DOE Office of Science Update

Linda G. Blevins, Senior Technical Advisor
Office of the Deputy Director for Science Programs

Michael S. Zarkin, Acting Director
Office of Grants and Contracts Support

National Council of University Research
Administrators (NCURA) 58th Annual Meeting

August 8, 2016

Washington, DC

These slides will be posted for access by the public at:
http://science.energy.gov/sc-2/presentations-and-testimony/
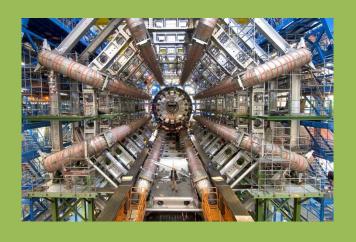
Department of Energy Mission Areas

Energy

Science

Nuclear Safety and Security

Environmental Cleanup

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http://science.energy.gov/
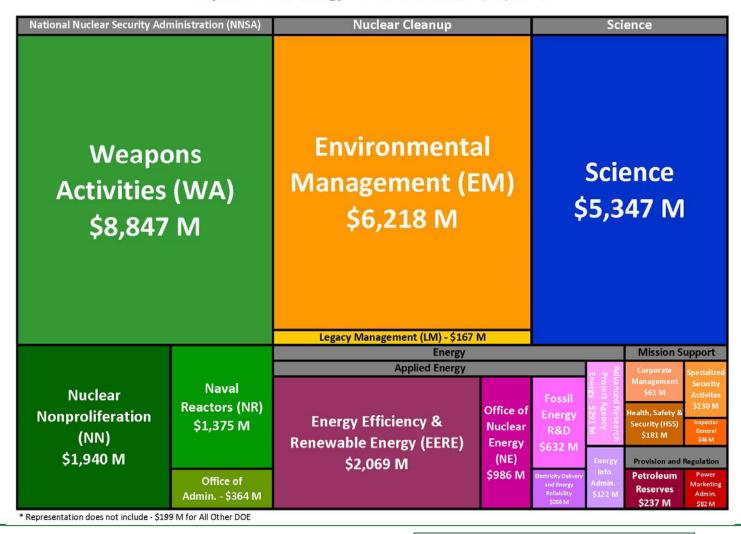
- **Secretary Moniz describes DOE's mission as spanning from windmills to weapons and quarks to quagmires**

- **DOE Federal personnel are organized by program offices—some of which are at considerable geographic separation**

- **Program offices may use different information systems and restrict access from other offices**

- **Please direct inquiries appropriately: there is no overall DOE "grants" or "research" office**

Department of Energy - FY 2016 Enacted - $29,603 M
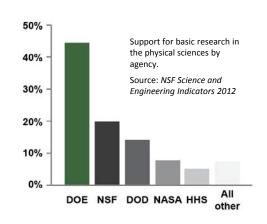
National Nuclear Security Administration (NNSA) | **Nuclear Cleanup** | **Science**

Weapons Activities (WA) $8,847 M

Environmental Management (EM) $6,218 M

Science $5,347 M

Legacy Management (LM) - $167 M

Energy

Applied Energy

Mission Support

Nuclear Nonproliferation (NN) $1,940 M

Naval Reactors (NR) $1,375 M

Office of Admin. - $364 M

Energy Efficiency & Renewable Energy (EERE) $2,069 M

Office of Nuclear Energy (NE) $986 M

Fossil Energy R&D $632 M

Electricity Delivery and Energy Reliability $206 M

Advanced Research Project Agency - Energy $291 M

Energy Info. Admin. - $122 M

Corporate Management $61 M

Health, Safety & Security (HSS) $181 M

Specialized Security Activites $230 M

Inspector General $46 M

Provision and Regulation

Petroleum Reserves $237 M

Power Marketing Admin. $82 M

* Representation does not include - $199 M for All Other DOE

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http://science.energy.gov/

The DOE Office of Science

- **The mission of the DOE Office of Science is to deliver the scientific discoveries and major scientific tools that transform our understanding of nature and advance the energy, economic, and national security of the United States.**
- **The mission is accomplished by funding**
  - The Frontiers of Science
  - The 21st Century Tools of Science
  - Science for Energy and the Environment
- **The Office of Science is the Nation's largest Federal sponsor of basic research in the physical sciences (47%).**
- **FY16 Budget was ~$5B**
- **Six program offices**
  - Advanced Scientific Computing Research (ASCR)
  - Biological and Environmental Research (BER)
  - Basic Energy Sciences (BES)
  - Fusion Energy Sciences (FES)
  - High Energy Physics (HEP)
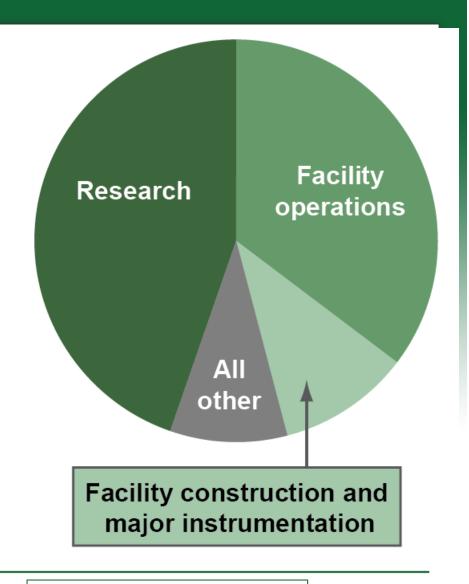 - Nuclear Physics (NP)

Support for basic research in the physical sciences by agency.

Source: *NSF Science and Engineering Indicators 2012*

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http://science.energy.gov/

The Office of Science Supports Research at More than 300 Institutions Across the U.S.

🔴 Universities
🟡 DOE laboratories

Office of Science Numbers

- **The Office of Science (SC) is a steward for 10 of 17 DOE national labs and operates more than 29 major scientific user facilities.**

- **Approximately 1/2 of the budget supports operations of the scientific user facilities and construction of new facilities; the other 1/2 supports research at the national laboratories and universities.**

- **About 1/3 of SC research funding goes to support grants at more than 300 colleges and universities nationwide.**

- **In FY 2015, SC supported ~22,000 Ph.D.s, postdoctoral researchers, graduate students, and undergraduates.**

- **~31,000 users of scientific facilities a year**
  - ~1/2 of the annual facility users come from universities;
  - ~1/3 of the users come from DOE national laboratories;
  - the remaining come from industry, other agencies, and international entities.

Research · Facility operations · All other · Facility construction and major instrumentation

The Office of Science's leadership is in the Forrestal Building in downtown Washington, DC

The Office of Science's program staff are mostly in the Germantown Building in the Washington, DC, suburbs

The Office of Science's awards are negotiated and administered by federal staff in the Chicago Integrated Support Center, collocated with the Argonne National Laboratory—25 miles from Chicago.
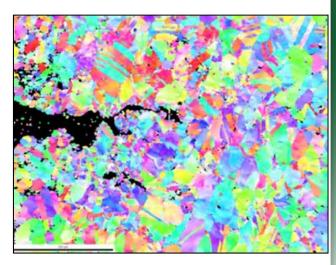
SC Investments for Mission Innovation
$100M in new funding in FY 2017

ASCR (+$10M)

- Computational Partnerships with EFRCs on solar, CO_2 reduction, catalysis, storage, subsurface, and biofuels; possibly new partnerships in wind and nuclear ($10M)

BES (+$51M)

- Energy Efficiency: Catalysts, modeled after nature's enzymes, that can operate at low-temperature and under ambient conditions; lightweight metallic materials; thermocaloric materials ($34.4M)
- Materials for Clean Energy: Self-healing materials for corrosive and high radiation environments (next-gen corrosive-resistant materials based on experiments and multi-scale modeling; chemistry under harsh or extreme environments) ($16.6M)

Analysis of cracks at the nanoscale

BER (+$35M)

- Biosystems design (computationally design and then bio-engineer biosystems) to introduce beneficial traits into plants and microbes for clean energy applications ($20M)
- Bioenergy Research Centers: New investments to translate 10 years of BRC research to industry ($15M, $5M per BRC)

FES (+4M)

- Whole-device fusion modeling and simulation using SciDAC partnerships ($4M)
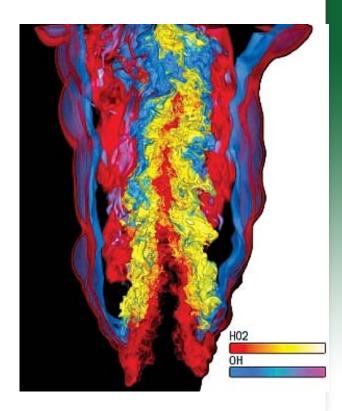
DOE's Exascale Computing Initiative:
Next Generation of Scientific Innovation

Departmental Crosscut – In partnership with NNSA

"All-in" approach: hardware, software, applications, large data, underpinning applied math and computer science

Supports DOE's missions in national security and science:

- Stockpile stewardship – support annual assessment cycle
- Discovery science – **next-generation materials; chemical sciences**
- Mission-focused basic science in energy – next-generation **climate software**
- Use current Leadership Computing approach for users

- **The next generation of advancements will require Extreme Scale Computing**
  - 100-1,000X capabilities of today's computers with a similar physical size and power footprint
  - Significant challenges are power consumption, high parallelism, reliability

- **Extreme Scale Computing, cannot be achieved by a "business-as-usual," evolutionary approach**
  - Initiate partnerships with U.S. computer vendors to perform the required engineering, research and development for system architectures for capable exascale computing
  - Exascale systems will be based on marketable technology – Not a "one off" system
  - Productive system – Usable by scientists and engineers

HO2
OH

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Department of Energy
Office of Science
Washington, DC 20585

http://science.energy.gov/~/media/grants/pdf/FullFundingMemo.pdf

January 29, 2014

MEMORANDUM FOR OFFICE OF SCIENCE GRANT AND COOPERATIVE
                AGREEMENT APPLICANTS AND RECIPIENTS

FROM: PATRICIA M. DEHMER
                    ACTING DIRECTOR, OFFICE OF SCIENCE

SUBJECT: FULL FUNDING FINANCIAL ASSISTANCE AWARDS
                    UNDER $1 MILLION

On Friday, January 17, 2014, President Obama signed the Consolidated Appropriations
Act, 2014, funding the Federal Government through September 30, 2014.

Section 310 of Division D of the act states

> Notwithstanding section 301(c) of this Act, none of the funds made available under the
> heading 'Department of Energy—Energy Programs—Science' may be used for a
> multiyear contract, grant, cooperative agreement, or Other Transaction Agreement of
> $1,000,000 or less unless the contract, grant, cooperative agreement, or Other Transaction
> Agreement is funded for the full period of performance as anticipated at the time of
> award.

The Office of Science's financial assistance awards have historically been made for
three- to five-year project periods with funding provided annually in discrete budget
periods. We will no longer fund awards with a project period total cost of $1,000,000 or
less in this way. Any new or renewal financial assistance award with a project period
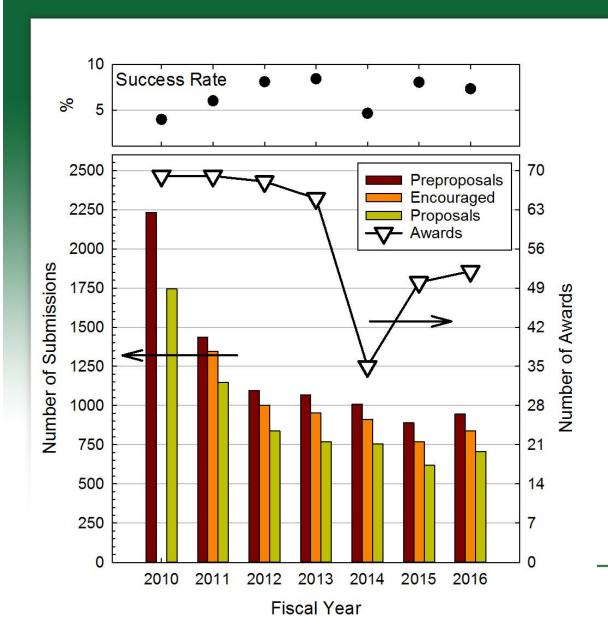total cost of $1,000,000 or less will be funded in full.

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Early Career Research Program: This Year's Solicitations DE-FOA-0001625 and LAB 16-1625

Step	Date	Time	Notes
Issue Solicitation:	Jul 28, 2016		mid-summer
Due date for Preproposals:	Sep 8, 2016	5 PM Eastern	6 weeks for PIs to write preproposals
Encourage / Discourage Decisions:	Oct 6, 2016	5 PM Eastern	4 weeks for DOE to decide
Due date for Proposals:	Nov 14, 2016	5 PM Eastern	8 weeks for PIs to write proposals
Target Award Start Date:	Jul 15, 2017		

The schedule above is fairly typical of the Early Career Research Program

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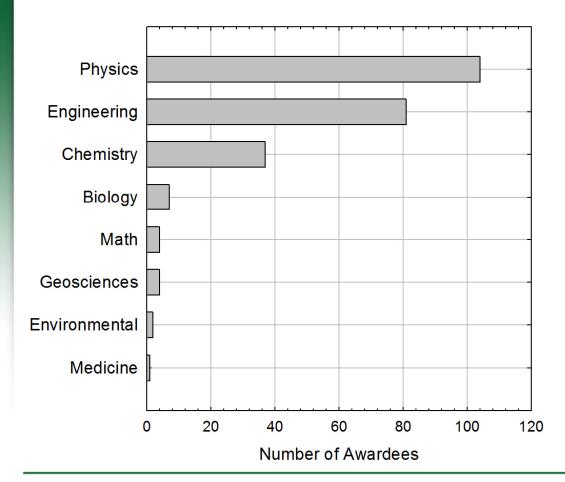
http://science.energy.gov/early-career/

Demand is high for the Early Career Research Program.

- The process of encouraging proposal submission based on preproposal fit began in FY2011.
- Proposal submission is encouraged for 85-90% of preproposals.
- Proposals are received from about 80% of those encouraged to submit.
- The number of awards was low during FY2014 - FY2016 because of the transition to full funding, which is expected to take two more years (FY2017 and FY2018).
- Full proposals for FY2017 are due Nov 14, 2016 from those who are encouraged.

About 1/3 of our academic awardees in the Early Career Research Program are in engineering departments

Academic Department Types of University Awardees
DOE SC Early Career Research Program, FY2010 - FY2015

- Physics includes physics, astronomy, etc.
- Engineering includes all engineering plus computer science, materials science, engineering physics, etc.
- Biology includes biology, bacteriology, biological sciences
- Math includes math, statistics

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FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT

U. S. Department of Energy
Office of Science

FY 2016 Continuation of Solicitation for the Office of
Science Financial Assistance Program

Funding Opportunity Number: DE-FOA-0001414
Announcement Type: Initial
CFDA Number: 81.049

10/01/2015

Issue Date:

Pre-Application Due Date: Optional

Application Due Date: Not Applicable
This Funding Opportunity Announcement (FOA)
will remain open until September 30, 2016 or until
replaced by a successor FOA. Applications may be
submitted any time during this period.

Open throughout the year.

Funding Opportunity Announcements can be more specific, too. (The Office of Science issues about 40 FOAs per year.)

Submission is through Grants.gov.

You may submit an optional preproposal / white paper electronically.

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Recent Examples of Topical Solicitations: Watch
science.energy.gov/grants/foas/open/ for future opportunities

Org	Solicitation Name	Solicitation Number	Estimated Funding Available	Issue Date	Closing Date
FES	Measurement Innovations for Magnetic Fusion Systems	DE-FOA-0001624	$3,000,000	7/29/2016	10/20/2016
HEP	FY 2017 Research Opportunities in High Energy Physics	DE-FOA-0001604	$40,000,000	7/26/2016	9/20/2016
NP	Research, Development and Training in Isotope Production	DE-FOA-0001588	$3,500,000	5/1/2016	7/1/2016
ASCR	Machine Learning and Understanding for High Performance Computing Scientific Discovery	DE-FOA-0001575	$4,000,000	4/18/2016	6/21/2016
FES	Theoretical Research in Magnetic Fusion Energy Science	DE-FOA-0001560	$6,000,000	4/13/2016	6/17/2016
BES	Sustainable Ammonia Synthesis	DE-FOA-0001569	$1,800,000	4/12/2016	5/31/2016
NP	Research and Development for Next Generation Nuclear Physics Accelerator Facilities	DE-FOA-0001556	$1,870,000	3/4/2016	5/2/2016
FES	Collaborative Research in Magnetic Fusion Energy Sciences on International Long-Pulse Superconducting Tokamaks	DE-FOA-0001498	$5,000,000	2/22/2016	4/28/2016
BES	Computational Materials Sciences	DE-FOA-0001528	$4,000,000	2/9/2016	4/25/2016
BES	Energy Frontier Research Centers	DE-FOA-0001514	$10,000,000	2/8/2016	4/19/2016
BER	Regional and Global Climate Modeling and Integrated Assessment Research: An Integration Framework for Multi-Model, U.S. Regional Climate Evaluation that Incorporates Local Human Influences for Research at the Energy-Water-Land Nexus	DE-FOA-0001531	$4,000,000	2/5/2016	4/18/2016
BER	Climate Model Development and Validation	DE-FOA-0001530	$1,000,000	2/5/2016	3/25/2016
BER	Systems Biology Enabled Research on the Roles of Microbial Communities in Carbon Cycle Processes	DE-FOA-0001458	$10,000,000	11/23/2015	3/23/2016
BER	Earth System Modeling	DE-FOA-0001482	$6,000,000	12/15/2015	3/14/2016
BER	Plant Feedstock Genomics for Bioenergy: A Joint Research Funding Opportunity Announcement USDA, DOE	DE-FOA-0001444	$4,000,000	11/4/2015	2/2/2016

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http://science.energy.gov/

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Portfolio Analysis and Management System (PAMS)

https://pamspublic.science.energy.gov/

PAMS Status – Functionality by Iteration

Iteration	Content	Status
Iteration 1: Submissions	• **1a:** Collect grant proposals submitted to Grants.gov and package them for review	• Complete
	• **1b:** Collect pre-proposals, letters of intent and lab technical proposals	• Complete
Iteration 2: Manage Reviewer Pool	• Maintain information on parties who participate in proposal reviews	• Complete
Iteration 4: Proposal Review	• Coordinate and document proposal reviews	• Complete
Iteration 3: Selection and Award	• Document decisions to select or decline proposals • Initiate actions for awards and modifications	• Complete
Iteration 5: Post-Award Actions	• **5a:** Receive and process progress reports and award modification requests (NCE, etc.), Public Abstracts website • **5b:** Electronic COV Module • **5c:** Flexible Reporting	• Complete • Planned for late 2016 • TBD
Iteration 6: Solicitations	• Plan, prepare and issue FOAs and lab calls	• TBD
Iteration 7: Closeout	• Process final progress reports	• TBD
Iteration 8: Lab Funds	• Review and recommend lab funding	• TBD

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http://science.energy.gov/

- We began using PAMS to receive Grants.gov proposals in Oct 2011.
- The external PAMS site launched May 2012.
  https://pamspublic.science.energy.gov/
- The review functionality launched Mar 2013.
- The awards functionality (including revised budgets) launched Nov 2013.
- The progress report/products functionality launched Jan 2015.

25,535 Proposals received

32,133 External Users registered

167 Solicitations published

7,975 Preproposals received

13,271 Letters of Intent received

1,253 Progress Reports received

With Migrated Records: ~20,000 institutions; ~135,000 proposals; ~80,000 people; ~22,000 awards

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http://science.energy.gov/

- **View proposals submitted into Grants.gov**
- **Search for Funding Opportunity Announcements**
- **Submit preproposals and letters of intent**
- **PIs can submit budgets to SROs**
- **SROs can submit revised budgets to DOE**
- **PIs can submit public abstracts to DOE**
- **DOE national labs can submit proposals to DOE**
- **Admin SROs can manage institution profiles & users**
- **Reviewers can review proposals – mail in or panel**
- **PI can view reviews after a decision is made on a proposal**

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- **Progress Report Submission to DOE**
  - Submit annually using the federal-wide, standard Research Performance Progress Report (RPPR)
- **Renewal Proposal Products for DOE**
  - Update the product (publications) list during the renewal year
- **Award Modification Requests from Institutions to DOE**
  - No Cost Extensions
  - PI Change
  - PI Transfer to a New Institution
- **Proposal Withdrawals**
- **Award Folders**
- **Demographic data collection**
- **Public Abstract Search**

PAMS URL: https://pamspublic.science.energy.gov

Working With the Office of Science
What Gets Submitted Where

Item	System	From Whom	To Whom
Application	Grants.gov	SRO	DOE
Abstract	PAMS	PI	Program manager
Revised Budget	PAMS	PI	SRO
Revised Budget	PAMS	SRO	DOE
No-Cost Extension Request	PAMS	SRO	DOE
Change of PI Request	PAMS	SRO	DOE
PI Transfer Request	PAMS	SRO	DOE
Progress Report	PAMS	PI	DOE
Questions	Email, telephone preferred. FedConnect not recommended	Anyone	DOE

- **Applications, once submitted, cannot be changed**
  - Applications may be withdrawn in PAMS before they are released to reviewers.
  - Applications may be withdrawn by written request after they are sent to reviewers.
  - SC has no policy limiting the number of resubmissions (within an FOA's deadline)

- **No-Cost Extension Requests**
  - Must be submitted before the award's end date
  - If the award has expired, contact the program manager—we can bring the award back
  - Revisions to requests cannot be made; submit a new request

- **Progress reports, revised budgets, renewal proposal products**
  - Progress reports and renewal proposal products permit revision only at program manager's request
  - Renewal proposal products may only be revised if the application is withdrawn and resubmitted
  - All can only be submitted when the system makes the task available—you cannot submit one early or on own initiative
  - All preserve prior versions—a change may be made where needed and the item resubmitted

- **As of Jan 31, 2015, PAMS asks in each personal profile optional questions about gender, ethnicity, race, citizenship, and disability.**
  - "Do not wish to provide" is a valid answer.
- **Every PAMS user lands on the profile yearly for updates.**
- **Within each progress report, the PI is asked to provide an email address for every project participant.**
  - Participants include PI, co-PIs, graduate students, postdocs, undergraduate students, technicians, etc.
  - PAMS emails to ask each participant to update his or her PAMS User Profile (or create one if it does not exist).
- **We are in data collection mode now. It will take our users a while to get the profiles populated.**

> **All proposals submitted to SC for research funding are required to include a Data Management Plan**

Detailed requirements and further information on:

- Suggestions for what to include in a Data Management Plan
- Supplemental guidance and requirements from SC Program Offices
- Links to information about data management resources at SC user facilities
- Definitions of key terms
- FAQs

Public Abstract Search

https://pamspublic.science.energy.gov/WebPAMSExternal/interface/awards/AwardSearchExternal.aspx

- **Electronic Committee of Visitors (COV) module**
- **New home page for external site**

- **If you have trouble using PAMS, consult the "External User Guide" on the PAMS website or contact the PAMS Helpdesk**

- **PAMS Help Desk Hours:**
  - Monday through Friday, 9AM – 5:30 PM Eastern Time
  - Closed Federal Holidays

- **Email:** **sc.pams-helpdesk@science.doe.gov**

- **Telephone:**
  - (855) 818-1846 (toll free)
  - (301) 903-9610

Questions?

Linda Blevins
301-903-1293
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http://science.energy.gov/

Extra Slides

DEPARTMENT OF ENERGY

Secretary of Energy Advisory Board
National Laboratory Policy Council

Energy Council
Credit Review Board
Cyber Council
Nuclear Security Council
Jobs Council
ESAAB

Office of the Secretary

Dr. Ernest J. Moniz
Secretary

Dr. Elizabeth Sherwood-Randall
Deputy Secretary

Chief of Staff

Associate Deputy Secretary

Federal Energy Regulatory Commission

Inspector General

Ombudsman

Office of the Under Secretary for Nuclear Security and National Nuclear Security Administration

Frank G. Klotz
Under Secretary for Nuclear Security
Administrator, NNSA

Madelyn Creedon
Principal Deputy Administrator
NNSA
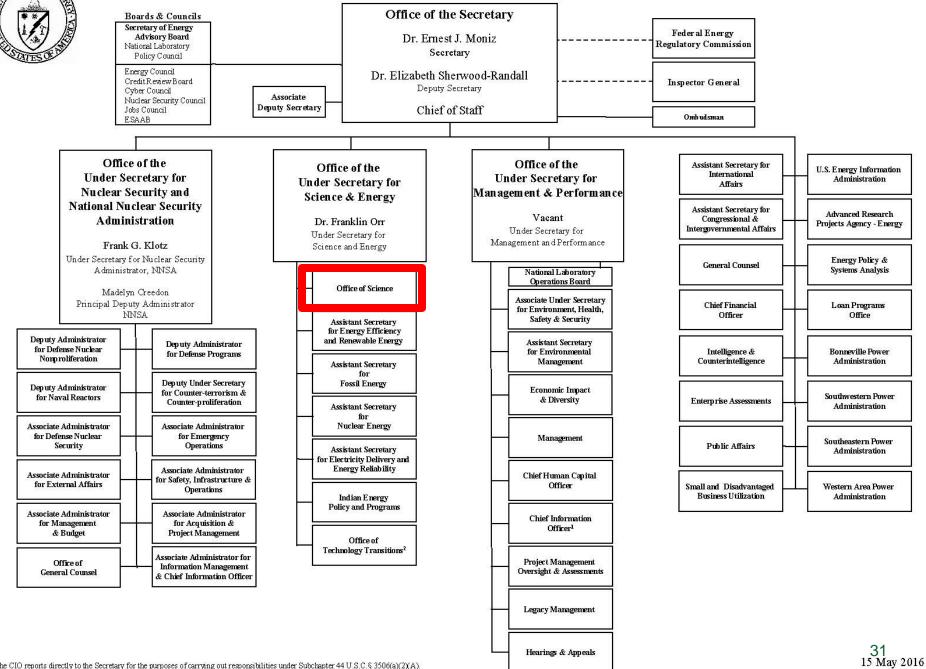
Office of the Under Secretary for Science & Energy

Dr. Franklin Orr
Under Secretary for Science and Energy

Office of Science

Assistant Secretary for Energy Efficiency and Renewable Energy

Assistant Secretary for Fossil Energy

Assistant Secretary for Nuclear Energy

Assistant Secretary for Electricity Delivery and Energy Reliability

Indian Energy Policy and Programs

Office of Technology Transitions[2]

Office of the Under Secretary for Management & Performance

Vacant
Under Secretary for Management and Performance

National Laboratory Operations Board

Associate Under Secretary for Environment, Health, Safety & Security

Assistant Secretary for Environmental Management

Economic Impact & Diversity

Management

Chief Human Capital Officer

Chief Information Officer[1]

Project Management Oversight & Assessments

Legacy Management

Hearings & Appeals

Deputy Administrator for Defense Nuclear Nonproliferation

Deputy Administrator for Defense Programs

Deputy Administrator for Naval Reactors

Deputy Under Secretary for Counter-terrorism & Counter-proliferation

Associate Administrator for Defense Nuclear Security

Associate Administrator for Emergency Operations

Associate Administrator for External Affairs

Associate Administrator for Safety, Infrastructure & Operations

Associate Administrator for Management & Budget

Associate Administrator for Acquisition & Project Management

Office of General Counsel

Associate Administrator for Information Management & Chief Information Officer

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Assistant Secretary for International Affairs

Assistant Secretary for Congressional & Intergovernmental Affairs

General Counsel

Chief Financial Officer

Intelligence & Counterintelligence

Enterprise Assessments

Public Affairs

Small and Disadvantaged Business Utilization

U.S. Energy Information Administration

Advanced Research Projects Agency - Energy

Energy Policy & Systems Analysis

Loan Programs Office

Bonneville Power Administration

Southwestern Power Administration

Southeastern Power Administration

Western Area Power Administration

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[1] The CIO reports directly to the Secretary for the purposes of carrying out responsibilities under Subchapter 44 U.S.C. § 3506(a)(2)(A).
[2] The director of the Office of Technology Transitions also serves as DOE's Technology Transfer Coordinator who reports to the Secretary of Energy

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15 May 2016

The DOE Office of Science Research Portfolio

Basic Energy Sciences
- Understanding, predicting, and ultimately controlling matter and energy flow at the electronic, atomic, and molecular levels

Advanced Scientific Computing Research
- Delivering world leading computational and networking capabilities to extend the frontiers of science and technology

Biological and Environmental Research
- Understanding complex biological, climatic, and environmental systems

Fusion Energy Sciences
- Building the scientific foundations for a fusion energy source

High Energy Physics
- Understanding how the universe works at its most fundamental level

Nuclear Physics
- Discovering, exploring, and understanding all forms of nuclear matter

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http://science.energy.gov/

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ASCR in the 2017 Request

- **Advanced Scientific Computing Research (ASCR) supports research to discover, develop, and deploy computational and networking capabilities to analyze, model, simulate, and predict complex phenomena important to the United States.**

- **The ASCR Budget Request of $663.2 million is an increase of $42.2 million, or 6.8 percent, relative to the FY 2016 Enacted level.**

- **The increase supports research on the linked challenges of capable exascale and data-intensive science, and computational partnerships under the Scientific Discovery through Advanced Computing (SciDAC) program to support clean energy.**

- **In FY 2017, the ASCR portion of the SC component of the Department's Exascale Computing Initiative (ECI) is contained in a new line item, the Office of Science Exascale Computing Project (SC-ECP), which includes only the activities required for the delivery of exascale computers. The four areas of focus of SC-ECP are hardware technology R&D, system software technology R&D, application development, and system engineering for exascale systems.   With the creation of the new line item, funds are incorporated within SC-ECP research activities from existing applied mathematics, computer science, computational partnerships, and research and evaluation prototypes subprograms of the ASCR budget.**

- **The FY 2017 Request supports preparations at the two Leadership Computing Facilities for 75–200 petaflop upgrades at each facility in the 2018–2019 timeframe.**

- **The National Energy Research Scientific Computing Center (NERSC) will take delivery of the NERSC-8 supercomputer, which will expand the capacity of the facility to 10–40 petaflops to address growing demand.**

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BES in the 2017 Request

- **Basic Energy Sciences (BES) supports fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels to provide foundations for new energy technologies.**
- **The BES Budget Request of $1,936.7 million is an increase of $87.7 million or 4.7 percent from the FY 2016 Enacted level.**
- **The FY 2017 Request includes increases for core research and the Energy Frontier Research Centers (EFRCs) in key areas related to Departmental priorities, such as the Subsurface Technology and Engineering RD&D and the Advanced Materials crosscutting initiatives.**
- **A new activity is initiated in Computational Chemical Sciences to advance U.S. leadership in computational chemistry codes in preparation for exascale computing and supports the ECI.**
- **The Request continues to support the Fuels from Sunlight and the Batteries and Energy Storage DOE Energy Innovation Hubs.**
- **The FY 2017 Request also provides for the operations of five synchrotron light sources, five nanoscale research centers, and two neutron scattering centers.**
- **The Request continues to support construction of the Linac Coherent Light Source-II (LCLS-II), and it continues funding the Advanced Photon Source (APS) Upgrade Major Item of Equipment (MIE) request.**

BER in the 2017 Request

- **Biological and Environmental Research (BER) supports fundamental research and scientific user facilities to achieve a predictive understanding of complex biological, climatic, and environmental systems for a secure and sustainable energy future.**

- **The BER Budget Request of $661.9million is an increase of $52.9 million or 8.7 percent above the FY 2016 Enacted level.**

- **The FY 2017 Request continues to support for core research in Genomic Science and the three DOE Bioenergy Research Centers (BRC), and it increases support for research to understand microbiome interactions in diverse environments.**

- **The Request also continues to support core research to understand climate-relevant atmospheric and ecosystem processes, and requests increased support for field research and modeling to understand the dynamic physical, biogeochemical, microbial, and plant processes interactions involved in the energy-water nexus.**

- **The Request supports the operations of BER's three scientific user facilities: the DOE Joint Genome Institute (JGI), the Environmental Molecular Sciences Laboratory (EMSL), and the Atmospheric Radiation Measurement Climate Research Facility (ARM).**

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- **Fusion Energy Sciences (FES) supports research to expand the fundamental understanding of matter at very high temperatures and densities, and to build the scientific foundation for fusion energy.**

- **The FES FY 2017 Request of $398.18 million decreases by $39.8 million or 9.1 percent from the FY 2016 Enacted level.**

- **The FES Budget Request supports continued progress on the U.S. Contributions to ITER Project and core research in burning plasma science.**

- **It requests increased funding for the operation of the National Spherical Torus Experiment Upgrade (NSTX-U) to support 16 weeks of run time and to conduct high priority plasma-materials interaction research.**

- **DIII-D operations funding supports 560 hours of operation and the Request includes an increase to provide for targeted enhancements to the facility.**

- **Increased funding for research at both DIII-D and NSTX-U will support research in areas identified as priorities by the research community and for enhanced collaborations with MIT research staff.**

HEP in the 2017 Request

- High Energy Physics (HEP) supports research to understand how the universe works at its most fundamental level by discovering the most elementary constituents of matter and energy, probing the interactions among them, and exploring the basic nature of space and time itself.
- The HEP FY 2017 Request of $817.9 million increases by $22.9 million or 2.9 percent above the FY 2016 Enacted level.
- The Request continues to implement the recommendations of the 2014 High Energy Physics Advisory Panel (HEPAP) Particle Physics Project Prioritization Panel (P5) Report.
- The FY 2017 Request supports full operation of existing major HEP facilities and experiments, including optimal operations for the upgraded Neutrinos at the Main Injector (NuMI) beamline of NuMI Off-axis ve Appearance (NOvA) Experiment, construction of the Muon to Electron Conversion Experiment (Mu2e), consistent with the planned construction funding profile, and the MIEs for the Large Hadron Collider (LHC) upgrades the ATLAS (A Large Toroidal LHC Apparatus) and Compact Muon Solenoid (CMS) detectors.
- Consistent with the P5 Report recommendations, the FY 2017 Request enhances support for technical design and construction associated with the Long Baseline Neutrino Facility (LBNF)/Deep Underground Neutrino Experiment (DUNE) project, and continued construction of three MIEs for next-generation dark-energy and dark-matter experiments.
- The Request includes funding for one new MIE, the Facility for Advanced Accelerator Experimental Tests II (FACET-II), and for research and conceptual design of the Proton Improvement Plan II (PIP-II) construction project.
- Funding increases for the fabrication of the Large Synoptic Survey Telescope MIE according to the planned profile.
- Core research increases slightly to provide support for high priority efforts.

NP in the 2017 Request

- **Nuclear Physics (NP) supports experimental and theoretical research to discover, explore, and understand all forms of nuclear matter.**

- **The FY 2017 Budget Request of $635.7 million increases $18.6 million or 3.0 percent relative to the FY 2016 Enacted level.**

- **The Request provides for modest increases in core research at universities and DOE national laboratories to support high priority research of the nuclear physics community, as well as the development of cutting-edge approaches for producing isotopes critical to the nation.**

- **It also supports the continued construction of the Facility for Rare Isotope Beams (FRIB), which will provide world-leading capabilities for nuclear structure and astrophysics research.**

- **The 12 GeV Upgrade for the Continuous Electron Beam Accelerator Facility (CEBAF) will be completed in FY 2017 and the full 12 GeV scientific program initiated, enabling groundbreaking searches for exotic particles and new physics.**

- **The FY 2017 Request also provides for increased operations of the Relativistic Heavy Ion Collider (RHIC) for explorations of spin physics and intriguing new phenomena observed in quark gluon plasma formation, and for operations of the Argonne Tandem Linac Accelerator System (ATLAS) utilizing newly completed instrumentation.**

- **Two new MIEs are initiated in FY 2017 the Gamma-Ray Energy Tracking Array (GRETA) detector to exploit the world-leading science capabilities of FRIB, and the Stable Isotope Production Facility (SIPF) to establish a domestic capability for the production of a broad range of enriched stable isotopes for research and applications.**

Background: PAMS Roles and Privileges

- **External roles of *PI, SRO*, and *Other* are labels and do not determine what a person can do.**
- **External <u>privileges</u> (rather than roles) determine what a person can do.**
- **Privileges can be institutional privileges or resource privileges, where a "resource" is a proposal, revised budget, award, progress report, etc.**
- **Three institutional privileges exist on the external site.**
  - Manage Users
  - Manage Institution Profile
  - Submit to DOE (for revised budgets)
- **How do external users get institutional privileges?**
  - The *Administrative SRO/BO/AO* has these three privileges and can give them to or take them away from others at the institution.
  - Anyone with the Manage Users privilege can give or take away the privileges of others at that institution.

- **An Administrative SRO/BO/AO has the three master privileges for an institution:**
  - Manage Institution Profile, Manage Users, Submit to DOE
- **Every institution is different, and they can manage access to awards and submissions according to their own business process. PAMS gives them the tools to do this.**
- **Each Administrative SRO is given access to each award at the institution. They can then give access to others.**
- **Since we have been using PAMS for a while, most of our recipient institutions and some of our applicant institutions already have at least one and sometimes several Administrative SROs.**
- **If your institution does not have an Admin SRO yet, our help desk can advise you on the best way to get one. sc.pams-helpdesk@science.doe.gov**

- **The Award SRO can submit award modification requests on behalf of the institution for that award.**
- **For a new proposal that is awarded, the authorizing official on the Grants.gov proposal becomes the Award SRO. Any "Admin SRO" at the institution at the time the award is made gets the same privileges that the Award SRO gets.**
- **An "Admin SRO" (or somebody with Manage Users privilege for your institution) can re-assign the "Award SRO" role for a given award to any other registered PAMS user.**
- **We ask that you please not make any PI into an Award SRO to maintain SRO control over award mod requests.**
- **The user cannot assign himself or herself as Award SRO.**
- **Changing an Award's SRO changes the previous Award SRO role to "Other" but does not change the user's award privileges.**
- **Existing awards should already have Award SROs in PAMS. If we missed any, the Admin SRO can make these assignments, too, by changing the Award SRO from "None" to the desired user.**

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What can our awardees submit?

1. **Progress Reports**
2. **Renewal Proposal Products**
3. **Award Modification Requests**
4. **Proposal Withdrawals**

- **Progress reports will be collected in PAMS for all grants, cooperative agreements, and interagency agreements.**

- **We will use the federal-wide standard Research Performance Progress Report or RPPR.**

  - http://www.nsf.gov/bfa/dias/policy/rppr/

- **It will be several months before the first progress report gets submitted into PAMS.**

  - As soon as each award is modified for the first time by Chicago after Jan 31, the institution will be required to use PAMS to submit the <u>next</u> required progress report.

- **Progress Reports are due 90 days before the end of each budget period.**
- **Thirty days prior to the progress report due date, PAMS creates a task for the PI and sends to the PI an email request for a progress report.**
- **The PI completes the task in PAMS to submit the report.**
- **The program manager may approve, request changes, or disapprove the report.**
- **If a revised budget is required for the next budget period, the program manager requests it when approving the progress report.**
- **Reminders are sent on the report due date and 30 days after the report due date.**
- **If a progress report has been submitted into PAMS previously for an award, future progress report tasks will prepopulate from the previous report where possible.**

As of February 1, 2015, the Principal Investigator for any application submitted for a renewal (an addition of a project period) of an existing award will be required to submit a Renewal Proposal Products section through the Office of Science's PAMS website at https://pamspublic.science.energy.gov. The Principal Investigator must enter into PAMS each product created during the course of the previous project period. Types of products include publications, intellectual property, technologies or techniques, and other products such as databases or software. As soon as the renewal application is assigned to a program manager, the Principal Investigator will receive an automated email from PAMS (<PAMS.Autoreply@science.doe.gov>) instructing him or her to navigate to the PAMS Task tab to complete and submit the Renewal Proposal Products. The submitted product list will be sent for merit review along with the Renewal Proposal. The Renewal Proposal will not be considered complete and cannot be sent for review until the product list has been submitted.

2. Renewal Proposal Products (continued)

- **Renewal Proposal Products are required for renewal proposals assigned to the program manager after Feb 1, 2015.**
  - They are not currently required for DOE national laboratory renewal proposals or for SBIR/STTR awards.
- **As soon as any renewal proposal is assigned to a program manager by the DOE Office of Science, PAMS creates a task for the PI and sends to the PI an email request for Renewal Proposal Products. The task is due in five days.**
  - The submitted product list will be sent for merit review along with the Renewal Proposal. The Renewal Proposal is not considered complete until the product list has been submitted.
- **The PI completes the task in PAMS to submit the products.**
- **The PM does not approve or disapprove the Renewal Proposal Products. They are part of the proposal and are accepted as submitted.**
- **If the PI does not submit the Renewal Proposal Products within five days, PAMS sends a reminder to the PI on the due date.**

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- **The proposal cannot be sent for review until the Renewal Proposal Products are submitted by the PI.**

- **In steady state, the PI will be updating the Renewal Proposal Products list, which will prepopulate from the progress reports submitted into PAMS.**

- **NOTE: SBIR/STTR will not use the Renewal Proposal Products functionality.**

3. Award Modification Requests

- **Three types of Award Modification Requests can be submitted by an awardee to DOE Office of Science through PAMS.**
  - No Cost Extension
  - Change Principal Investigator
  - Principal Investigator Transfer to a New Institution
- **Recall that the privilege for submitting award mod requests goes to the Award SRO and the Admin SROs at the institution.**
- **Requests are made from a new section of external PAMS called the Award Folder.**
- **The award program manager can concur or not concur on the request.**
- **Program manager concurrence is necessary for the request to move forward, but the Chicago contracting staff are the only ones who can formally modify an award.**

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- **The SRO/BO/AO enters the following information into PAMS:**
  - Proposed end date
  - Amount of funding still unspent
  - Justification no longer than 8,000 characters in a rich text box
- **The SRO/BO/AO submits the request to DOE Office of Science using PAMS.**
- **If the program manager concurs, the Germantown program staff members initiate the paperwork requesting a modification of the award by the Chicago procurement staff.**

3. Award Modification Requests: Change PI

- **The new/proposed PI must be a registered PAMS user linked to the award institution. If he or she is not, the SRO can use a PAMS function to invite him or her to create a PAMS account.**
- **The SRO/BO/AO enters the following information into PAMS:**
  - Selection of the new PI from registered users at the institution
  - Justification no longer than 8,000 characters in a rich text box
  - Information on how to handle the current PI (remove from award or leave on award but change role to Other)
  - Attached resume or CV of the new PI
- **The SRO/BO/AO submits the request to DOE Office of Science using PAMS.**
- **If the program manager concurs, the PI will be changed in PAMS but will not immediately change in Chicago. The Germantown program staff members will take steps to get the PI changed in Chicago the next time the award is modified.**
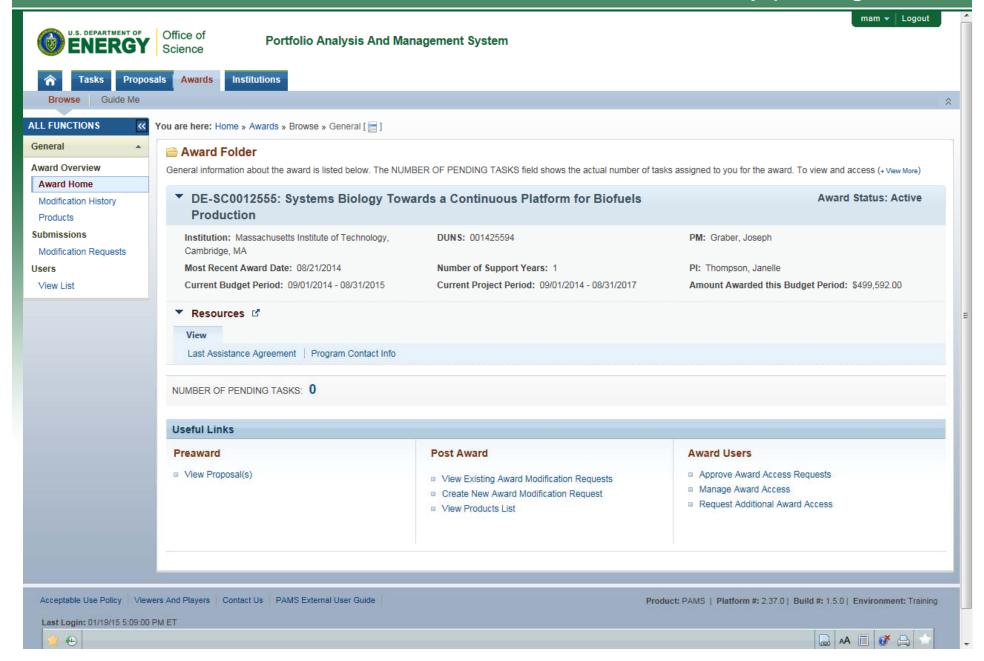
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- **The SRO/BO/AO uses this functionality if the PI of the award is transferring to another institution and they wish to request from DOE Office of Science the transfer of funds from the current institution to the new institution (e.g., deobligation is necessary from the current institution).**

- **The SRO/BO/AO enters the following information in PAMS:**
  - Downloads from PAMS an SF-425 form, fills it out, and uploads it back to PAMS
  - Detailed description of the request no longer than 8,000 characters in a rich text box

- **The SRO/BO/AO submits the request to DOE Office of Science using PAMS.**

- **If the program manager concurs, the Germantown program staff members initiate the paperwork requesting a modification of the award by the Chicago procurement staff.**

4. Withdrawing a Proposal

- **An external user must be registered to the proposal as an SRO/AO/BO to withdraw it.**
  - http://science.energy.gov/~/media/grants/pdf/pams/01_Access_Proposal.pdf
  - Alternately, the Admin SRO/BO/AO can give out proposal privileges.

- **Withdrawal is effective immediately.**

- **A proposal can be withdrawn by the institution if it has not yet been sent for review.**

- **If it has been sent for review, withdrawal can only be done by contacting the DOE Office of Science outside of PAMS.**

With this iteration, we introduce the award folder on the external site. Access to content in the award folder is controlled by privileges.

- **Recall that these folks are given the default privileges (access):**
  - The PI controls Progress Reports
  - SRO/BO/AO controls Award Modification Requests
  - For SBIR/STTR, SRO/BO/AO controls all of these
- **It is possible to share the access with others, to give out privileges on an award.**
- **What are the privileges?**
  - For Progress Reports
    - <u>View, Edit, Submit, Administer</u>
      - These privileges can be given to others by the PI (default)
      - Requests for these privileges can be approved by PI (default)
      - Note: For SBIR/STTR, these privileges are controlled by the SRO/BO/AO rather than the PI
  - For Award Modification Requests
    - <u>View, Create, Edit, Submit, Delete, and Administer</u>
      - These privileges can be given to others by the SRO/BO/AO (default)
      - Requests for these privileges can be approved by SRO/BO/AO (default)
  - For the Award Level
    - <u>View Only</u>
      - This can be given to others by the PI <u>or</u> SRO/BO/AO (default)
      - Requests for this can be approved by the PI <u>or</u> SRO/BO/AO (default)

- **People can request access to parts of the award folder and actions on an award.**
    - If the request pertains to progress reports, the PI approves/disapproves.
        - Exception for progress reports is SBIR/STTR, where the SRO/BO/AO does this.
    - If the request pertains to award mod requests, the SRO/BO/AO approves/disapproves.
    - If the request is for view access to the award folder, either the PI or SRO/BO/AO approves.
- **People can be granted (without a request) access to parts of the award folder and actions on an award.**
    - The PI can grant progress report access.
        - Exception for progress reports is SBIR/STTR, where the SRO/BO/AO does this.
    - The SRO/BO/AO can grant award mod request access.
    - The PI or the SRO/BO/AO can grant view access to the award folder.
- **PAMS has a set of emails that it sends from people within an institution to people within that institution. An institution can manage its own access, and DOE Office of Science program and contracting staff do need to get involved. The PAMS help desk is available to answer questions, though.**
- **When this iteration goes live, the Admin SROs will be given access to**
    - All active awards
    - Any awards that have expired within the past six months (these will be marked inactive)