

## Science Program Direction

### Funding Profile by Category

(dollars in thousands/whole FTEs)

	FY 2010 Current Appropriation	FY 2012 Request
Science Program Direction		
Salaries and Benefits	144,660	158,522
Travel	3,666	4,551
Support Services	17,358	23,523
Other Related Expenses	23,693	30,267
Total, Science Program Direction	189,377	216,863
Full Time Equivalents <sup>a</sup>	1,030	1,095

### Program Overview

#### Mission

The Science Program Direction (SCPD) mission is to strategically support and sustain a skilled and motivated Federal workforce that oversees Office of Science (SC) investments in world-leading scientific research. The SC workforce is responsible for developing and shaping the science program, executing and managing science funding, and overseeing construction and maintenance of large scientific user facilities. Oversight also includes the health and safety of the workforce and overall security requirements. Additionally, the Federal workforce provides administrative, business, legal, and technical management of research grants and contracts, oversight of the management and operating (M&O) contracts for 10 of the 17 DOE national laboratories, and public access to the Department's research and development (R&D) results.

#### Background

Carrying out SC's mission requires not only highly skilled scientific and technical expert program and project managers, but experts in the areas of acquisition, finance, legal, construction and infrastructure management, as well as environment, safety, and health oversight. With growing national challenges in energy, environmental stewardship, and nuclear security, and the need to maintain U.S. innovation and scientific competitiveness, SC continues to be called upon to support transformational basic research. Oversight of DOE's basic research portfolio, which includes grants and contracts supporting approximately 27,000 researchers located at about 300 universities and 17 national laboratories, as well as supervision of major construction projects, is an exclusively Federal responsibility that requires a diverse set of knowledge and skills. The Office of Science directly funds, oversees, and manages complex research programs in condensed matter and materials physics, chemistry, biology, climate and environmental sciences, applied mathematics, computer and computational science, high energy physics, nuclear physics, plasma physics, and fusion energy sciences. SC also provides the nation's researchers with state-of-the-art user facilities—the large machines of modern science. These facilities offer capabilities that are unmatched anywhere in the world and enable U.S. researchers and industries to remain at the forefront of science, technology, and innovation.

<sup>a</sup> FY 2010 reflects actual FTE usage, whereas FY 2012 reflects the FTE ceiling.

With a highly skilled and experienced Federal workforce, SC is able to plan, execute, and manage science programs that meet critical national needs. Specifically:

*Headquarters (HQ) Federal Workforce Duties*

- Strategically maintain a balanced research portfolio that includes high-risk, high-reward research to maximize the program's potential to achieve mission goals and objectives.
- Provide direct oversight of Federal funds awarded to about 300 universities, 17 DOE national laboratories, and private research institutions supporting about 27,000 scientific professionals.
- Conduct scientific program planning, execution, and management across a broad spectrum of scientific disciplines and program offices, and communication of research interests and priorities to the scientific community.
- Assure rigorous external merit review of research proposals, selection of appropriate peer review experts, development of award recommendations informed by peer review, and regularly evaluate research programs. SC program managers typically manage over 6,000 laboratory, university, nonprofit, and private industry proposals and receive a total of 10,000 to 12,000 new proposal (peer) reviews and renewals annually.
- Provide oversight of design, construction, and operation of 28 large-scale scientific user facilities at laboratories and universities that support approximately 26,000 users.
- Manage a workforce development program to sustain a pipeline of highly trained science, technology, engineering, and mathematics (STEM) professionals for the U.S. workforce.
- Provide oversight and management of the Science Laboratories Infrastructure program and the maintenance and operational integrity of 10 SC laboratories.
- Provide human relations, information technology, grants and contracts, budget, and related business management support and oversight for over 300 Federal Headquarters employees.

*Site Office Federal Workforce Duties*

SC Site Office personnel are Federal staff charged with maintaining the business and management infrastructure necessary to support the scientific mission of 10 SC field sites. This includes conducting day-to-day business transactions of contract funding modifications, approvals to operate hazardous facilities, safety and security oversight, leases, property transfers, sub-contracts above defined thresholds, sub-awards, and activity approvals required by laws, regulations, and DOE policy. As part of this, the Site Office personnel:

- Maintain a comprehensive contract management program to assure contractual mechanisms supporting nearly \$4 billion per year of mission work, performed by over 22,000 contractors at 10 national laboratories, are effectively managed within all appropriate guidelines and regulations by highly qualified contracting officers and contracting officer representatives;
- Provide qualified technical staff to evaluate complex integrated laboratory activities, often including nuclear, radiological, and other complex hazards; and,
- Provide qualified Federal project directors to facilitate execution of line item and other construction projects.

*Integrated Support Center (ISC) Federal Workforce Duties*

The ISC, co-located at the Chicago and Oak Ridge Offices, provides administrative, business, legal, and technical support across the entire SC enterprise, including financial management; human resources;

grant and contract processing; safety, security, and health management; labor relations, intellectual property and patent management; environmental compliance; infrastructure operations and maintenance; and information systems development and support. As part of this, the ISC:

- Serves as a legal DOE allottee that manages multi-appropriation, multi-program allotments for all SC national laboratories with responsibility for greater than 93% of SC funds;
- Executes a human resource management program to recruit staff for the Site Offices, as required by documented workload, in the areas of information management, environment, safety, health, safeguards, security, and legal support; and
- Provides support to SC and other DOE programs for solicitations and funding opportunity announcements, as well as responsibility for the negotiation, award, administration, and closeout of contracts and financial assistance awards using contracting officers and professional acquisition staff. The ISC processed and managed approximately 4,800 actions in FY 2010; this number had increased over the past seven years primarily due to increased program complexity and is commensurate with total annual SC budget.

#### *Office of Scientific and Technical Information (OSTI) Federal Workforce Duties*

- OSTI fulfills the Department's legislative mandate to provide public access to the unclassified results of DOE's research program as well as the White House Open Government Directive to encourage collaboration and increase transparency (<http://energy.gov/open>). OSTI's collection from the mid-1990s to date is available entirely on-line and currently generates in excess of 100 million transactions annually. In FY 2012, OSTI plans to initiate the digitization of approximately 1 million pre-1990 technical reports representing approximately \$400 billion in DOE and predecessor agency R&D investments. This increased access will more fully leverage DOE's historic R&D investments and facilitate their contribution to scientific progress.
- OSTI also collects, protects, and provides secure access to DOE's classified research outcomes. OSTI works closely with National Nuclear Security Administration laboratories and facilities to collect classified R&D information and to provide secure access through the Enterprise Secure Network.
- Beyond traditional text-based R&D information, scientific results are increasingly recorded in numeric data sets and multimedia. OSTI is developing tools and processes that provide searchable access to these new forms of R&D information, including audio-indexed search engines where every spoken word in large audio/video files can be searched.
- Recognizing that science research is also performed by other Federal agencies and, indeed, at counterpart organizations around the world, OSTI has built broad collaborations, both within the U.S. and internationally, to enable a single point of access to nearly 400 million pages of scientific information.

#### **Benefits**

Utilizing about 4% of the SC budget, SCPD strives to provide an efficient corporate infrastructure for effective business management and stewardship of the resources necessary for SC to execute its mission. Maintaining a highly skilled workforce enables SC to develop and sustain world-class science programs that deliver the scientific discoveries and technological innovations needed to solve our Nation's energy and environmental challenges, and enable the U.S. to maintain its global competitiveness. Providing easy access to scientific findings leverages the Federal science investment and advances the scientific enterprise. With adequate staffing levels and a workforce balanced with appropriate skills, education,

and experience, SC is an effective and efficient steward of taxpayer dollars for maximum national benefit.

## **Program Planning**

The following factors influenced the FY 2012 SCPD budget request:

- *Maintenance for SC research and scientific facilities investment.* The FY 2012 SCPD request will support maintenance and operations for existing research capabilities, and allow adequate hiring of Federal Full Time Equivalents (FTEs) at Headquarters to provide scientific oversight and management while sustaining Field staffing levels.
- *Challenges and expectations facing the current SC workforce.* The ongoing need for highly skilled Federal program and project management requires an SCPD budget that keeps pace with growth in science program funding. Prior to the FY 2011 budget request, SCPD budgets and workforce had not kept pace with total SC budget increases. From FY 2006 to FY 2010, total SC funding grew at an annualized growth rate of 8.3%; in contrast, SCPD funding increased at an annualized rate of 4.4% for the same timeframe. The FY 2012 SCPD request, an increase of 14.5% over FY 2010, will sustain staffing and operations at the FY 2010 salary freeze level and provide additional scientific program managers and technical support at Headquarters for modest portfolio expansion. However, with the FY 2012 increase in the total SC budget of 9.1% over FY 2010, the proportional gap between the SC annualized growth rate and SCPD funding has decreased.
- *Succession planning across SC.* Currently the average age of SC employees is 51, with 321 (32%) eligible for voluntary retirement by the end of FY 2011. The FY 2012 request supports limited retention strategies and specialized recruitment efforts such as local job fairs, Student Career Experience Program, Student Temporary Employment Program, and Intern Programs to attract and retain the best and brightest needed to maintain the U.S. preeminent position in science and technology. New professionals will participate in SC mentorship programs led by current high-performing Federal managers.
- *Committee of Visitors' (COV) report findings.* SC charges its Federal Advisory Committees every three years to convene COVs to externally review its research programs, including how those programs are being managed. Since FY 2002, almost every SC program has been reviewed twice. Reports cited ample evidence of the need for additional staffing. The most recent reviews for each SC program (occurring from 2008-2010) cited that current staffing levels are insufficient to meet programmatic needs and the mandated workload. The COV reports recommend additional SC HQ program managers to provide scientific oversight in addition to support staff with specialized skills, e.g., Federal contract management, for the majority of research program offices.
- *Workload Indicator Project.* In an effort to understand more fully the impact of workload on the SCPD budget and to better align future staffing needs with budget planning, SC launched a workforce/workload indicator study using methodology found useful at the National Science Foundation and other government agencies. Preliminary results of the study characterize mission critical workload measures that drive staffing requirements and other elements of the SCPD budget. Phase One of the Workload Study, Benchmarking Against Other Federal Research Organizations, is complete. The full report, which refines the study as it relates to field operations, will be complete in mid-2011.

## **Budget Overview**

The FY 2012 SCPD budget request includes support for salaries and benefits for 1,095 FTEs responsible for executing, managing, and overseeing SC sponsored research programs and providing required

regulatory and management oversight. The SCPD request also supports required travel of SC Advisory Committee members, and Federal employees in addition to support services, including information management and grants and contract management systems, career development related training, and educational opportunities.

The total increase of \$27,486,000, or 14.5%, over FY 2010 will sustain steady-state research operations and staffing at FY 2010 salary freeze levels and an increase of 65 FTEs over the FY 2010 actual FTE usage.

### Detailed Justification

(dollars in thousands)

FY 2010 Current Appropriation	FY 2012 Request
<b>144,660</b>	<b>158,522</b>

#### Salaries and Benefits

The FY 2012 request for 1,095 FTEs sustains support across the SC complex and includes an additional 65 FTEs over the FY 2010 actual FTE usage of 1,030, for scientific program management, technical and administrative support associated with modest portfolio expansion in areas such as clean energy. The increased funding level from FY 2010 assumes a continued pay freeze in FY 2012 and will support increases to Federal employee benefits such as health insurance and retirement allocations. This funding level will support staff with responsibility for science program development and management; program and project execution and management that typically requires specialized expertise in multiple areas of science as well as contract, legal and advanced information technology; administrative, business, and technical management of research grants and contracts; oversight and maintenance of 10 of the 17 DOE national laboratories; and providing public access to the DOE's R&D results.

This FTE level maintains a skilled and motivated Federal workforce that provides effective oversight in world-leading research and research capabilities for the scientific community.

#### Travel

**3,666**

**4,551**

A key element in the SC research program is the effective management of a broad spectrum of scientific research programs, construction, operation, and maintenance of user facilities, and contractor oversight at geographically dispersed facilities located at 10 national laboratories, and about 300 universities throughout the Nation. Since SC senior program managers are not co-located with grantees or on-site at all national laboratories, staff travel is required to ensure scientific management, compliance oversight, and external review of research funding across all SC programs. Travel is also required for facility visits where the use of electronic telecommunications is not practical for mandated on-site inspections and operations reviews. Further, the review of large and complex research or facility proposals requires on-site visits to perform assessments during the course of the peer review process. Additionally travel by Federal staff is essential to assure implementation of new DOE orders and regulatory requirements, including required attendance at project and program reviews; internal audits, compliance reviews, oversight of sensitive investigations and administrative proceedings, and operational policy and process reviews.

The request also provides for travel expenses for more than 150 members who compose the six SC Federal Advisory Committees (FACs). Committee members include representatives from universities, national laboratories, and industry representing a diverse balance of disciplines, professional experience, and geography. Each of the six advisory committees meets three to four times annually and provides

(dollars in thousands)

FY 2010 Current Appropriation	FY 2012 Request
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valuable, independent advice to the Department regarding the complex scientific and technical issues that arise in the planning, management, and implementation of SC programs.

**Support Services** **17,358** **23,523**

Support Services provide multiple levels of technical expertise and general administrative services and activities as follows: maintenance, operation, and cyber security management of SC mission-specific information management systems and infrastructure and SC-corporate Enterprise Architecture and Capital Planning Investment Control management; accessibility to DOE's multi-billion dollar R&D program through E-Gov information systems managed and administered by OSTI; operations and maintenance of the Searchable Field Work Proposal system to provide HQ and Field organizations a tool to search, evaluate, and monitor both legacy and current field work proposals; day-to-day operations, including mailroom services, travel processing, administration of the Small Business Innovation Research/Small Business Technology Transfer program, grants and contract processing and close-out activities, copy centers, directives coordination, and filing and retrieving records; training and education of Federal staff, including continuing education and career development training; reports or analyses directed toward improving the effectiveness, efficiency, and economy of management and general administrative services; and staffing for 24-hour emergency communications centers and safeguards and security oversight functions.

**Other Related Expenses** **23,693** **30,267**

Other Related Expenses provide the SC contribution to the Department's Working Capital Fund (WCF) for common administrative services at HQ, such as rent and building operations, telecommunications, network connectivity, supplies/equipment, printing/graphics, copying, mail, contract closeout, purchase card surveillance, and per the Department's new policy for FY 2012, salary and benefit expenses for Federal employees who administer the WCF business lines. In addition, WCF services assessed to and used by HQ, OSTI, and the Field include online training, the Corporate Human Resource Information System, payroll processing, the Project Management Career Development Program, and support for Funds Distribution System (FDS) 2.0 and Implementation Plans.

Expenses in the Field include fixed requirements associated with rent, utilities, and telecommunications and are paid directly, as are requirements such as building and grounds maintenance, computer/video maintenance and support, printing and graphics, equipment leases, purchases, and maintenance, as well as, site-wide health care units.

\$750,000 is provided for the Under Secretary of Science to sponsor studies and workshops in furtherance of the role of the Office of Science as defined by the Energy Policy Act of 2005 in 42 USC 7132(b)(4), subparagraphs (A)-(F). These roles include serving as the Science and Technology Advisor to the Secretary, identifying any undesirable duplication or gaps in R&D programs, monitoring the well-being and management of the multipurpose laboratories, examining the effectiveness of grants and other forms of financial assistance, and leading the long-term planning, coordination, and development of a strategic R&D framework for the Department. These responsibilities are not exclusively related to programs within SC.

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**Total, Science Program Direction** **189,377** **216,863**

## Explanation of Funding Changes

FY 2012 vs. FY 2010 Current Approp. (\$000)
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### Salaries and Benefits

Salaries and Benefits represents 73% of the total FY 2012 SCPD Budget. The FY 2012 increase will support a total of 1,095 FTEs which reflects staffing at the FY 2010 frozen salary level plus the addition of 65 FTEs over the FY 2010 actual FTE usage. No pay increase is assumed in FY 2012. Additional funds will also provide other payroll-related expenses such as increases in health coverage costs and employee-driven retirement allocation increases in the Federal Employees Retirement System.

+13,862

### Travel

Travel represents 2% of the total FY 2012 SCPD budget. The increase over the two year period from FY 2010 reflects an increase in travel and trip costs for travel required by SC HQ and the FACs. OSTI and the Field will realize a small reduction of \$165,000.

+885

### Support Services

Support Services represents 11% of the total FY 2012 SCPD budget. The increase for the two year period from FY 2010 provides continued support for a broad range of specialized technical and administrative support commensurate with science program complexity. Training will be increased \$21,000 consistent with emphasis on career development and retention. The Field will realize a small reduction of \$145,000.

+6,165

### Other Related Expenses

Other Related Expenses represents 14% of the total FY 2012 SCPD budget. The increase from FY 2010 includes \$734,000 for the FY 2012 change in Department policy to enable full-cost recovery of WCF federal salary and benefits and \$1,100,000 to support the Funds Distribution System 2.0 and Implementation Plans. \$615,000 of the increase is related to WCF fixed cost increases at HQ. \$4,063,000 will maintain the FY 2010 level of effort and associated cost increases from the two year period through FY 2012 at HQ. An increase of \$62,000 supports OSTI and the Field.

+6,574

### Total Funding Change, Science Program Direction

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+27,486

## Supporting Information

### Operating Expenses, Capital Equipment and Construction Summary

(dollars in thousands)

	FY 2010 Current Approp.	FY 2012 Request
Operating Expenses	189,377	216,863

### Funding Profile by Category by Site

(dollars in thousands/whole FTEs)

	FY 2010 Current Approp.	FY 2012 Request
<b>Headquarters</b>		
Salaries and Benefits	51,970	60,459
Travel	2,290	3,340
Support Services	6,101	12,247
Other Related Expenses	11,450	17,962
Total, Headquarters	71,811	94,008
Full Time Equivalents <sup>a</sup>	306	370
<b>Office of Scientific and Technical Information</b>		
Salaries and Benefits	6,884	7,410
Travel	109	85
Support Services	697	861
Other Related Expenses	1,226	921
Total, Office of Scientific and Technical Information	8,916	9,277
Full Time Equivalents	56	57
<b>Field Offices</b>		
Chicago Office		
Salaries and Benefits	24,295	25,320
Travel	335	299
Support Services	3,705	2,869
Other Related Expenses	2,999	3,750
Total, Chicago Office	31,334	32,238
Full Time Equivalents	192	190

<sup>a</sup> FY 2010 reflects actual FTE usage, whereas FY 2012 reflects the FTE ceiling.

(dollars in thousands/whole FTEs)

	FY 2010 Current Approp.	FY 2012 Request
Oak Ridge Office		
Salaries and Benefits	28,444	28,577
Travel	360	412
Support Services	3,625	4,684
Other Related Expenses	6,265	6,837
Total, Oak Ridge Office	38,694	40,510
Full Time Equivalents	258	246
Ames Site Office		
Salaries and Benefits	509	581
Travel	19	18
Total, Ames Site Office	528	599
Full Time Equivalents	4	4
Argonne Site Office		
Salaries and Benefits	3,194	3,591
Travel	6	15
Support Services	130	324
Other Related Expenses	88	219
Total, Argonne Site Office	3,418	4,149
Full Time Equivalents	21	23
Berkeley Site Office		
Salaries and Benefits	3,610	4,356
Travel	44	6
Support Services	643	45
Other Related Expenses	162	8
Total, Berkeley Site Office	4,459	4,415
Full Time Equivalents	22	25

(dollars in thousands/whole FTEs)

	FY 2010 Current Approp.	FY 2012 Request
<b>Brookhaven Site Office</b>		
Salaries and Benefits	4,044	4,539
Travel	94	96
Support Services	435	452
Other Related Expenses	559	148
<b>Total, Brookhaven Site Office</b>	<b>5,132</b>	<b>5,235</b>
Full Time Equivalents	25	27
<b>Fermi Site Office</b>		
Salaries and Benefits	2,176	2,430
Travel	0	61
Support Services	53	76
Other Related Expenses	47	34
<b>Total, Fermi Site Office</b>	<b>2,276</b>	<b>2,601</b>
Full Time Equivalents	15	16
<b>New Brunswick Laboratory</b>		
Salaries and Benefits	4,291	4,767
Travel	79	91
Support Services	1,261	1,714
Other Related Expenses	501	148
<b>Total, New Brunswick Laboratory</b>	<b>6,132</b>	<b>6,720</b>
Full Time Equivalents	28	30
<b>Oak Ridge National Laboratory Site Office</b>		
Salaries and Benefits	4,030	4,333
Travel	90	15
Support Services	388	59
Other Related Expenses	111	9
<b>Total, Oak Ridge National Laboratory Site Office</b>	<b>4,619</b>	<b>4,416</b>
Full Time Equivalents	29	30

(dollars in thousands/whole FTEs)

	FY 2010 Current Approp.	FY 2012 Request
<b>Pacific Northwest Site Office</b>		
Salaries and Benefits	4,934	5,365
Travel	106	78
Support Services	169	173
Other Related Expenses	162	155
<b>Total, Pacific Northwest Site Office</b>	<b>5,371</b>	<b>5,771</b>
Full Time Equivalents	34	36
<b>Princeton Site Office</b>		
Salaries and Benefits	1,738	1,896
Travel	8	22
Support Services	1	5
Other Related Expenses	0	58
<b>Total, Princeton Site Office</b>	<b>1,747</b>	<b>1,981</b>
Full Time Equivalents	11	12
<b>SLAC Site Office</b>		
Salaries and Benefits	2,632	2,837
Travel	55	2
Support Services	140	5
Other Related Expenses	44	1
<b>Total, SLAC Site Office</b>	<b>2,871</b>	<b>2,845</b>
Full Time Equivalents	16	16
<b>Thomas Jefferson Site Office</b>		
Salaries and Benefits	1,909	2,061
Travel	71	11
Support Services	10	9
Other Related Expenses	79	17
<b>Total, Thomas Jefferson Site Office</b>	<b>2,069</b>	<b>2,098</b>
Full Time Equivalents	13	13

(dollars in thousands/whole FTEs)

	FY 2010 Current Approp.	FY 2012 Request
<b>Total Field Offices</b>		
Salaries and Benefits	85,806	90,653
Travel	1,267	1,126
Support Services	10,560	10,415
Other Related Expenses	11,017	11,384
Total, Field Offices	108,650	113,578
Full Time Equivalents	668	668
<b>Total SCPD</b>		
Salaries and Benefits	144,660	158,522
Travel	3,666	4,551
Support Services	17,358	23,523
Other Related Expenses	23,693	30,267
Total, SCPD	189,377	216,863
Full Time Equivalents	1,030	1,095

### Support Services by Category

(dollars in thousands)

	FY 2010 Current Approp.	FY 2012 Request
Technical Support		
Development of Specifications	150	197
System Review and Reliability Analyses	425	558
Surveys or Reviews of Technical Operations	1,168	1,902
Total, Technical Support	1,743	2,657
Management Support		
Automated Data Processing	7,591	11,094
Training and Education	805	826
Reports and Analyses, Management, and General Administrative Services	7,219	8,946
Total, Management Support	15,615	20,866
Total, Support Services	17,358	23,523

## Other Related Expenses by Category

(dollars in thousands)

	FY 2010 Current Approp.	FY 2012 Request
Other Related Expenses		
Rent to GSA	1,201	942
Rent to Others	1,138	1,392
Communications, Utilities, and Miscellaneous	1,962	2,481
Printing and Reproduction	34	5
Other Services	4,640	6,944
Operation and Maintenance of Equipment	1,365	818
Operation and Maintenance of Facilities	1,996	2,398
Supplies and Materials	1,324	768
Equipment	1,566	3,610
Working Capital Fund	8,467	10,909
Total, Other Related Expenses	23,693	30,267