

**DEPARTMENT OF ENERGY**  
**FY 1997 CONGRESSIONAL BUDGET REQUEST**  
**ENERGY SUPPLY, RESEARCH AND DEVELOPMENT**  
**(Tabular dollars in thousands, Narrative in whole dollars)**

**ENERGY RESEARCH-ENERGY SUPPLY PROGRAM DIRECTION**

**PROGRAM MISSION**

This Program has been established in response to direction from the Congress that within each appropriation, each organization should have only one program direction decision unit for Federal staffing resources and related costs. Energy Research-Energy Supply Program Direction provides the Federal staffing resources and associated funding required to provide overall direction of activities carried out under the following programs: Biological and Environmental Research, Fusion Energy Sciences, Basic Energy Sciences, Computational and Technology Research, University and Science Education, Multiprogram Energy Laboratories-Facilities Support and Energy Research Analysis. This funding also provides the necessary support to the Director of Energy Research to carry out Energy Research (ER) responsibilities under the Department of Energy (DOE) Organization Act (P.L. 95-91) and as mandated by the Secretary. These responsibilities include providing advice on the status and priorities of the Department's overall research and development programs, on the management of the Department's multipurpose laboratories, and on its grants and education and training activities. They also include developing research and development plans and strategies and managing the Multiprogram Energy Laboratories-Facilities Support (MEL-FS) program. The program also supports staffing resources at the Chicago and Oakland Operations Offices directly involved in executing ER programs, as well as ER resources at the Federally-staffed Environmental Measurements Laboratory (EML). Program responsibility for the EML is being transferred from the Office of Energy Research to the Assistant Secretary for Environmental Management and Energy Research will close out its program activities at the Laboratory during FY 1997.

Program direction has been divided into five categories: salaries and benefits, travel, support services, Working Capital Fund and other related expenses. Support services refers to program direction funded support services contracts that provide necessary support functions to the Federal staff, such as technical support, computer systems development, training, and mailroom. Working Capital Fund costs include goods and services provided centrally by the Department at Headquarters. Other related expenses refers to other administrative costs of maintaining Federal staff, such as building and facility costs and utilities in the field and information technology expenses.

The goal of Energy Research-Energy Supply Program Direction is to fund the staff which are necessary to provide overall management direction of ER's scientific research programs funded in the Energy Supply Research and Development appropriation and to enable the Director of ER to serve as the Department's science advisor for formulation and implementation of basic research policy.

## **PROGRAM MISSION - ENERGY RESEARCH-ENERGY SUPPLY PROGRAM DIRECTION (Cont'd)**

The objectives related to this goal are: to develop, direct and administer a complex and broadly diversified program of mission-oriented research, including the construction and operation of forefront scientific research facilities for use by the Nation's scientific community, and to conduct independent technical assessments, peer reviews and evaluations of specific programs and projects. The staff annually monitors and evaluates approximately 2,500 individual research projects at over 250 separate institutions and provides overall direction of research and development programs designed to support the development of new and improved energy, environmental and health technologies.

### **PERFORMANCE MEASURES:**

Responsiveness to national science policy and major science initiatives.

Improvement in environment, safety and health compliance.

Provision of new and enhanced research facilities and equipment.

Continued improvement in the utilization of staffing, travel and support contractor funds.

### **SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:**

- o Energy Research continues to achieve technical excellence in its programs despite managing one of the largest, most diversified and most complex basic research portfolios in the Federal Government with a relatively small Federal and support contractor staff compared to similar programs.
- o Increased productivity at U.S. scientific research facilities as part of the FY 1996 Scientific Facilities initiative.
- o Reorientation of the fusion program consistent with available resources and Fusion Energy Advisory Committee advice.
- o Nearing completion of the Advanced Photon Source on schedule and within budget. Operations to commence in FY 1997.
- o Establishment of the Laboratory Operations Board to increase the efficiency and productivity of the DOE laboratory system.

**PROGRAM MISSION - ENERGY RESEARCH-ENERGY SUPPLY PROGRAM DIRECTION (Cont'd)**

- Implementation of the necessary and sufficient process for establishing standards for environment, safety and health protection following successful pilots at Fermilab and the National Tritium Labeling Facility. This process tailors environment, safety and health standards to the appropriate risks inherent in particular facilities and operations.
- Ensuring the science and technology parts of the National Energy Policy Plan are achieved.
- Complete the transition of program responsibility for the Environmental Measurements Laboratory from Energy Research to the Assistant Secretary for Environmental Management.

ENERGY RESEARCH-ENERGY SUPPLY PROGRAM DIRECTION

PROGRAM FUNDING PROFILE

(Dollars in thousands)

<u>Activity</u>	<u>FY 1995 Comparable Appropriation</u>	<u>FY 1996 Original Appropriation</u>	<u>FY 1996 Real &amp; Comp Adjustments</u>	<u>FY 1996 Comparable Adjusted</u>	<u>FY 1997 Budget Request</u>
Operating Expenses.....	\$46,733	\$0	\$39,450 a/	\$39,450	\$37,600
Working Capital Funds.....	4,234	0	4,254 b/	4,254	4,554
<b>Subtotal, ER-Energy Supply Program Direction</b>	<b>50,967</b>	<b>0</b>	<b>43,704</b>	<b>43,704</b>	<b>42,154</b>
Adjustment.....	-2,000 c/	0	0	0	0
<b>Total, ER-Energy Supply Program Direction...</b>	<b>\$48,967</b>	<b>\$0</b>	<b>\$43,704</b>	<b>\$43,704</b>	<b>\$42,154</b>
<b>Staffing (FTEs)</b>					
HQ FTEs.....	347	0	273	273	254
Field FTEs.....	75	0	67	67	56
<b>Total FTEs.....</b>	<b>422</b>	<b>0</b>	<b>340</b>	<b>340</b>	<b>310</b>

a/ Comparability adjustment from Basic Energy Sciences, Fusion Energy Sciences, Biological and Environmental Research, University and Science Education, Advisory and Oversight, and Policy and Management of \$35,010,000; and comparability adjustment of \$4,440,000 from Biological and Environmental Research funding for the Environmental Measurements Laboratory.

b/ Comparability adjustments from Departmental Administration for Working Capital Funds.

c/ Share of Energy Supply, Research and Development General Reduction for use of prior year balances assigned to this program on a comparable basis. The total general reduction is applied at the appropriation level.

Public Law Authorizations:

Pub. Law 95-91, DOE Organization Act (1977)

**ENERGY RESEARCH-ENERGY SUPPLY RESEARCH AND DEVELOPMENT PROGRAM DIRECTION**  
**PROGRAM OBJECT CLASS SUMMARY**  
(Dollars in thousands)

	FY 1995		FY 1996		FY 1997
	Comparable	Non.-Comp.	Comparable	Non-Comp.	
<b>Direct Funding:</b>					
<b>Personnel compensation:</b>					
11.1 Full-time permanent.....	\$23,991		\$23,946		\$22,735
11.3 Other than full-time permanent.....	841		498		462
11.5 Other personnel compensation.....	998		1,264		1,252
11.8 Special personal services payments.....	0		0		0
11.9 Total personnel compensation.....	25,830	0	25,708	0	24,449
12.1 Civilian personnel benefits.....	4,722		5,675		5,800
13.0 Benefits for former personnel.....	562		1,875		980
21.0 Travel and transportation of persons.....	1,950		1,946		1,865
22.0 Transportation of things.....					
23.1 Rental payments to GSA.....					
23.2 Rental payments to others.....					
23.3 Communications, utilities, and miscellaneous charges.....					
24.0 Printing and reproduction.....					
25.1 Advisory and assistance services.....	8,591		5,519		2,574
25.2 Other services.....	2,627		4,316		1,932
25.3 Purchases of goods and services from Government accounts.....	4,234 a/		4,254 a/		4,554
25.4 Operation and maintenance of facilities .....					
25.5 Research and development contracts.....					
25.7 Operation and maintenance of equipment.....					
26.0 Supplies and materials.....					
31.0 Equipment.....					
32.0 Land and structures.....					
41.0 Grants, subsidies and contributions.....					
99.0 Subtotal, obligations.....	48,516	0	49,293	0	42,154
Reimbursable Obligations.....	-	-	-	-	-
99.9 Total Obligations.....	48,516	0	49,293	0	42,154
Recovery of prior year obligations.....	-180				0
Unobligated balance avail, start of year.....	-4,958		-5,589		0
Unobligated balance avail, end of year.....	5,589		0		0
Budget Authority.....	\$48,967	\$0	\$43,704	\$0	\$42,154

a/ Working Capital Fund.

## **ENERGY RESEARCH-ENERGY SUPPLY PROGRAM DIRECTION**

### **I. Mission Supporting Goals/Ongoing Responsibilities:**

Program Direction provides the Federal staffing resources and associated costs required to provide overall direction and execution of Office of Energy Research program and advisory responsibilities. Energy Research-Energy Supply Program Direction supports staff in the Basic Energy Sciences, Fusion Energy Sciences, Biological and Environmental Research, Computational and Technology Research, University and Science Education, Multiprogram Energy Laboratories-Facilities Support and Energy Research Analysis programs, including management and technical support staff. This program also supports staff at the Chicago and Oakland Operations Offices directly involved in program execution, as well as ER resources at the Environmental Measurements Laboratory. Staff includes scientific and technical personnel and program management support in the areas of budget and finance, general administration, grants and contracts, information resource management, policy review and coordination, infrastructure management and construction management.

In addition to the consolidation of all of the individual Energy Research-Energy Supply Program Direction accounts into one decision unit at the appropriation level, as directed by Congress, the FY 1997 request reflects two other major changes. Congress directed that all Federal salary costs be budgeted for in program direction accounts. Therefore, \$3,600,000 is included in the FY 1997 budget request for Energy Research-supported staff at the Federally-staffed Environmental Measurements Laboratory (EML). Energy Research support for EML had previously been budgeted in Biological and Environmental Research program funds. FY 1997 represents the last year of ER funding for EML, since program responsibility for the Laboratory is being transferred from Energy Research to the Assistant Secretary for Environmental Management. In addition, beginning in FY 1997, program organizations are contributing to a Working Capital Fund to cover the costs of centrally provided goods and services, such as supplies, housing, utilities, etc., which previously were budgeted in Departmental Administration. \$4,554,000 has been included in the FY 1997 request for Energy Research-Energy Supply Program Direction for the Working Capital Fund. Appropriate amounts have been included in the FY 1995 and FY 1996 Comparable Appropriation columns to reflect the above changes.

**II. Funding Table:**

	<u>FY 1995 Comparable Appropriation</u>	<u>FY 1996 Original Appropriation</u>	<u>FY 1996 Real &amp; Comp Adjustments</u>	<u>FY 1996 Comparable Appropriation</u>	<u>FY 1997 Budget Request</u>
<b><u>Chicago</u></b>					
Salary and Benefits	6,003	0	5,371	5,371	4,380
Travel	480	0	386	386	350
Support Services	310	0	254	254	204
Other Related Expenses	<u>615</u>	<u>0</u>	<u>461</u>	<u>461</u>	<u>460</u>
Total	\$7,408	\$ 0	\$ 6,472	\$6,472	\$ 5,394
Full Time Equivalents	73	0	65	65	54
Average FTE Costs	\$ 102	\$ 0	\$ 100	\$ 100	\$ 100
<b><u>Oakland</u></b>					
Salary and Benefits	206	0	62	162	165
Travel	15	0	15	15	15
Support Services	3	0	0	0	0
Other Related Expenses	<u>82</u>	<u>0</u>	<u>10</u>	<u>10</u>	<u>59</u>
Total	\$ 306	\$ 0	\$ 187	\$ 187	\$ 239
Full Time Equivalents	2	0	2	2	2
Average FTE Costs	\$ 153	\$ 0	\$ 93	\$ 93	\$ 119
<b><u>Headquarters</u></b>					
Salary and Benefits	31,058	0	27,725	27,725	26,635
Travel	2,390	0	1,545	1,545	1,500
Support Services	3,976	0	2,470	2,470	2,370
Other Related Expenses	1,595	0	1,051	1,051	1,462
Working Capital Fund	<u>4,234</u>	<u>0</u>	<u>4,254</u>	<u>4,254</u>	<u>4,554</u>
Total	\$ 43,253	\$ 0	\$37,045	\$ 37,045	\$36,521
Full Time Equivalents	347	0	273	273	254
Average FTE Costs	\$ 125	\$ 0	\$ 135	\$ 135	\$ 143

**II. Funding Table (Cont'd):**

	<u>FY 1995 Comparable Appropriation</u>		<u>FY 1996 Original Appropriation</u>		<u>FY 1996 Real &amp; Comp Adjustments</u>		<u>FY 1996 Comparable Appropriation</u>		<u>FY 1997 Budget Request</u>
<b><u>Total Energy Research</u></b>									
Salary and Benefits	37,267		0		33,258		33,258		31,180
Travel	2,885	a/	0		1,946		1,946		1,865
Support Services	4,289	b/	0		2,724		2,724		2,574
Other Related Expenses	2,292		0		1,522		1,522		1,981
Working Capital Fund	<u>4,234</u>		<u>0</u>		<u>4,254</u>		<u>4,254</u>		<u>4,554</u>
Total	\$50,967		\$ 0		\$43,704		\$43,704		\$42,154
Full Time Equivalents (FTEs)	422		0		340		340		310
Average FTE Costs	\$ 121		\$ 0		\$ 128		\$ 128		\$ 136
Adjustment:	<u>- 2,000</u>	c/	<u>0</u>		<u>0</u>		<u>0</u>		<u>0</u>
Total Program Direction	<u>48,967</u>		<u>0</u>		<u>43,704</u>		<u>43,704</u>		<u>42,154</u>

a/ Includes \$445,000 Rescission Reduction for Travel.

b/ Included \$521,000 Rescission Reduction for Support Services.

c/ Share of Energy Supply Research and Development program direction general reduction for use of prior year balances.

**III. Performance Summary**

**FY 1995 Accomplishments:**

- o Provided personnel compensation including salaries and personnel benefits, voluntary separation incentive payments, lump sum annual leave payments, travel, contractor support and other related expenses for 422 full-time equivalents in Energy Research-Energy Supply Program Direction.



### **III. Performance Summary (Cont'd)**

- o Staff provided overall direction and management of all of the Office of Energy Research's research and development programs funded in the Energy Supply Research and Development appropriation; also provided for the Director of Energy Research's responsibilities for advising the Secretary on science and technology issues and responding to requests for special analyses.
- o Assessed the scientific and technical needs of the Energy Supply programs and prepared research and development plans to address them.
- o Established priorities, developed funding strategies, evaluated and funded research proposals from laboratories, universities and industries, and monitored their progress.
- o Managed and provided technical direction of over 1,400 individual research projects at over 200 separate institutions in the Basic Energy Sciences Program. The projects included research in materials sciences, chemical sciences, energy biosciences, geosciences, and engineering sciences. Monitored and evaluated the projects. Provided construction management and technical direction for the Advanced Photon Source project at Argonne National Laboratory. Supported the Basic Energy Sciences Advisory Committee.
- o Managed research and development projects for mathematical and computational science. Managed technical direction of the ER supercomputer centers and Energy Science Network development activities. Managed the laboratory technology research and advanced energy projects programs. Managed the Department-wide Small Business Innovation Research and Small Business Technology Transfer programs.
- o Managed and provided technical direction of 850 active research projects in the Biological and Environmental Research program including the appropriate competitive merit review of technical programs and selection of new activities. Continued central role in Federal activities supporting research that probes fundamental scientific issues in health and environmental research such as global climate change. Managed continuing efforts on health and environmental effects of radiation and toxic chemicals. Managed research to develop modern diagnostic and molecular therapy tools by combining the resources of structural, computational and molecular biology, nuclear medicine, and boron neutron capture therapy (BNCT). Supported the Health and Environmental Research Advisory Committee.
- o The Fusion Energy Sciences staff supported materials and component development activities, and international collaboration on the International Thermonuclear Experimental Reactor design activities. Continued support of the Tokamak Physics Experiment project, Tokamak Fusion Test Reactor D-T experiments, and efforts to improve the tokamak concept and ensure continuing development of inertial fusion energy. Supported the Fusion Energy Advisory Committee.

### **III. Performance Summary (Cont'd)**

- o Provided the science and technology sections of the National Energy Policy Plan and the Department's Strategic Plan; conducted independent peer reviews of 300 projects in Energy Research, Fossil Energy, and Energy Efficiency to determine the quality of the science and its relevance to DOE's missions and the National science agenda; served as principal liaison with other Government science agencies and represented Energy Research and the Department on interagency coordinating councils.
- o Managed uniform DOE-wide processes for continuous improvement of programs for research and development planning, laboratory-directed research and development, work-for-others and laboratory appraisals.
- o Supported new performance-based contracts for DOE laboratories, developed infrastructure related performance measures and established criteria for determining the most urgent projects, and reviewed and implemented nuclear safety requirements contained in the Price Anderson Amendment Act of 1988. Managed the Multiprogram Energy Laboratory-Facilities Support program.

#### **FY 1996 Accomplishments (to date and planned):**

- o Provide personnel compensation including salaries and benefits, voluntary separation incentive payments, lump sum annual leave payments, travel, contractor support and other related expenses for 340 full-time equivalents in Energy Research-Energy Supply Program Direction.
- o Provide overall direction and management of all of the Office of Energy Research's research and development programs funded in the Energy Supply Research and Development appropriation; also provide for the Director of Energy Research's responsibilities for advising the Secretary on science and technology issues and responding to requests for special analyses.
- o Assess the scientific and technical needs of the Energy Supply programs and prepare research and development plans to address them.
- o Establish priorities, develop funding strategies, evaluate and fund research proposals from laboratories, universities and industry, and monitor their progress.
- o Manage and provide technical direction of the highly diversified research and development activities of the Basic Energy Sciences Program; direct conceptual design activities for a spallation neutron source and continue construction and preparation for operation of the Advance Photon Source; continue to support the Basic Energy Sciences Advisory Committee.
- o Continue to manage the Department's Small Business Innovation Research and Small Business Technology Transfer programs.

### **III. Performance Summary (Cont'd)**

- o Continue to support the interagency National Science and Technology Council high performance computing and communications program, ER supercomputer centers, and research and development projects for mathematical and computational science.
- o Continue to manage and provide technical direction of research projects in the Biological and Environmental Research Program including the appropriate competitive merit review and selection of new projects and continue support of the Health and Environmental Research Advisory Committee.
- o Continue construction management and research planning for the Environmental Molecular Sciences Laboratory at PNNL and the Human Genome Laboratory at LBNL. Complete construction and commence operations at the Structural Biology Centers at ANL and LBNL.
- o Transition program responsibility for the Environmental Measurements Laboratory from Energy Research to the Assistant Secretary for Environmental Management.
- o Restructure the fusion program from a technology-based to a science-based program in response to budget reductions and Fusion Energy Advisory Committee recommendations. Continue to support various fusion materials and component development activities including design and research and development tasks for the International Thermonuclear Experimental Reactor; expand the focus on international collaboration on fusion activities; continue support of the Fusion Energy Advisory Committee. Manage facility operations and research at D-III-D and Alcator C-Mod facilities consistent with the revised fusion program mission.
- o Continue to represent Energy Research and the Department in high level interagency fora, such as the National Science and Technology Council, and to serve as principal liaison with other Government science agencies and other science organizations.
- o Continue to manage a uniform DOE-wide process for improvement of programs for research and development planning, laboratory-directed research and development, and work-for-others and a laboratory appraisal process that measures progress in these areas.
- o Continue management of the MEL-FS program; continue the development of infrastructure related performance measures; monitor progress towards goals related to these performance measures and implement criteria for determining the most urgent projects.
- o Assume management of science education programs in response to direction from Congress.

### **III. Performance Summary (Cont'd)**

#### **FY 1997 Planned Accomplishments:**

- o Provide personnel compensation including salaries and benefits, voluntary separation incentive payments, lump sum annual leave payments, travel, contractor support and other related expenses for 310 full-time equivalents in Energy Research-Energy Supply Program Direction.
- o Provide overall direction and management of all of the Office of Energy Research's research and development programs funded in the Energy Supply Research and Development appropriation; also provide for the Director of Energy Research's responsibilities for advising the Secretary on science and technology issues and responding to requests for special analyses.
- o Assess the scientific and technical needs of the Energy Supply programs and prepare research and development plans to address them.
- o Continue to establish priorities, develop funding strategies, evaluate and fund research proposals from laboratories, universities and industry, and monitor progress.
- o Continue to provide program direction and oversight of efforts to meet National research goals supporting the Nation's energy-related technology foundation and support the Basic Energy Sciences Advisory Committee.
- o Continue to manage and provide technical direction for all Basic Energy Science Program activities with increased emphasis on science for sustainable development; support increased operating time at the program's scientific research facilities and ensure their safe, healthy and environmentally sound operation.
- o Direct completion of conceptual design activities for a spallation neutron source.
- o Continue to support the interagency National Science and Technology Council high performance computing and communications program, ER supercomputer centers, and research and development projects for mathematical and computational science.
- o Manage the Small Business Innovation Research program for the Department.
- o Continue to manage and provide technical direction for all Biological and Environmental Research projects, including competitive merit review and selection of new projects and continue support of the Health and Environmental Research Advisory Committee.

### **III. Performance Summary (Cont'd)**

- o Manage establishment of a third Atmospheric Radiation Measurement (ARM) site and coordinate complementary research activities across ARM sites with interagency partners.
- o Continue construction management and research planning for the Environmental Molecular Sciences Laboratory at PNNL and the Human Genome Laboratory at LBNL.
- o Complete the closeout of ER activities at the Environmental Measurements Laboratory as a result of transfer of program responsibility for the Laboratory to the Assistant Secretary for Environmental Management.
- o Continue the transition to a fusion energy sciences program in response to the Fusion Energy Advisory Committee recommendations.
- o Continue the emphasis on planning with foreign partners for a comprehensive fusion energy sciences program with particular emphasis on the International Thermonuclear Experimental Reactor; continue support of the Fusion Energy Advisory Committee.
- o Manage a process for continuous improvement for research and development planning in the Department in coordination with other Federal agencies and in support of National science goals.
- o Continue management of the Multiprogram Energy Laboratory-Facilities Support program with a focus on the most urgent projects as demonstrated by application of infrastructure related performance measures.
- o Manage the ER efforts in science education in support of ER programmatic goals.

### **IV. Explanation of Funding Change FY 1996 through FY 1997:**

- o The decrease of \$1,550,000 in FY 1997 is due primarily to decreases in Federal staff, travel and support services costs resulting from Energy Research's streamlining efforts. These decreases have been only partially offset by within grade and cost-of-living increases for remaining staff, and administrative costs associated with downsizing, and an increase in the Working Capital Fund.

### **III. Performance Summary (Cont'd)**

#### **V. Explanation of Average FTE costs:**

Variations in average FTE costs from office to office result from a number of factors. The average for Headquarters is considerably higher than the field, for example. The major reasons for the difference is the charge at Headquarters for the Working Capital Fund for centrally provided goods and services. In addition, Energy Research Headquarters staff is comprised primarily of senior level scientific program managers, many of whom independently manage and direct large research programs in particular scientific disciplines. There is generally a higher ratio of support to professional staff in the field than in Headquarters due to the nature of the program execution functions carried out in the field, as opposed to the policy, planning and program management functions provided at Headquarters. The difference between average FTE costs at Chicago and Oakland results from the fact that Oakland has only two ER-funded staff in this program direction account, both of whom are scientific/technical staff, while two-thirds of Chicago's staff in this account are at the Environmental Measurements Laboratory, which has a broad range of grade levels of scientific and support staff.

**DEPARTMENT OF ENERGY**  
**FY 1997 CONGRESSIONAL BUDGET REQUEST**  
**GENERAL SCIENCE AND RESEARCH**  
(Tabular dollars in thousands, Narrative in whole dollars)

**GENERAL SCIENCE PROGRAM DIRECTION**

**PROGRAM MISSION**

This program provides the Federal staffing resources and associated funding to plan, direct, and manage a viable, high quality national program of basic research in the fields of high energy physics and nuclear physics in support of the Nation's goals to support basic scientific research. It supports the staff in the Office of the Associate Director for High Energy and Nuclear Physics, the High Energy Physics Division, the Nuclear Physics Division, and associated program and management support staff in the Headquarters. This program also provides program-specific staffing resources at the Chicago, Oakland, and Oak Ridge Operations Offices to support high energy and nuclear physics activities carried out by those offices.

The Department of Energy provides over 90 percent of the Federal support, and serves as the Executive Agent, for the Nation's high energy physics program. Nearly 90 percent of the total Federal support of basic nuclear physics research is provided through the nuclear physics program. The staff develop program plans and budgets and execute approved programs. They support, plan, and provide for construction, maintenance, and operation of the large facilities on which research in high energy physics and nuclear physics depends. They oversee the operation of large and complex accelerator facilities which are used by qualified physicists throughout the Nation, provide technical oversight of the high energy physics and nuclear physics research programs at 15 major laboratories and well over one hundred universities throughout the Nation, and interact with other Federal agencies. In carrying out these responsibilities, the staff funded by General Science Program Direction assess the research and facility needs of these programs with the advice and assistance of the High Energy Physics Advisory Panel (HEPAP) and the DOE/NSF Nuclear Science Advisory Committee (NSAC), participate actively in their meetings, and provide program and administrative support for their operation. The staff work in close cooperation with the Oak Ridge Operations Office on Superconducting Super Collider (SSC) termination activities.

The staff also participate in cooperative programs with Japan, Germany, CERN Laboratory (Geneva, Switzerland) member countries, China, the former Soviet Union, Spain, Italy, France, The Netherlands, and Canada.

## **PROGRAM MISSION - GENERAL SCIENCES PROGRAM DIRECTION (Cont'd)**

Program direction has been divided into five categories: salaries and benefits, travel, support services, Working Capital Fund and other related expenses. Support services refers to program direction funded support service contracts that provide necessary support functions to the Federal staff, such as computer systems development, training, technical support, mailroom, etc. Working Capital Fund costs include goods and services provided centrally by the Department at Headquarters. Other related expenses relates to other administrative costs of maintaining Federal staff, such as building and facility costs and utilities in the field and information technology expenses.

The goal of General Science Program Direction is to fund the management of programs which provide new insights into the nature of energy and matter to better understand our natural world.

The objectives related to these goals are: to utilize the peer review process for ongoing and proposed research activities and enhance international involvement and to champion the recommendations of the High Energy Physics Advisory Panel's "Future Vision Subpanel" as the new direction for high energy physics and the Long-Range Plan for Nuclear Science as updated by the Interagency Nuclear Science Advisory Committee (NSAC).

### **PERFORMANCE MEASURES:**

Responsiveness to national science policy and initiatives.

Improvement in environment, safety and health compliance.

Provision of new and enhanced research facilities and equipment.

Increase in facility operating time.

Continued improvement in the utilization of staffing, travel and support contractor funds.

Expansion of international collaborative efforts.



**PROGRAM MISSION - GENERAL SCIENCES PROGRAM DIRECTION (Cont'd)**

**SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:**

- o Continuing to manage almost the entire U.S. program in high energy and nuclear physics, including annual budgets of nearly \$1 billion, with outstanding success and with relatively small staffing levels and program direction costs compared to research programs both within and outside the Department.
- o Increased productivity at high energy and nuclear physics facilities as part of the FY 1996 Scientific Facilities Initiative.
- o CEBAF became operational. Construction completed on schedule and within budget.
- o International efforts increased with particular progress on Large Hadron Collider participation.
- o Substantial progress on Main Injector, B-Factory and Relativistic Heavy Ion Collider construction.
- o Sudbury Neutrino Observatory (SNO) Detector fabrication progressing, with completion and initiation of operations scheduled for FY 1997.
- o Complete disposition of assets resulting from SSC termination.

GENERAL SCIENCE PROGRAM DIRECTION

PROGRAM FUNDING PROFILE

(Dollars in thousands)

<u>Activity</u>	<u>FY 1995 Comparable Appropriation</u>	<u>FY 1996 Original Appropriation</u>	<u>FY 1996 Real &amp; Comp Adjustments</u>	<u>FY 1996 Comparable Adjusted</u>	<u>FY 1997 Budget Request</u>
Operating Expenses.....	\$10,300	\$9,500	\$0	\$9,500	\$10,400
Working Capital Funds.....	1,100	0	1,150 a/	1,150	1,200
<b>Total, General Science Program Direction..</b>	<b>\$11,400</b>	<b>\$9,500</b>	<b>\$1,150</b>	<b>\$10,650</b>	<b>\$11,600</b>
<b>Staffing (FTEs)</b>					
HQ FTEs.....	63	59	0	59	57
Field FTEs.....	33	33	0	33	33
<b>Total FTEs.....</b>	<b>96</b>	<b>92</b>	<b>0</b>	<b>92</b>	<b>90</b>
Previously Funded SSC FTE's b/.....	39	22	0	22	9

a/ Comparability adjustment of \$1,150,000 from Departmental Administration of Working Capital Funds.

b/ SSC FTE's funded from previous years' appropriations for the SSC.

Public Law Authorizations:

Pub. Law 95-91, DOE Organization Act.

GENERAL SCIENCE PROGRAM DIRECTION  
PROGRAM OBJECT CLASS SUMMARY  
(Dollars in thousands)

	FY 1995		FY 1996		FY 1997
	Comparable	Non-Comp	Comparable	Non-Comp	
Direct Funding:					
Personnel compensation:					
11.1					
	8,108	\$5,464	\$8,014	\$6,240	\$6,478
11.3	262	111	137	62	118
11.5	296	235	216	186	348
11.8	0	0	0	0	0
11.9	8,666	5,810	8,367	6,488	6,944
12.1	1,881	1,024	1,937	1,377	1,281
13.0	241	128	175	75	250
21.0	958	616	717	567	552
22.0					
23.1					
23.2					
23.3					
24.0					
25.1	3,729	2,255	3,274	1,294	585
25.2	1,355	569	1,480	849	788
25.3					
	1,100	a/	1,150	a/	1,200
25.4					
25.5					
25.7					
26.0					
31.0					
32.0					
41.0					
99.0	17,930	10,402	17,100	10,650	11,600
	-	-	-	-	-
99.9	17,930	10,402	17,100	10,650	11,600
	-1	-1	0	0	0
	-11,228	-1,251	-6,450	-1,150	0
	4,699	1,150	0	0	0
	\$11,400	\$10,300	\$10,650	\$9,500	\$11,600

a/ Working Capital Fund

## GENERAL SCIENCE PROGRAM DIRECTION

### I. Mission Supporting Goals Ongoing Responsibilities:

This program provides the Federal staffing resources and associated funding to plan, direct, and manage a viable, high quality national program of basic research in the fields of high energy physics and nuclear physics to ensure U.S. competitiveness in basic research. It supports the staff in the Office of the Associate Director for High Energy and Nuclear Physics, the High Energy Physics Division, the Nuclear Physics Division, and associated program and management support staff both in the Headquarters and at Chicago, Oakland, and Oak Ridge Operations Offices.

Beginning in FY 1997, program organizations are contributing to a Working Capital Fund to cover the costs of centrally provided goods and services such as supplies, housing, utilities, etc., which previously were budgeted in Departmental Administration. \$1,200,000 has been included in FY 1997 request for General Sciences Program Direction for the Working Capital Fund. Appropriate amounts have been included in the FY 1995 and FY 1996 Comparable Appropriation columns to reflect this change.

### II. Funding Table:

	FY 1995 Comparable <u>Appropriation</u>	FY 1996 Original <u>Appropriation</u>	FY 1996 Real & Comp <u>Adjustments</u>	FY 1996 Comparable <u>Appropriation</u>	FY 1997 Budget <u>Request</u>
<u>Chicago</u>					
Salary and Benefits	1,484	1,533	0	1,533	1,595
Travel	75	65	0	65	63
Support Services	165	140	0	140	135
Other Related Expenses	<u>181</u>	<u>88</u>	<u>0</u>	<u>88</u>	<u>87</u>
Total	\$1,905	\$1,826	\$ 0	\$1,826	\$1,880
Full Time Equivalents	18	18	0	18	18
Average	\$ 106	\$ 101	\$ 0	\$ 101	\$104

II. Funding Table: (Cont'd)

	FY 1995 Comparable <u>Appropriation</u>	FY 1996 Original <u>Appropriation</u>	FY 1996 Real & Comp <u>Adjustments</u>	FY 1996 Comparable <u>Appropriation</u>	FY 1997 Budget <u>Request</u>
<u>Oakland</u>					
Salary and Benefits	619	552	0	552	616
Travel	40	32	0	32	32
Support Service	29	33	0	33	30
Other Related Expenses	<u>121</u>	<u>47</u>	<u>0</u>	<u>47</u>	<u>47</u>
Total	\$ 809	\$ 664	\$ 0	\$ 664	\$ 725
Full Time Equivalents	7	7	0	7	7
Average	\$ 116	\$ 95	\$ 0	\$ 95	\$ 104
<u>Oak Ridge</u>					
Salary and Benefits	649	650	0	650	677
Travel	105	70	0	70	67
Support Services	0	0	0	0	0
Other Related Expenses	<u>225</u>	<u>154</u>	<u>0</u>	<u>154</u>	<u>100</u>
Total	\$ 979	\$ 874	\$ 0	\$ 874	\$ 844
Full Time Equivalents	8	8	0	8	8
Average	\$ 122	\$ 109	\$ 0	\$ 109	\$ 106

II. Funding Table (Cont'd):

	FY 1995 Comparable <u>Appropriation</u>	FY 1996 Original <u>Appropriation</u>	FY 1996 Real & Comp <u>Adjustments</u>	FY 1996 Comparable <u>Appropriation</u>	FY 1997 Budget <u>Request</u>
<u>Headquarters</u>					
Salary and Benefits	5,202	5,205	0	5,205	5,587
Travel	565	400	0	400	390
Support Services	660	431	0	431	420
Working Capital Fund	1,100	0	1,150	1,150	1,200
Other Related Expenses	<u>180</u>	<u>100</u>	<u>0</u>	<u>100</u>	<u>554</u>
Total	\$7,707	\$6,136	\$1,150	\$ 7,286	\$8,151
Full Time Equivalents	63	59	0	59	57
Average	\$ 122	\$ 104	\$ 0	\$ 123	\$ 142
<u>Total Energy Research</u>					
Salary and Benefits	7,954	7,940	0	7,940	8,475
Travel	785	567	0	567	552
Support Services	854	604	0	604	585
Working Capital Fund	1,100	0	1,150	1,150	1,200
Other Related Expenses	<u>707</u>	<u>389</u>	<u>0</u>	<u>389</u>	<u>788</u>
Total	\$11,400	\$9,500	\$1,150	\$10,650	\$11,600
Full Time Equivalents 1/	96	92	0	92	90
Average	\$ 118	\$ 104	\$ 0	\$ 116	\$ 129
Adjustment:	0	0	0	0	0
Budget Authority	11,400	9,500	0	10,650	11,600

1/ Excludes FTEs for terminating the Superconducting Super Collider (SSC) which are being funded from previous years' appropriations for the SSC.

### III. Performance Summary: GENERAL SCIENCE PROGRAM DIRECTION

#### FY 1995 Accomplishments:

- o Provided personal compensation including salaries and personnel benefits, voluntary separation incentive payments, lump sum annual leave payments, travel, contractor support and other related expenses for 96 FTEs in the Office of High Energy and Nuclear Physics and related program and administrative support staff at Headquarters and the field.
- o The high energy physics staff provided continued program direction of the high energy physics program and of high energy physics accelerator centers at Fermilab, Stanford Linear Accelerator Center (SLAC) and Brookhaven National Laboratory (BNL).
- o Provided technical control and program direction for high energy physics research programs at nine major laboratories and managed more than 100 university research tasks to ensure the efficient operation and strong utilization of the large and complex high energy physics facilities and research capabilities.
- o Provided program direction of the Fermilab Main Injector and B-Factory projects.
- o Provided program direction of experimental and theoretical research and test-bed exploration of very promising new advanced accelerator concepts.
- o Maintained foreign liaison for conduct of experiments at foreign accelerators, and program direction of the L3 detector at CERN; and increased participation with CERN member countries on the Large Hadron Collider (LHC).
- o The nuclear physics staff provided technical program direction of the nuclear physics research programs at 12 national laboratories.
- o Managed more than 150 active Nuclear Physics grants and numerous research proposals and provided technical and project management direction including completion of CEBAF construction and preparation for operations.
- o Supported construction of the Relativistic Heavy Ion collider (RHIC) at BNL, including support of university participation in detector design and fabrication, and major equipment projects.

### **III. Performance Summary: GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)**

- o Completed Gammasphere and continued work on the joint U.S./Canadian SNO detector.
- o Provided support to the Nuclear Theory Institute.
- o Provided support to ongoing R&D programs at university facilities and directed a significant university user experimental research program.
- o Managed the Nuclear Data program.
- o Provided program direction of international cooperative efforts in the nuclear physics program.
- o Provided additional direct program support at Chicago Operations Office, specifically at the Fermilab site and in support of RHIC at Brookhaven. Continued on-site support at the Stanford Linear Accelerator Center and CEBAF.
- o Provided environmental, safety, and health support for the high energy and nuclear physics accelerator facilities and completed the transfer of LAMPF to Defense Programs.
- o Continued to manage the disposition of SSC assets and worked closely with Oak Ridge Operations Office staff on SSC termination activities.

#### FY 1996 Accomplishments (to date and planned):

- o Provide personal compensation including salaries and personnel benefits, voluntary separation incentive payments, lump sum annual leave payments, travel, contractor support and other related expenses for 92 FTEs in the Office of High Energy and Nuclear Physics and related program and administrative support staff at Headquarters and the field.
- o Continue program direction of the High Energy Physics program including research and facility operations.
- o Continue contract management of physics research.



### **III. Performance Summary: GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)**

- o Continue program direction to ensure the safe management, efficient operation and strong utilization of the large and complex high energy and nuclear physics facilities and research capabilities.
- o Continue program direction of the Fermilab Main Injector and B-Factory projects.
- o Provide program direction of experimental and theoretical research carried out by university-based scientists and test-bed exploration of very promising new advanced accelerator concepts.
- o Maintain foreign collaborative programs for conduct of experiments at foreign accelerators, and program direction of the L3 detector.
- o Continue negotiations with CERN member countries leading to a formal agreement with CERN on the LHC and renew the agreements for cooperation with Russia and China.
- o Continue program direction of the nuclear physics program.
- o Provide program direction to the CEBAF laboratory and operation of the accelerator for research.
- o Support construction of the RHIC, including support of university participation in detector design and fabrication, and major equipment projects.
- o Continue fabrication of the Joint U.S./Canadian SNO detector.
- o Continue to support and provide program direction to the Nuclear Theory Institute.
- o Continue to support ongoing research and development programs at university facilities and direct a significant university user experimental research program.
- o Continue to manage the Nuclear Data program.
- o Continue program direction of international cooperative efforts in the Nuclear Physics program.

### III. Performance Summary: GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)

- o Continue environmental, safety, and health support for the high energy and nuclear physics facilities.
- o Continue on-site support at Fermilab, SLAC, RHIC and CEBAF.
- o Continue SSC termination activities and complete disposition of SSC assets.

#### FY 1997 Planned Accomplishments:

- o Provide personnel compensation including salaries and personnel benefits, voluntary separation incentive payments, lump sum annual leave payments, travel, contractor support and other related expenses for 90 FTEs in the Office of High Energy and Nuclear Physics and related program and administrative support staff at Headquarters and the field.
- o Provide continued program direction of the high energy physics program.
- o Continue management and accountability for physics research projects.
- o Continue program direction to ensure the safe management, efficient operation and strong utilization of the large and complex high energy physics facilities and research capabilities.
- o Continue program direction of the Fermilab Main Injector and B-Factor projects, including preparing for FY 1998 B-Factor operation.
- o Provide program direction of experimental and theoretical research carried out by the university-based scientists and of test-bed exploration of very promising new advanced accelerator concepts and the Fermilab neutrino oscillation experiment.
- o Maintain collaboration with foreign partners for the conduct of experiments at foreign accelerators and program direction of the L3 detector; and increase participation with CERN member countries on the LHC. Renew the agreement for cooperation with Italy.

### **III. Performance Summary: GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)**

- o Provide continued program direction of the nuclear physics program.
- o Provide program direction to the CEBAF laboratory including operation of the accelerator for research.
- o Support construction of the RHIC, including support of university participation in detector design and fabrication, and major equipment projects.
- o Complete fabrication and installation of the SNO Detector and initiate operation.
- o Continue to support and provide program direction to the Nuclear Theory Institute.
- o Continue to manage the Nuclear Data program.
- o Continue program direction of international cooperative efforts in the nuclear physics program.
- o Continue environmental, safety, and health support for the high energy and nuclear physics facilities.
- o Continue on-site support at Fermilab, SLAC, CEBAF, and RHIC.
- o Complete most of the remaining SSC termination activities.

#### Explanation of funding changes FY 1996 to FY 1997:

The increase of \$950,000 in FY 1997 is required to fund the staff and related costs associated with managing the High Energy Physics and Nuclear Physics programs, whose budgets increase in FY 1997. These programs are among the largest and most complicated from a scientific and technical and an administrative point of view, in the world. The increase in the FY 1997 request for General Sciences Program Direction is for increases for salaries and benefits, other related expenses and the Working Capital Fund, which are partially offset by decreases in travel and support services contract funds.

### III. Performance Summary: GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)

#### Explanation of Average FTE costs:

Average FTE costs vary from office to office, with Headquarters being higher than the field. The primary reason for this is that the Headquarters average includes charges for the Working Capital Fund for centrally provided goods and services.

Also, Headquarters staff includes a high percentage of senior scientific program managers performing planning, policy and program management responsibilities, while the field offices, because of the nature of the program execution functions they perform, have a higher percentage of lower graded support personnel. Average FTE costs at the field offices at Chicago, Oakland and Oak Ridge are very similar.