

Science Program Direction

Program Mission

This program provides the Federal staffing and associated funding required to provide overall direction of activities carried out under the following programs in the Office of Science (SC): High Energy Physics, Nuclear Physics, Biological and Environmental Research, Basic Energy Sciences, Fusion Energy Sciences, Computational and Technology Research, Multiprogram Energy Laboratories-Facilities Support, and Energy Research Analyses. This funding also provides the necessary support to the Director of SC to carry out SC's 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 and on the management of the Department's multipurpose laboratories; developing research and development plans and strategies; supporting university and science education; and ensuring the institutional health and overall site integration at three multi-program field offices. This program also provides program-specific staffing resources at the Chicago, Oakland, and Oak Ridge Operations Offices directly involved in executing SC programs.

The Program Direction subprogram has been divided into four categories: Salaries and Benefits, Travel, Support Services, and Other Related Expenses, the latter including the Working Capital Fund. "Support Services" refers to support services contracts that provide necessary support functions to the Federal staff, such as technical support, computer systems development, travel processing, and mailroom activities. "Other Related Expenses" refers to other administrative costs of maintaining Federal staff, such as building and facility costs and utilities in the field, information technology expenses, and training. The Working Capital Fund includes centrally provided goods and services at Headquarters, such as supplies, rent and utilities.

The Science Education subprogram focuses primarily on undergraduate research experiences at the national laboratories. Science Education also supports the Albert Einstein Distinguished Educator Fellowships, the National Science Bowl, and the DOE Institute of Biotechnology, Environmental Science, and Computing for Community Colleges.

The Energy Research Undergraduate Laboratory Fellowships, formerly known as the Laboratory Cooperative Program, are designed to provide educational training and research experiences at DOE laboratories for highly motivated undergraduate students. These opportunities complement academic programs and introduce students to the unique intellectual and physical resources present at the DOE laboratories. Appointments are available during the spring, summer, and fall terms.

In 1991, as a national initiative, the National Science Bowl was developed to encourage high school students from across the Nation to excel in math and science and to pursue careers in those fields. It provides students and their teachers a forum to receive national recognition for their talent and hard work. DOE is committed to math and science education to help provide a technically trained and diverse workforce for the Nation. The National Science Bowl is a highly publicized academic competition among teams of high school students who answer questions on scientific topics in astronomy, biology, chemistry, mathematics, physics, earth, computer and general science. Since its inception, more than 60,000 high school students have participated in regional tournaments leading up to the national finals.

The Albert Einstein Distinguished Educator Fellowship Act of 1994 was signed into law in November 1994. The law gives DOE responsibility for administering the program of distinguished educator fellowships for elementary and secondary school mathematics and science teachers. This program supports outstanding teachers of science and mathematics, who provide insights, extensive knowledge and practical experience to the Legislative and Executive branches.

The DOE Institute of Biotechnology, Environmental Science, and Computing for Community Colleges is a collaboration between DOE (and five of its multiprogram laboratories) and the American Association of Community Colleges. It is designed to provide educational training and research experiences at five DOE national laboratories for highly motivated community college students. Each laboratory will offer a ten-week summer experience for selected students from a regional consortium of community colleges partnering with DOE and that laboratory.

The Field Operations subprogram enables three Operations Offices to provide the managerial, business, fiduciary, contractual, and technical foundation necessary to support the programmatic missions performed in support of science and technology, national security, energy research, and environmental management. These resources provide for the administrative staff, technical experts, and operational requirements that support the direct program activities at Chicago, Oak Ridge, and Oakland, and the laboratories and facilities under their purview.

Program Goal

- Fund the staff and related expenses needed to provide overall management direction of SC's basic and fundamental scientific research programs funded in the Science appropriation.
- Enable the Director of SC to serve as the Department's science advisor for formulation and implementation of basic and fundamental research policy.
- Sustain U.S. leadership in science, technology, and engineering by leveraging DOE resources in partnership with laboratories and facilities that contribute to the development of a diverse scientific and technical workforce for the 21st century.
- Provide management and administrative services, at reduced costs through consolidation and re-engineered processes, that enable the Chicago, Oakland and Oak Ridge Operations Offices to continue environmental cleanups; reduce surplus weapons' inventory; support the national laboratories and research facilities; institute environmental, safety and health initiatives.
- Maintain communications with stakeholders.
- Create public and private partnerships.
- Take advantage of reindustrialization opportunities.

Program Objectives

Program Direction

- To develop, direct and administer a complex and broadly diversified program of mission-oriented basic and applied research and development designed to support new and improved energy, environmental and health technologies.
- To manage the design, construction, and operation of forefront scientific research facilities for use by the Nation's scientific community, including the Spallation Neutron Source Project.
- To conduct independent technical assessments, peer reviews and evaluations of research proposals, programs and projects.
- To enhance international collaboration and leverage the U.S. investment in research and development.
- To review, analyze and, where appropriate, champion the recommendations of SC's Federally chartered advisory committees, including the Fusion Energy Sciences Advisory Committee, High Energy Physics Advisory Panel, Nuclear Science Advisory Committee, Basic Energy Sciences Advisory Committee, Biological and Environmental Research Advisory Committee, and Advanced Scientific Computing Advisory Committee.

Science Education

- To provide opportunities and effective mechanisms for students and faculty to participate at the Department's laboratories in hands-on research experiences, related to SC's research programs, with a focus on undergraduates.

Field Operations

- To provide the day-to-day managerial, business, fiduciary, contractual, and technical foundation necessary to support programmatic missions in the areas of science and technology, national security, energy research, and environmental management.
- To improve the efficiency of operations through development and implementation of integrated business management systems.
- To maintain the field infrastructure in an environment that is safe and hazard free.
- To improve communications with customers, stakeholders, and the public.

Performance Measures

Program Direction

- Responsiveness to national science policy and major science initiatives.

- Improvement in environment, safety, and health compliance and reduction of waste generation and environmental emissions.
- Make provisions for new and/or enhanced research facilities and equipment within scope and budget and on schedule.
- Continue improvements in the utilization of staffing, travel, and support contractor funds.
- Continue to improve levels of facility operating time.
- Expand international collaborative efforts.
- Cost share and leverage program resources with other agencies on a one-to-one basis to multiply the program's impact.

Science Education

- Increase the flow of underrepresented students up to 50 percent into science and math programs/careers.

Field Operations

- Award management and operating contract for the Y-12 Plant.
- Realize cost avoidance of at least 10 percent by consolidating the development of information systems and network architecture, and acquisition of information technology.
- Automate budget transmissions between the contractor/laboratories, the Operations Offices, and Headquarters.

Significant Accomplishments and Program Shifts

Program Direction

- SC Headquarters 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 contractor support staff.
- Concluded the international agreement for U.S. participation in the Large Hadron Collider project. Signatories included the Secretary of Energy and the Director of the National Science Foundation. Execution of the project is ongoing.
- Continue operation of the William R. Wiley Environmental Molecular Sciences Laboratory at Pacific Northwest National Laboratory.
- At Fermilab, completed construction of the C-Zero Experimental Hall within scope and budget, and on schedule (FY 1999 completion); and completed the Main Injector within scope and budget, and on schedule (FY 1999 initial operation).
- Completed the B-factory and its detector at the Stanford Linear Accelerator Center within scope and

budget, and on schedule (FY 1999 initial operation).

- Enhance the scientific capabilities for experiments at the Thomas Jefferson National Accelerator Facility (TJNAF) to provide new opportunities for researchers. Three TJNAF experimental halls will be fully operational.
- Carry out experiments at the Radioactive Ion Beam facility at Oak Ridge National Laboratory.
- Transfer of management responsibility from Environmental Management to Science for newly generated wastes at Ames, Argonne National Laboratory/East, Brookhaven National Laboratory, Lawrence Berkeley National Laboratory, Pacific Northwest National Laboratory, and Princeton Plasma Physics Laboratory.
- Manage the Joint Genome Institute and the Atmospheric Radiation Measurement sites using the national laboratories as an integrated system.
- Strengthen integrated safety and security management and infrastructure management at the national laboratories.
- Operate the state-of-the-art National Energy Research Scientific Computing and Energy Science Network for the benefit of SC and DOE.
- Plan and manage a complex, scientific R&D program to establish the knowledge base needed for an attractive fusion energy source.
- Continue to refine framework of appropriate international arrangements needed to carry out SC programs in a most cost-effective manner.
- Continue enhancement of neutron science capability at the Los Alamos Neutron Science Center and the High Flux Isotope Reactor at Oak Ridge.
- Continue design and construction of the Neutrinos at the Main Injector project.
- Accomplished the U.S. withdrawal from the International Thermonuclear Experimental Reactor program consistent with congressional direction and appropriated funds while preserving effective working relationships with affected U.S. institutions.
- Completed the National Spherical Torus Experiment at the Princeton Plasma Physics Laboratory within scope and budget (FY 1999), achieving first plasma milestone ahead of schedule.
- Completed the assessment of the quality of fusion science requested by the Office of Science and Technology Policy and carried out by the National Research Council of the National Academy of Sciences.
- The Office of Fusion Energy Sciences will respond to recommendations from the Secretary of Energy Advisory Board review of DOE fusion energy programs and the Fusion Energy Sciences Advisory Committee report on opportunities and requirements of fusion energy.
- Began construction of the Spallation Neutron Source Project Office at Oak Ridge National Laboratory in FY 2000.

Science Education

- The Energy Research Undergraduate Laboratory Fellowship Program has implemented an innovative, interactive Internet system to receive and process hundreds of student applications for summer and semester research appointments at 11 participating DOE laboratories. The automated system is virtually paperless and provides an excellent example of how the Internet can be used to streamline the operation of the Department's research participation programs.
- Through special recruitment efforts, the Energy Research Undergraduate Laboratory Fellowship Program has attracted a diverse group of students using the electronic application. Nearly 20 percent of those submitting applications were from underrepresented ethnic groups. About 40 percent of the applications were from females, and more than 25 percent were from low-income families. More than 600 summer 1999 appointments were made through the new application process.
- Five additional regional competitions were held in conjunction with DOE's National Science Bowl. More than 9,000 high school students participated in the 53 regional science bowl tournaments.
- The Albert Einstein Distinguished Educator Fellowship awards to pre-college science, math and technology teachers will place four individuals in Congressional offices and DOE, as directed by legislation.
- In FY 1999, SC piloted its DOE Institute of Biotechnology, Environmental Science, and Computing for Community Colleges. In the summer of 1999, 125 community college students attended an eight-week scientific research experience at five DOE multipurpose laboratories. Additionally, seven community college faculty members were also selected to work in these DOE laboratories. More than 80 percent of the participating students came from underrepresented groups in math, science, engineering, and technology and many were "non-traditional" students.

Field Operations

- The contract with Stanford University was renewed. The incumbent of this contract is responsible for managing the Stanford Linear Accelerator Center along with the Stanford Synchrotron Research Laboratory. This new performance-based contract is valued at \$10,000,000 through FY 2003.
- As a result of project management activities at Chicago, the first shipment of Tritium Producing Burnable Absorber Rods to Tennessee Valley Authority (TVA) reactors will be completed on the commercial light water reactor production of tritium project.
- Negotiations have been completed with TVA to provide reactors to irradiate Tritium Producing Burnable Absorber Rods to guarantee the U.S. a supply of tritium for weapons use.
- The Human Genome Production Sequencing Facility in Walnut Creek, California, was dedicated and is operational. This facility will house a team of scientists from Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory that are working on the

Human Genome Sequencing Project.

- A multi-year contract with Boeing North American Company, valued at \$148,500,000, was signed to complete the restoration and remediation of DOE's former Energy Technology Engineering Center in Southern California.
- The contract for the Oak Ridge National Laboratory was awarded to University of Tennessee - Battelle, Limited Liability Company.

Funding Profile

(dollars in thousands)

	FY 1999 Current Appropriation	FY 2000 Original Appropriation	FY 2000 Adjustments	FY 2000 Current Appropriation	FY 2001 Request
Science Program Direction					
Program Direction	44,953	47,860	0	47,860	51,438 ^a
Science Education.....	4,500	4,500	0	4,500	6,500
Field Operations	0 ^b	78,748	0	78,748	83,307
Total, Science Program Direction.....	49,453	131,108	0	131,108	141,245
Staffing (FTEs)					
Headquarters (FTEs).....	264	274	0	274	284
Field (FTEs).....	49	51	0	51	62
Field Operations (FTEs).....	0	767	0	767	732
Total, FTEs	313	1,092	0	1,092	1,078

Public Law Authorization:

Public Law 95-91, "Department of Energy Organization Act"

Public Law 103-62, "Government Performance Results Act of 1993"

^a Includes \$631,000 in FY 2001 for Waste Management activities at Chicago and Oakland Operations Offices that was previously budgeted in FY 1999 and FY 2000 by the Environmental Management program.

^b Appropriated in Energy Supply Research and Development and managed by the Office of Field Integration in FY 1999.

Funding by Site

	(dollars in thousands)				
	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Chicago Operations Office					
Argonne National Laboratory.....	797	200	900	+700	+350.0%
Brookhaven National Laboratory.....	398	250	600	+350	+140.0%
Princeton Plasma Physics Laboratory.....	0	0	250	+250	+100.0%
Chicago Operations Office	<u>3,948</u>	<u>29,226</u>	<u>30,577</u>	<u>+1,351</u>	<u>+4.6%</u>
Total, Chicago Operations Office	<u>5,143</u>	<u>29,676</u>	<u>32,327</u>	<u>+2,651</u>	<u>+8.9%</u>
Oakland Operations Office					
Lawrence Berkeley National Laboratory.....	309	225	500	+275	+122.2%
Stanford Linear Accelerator Center	15	0	150	+150	+100.0%
Oakland Operations Office	<u>957</u>	<u>21,399</u>	<u>23,761</u>	<u>+2,362</u>	<u>+11.0%</u>
Total, Oakland Operations Office	<u>1,281</u>	<u>21,624</u>	<u>24,411</u>	<u>+2,787</u>	<u>+12.9%</u>
Oak Ridge Operations Office					
Oak Ridge Institute For Science & Education.....	1,495	725	1,700	+975	+134.5%
Oak Ridge National Laboratory.....	439	320	800	+480	+150.0%
Thomas Jefferson National Accelerator Facility.....	0	0	150	+150	+100.0%
Oak Ridge Operations Office	<u>792</u>	<u>34,525</u>	<u>36,625</u>	<u>+2,100</u>	<u>+6.1%</u>
Total, Oak Ridge Operations Office	<u>2,726</u>	<u>35,570</u>	<u>39,275</u>	<u>+3,705</u>	<u>+10.4%</u>
Richland Operations Office					
Pacific Northwest National Laboratory.....	572	275	750	+475	+172.7%
Washington Headquarters	<u>39,731</u>	<u>43,963</u>	<u>44,482</u>	<u>+519</u>	<u>+1.2%</u>
Total, Science Program Direction	<u>49,453</u>	<u>131,108</u>	<u>141,245^a</u>	<u>+10,137</u>	<u>+7.7%</u>

^aIncludes \$631,000 in FY 2001 for Waste Management activities at Chicago and Oakand Operations Offices that was previously budgeted in FY 1999 and FY 2000 by the Environmental Management program.

Site Description

Argonne National Laboratory

Argonne National Laboratory (ANL) in Argonne, Illinois, is a multi-program laboratory located on a 1,700-acre site in suburban Chicago. ANL has a satellite site located in Idaho Falls, Idaho. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate student and science teacher participants on state-of-the-art equipment while engaging them on important issues at the forefront of scientific inquiry.

Brookhaven National Laboratory

Brookhaven National Laboratory is a multi-program laboratory located on a 5,200-acre site in Upton, New York. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate student and science teacher participants on state-of-the-art equipment while engaging them on important issues at the forefront of scientific inquiry.

Chicago Operations Office

Chicago is responsible for the integrated management of its five performance-based contractor laboratory sites--Argonne National Laboratory, Brookhaven National Laboratory, Fermi National Accelerator Laboratory, Princeton Plasma Physics Laboratory, and Ames Laboratory; and two government-owned and government-operated federal laboratories--Environmental Measurements Laboratory and New Brunswick Laboratory. Chicago has oversight responsibility for more than 10,000 contractor employees located at various site offices across the Nation. This responsibility includes ensuring the security and environmental safety of the taxpayer's investment--approximately 16,000 acres of land with a physical plant worth of about \$5.8 billion. Chicago is often noted as a leader in both intellectual property matters and managing more than 2,000 active procurement instruments. Several departmental elements rely on these patent services and the expertise within this Center of Excellence for Acquisitions and Assistance.

Lawrence Berkeley National Laboratory

Lawrence Berkeley National Laboratory is a multi-program laboratory located in Berkeley, California. The laboratory is on a 200-acre site adjacent to the Berkeley campus of the University of California. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate student and science teacher participants on state-of-the-art equipment while engaging them on important issues at the forefront of scientific inquiry.

Oakland Operations Office

Oakland is responsible for supporting the national securities and science, physics and biomedical research, and high energy physics activities which contribute to the California economy. These activities are conducted mostly at the following major laboratories for which Oakland has oversight responsibility: Lawrence Livermore National Laboratory, Lawrence Berkeley National Laboratory, and Stanford Linear Accelerator Center. Oakland administers more than 1,600 contracts, grants and assistance awards valued at about \$28 billion. Oakland Operations Office manages \$1.2 billion in major industrial contracts with Westinghouse, General Electric, and General Atomics and Combustion Engineering. As a Grants Center of Excellence, Oakland administers all grants west of the Mississippi.

Oak Ridge National Laboratory

Oak Ridge National Laboratory is a multi-program laboratory located on a 24,000-acre site in Oak Ridge, Tennessee. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate student and science teacher participants on state-of-the-art equipment while engaging them on important issues at the forefront of scientific inquiry.

Oak Ridge Operations Office

Oak Ridge has oversight responsibility for the Oak Ridge National Laboratory (ORNL), the East Tennessee Technology Park (ETTP), Paducah Gaseous Diffusion Plant, Portsmouth Gaseous Diffusion Plant, Y-12 Plant, and the government owned and operated Oak Ridge Institute of Science and Education. Oak Ridge has oversight responsibility for more than 15,000 contractor employees located at these sites, as well as responsibility for over 43,000 acres of land and approximately 46,000,000 square feet of facility space, valued at over \$12 billion. ORNL has responsibility for the Spallation Neutron Source (construction began in FY 2000). The Y-12 Plant has recently resumed weapons production operations, and the ETTP is responsible for utilizing DOE assets by recycling metals, the sale of precious metals, and the disposition of uranium. Other major initiatives at Oak Ridge include reducing environmental risk; reducing the Y-12 weapons footprint; re-industrializing the ETTP and some parts of the Y-12 Plant for commercial use; the revitalization of the scientific infrastructure; and creating public and private partnerships for regional economic development. Oak Ridge is also recognized as one of the Department's three Financial Centers of Excellence.

Oak Ridge Institute for Science and Education

Oak Ridge Institute for Science and Education (ORISE) is located on a 150-acre site in Oak Ridge, Tennessee. ORISE conducts research into modeling radiation dosages for novel clinical, diagnostic, and therapeutic procedures. In addition, ORISE coordinates several research fellowship programs and the peer review of all Basic Energy Research funded science.

Pacific Northwest National Laboratory

Pacific Northwest National Laboratory is a multi-program laboratory located on 640 acres at the Department's Hanford site in Richland, Washington. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate student and science teacher participants on state-of-the-art equipment while engaging them on important issues at the forefront of scientific inquiry.

Princeton Plasma Physics Laboratory

Princeton Plasma Physics Laboratory is a program-dedicated laboratory (Fusion Energy Sciences) located on 72 acres in Princeton, New Jersey. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate student and science teacher participants on state-of-the-art equipment while engaging them on important issues at the forefront of scientific inquiry.

Stanford Linear Accelerator Center

Stanford Linear Accelerator Center is a program-dedicated laboratory (High Energy Physics) located on 426 acres in Menlo Park, California. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate student and science teacher participants on state-of-the-art equipment while engaging them on important issues at the forefront of scientific inquiry.

Thomas Jefferson National Accelerator Facility

Thomas Jefferson National Accelerator Facility is a program-dedicated laboratory (Nuclear Physics) located on 273 acres in Newport News, Virginia. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate student and science teacher participants on state-of-the-art equipment while engaging them on important issues at the forefront of scientific inquiry.

Program Direction

Mission Supporting Goals and Objectives

Program Direction provides the Federal staffing resources and associated costs required for overall direction and execution of SC program and advisory responsibilities. Program Direction supports staff in the High Energy Physics, Nuclear Physics, Basic Energy Sciences, Biological and Environmental Research, Fusion Energy Sciences, Computational and Technology Research, Multiprogram Energy Laboratories-Facilities Support, and Energy Research Analyses programs, including management and technical support staff. The staff includes scientific and technical personnel as well as program support personnel in the areas of budget and finance; general administration; grants and contracts; information resource management; policy review and coordination; infrastructure management; construction management; safeguards and security; and environment, safety and health. This program also provides program-specific staffing resources at the Chicago, Oakland, and Oak Ridge Operations Offices directly involved in executing SC programs.

Program Direction also includes resources to cover the costs of centrally provided goods and services procured through the Working Capital Fund at Headquarters, such as supplies, rent, telecommunications, desktop infrastructure, etc.

Funding Schedule

(dollars in thousands, whole FTEs)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Chicago Operations Office					
Salaries and Benefits	3,054	3,345	3,800	+455	+13.6%
Travel.....	187	190	212	+22	+11.6%
Support Services.....	198	160	160	0	0.0%
Other Related Expenses	124	166	180	+14	+8.4%
Total, Chicago Operations Office.....	3,563	3,861	4,352	+491	+12.7%
Full-Time Equivalents	32	32	37	+5	+15.6%
 Oakland Operations Office					
Salaries and Benefits	867	889	988	+99	+11.1%
Travel.....	51	51	47	-4	-7.8%
Support Services.....	0	0	0	0	0.0%
Other Related Expenses	39	39	55	+16	+41.0%
Total, Oakland Operations Office.....	957	979	1,090	+111	+11.3%
Full-Time Equivalents	10	10	11	+1	+10.0%

(dollars in thousands, whole FTEs)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
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Oak Ridge Operations Office

Salaries and Benefits	634	833	1,498	+665	+79.8%
Travel.....	40	70	82	+12	+17.1%
Support Services.....	0	52	56	+4	+7.7%
Other Related Expenses	68	117	178	+61	+52.1%
Total, Oak Ridge Operations Office.....	742	1,072	1,814	+742	+69.2%
Full-Time Equivalents	7	9	14	+5	+55.6%

Headquarters

Salaries and Benefits	28,409	30,180	33,349	+3,169	+10.5%
Travel.....	1,240	1,420	1,359	-61	-4.3%
Support Services.....	5,146	5,120	4,887	-233	-4.6%
Other Related Expenses	4,896	5,228	4,587	-641	-12.3%
Total, Headquarters	39,691	41,948	44,182	+2,234	+5.3%
Full-Time Equivalents	264	274	284	+10	+3.6%

Total Science

Salaries and Benefits	32,964	35,247	39,635	+4,388	+12.4%
Travel.....	1,518	1,731	1,700	-31	-1.8%
Support Services.....	5,344	5,332	5,103	-229	-4.3%
Other Related Expenses	5,127	5,550	5,000	-550	-9.9%
Total, Science Program Direction.....	44,953	47,860	51,438	+3,578	+7.5%
Total, Full -Time Equivalents	313	325	346	+21	+6.5%

Detailed Program Justification

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Salaries and Benefits

SC monitors and evaluates over 3,500 grants and contracts at more than 225 institutions, including universities, industry and other government agencies and programs at 13 national and single-purpose laboratories. In FY 2001, SC will support the Re-engineering Waste Management transfers at management and operating contractor facilities administered by the Chicago and Oakland Operations Offices and the management structure of the Spallation Neutron Source Project.

Also in FY 2001, SC will support the Scientific and Technical Workforce Retention and Recruitment effort. The Department of Energy has conducted detailed workforce analyses that have identified current and projected staffing shortfalls, especially among the scientific and technical disciplines. During 1999, DOE conducted a systematic analysis of critical staffing needs within the context of current and projected Research & Development (R&D) program missions. The Department will focus on building and sustaining a talented and diverse workforce of R&D Technical Managers. This will include innovative recruitment strategies, retention incentives, comprehensive training and development programs for new and current employees, and succession planning. The FY 2001 program direction request for SC includes \$1,186,000 in salaries and benefits for this effort. This will enable the recruitment of experienced scientists and related support staff (10 full-time equivalents) in areas of emerging interest to the Department's science mission. Funds will also be used to motivate and retain highly skilled, top-performing technical managers with, for example, retention allowances and performance awards.....

32,964 35,247 39,635

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Travel

Travel includes all costs of transportation of persons, subsistence of travelers, and incidental travel expenses in accordance with Federal travel regulations. Travel also includes transportation costs for new hires and Federal transferees in support of Scientific and Technical Workforce Retention and Recruitment efforts.

Alternatives to travel such as teleconferencing will continue to be utilized when possible.

1,518 1,731 1,700

Support Services

Provides the minimum level of support services needed for mailroom operations; travel management; environment, safety and health support; safeguards and security; computer systems development; and hardware and software installation, configuration, and maintenance activities. As a Lead Program Secretarial Office, the capability to develop/implement integrated business management systems and the related information technology infrastructure is required in order to strengthen collaborative efforts between Headquarters and field components.

5,344 5,332 5,103

Other Related Expenses

Provides funds to enhance the technical and professional capability of the Federal staff, acquire computer hardware and software necessary to accomplish corporate systems development and networking upgrades, and provide \$3,506,000 for Working Capital Fund assessments. Funding in support of the Scientific and Technical Workforce Retention and Recruitment effort in areas crucial for effective job performance is also included.

5,127 5,550 5,000

Total, Program Direction.....

44,953 47,860 51,438

Explanation of Funding Changes From FY 2000 to FY 2001

FY 2001 vs.
FY 2000
(\$000)

Salaries and Benefits

- The increase includes cost of living, locality pay, within grades, promotions, and awards; 5 FTEs at Oak Ridge Operations Office to complete the management structure of the Spallation Neutron Source Project Office; 5 FTEs at Chicago and 1 FTE at Oakland Operations Offices to support the Waste Management transfers; and 10 FTEs in support of the Scientific and Technical Workforce Retention and Recruitment effort. +4,388

Travel

- The decrease reflects a continuing effort to reduce travel costs..... -31

Support Services

- The decrease represents efficiencies achieved in information technology -229

Other Related Expenses

- The decrease represents a reduction (-\$712,000) in maintenance costs associated with information management activities, offset by an increase in the Working Capital Fund (+\$162,000)..... -550

Total Funding Change, Program Direction..... +3,578

Support Services

	(dollars in thousands)				
	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Technical Support Services					
Economic and Environmental Analysis	1,488	1,325	1,325	0	0.0%
Test and Evaluation Studies	160	100	100	0	0.0%
Total, Technical Support Services	1,648	1,425	1,425	0	0.0%
Management Support Services					
Management Studies	207	110	110	0	0.0%
Training and Education	63	40	40	0	0.0%
ADP Support	2,376	2,847	2,618	-229	-8.0%
Administrative Support	1,050	910	910	0	0.0%
Total, Management Support Services	3,696	3,907	3,678	-229	-5.9%
Total, Support Services	5,344	5,332	5,103	-229	-4.3%

Other Related Expenses

	(dollars in thousands)				
	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Training.....					
Training.....	68	74	74	0	0.0%
Working Capital Fund	3,000	3,344	3,506	+162	+4.8%
Printing and Reproduction.....	33	11	0	-11	-100.0%
Rental Space.....	26	0	0	0	0.0%
Software Procurement/Maintenance Activities/Capital Acquisitions.....					
Activities/Capital Acquisitions.....	2,000	2,115	1,420	-695	-32.9%
Other.....	0	6	0	-6	-100.0%
Total, Other Related Expenses	5,127	5,550	5,000	-550	-9.9%

Science Education

Mission Supporting Goals and Objectives

For over 50 years, the Department of Energy and its predecessor agencies have supported science and engineering education programs involving university faculty as well as pre-college teachers and students. The Department has provided support for university students, pre-college teachers and college faculty through hands-on research experiences at the Department's national laboratories and research facilities.

The involvement of DOE's national laboratories in faculty/student research is perhaps the most distinguishing feature of the agency's participation over the years in science and engineering education. No other Federal agency has the extensive network of research laboratories and facilities as DOE with its unique physical and human resources. These laboratories and facilities have been the key to the Department's contribution over time to the Nation's science and engineering education goals.

As we approach the new century, the Nation continues to face important challenges related to recruiting and retaining students who have historically been under-represented (e.g., women, disabled persons, African Americans, Hispanic Americans and Native Americans) in science and engineering fields. Guided by recent reports such as the National Research Council on Undergraduate Education Achievement Trends in Science and Engineering, SC will continue to design an undergraduate research fellowship program that couples academic study with extensive hands-on research experiences in a variety of DOE national laboratory settings. This program is intended to enhance the likelihood that under-represented students will successfully complete their undergraduate studies and move on to graduate school. Historically, over two-thirds of undergraduates who have participated in DOE programs such as this have gone on to graduate school in disciplines directly relevant to the DOE science and technology missions.

Funding Schedule

	(dollars in thousands)				
	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Energy Research Undergraduate Laboratory Fellowships	3,215	3,160	3,700	+540	+17.1%
National Science Bowl Program	400	400	400	0	0.0%
Albert Einstein Distinguished Educator Fellowship Program	385	440	400	-40	-9.1%
DOE Institute of Biotechnology, Environmental Science, and Computing for Community Colleges	500	500	2,000	+1,500	+300.0%
Total, Science Education.....	<u>4,500</u>	<u>4,500</u>	<u>6,500</u>	<u>+2,000</u>	<u>+44.4%</u>

Detailed Program Justification

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Energy Research Undergraduate Laboratory Fellowships

The Energy Research Undergraduate Laboratory Fellowship Program is a key component of Science Education. The program enables students to focus their research interests on solving current scientific problems and prepare for meeting the challenge of DOE's future energy science mission requirements. This program provides undergraduates real hands-on experiences at the national laboratories and facilities. The program will ensure a steady flow of students with technical expertise into the Nation's pipeline of workers in both academia and industry.....

3,215 3,160 3,700

National Science Bowl Program

SC will manage and support the National Science Bowl for high school students from across the country. Since its inception, more than 60,000 high school students have participated in this event. The National Science Bowl is a highly publicized academic competition among teams of high school students who answer questions on scientific topics in astronomy, biology, chemistry, mathematics, physics, earth, computer, and general science. In 1991, DOE developed the National Science Bowl to encourage high school students from across the Nation to excel in math and science and to pursue careers in those fields. It provides the students and teachers a forum to receive national recognition for their talent and hard work. DOE plans to invest \$400,000 in the National Science Bowl to manage both regional and national competitions.....

400 400 400

Albert Einstein Distinguished Educator Fellowship Program

The Albert Einstein Fellowship Awards for pre-college science, math and technology teachers continues to be a strong pillar of the program for bringing real classroom experiences to our education programs and outreach activities. This Congressional initiative, established by the Albert Einstein Distinguished Educator Fellowship Act of

(dollars in thousands)

	FY 1999	FY 2000	FY 2001
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1994, has enabled the Department to maintain an enriching relationship with the National Triangle Coalition that serves the Federal Government as the clearinghouse for selecting the teachers. DOE plans to invest \$400,000 in the Einstein Fellowship Awards that will allow us to place teachers at the Department and in the U.S. Congress. 385 440 400

DOE Institute of Biotechnology, Environmental Science, and Computing for Community Colleges

The DOE Institute of Biotechnology, Environmental Science, and Computing for Community Colleges is a collaborative effort between DOE and five of its multiprogram laboratories with the American Association of Community Colleges and specified member institutions. This program is designed to address shortages, particularly at the technician and paraprofessional levels, in the rapidly expanding areas of biotechnology, environmental science, and computing, that will help develop the human resources needed to continue building the Nation's capacity in these critical areas for the next century. The Institute provides a 10-week research fellowship for highly qualified community college students at a DOE national laboratory. Students are mentored by world-renowned scientists, learn scientific inquiry and methodology to solve complex scientific problems, are introduced to and learn to use the latest scientific instruments, and learn about career options in the science and technology enterprise. To be eligible, students must: (1) be enrolled in at least six hours of coursework at the time of application; (2) be interested in a career in the fields of biotechnology, environmental science, or computing; (3) have completed at least 12 hours of community college credits that count toward a degree with at least six hours in science mathematics, engineering, or technology courses; (4) have a minimum undergraduate grade point average of 3.25 on a 4.0 scale; (5) be a citizen of the United States or a Permanent Resident Alien; and (6) be at least 18 years of age by June 1 of the year of the appointment. Students apply through an on-line application process.....

500	500	2,000
4,500	4,500	6,500

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Total, Science Education.....

Explanation of Funding Changes from FY 2000 to FY 2001

FY 2001 vs.
FY 2000
(\$000)

Energy Research Undergraduate Laboratory Fellowship Program

- Increase the number of students for fall and spring research appointments..... +540

Albert Einstein Fellowship

- One fellowship recipient was given an additional time extension in FY 2000. -40

DOE Institute of Biotechnology, Environmental Science, and Computing for Community Colleges

- Expanding the Community College program from a pilot to a full competitive program. +1,500

Total Funding Changes, Science Education..... +2,000

Field Operations

Mission Supporting Goals and Objectives

The Field Operations subprogram pays the salaries and benefits of the Federal personnel located at the Chicago, Oakland, and Oak Ridge Operations Offices. The staff is responsible for managing the daily business, administrative and technical services that support Science and other DOE program-specific scientific and technical work within the field and laboratory structure. The following administrative and technical services are provided by this core matrix staff: financial stewardship, personnel management, contract and procurement acquisition, labor relations, legal counsel, public and congressional liaison, intellectual property and patent management, environmental compliance, safety and health management, infrastructure operations maintenance, information systems development and support, and reindustrialization.

In addition, this subprogram provides funding for the fixed requirements associated with rent, utilities, and telecommunications. Other requirements such as information systems support, administrative support, mail services, printing and reproduction, travel, certification training, vehicle acquisition and maintenance, equipment, classified/unclassified data handling, records management, health care services, guard services, and facility and ground maintenance are also included. These infrastructure requirements are relatively fixed. The offices are also responsible for supplying office space and materials for the Office of Inspector General located at each site. With the budget reductions over the immediate past years, these areas are already funded at the minimum level necessary to support the Department's critical missions in the field.

Other operational requirements funded include occasional contractor support to perform ecological surveys, cost validations, and environmental assessments; ensure compliance with Defense Nuclear Safety Board safety initiatives; abide by site preservation laws and regulations; and perform procurement contract closeout activities. Departmental and programmatic initiatives as well as regional and congressional constituents influence these requirements.

Funding Schedule

(dollars in thousands, whole FTEs)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Chicago Operations Office.....					
Salaries and Benefits	0	20,021	19,958	-63	-0.3%
Travel.....	0	350	396	+46	+13.1%
Support Services.....	0	1,500	1,829	+329	+21.9%
Other Related Expenses	0	3,054	3,642	+588	+19.3%
Total, Chicago Operations Office.....	0	24,925	25,825	+900	+3.6%
Full-Time Equivalents	0	253	236	-17	-6.7%
 Oakland Operations Office.....					
Salaries and Benefits	0	14,994	15,370	+376	+2.5%
Travel.....	0	250	259	+9	+3.6%
Support Services.....	0	2,092	2,831	+739	+35.3%
Other Related Expenses	0	3,084	4,211	+1,127	+36.5%
Total, Oakland Operations Office.....	0	20,420	22,671	+2,251	+11.0%
Full-Time Equivalents	0	178	171	-7	-3.9%
 Oak Ridge Operations Office.....					
Salaries and Benefits	0	26,435	27,518	+1,083	+4.1%
Travel.....	0	400	345	-55	-13.8%
Support Services.....	0	3,026	2,745	-281	-9.3%
Other Related Expenses	0	3,542	4,203	+661	+18.7%
Total, Oak Ridge Operations Office.....	0	33,403	34,811	+1,408	+4.2%
Full-Time Equivalents	0	336	325	-11	-3.3%
 Total Field Operations					
Salaries and Benefits	0	61,450	62,846	+1,396	+2.3%
Travel.....	0	1,000	1,000	0	0.0%
Support Services.....	0	6,618	7,405	+787	+11.9%
Other Related Expenses	0	9,680	12,056	+2,376	+24.5%
Total, Field Operations	0 ^a	78,748	83,307	+4,559	+5.8%
Full-Time Equivalents	0	767	732	-35	-4.6%

^a Appropriated in Energy Supply Research and Development and managed by the Office of Field Integration in FY 1999.

Detail Program Justification

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Salaries and Benefits

- Funds the management and administrative staff that complement the multiple program-specific efforts performed within the field and laboratory structure under the auspices of three multi-program Operations Offices (Chicago, Oakland, and Oak Ridge). The FY 2001 budget request supports 732 full-time equivalents. From FY 2000 to the FY 2001 request, the full-time equivalents have been reduced by 4.6 percent. With such a reduction, in FY 2001, the staff will be devoted to re-engineering business processes, developing process improvements, and investing in information technology. 0 61,450 62,846

Travel

- Enables field staff to participate on task teams, work various issues, conduct compliance reviews, and perform contractor oversight to ensure implementation of DOE orders and regulatory requirements at the facilities under their purview. Also provides for attendance at conferences and training classes, and permanent change of station relocation, etc. 0 1,000 1,000

Support Services

- Provides centralized information management systems and administrative support at each office. For FY 2001, the field will need to make information technology infrastructure investments that will build on the integrated business management systems and support re-engineered processes and process improvements. These requirements are in addition to the routine computer programming, local area network connectivity, computer desktop maintenance, communications centers, and audio/TeleVideo support. A variety of other support services are also fundamental requirements at each office, which include mail distribution, travel management, contract closeout, remote site office support, copy and distribution centers, trash removal, and facility and grounds maintenance, etc..... 0 6,618 7,405

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Other Related Expenses

Provides funds necessary for day-to-day requirements associated with operating a viable office. Within this category, \$8,000,000 funds the fixed requirements associated with rent, utilities, and telecommunications. More than half of the \$8,000,000 is associated with office space occupied within Federal buildings and the rent paid to the General Services Administration. Eliminating the amount of space occupied has moderately reduced the rent expense. The remaining \$4,056,000 supports information technology infrastructure investments (\$1,400,000) and other day-to-day expenses (\$2,656,000), including postage, printing and reproduction, computer hardware and software, copier leases, and in most cases the site-wide health care service and vehicle fleet maintenance.

Employee training and development and the supplies and furnishings used by the Federal staff are also included

	0	9,680	12,056
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Total, Field Operations	0	78,748	83,307
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Explanation of Funding Changes from FY 2000 to FY 2001

FY 2001 vs. FY 2000 (\$000)

Salaries and Benefits

- This increase is the net effect of changes in the staffing level from FY 2000 to FY 2001. The funding change represents a decrease in related costs associated with early retirements needed in FY 2000 to make significant reductions in the Federal staffing level. In addition, the savings, related to the 4.6 percent reduction in full-time equivalents from FY 2000 to FY 2001, support a decrease in the funding request. These decreases are offset by an allowance for general pay and locality raises, promotions, and within grades in FY 2001 +1,396

Travel

- Travel remains the same as the prior year as this level supports increasing oversight responsibilities 0

Support Services

- The increase will support obtaining expertise that will facilitate process improvements, develop state-of-the-art automation tools, and build on existing integrated business management systems among three field offices. Under the Department's new management structure, SC and the three Operations Offices are collaborating in a corporate, integrated approach to business systems, utilizing strategic information planning and information architecture +787

Other Related Expenses

- The increase is attributable to inflationary adjustments associated with essential day-to-day operations (+\$894,000), adequate funding for employee training and development (+\$382,000), and information technology investments and architecture (+\$1,100,000). +2,376

Total Funding Change, Field Operations +4,559

Support Services

(dollars in thousands)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Technical Support Services					
Feasibility of Design Consideration.....	0	0	0	0	0.0%
Test and Evaluation Studies	0	0	0	0	0.0%
Economic and Environmental Analysis.....	0	396	396	0	0.0%
Total, Technical Support Services	0	396	396	0	0.0%
Management Support Services					
Administrative	0	1,682	2,100	+418	+24.9%
ADP Support	0	4,540	4,909	+369	+8.1%
Total Management Support Services.....	0	6,222	7,009	+787	+12.6%
Total, Support Services	0	6,618	7,405	+787	+11.9%

Other Related Expenses

(dollars in thousands)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Training.....					
Training.....	0	382	764	+382	+100.0%
Printing and Reproduction.....	0	398	550	+152	+38.2%
Rent & Utilities & Telecommunication.....	0	7,600	8,000	+400	+5.3%
Information Technology.....	0	300	1,400	+1,100	+366.7%
Other.....	0	1,000	1,342	+342	+34.2%
Total, Other Related Expenses	0	9,680	12,056	+2,376	+24.5%