative Science Centers	\$ 23,910	\$ 26,063	\$ 36,563	+ 40

II. B. Major Laboratory and Facility Funding

Ames Laboratory	\$ 252	\$ 190	\$ 190	0
Argonne National Laboratory (East)	\$ 4,779	\$ 4,500	\$ 4,600	+ 2
Brookhaven National Laboratory	\$ 1,282	\$ 1,500	\$ 1,550	+ 3
Fermi National Accelerator Laboratory	\$ 809	\$ 900	\$ 950	+ 6
Lawrence Berkeley National Laboratory	\$ 1,296	\$ 1,350	\$ 1,430	+ 6
Lawrence Livermore National Laboratory	\$ 630	\$ 450	\$ 485	+ 8
Los Alamos National Laboratory	\$ 685	\$ 750	\$ 810	+ 8
Mound Facility	\$ 95	\$ 130	\$ 130	0
Oak Ridge Associated Universities	\$ 2,337	\$ 2,300	\$ 2,370	+ 3
Oak Ridge National Laboratory	\$ 957	\$ 850	\$ 910	+ 7
Pacific Northwest Laboratory	\$ 670	\$ 650	\$ 710	+ 9
Savannah River Ecology Laboratory	\$ 118	\$ 100	\$ 100	0
Savannah River Laboratory	\$ 217	\$ 70	\$ 70	0
Sandia National Laboratories	\$ 785	\$ 600	\$ 610	+ 2

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

Program Activity	FY 1991	FY 1992	FY 1993
Laboratory Cooperative Science Centers	Consistent with the Secretary's commitment to more fully utilize the Department's lab resources in improving science education, supported a variety of student and teacher/faculty research activities at DOE laboratories and supported laboratory-university partnerships to undertake initiatives to increase minority student access to energy-related research careers. (\$11,850)	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 10% over the FY 1991 level. Support includes summer and semester length research appointments for undergraduate students, with special emphasis on underrepresented minorities including women; and summer/academic year research appointments. (\$13,263)	Provides for slightly increased support for precollege and university-level student/teacher/faculty research appointments and related science education activities at DOE labs. Includes summer and semester length research appointments for undergraduate students, with special emphasis on underrepresented minorities including women; and summer/academic year research appointments. (\$14,740)
Laboratory Cooperative Science Centers	Continued support for lab-based precollege science student programs and supported 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 supported initiation of a cost-shared program to encourage more science/engineering students to pursue careers in precollege science/math teaching and provided 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 Conference. (\$3,110)	Support national 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)	Provides for increased support for national precollege-level student/teacher research appointments and related science education activities at DOE labs. Includes high school science student honors research, precollege teacher research appointments, and minority student research apprenticeships. (\$5,800)

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

Program Activity	FY 1991	FY 1992	FY 1993
Laboratory Cooperative Science Centers (Cont'd)	<p>Initiated precollege mathematics science education program conducted at DOE labs. Provided 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. Initiative included major emphasis on participation of inner-city math teachers. (\$2,000)</p>	<p>Continue support for the precollege mathematics science education program at DOE laboratories. (\$2,000)</p>	<p>Continue support at the FY 1992 level for the precollege mathematics science education program at DOE laboratories. (\$2,000)</p>
	<p>Initiated 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. Implemented Secretary's commitment to near-term actions in support of improved science education for minorities and other disadvantaged groups. Provided support for collaborative projects, among DOE laboratories, other Federal agencies, and the public and private sectors. (\$6,950)</p>	<p>Continue support for DOE laboratory rural/urban partnerships designed to strengthen precollege math/science education on local/regional basis. Partnerships include support for technical assistance from laboratory scientists to assist partnership systems in achieving long-term, systemic reform in teaching of science and mathematics. Also includes support for research appointments for students/teachers at laboratories and for equipment loans and grants. Provides continued support for those partnership programs that have completed initial start-up phase. (\$6,000)</p>	<p>Provide support for DOE laboratory rural/urban partnerships designed to strengthen precollege math/science education on local/regional basis. (\$9,023)</p>
	<p>No activity.</p>	<p>No activity.</p>	<p>Provide support for 10 four-week teacher training institutes (50 teachers per institute) for middle/high school science/math teachers at DOE laboratories. (\$5,000)</p>
	\$ 23,910	\$ 26,063	\$ 36,563
Laboratory Cooperative Science Centers	\$ 23,910	\$ 26,063	\$ 36,563

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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, colleges and other non-DOE facilities 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 summer institutes in science/math on college campuses for women and minority middle school students. Support is also provided for the development and preparation of museum-based exhibits and related educational material on energy-related science technology. Funds are requested to support ten competitive postdoctoral research appointments in energy related scientific and technical disciplines and for DOE laboratory/minority university collaborative research and education programs. The following activities are part of the Education FCCSET crosscut except \$4.0M of the FY 1991 and FY 1992 Nuclear Engineering program which is research rather than education related.

II. A. Summary Table: University Programs

Program Activity	FY 1991 Enacted	FY 1992 Enacted	FY 1993 Request	% Change
University Programs.....	\$ 13,020	\$ 18,750	\$ 9,750	- 48
Total, University Programs	\$ 13,020	\$ 18,750	\$ 9,750	- 48

II. B. Major Laboratory and Facility Funding

Lawrence Berkeley National Laboratory	\$ 30	\$ 800	\$ 800	0
Los Alamos National Laboratory	\$ 0	\$ 600	\$ 400	- 33
Oak Ridge Associated Universities	\$ 941	\$ 740	\$ 740	0
Oak Ridge National Laboratory	\$ 0	\$ 600	\$ 400	- 33
Sandia National Laboratories	\$ 0	\$ 600	\$ 400	- 33

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

Program Activity	FY 1991	FY 1992	FY 1993
University Programs			
University Programs	No activity.	No activity.	Initiate postdoctoral fellowship program which will support ten postdoctoral research appointments in energy related scientific and technical disciplines at DOE laboratories. The fellowship program will be nationally competitive. Each fellowship award will be fully funded for 3 years. (\$2,000)
	Continued nuclear engineering research program at reduced level from FY 1990. (\$5,000)	Continued nuclear engineering research program at FY 1991 level. (\$5,000)	No activity.
	Continued manpower analyses efforts at approximately FY 1990 level of activity. (\$550)	Support slightly increased manpower analyses efforts. (\$700)	Continue efforts at FY 1992 level. (\$700)
	Broadened focus of PREP to include all fields of science/math. Expanded eligibility to include 6th grade students with repeat participation encouraged. Broadened focus of support provided for 33 awards, fully funded for two years at approximately \$20K per year. Enhanced program reached 3,000 women/minority students in FY 1991 and 6,000 students in succeeding years. (\$1,470)	Increase number of PREP awards to 40, reaching 7,000 students. (\$2,650)	Continue support at FY 1992 level. (\$2,650)
	Initiated museum-based science education program. Provided support for development of cost-shared museum science education exhibitions on major energy-related scientific programs. Exhibitions (including special precollege student/teacher materials) traveled to ten urban science museums over two year period reaching over one million adults, teachers and students. (\$1,000)	Provide continued funding for museum-based science education program at FY 1991 level. (\$1,000)	Provide continued funding for museum-based science education program at FY 1992 level. (\$1,000)

III. University Programs (Cont'd):

Program Activity	FY 1991	FY 1992	FY 1993
University Programs (Cont'd)	No activity.	Provide support for DOE laboratory/minority university alliances which include precollege science education activities with emphasis on underrepresented minorities, including alliances such as the LBL/Jackson State University/Mendez Foundation, and the Science and Technology Alliance involving three DOE laboratories and three predominantly minority universities (\$4,000).	Continue support for DOE laboratory/minority university alliances which include precollege science education activities with emphasis on underrepresented minorities at a reduced level from FY 1992. (\$3,000)
	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).	Provide support for 10 additional pilot grants to retain women/minority students in math/science pipeline who are prepared to teach at precollege level (\$400).
	Initiated 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)	Continued support for graduate traineeships in EPSCoR states and for continued support of state planning grants. (\$5,000)	No activity.
	Provides support for the Graduate Research Laboratory at Clark/Atlanta University as part of the Historically Black Colleges and Universities (HBCU) initiative. (\$1,000)	No activity.	No activity.
	\$ 13,020	\$ 18,750	\$ 9,750
University Programs	\$ 13,020	\$ 18,750	\$ 9,750

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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 continued conversion of university reactors to low enriched uranium (LEU) fuel as mandated by the NRC. 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 1991 Enacted	FY 1992 Enacted	FY 1993 Request	% Change
University Reactor Fuel Assistance.....	\$ 3,181	\$ 4,730	\$ 3,730	- 21
Total, University Reactor Fuel Assistance	\$ 3,181	\$ 4,730	\$ 3,730	- 21

II. B. Major Laboratory and Facility Funding

Argonne National Laboratory (East)	\$ 200	\$ 200	\$ 200	0
Idaho National Engineering Laboratory - EG&G	\$ 1,790	\$ 2,900	\$ 2,900	0

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

Program Activity	FY 1991	FY 1992	FY 1993
University Reactor Fuel Assistance			
University Reactor Fuel Assistance	<p>Provided continuing fuel support for University of Missouri and MIT and supports 20 reactor sharing grants. Supported LEU fuel fabrication for University of Michigan and Rhode Island reactors. (\$2,187)</p> <p>Provided support for continuation of reactor instrumentation upgrade program. (\$994)</p>	<p>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).</p> <p>Provided support for continuation of reactor instrumentation upgrade program. (\$1,000)</p>	<p>Provide support for university reactor refueling and funding for LEU conversion, including completion of safety analysis reviews for conversion of four TRIGA reactors to LEU fuel. With this level of support, completion of LEU conversion is anticipated by FY 1995. (\$3,730).</p> <p>No activity planned.</p>
	\$ 3,181	\$ 4,730	\$ 3,730
University Reactor Fuel Assistance	\$ 3,181	\$ 4,730	\$ 3,730

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KEY ACTIVITY SUMMARY
 UNIVERSITY AND SCIENCE EDUCATION

I. Preface: University Research Instrumentation

Support is provided on a competitive merit basis 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 1991 Enacted	FY 1992 Enacted	FY 1993 Request	% Change
University Research Instrumentation.....	\$ 4,834	\$ 4,998	\$ 5,647	+ 13
Total, University Research Instrumentation	\$ 4,834	\$ 4,998	\$ 5,647	+ 13

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

Program Activity	FY 1991	FY 1992	FY 1993
University Research Instrumentation			
University Research Instrumentation	Supported 20-22 competitively selected university research instrumentation awards.	Similar level to FY 1991.	Provides support for anticipated 22-24 instrumentation grants.
	\$ 4,834	\$ 4,998	\$ 5,647
University Research Instrumentation	\$ 4,834	\$ 4,998	\$ 5,647

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OVERVIEW

ER LABORATORY TECHNOLOGY TRANSFER

There has been an increasing awareness of the important contribution of technology transfer to meeting national economic and competitiveness goals. The technology policy recently issued by the White House Office of Science and Technology Policy (OSTP), identified a Federal R&D responsibility to participate with the private sector in precompetitive research on technologies that have the potential to contribute to a broad range of government and commercial applications. The policy seeks increased collaboration among industry, Federal laboratories and universities, and an expedited diffusion of results of Federally developed R&D. In keeping with the Administration's policy, the National Energy Strategy (NES) states that the success of all of its technology-related actions depends on transferring the results of scientific and technological research from the laboratory into commercial development.

The ER Laboratory Technology Transfer Program is designed to implement these policies. This program fulfills the mandate to more effectively transfer research and technology from Energy Research laboratories by supporting cost-shared technology research projects to advance precompetitive research projects to a point where they can be evaluated for commercial applications. The program supports cost-shared, Cooperative Research and Development Agreements (CRADAs) in accordance with the Department's technology transfer initiative which was implemented in response to the National Competitiveness Technology Transfer Act of 1989 (NCTTA). The program also supports industry and university personnel exchanges for technology transfer purposes at ER laboratories. The program gives special attention to projects related to critical technology areas, and is designed to link private sector and ER laboratories' capabilities to jointly enhance U.S. competitiveness through collaborative technology research. By design, the ER program provides only partial funding for technology research projects and personnel exchanges with industry and universities. Mandatory cost-sharing by industry and other partners ensures that cooperative projects will focus on those with real commercial potential, and facilitate the transfer of technology.

The size and growth rate of this effort are determined by the size of the scientific and technological potential of the ER laboratory system and the number of technology research opportunities which have already been identified. In addition to support of a minimum growth rate for cost-shared research projects, the FY 1993 request permits initiation of a comprehensive program evaluation, and establishment of a cooperative effort with State, local and regional development organizations, to expand the network for potential transfer opportunities.

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LEAD TABLE

ER Laboratory Technology Transfer

<u>Activity</u>	<u>FY 1991 Estimate</u>	<u>FY 1992 Estimate</u>	<u>FY 1993 Base</u>	<u>FY 1993 Request</u>	<u>Program Change Request vs Base</u>	
					<u>Dollar</u>	<u>Percent</u>
ER Laboratory Technology Transfer Operating Expenses	\$2,556 a/	\$9,900	\$9,900	\$15,080	\$5,180	52%

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

a/ Total has been reduced by \$30,000 which has been transferred to the SBIR program, \$30 for FY 1991 sequester, \$2,000 prior year deobligations and \$8,000 for General Reduction.

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SUMMARY OF CHANGES

ER Laboratory Technology Transfer

FY 1992 Appropriation	\$ 9,900
- Increase number of personnel exchanges by 10.....	+ 500
- Increase number of Cooperative Research and Development Agreements by 30.....	<u>+ 4,680</u>
FY 1993 Congressional Budget Request.....	\$ 15,080

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KEY ACTIVITY SUMMARY

ER LABORATORY TECHNOLOGY TRANSFER

I. Preface: ER Laboratory Technology Transfer

This program fulfills the legislative mandate to more effectively transfer research and technology from ER laboratories to industry, particularly in critical technology areas, in accordance with OSTP and NES policies and guidelines. The goal of the program is to link private sector and ER laboratories' capabilities to enhance U.S. competitiveness through collaborative technology research. By design, this program provides only partial funding for technology research projects and personnel exchanges with industry and universities. Mandatory cost-sharing by industry and other partners ensures that cooperative projects will focus on those that generate real interest in the private sector and facilitate the transfer of technology. The FY 1993 request will support full implementation of the technology transfer initiative consistent with the requirements of the National Competitiveness Technology Transfer Act (NCTTA) by supporting personnel exchanges; comprehensive program evaluation; cost-shared technology research, especially Cooperative Research and Development Agreements (CRADAs) to advance precompetitive research projects to a point where they can be evaluated for commercial applications; and, establishment of a cooperative effort with State, local, and regional development organizations to identify potential transfer opportunities from the ER laboratories.

II. A. Summary Table: ER Laboratory Technology Transfer

Program Activity	FY 1991 Enacted	FY 1992 Enacted	FY 1993 Request	% Change
ER Laboratory Technology Transfer.....	\$ 2,556	\$ 9,900	\$ 15,080	+ 52
Total, ER Laboratory Technology Transfer	\$ 2,556	\$ 9,900	\$ 15,080	+ 52

II. B. Major Laboratory and Facility Funding

Ames Laboratory	\$ 0	\$ 250	\$ 500	+100
Argonne National Laboratory (East)	\$ 556	\$ 1,400	\$ 2,000	+ 43
Brookhaven National Laboratory	\$ 105	\$ 1,400	\$ 2,000	+ 43
Continuous Electron Beam Accelerator Facility ...	\$ 0	\$ 250	\$ 500	+100
Fermi National Accelerator Laboratory	\$ 0	\$ 250	\$ 500	+100
Lawrence Berkeley National Laboratory	\$ 342	\$ 1,400	\$ 2,000	+ 43
Los Alamos National Laboratory	\$ 35	\$ 0	\$ 0	0
Oak Ridge National Laboratory	\$ 485	\$ 1,400	\$ 2,000	+ 43
Pacific Northwest Laboratory	\$ 665	\$ 1,400	\$ 2,000	+ 43
Princeton Plasma Physics Laboratory	\$ 0	\$ 250	\$ 500	+100
National Renewable Energy Laboratory	\$ 50	\$ 0	\$ 0	0
Stanford Linear Accelerator Laboratory	\$ 0	\$ 250	\$ 500	+100
Superconducting Super Collider Laboratory	\$ 0	\$ 250	\$ 500	+100

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

Program Activity	FY 1991	FY 1992	FY 1993
ER Laboratory Technology Transfer			
ER Laboratory Technology Transfer	Initiated limited funding of cost-shared technology research initiatives including CRADAs at ER laboratories in response to Administration policy and legislative requirements.	Continue support of 5 CRADAs initiated in FY 1991 to perform technology research to advance promising technologies in partnership with industry. Fund an additional 20 cost-shared CRADAs at ER laboratories.	Continue response to the Administration's policy, National Energy Strategy and legislative mandate commensurate with potential opportunities at ER laboratories. Initiate 30 new cooperative projects with U.S. industry and continue funding ongoing technology research CRADAs. Develop partnership intermediaries using State and local government agencies as authorized by 1990 amendments to Stevenson-Wydler Act. Initiate comprehensive program evaluation.
	Continued funding cost-shared industry-laboratory and university-laboratory personnel exchange assignments and emphasize 2-way exchanges.	Fund 40 industry-laboratory and university-laboratory cost-shared personnel exchanges for technology transfer.	Increase total industry-laboratory and university-laboratory personnel exchanges to 50.
	Supported centralized reporting of technology transfer opportunities and accomplishments at DOE laboratories, as mandated by the Stevenson-Wydler Act, as amended.	Support centralized reporting of technology transfer opportunities and accomplishments at DOE laboratories, as mandated by the Stevenson-Wydler Act, as amended.	Support centralized reporting of technology transfer opportunities and accomplishments at ER laboratories, as mandated by the Stevenson-Wydler Act, as amended.
	\$ 2,556	\$ 9,900	\$ 15,080
ER Laboratory Technology Transfer	\$ 2,556	\$ 9,900	\$ 15,080