DOE Office of Science Update

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October 29, 2024

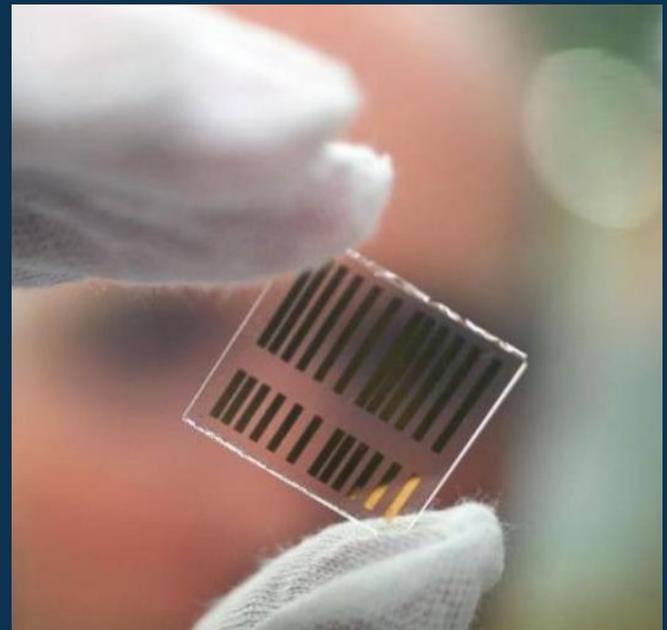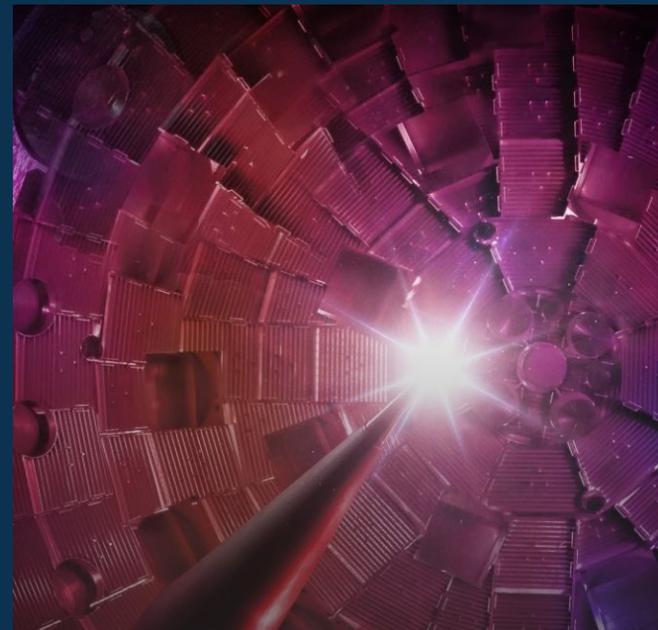U.S. DEPARTMENT OF **ENERGY** | Office of Science

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U.S. DEPARTMENT OF ENERGY

DOE Mission: Ensure America's security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions

- Energy
- Science and Innovation
- Nuclear Safety and Security
- Management Excellence

U.S. DEPARTMENT OF ENERGY | Office of Science

SC Mission: Delivery of scientific discoveries and major scientific tools to transform our understanding of nature and advance the energy, economic, and national security of the United States.

The Nation's largest supporter of basic research in the physical sciences

Over 29,000 Researchers Supported; at >300 Institutions and 16 DOE Labs

Steward 10 of the 17 DOE National labs

Nearly 40,000 Users of 28 SC Scientific Facilities

$8.6B
(FY 2025 Request)

U.S. DEPARTMENT OF ENERGY | Office of Science

Driving Discovery Science for the Nation

Discovery science supported by the Office of Science builds the foundation for ensuring America's future prosperity and competitiveness by addressing its energy, environment, and national security challenges.

Fostering Great Minds and Great Ideas

The Office of Science addresses the world's most challenging scientific problems, supporting innovation from America's brightest minds, across multiple disciplines, and at universities, DOE's national laboratories, and other research institutions.

Providing Unique, World-Class Facilities

The Office of Science stewards a suite of scientific user facilities that provide the broad scientific community with world-leading capabilities for research - from physics, materials science, and chemistry to genomics and medicine.

Where we are, who we support
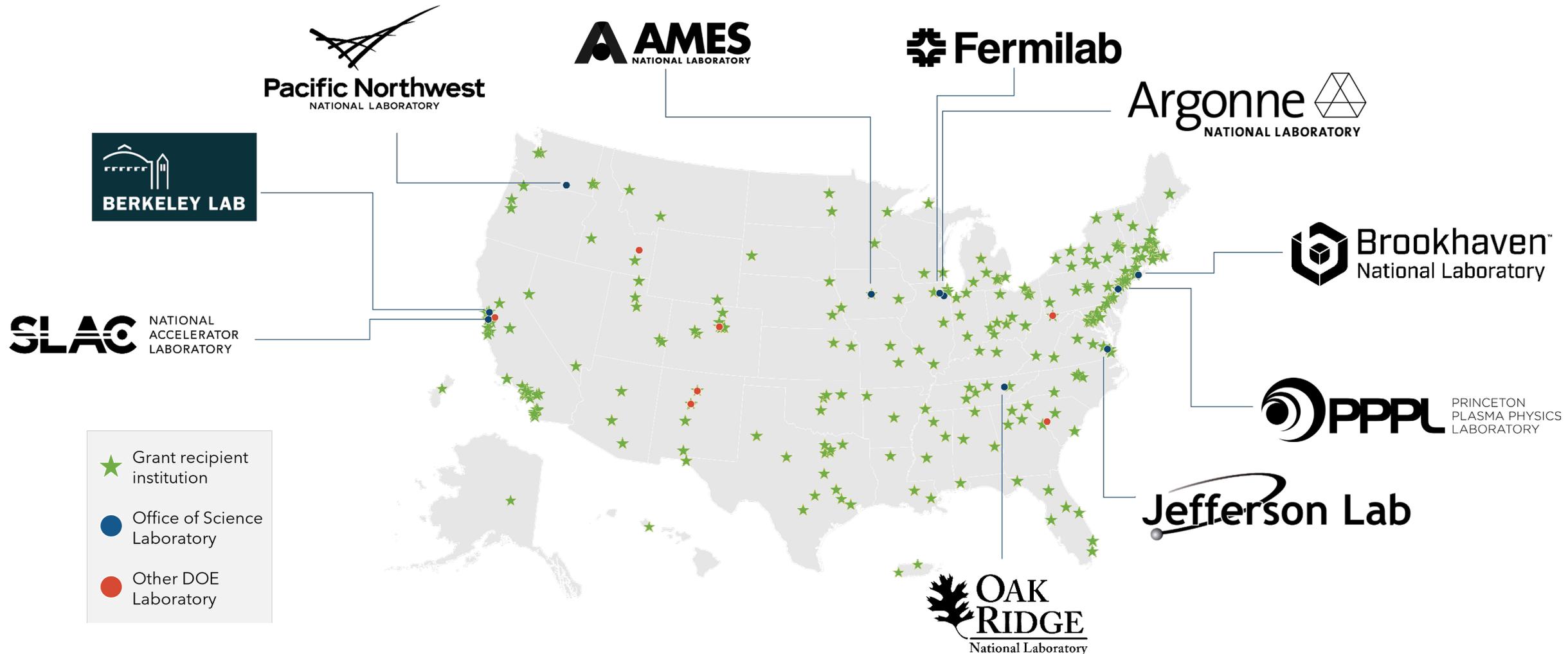
The Office of Science Research Portfolio

Advanced Scientific Computing Research	◆ Delivering world-leading computational and networking capabilities to extend the frontiers of science and technology
Basic Energy Sciences	◆ Understanding, predicting, and ultimately controlling matter and energy flow at the electronic, atomic, and molecular levels
Biological and Environmental Research	◆ Understanding complex biological, earth, 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
Isotope R&D and Production	◆ Supporting National Preparedness for isotope production and distribution
Accelerator R&D and Production	◆ Supporting new technologies for use in SC's scientific facilities and in commercial products

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OFFICE OF SCIENCE BY THE NUMBERS

Delivering scientific discoveries and major scientific tools to transform our understanding of nature and advance the energy, economic, and national security of the United States

FY23

6 CORE SCIENCE PROGRAMS

- Advanced Scientific Computing Research
- Basic Energy Sciences
- Biological and Environmental Research
- Fusion Energy Sciences
- High Energy Physics
- Nuclear Physics

3 ENGINEERING AND TECHNOLOGY OFFICES

- Accelerator Research and Development and Production
- Isotope Research and Development and Production
- Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR)

5 NATIONAL QUANTUM INFORMATION SCIENCE RESEARCH CENTERS

ACROSS ITS 10 NATIONAL LABS, OFFICE OF SCIENCE MAINTAINS APPROXIMATELY

24 MILLION SQUARE FEET OF SPACE

1,600 BUILDINGS | **38,000** ACRES OF LAND OWNED

SUPPORTS RESEARCH SPANNING

16 DOE NATIONAL LABS

50 STATES, GUAM, PUERTO RICO, AND WASHINGTON, D.C.

4 BIOENERGY RESEARCH CENTERS

2 ENERGY INNOVATION HUB PROGRAMS

STEWARDS

10 DOE NATIONAL LABORATORIES

ESTIMATED RESEARCHERS SUPPORTED

- 11,100 Permanent PhDs
- 3,400 Postdoctoral Associates
- 5,200 Graduate Students
- 9,700 Other Scientific Personnel

OVER 39,500 USERS AT 28 OFFICE OF SCIENCE FACILITIES

10 SITE OFFICES

1 CONSOLIDATED SERVICE CENTER

OVER 100 NOBEL PRIZES

>310 UNIVERSITIES AND HIGHER-LEARNING INSTITUTIONS

3 World-Leading Supercomputers

$8.1 BILLION OVERALL OFFICE OF SCIENCE BUDGET

$918 MILLION USER FACILITY CONSTRUCTION
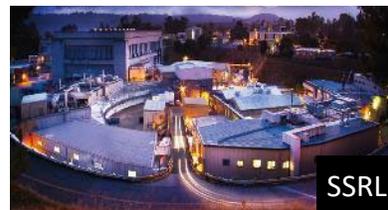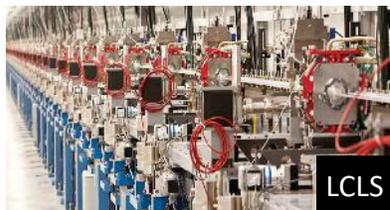
$281 MILLION SCIENCE LABORATORIES INFRASTRUCTURE

51 ENERGY FRONTIER RESEARCH CENTERS

Office of Science User Facilities

FY 2025
28 scientific
user facilities and
nearly 40,000
users

OLCF

ALCF

NERSC

ESnet

EMSL

ARM

JGI

SNS

HFIR

ALS

APS

LCLS

NSLS-II

SSRL

CFN

CINT

CNM

CNMS

TMF

DIII-D

NSTX-U

FACET

ATF

Fermilab AC

CEBAF

ATLAS

RHIC

FRIB

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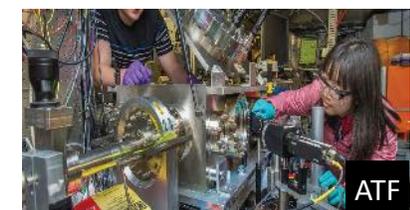
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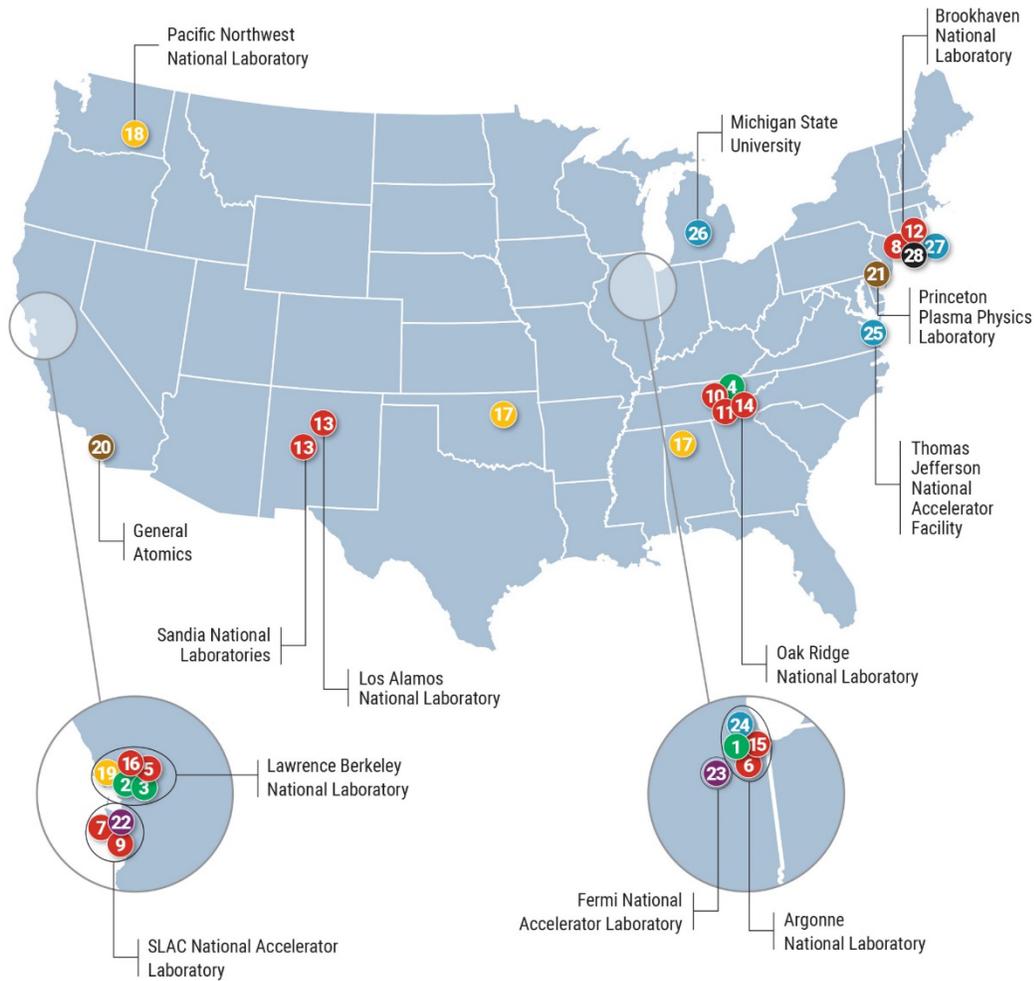
Advanced Scientific Computing Research (ASCR)

1. **Argonne Leadership Computing Facility (ALCF)**
Argonne National Laboratory

2. **Energy Sciences Network (ESnet)**
Lawrence Berkeley National Laboratory

3. **National Energy Research Scientific Computing Center (NERSC)**
Lawrence Berkeley National Laboratory

4. **Oak Ridge Leadership Computing Facility (OLCF)**
Oak Ridge National Laboratory

Basic Energy Sciences (BES)

LIGHT SOURCES

5. **Advanced Light Source (ALS)**
Lawrence Berkeley National Laboratory

6. **Advanced Photon Source (APS)**
Argonne National Laboratory

7. **Linac Coherent Light Source (LCLS)**
SLAC National Accelerator Laboratory

8. **National Synchrotron Light Source II (NSLS-II)**
Brookhaven National Laboratory

9. **Stanford Synchrotron Radiation Lightsource (SSRL)**
SLAC National Accelerator Laboratory

NEUTRON SOURCES

10. **High Flux Isotope Reactor (HFIR)**
Oak Ridge National Laboratory

11. **Spallation Neutron Source (SNS)**
Oak Ridge National Laboratory

NANOSCALE SCIENCE RESEARCH CENTERS

12. **Center for Functional Nanomaterials (CFN)**
Brookhaven National Laboratory

13. **Center for Integrated Nanotechnologies (CINT)**
Sandia National Laboratories and
Los Alamos National Laboratory

14. **Center for Nanophase Materials Sciences (CNMS)**
Oak Ridge National Laboratory

15. **Center for Nanoscale Materials (CNM)**
Argonne National Laboratory

16. **The Molecular Foundry (TMF)**
Lawrence Berkeley National Laboratory

Biological and Environmental Research (BER)

17. **Atmospheric Radiation Measurement (ARM) User Facility**
Fixed and Mobile Sites Across the Globe

18. **Environmental Molecular Sciences Laboratory (EMSL)**
Pacific Northwest National Laboratory

19. **Joint Genome Institute (JGI)**
Lawrence Berkeley National Laboratory

Fusion Energy Sciences (FES)

20. **DIII-D National Fusion Facility**
General Atomics

21. **National Spherical Torus Experiment Upgrade (NSTX-U)**
Princeton Plasma Physics Laboratory

High Energy Physics (HEP)

22. **Facility for Advanced Accelerator Experimental Tests (FACET)**
SLAC National Accelerator Laboratory

23. **Fermilab Accelerator Complex**
Fermi National Accelerator Laboratory

Nuclear Physics (NP)

24. **Argonne Tandem Linac Accelerator System (ATLAS)**
Argonne National Laboratory

25. **Continuous Electron Beam Accelerator Facility (CEBAF)**
Thomas Jefferson National Accelerator Facility

26. **Facility for Rare Isotope Beams (FRIB)**
Michigan State University

27. **Relativistic Heavy Ion Collider (RHIC)**
Brookhaven National Laboratory

Accelerator R&D and Production (ARDAP)

28. **Accelerator Test Facility (ATF)**
Brookhaven National Laboratory

Office of Science User Facilities

- Open to all interested potential users without regard to nationality or institutional affiliation

- Each facility manages the allocation of facility resources through merit-based peer review of research proposals

- User fees are not charged for non-proprietary work if the user intends to publish the research results in the open literature

- Full cost recovery is required for proprietary work

High Performance Computing

Light and Neutron Sources

Environmental Facilities

Fusion Facilities

https://science.osti.gov/User-Facilities/User-Resources

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SC Internship Programs and Opportunities

- Science Undergraduate Laboratory Internships

- Community College Internships

- Office of Science Graduate Student Research

- Visiting Faculty Program

science.osti.gov/wdts

National Science Bowl

- Fast-paced question-and-answer competition

- More than 14,000 middle and high school students compete each year

- Since 1991, 335,000 students have faced off in National Science Bowl® competitions.

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More Info

- Office of Science Office Hours - https://science.osti.gov/officehours
  - September 2024 – PIER Plans
  - October 2024 – Open Call

- Solicitation Webinars and Office Hours
  - Check the solicitation for details
  - https://science.osti.gov/grants/FOAs/Open

- GovDelivery
  - Email subscription service for SC news and information, including solicitations.
  - https://science.osti.gov/ → Stay Connected at top.

SCAN ME

Working with DOE

- The Department of Energy has been described as the department of windmills, weapons, quarks, and 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 or central DOE "grants" or "research" office

Working with DOE

Office	Mission	Information System	Location(s)
Office of Science	Basic research	PAMS	Germantown, MD (program) Chicago, IL (awards)
ARPA-E	High-risk applied research	ARPA-E Exchange	Washington, DC
EERE	Energy efficiency, renewable energy	EERE Exchange	Golden, CO
Offices of Fossil Energy and Carbon Management, Nuclear Energy, Electricity, CESER	Applied research	FedConnect (and some Exchange)	Germantown, MD (program) Washington, DC (program) Pittsburgh, PA (awards) Morgantown, WV (awards)

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DOE's Grantmaking Chain of Authority

Secretary of Energy

Agency Senior Procurement Executive (SPE)
- Director, Office of Acquisition Management and Policy

Program Office Head of Contracting Authority (HCA)
- For Science, Deputy Director of Science for Field Operations
- HCA may appoint Procurement Directors. HCA may be a Procurement Director. HCA may have multiple Procurement Directos.

Contracting Officers
- For Science, in the Consolidated Service Center-Chicago.
- For Science, organized into teams and divisions under a Procurement Director

This is the same process required for procurement contracts. DOE applies it to financial assistance, as well.

Contract / Grants Management Specialists
- Agents of a contracting officer

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EERE Exchange

Energy.gov/science

ARPA-E FOA

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NEUP

Energy.gov/science

FedConnect

What's New?

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Forward Funding of Awards

- FY 2025: All awards at or below $1.5 million must be fully funded when the original award is issued.

- This increases in the future:
    - FY 2026: $1.75 million
    - FY 2027: $2 million
    - FY 2028: $2.5 million

- SC will obligate the full amount of funding into the payment system (ASAP)

- **Please account for this in SF-425s**

Updates to 2 CFR 200

- Final text published October 1
- SC has updated its NOFO (no longer FOA) format
- When indirect rates are negotiated, rolling impact of new definition of modified total direct cost

Research Security

- Everyone's favorite hot topic
- DOE has established an Office of Research, Technology, and Economic Security. Public-facing website including policy documents and guidance is in the works.
- Best advice:
  - Disclose, disclose, and disclose again when in doubt. Investigators should adjust to a default of disclosure
  - Make use of resources compiled at https://www.dni.gov/index.php/safeguarding-science/research-security
  - Encourage all travelers to think about security

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Buy American Provisions

- From the Infrastructure Investment and Jobs Act

- Applies to all financial assistance with *public infrastructure*

- Construction and renovation at publicly-owned institutions may meet this definition

- Exercise caution: This is a statutory requirement

Award Budget Periods

SC is committed to distributing workloads (internally and externally) across as much of the calendar as is practical. Accordingly, awards made under this NOFO will generally be made with budget periods that end between December 1 and June 30. New awards will generally be made with a first budget period of more than 12 months. Renewal awards will be made with first budget periods that may be longer or shorter than 12 months. Applicants should prepare budgets with 12-month budget periods. Actual start dates and cycle dates will be negotiated if an application is recommended for award. Budget periods will generally not be made for less than 9 months or more than 18 months.

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Synergistic Activities (Optional)

In addition to biographical sketches in the Common Format, each senior/key person may provide a one-page list of no more than five distinct examples of synergistic activities that demonstrate the individual's professional and scholarly activities that focus on the integration, transfer, and creation of knowledge as related to the application.

This appendix may not exceed a limit of the same number of pages as the number of senior/key personnel when printed using standard letter-size (8.5-inch x 11-inch) paper with 1-inch margins (top, bottom, left, and right).

Portfolio Analysis and Management System (PAMS)

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

Energy.gov/science

New Wiki-Based Help Pages

What you can do in PAMS

- View proposals submitted into Grants.gov
- Search for Notices of Funding Opportunity
- 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
  - Decisions are made by senior management
  - Requesting a revised budget on a proposal is not a decision

Working With the Office of Science
What Gets Submitted Where

Item	System	From Whom	To Whom
Application	Grants.gov	SRO	DOE
Revised Public 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. PAMS, FedConnect not recommended	Anyone	DOE

Working With the Office of Science
Issues With Submissions

- 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 released 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

- Progress reports, revised budgets, renewal proposal products
  - All permit revision
  - All preserve prior versions–a change may be made where needed and the item resubmitted

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Working with the Office of Science
Budget Justifications

- All costs on a budget need to be justified

- "Based on prior experience with similar projects" *is acceptable!*

- Indicate estimates vs. quotes

- Use the negotiated fringe benefit rates–and explain deviations

- Explain the choice of using off-campus F&A rates

- While your budget will be incorporated by attachment into the award documents, the justification is not incorporated

Working with the Office of Science
Reminders and Deadlines

- PAMS will send some reminder emails when deadlines pass for *assigned* tasks

- There are no reminders for *unassigned* activities, like responding to an FOA or submitting a letter of intent

- Reminders are usually sent to the person who can complete the task
  - Progress reports are submitted by the PI
  - Revised budgets are submitted by the BO/AO/SRO

- Other interested parties are copied on the email

- Note that all *assigned* deadlines are soft: the task remains available even after the deadline

- There are no reminders relating to expiring awards
  - Not for submitting a renewal application
  - Not for submitting a no-cost extension request

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Renewal Proposal Products

- A renewal application needs to describe what has been done during the current project period

- Progress reports contain a list of publications and other products

- PAMS was designed to collect the products from progress reports and append them to renewal applications–as a convenience to the PI community
  - Before we had a full set of progress reports in PAMS, the renewal proposal products required some manual data entry
  - Every award up for renewal now has at least one progress report in PAMS, so the proposal products list is pre-populated

- Renewal applications cannot be reviewed without their products list

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Tips for Success

- Double-check UEI numbers, particularly for universities that use captive foundations

- Use one PDF file for the research narrative and *all* appendices

- Verify your math in the budget
  - New GDG forms will auto-calculate
  - Ensure use of the correct F&A rate
  - Ensure use of negotiated fringe rate

- For renewals and supplements: make sure the application is from the same institutional profile that currently holds the award. Please don't do any "back-door" transfers.

Revised Budgets

- Most awards issued by the Office of Science require the submission of at least one revised budget in the PAMS website
- Why?
  - Our award-writing software does not include the ability to generate an "approved" budget in the Notice of Award
  - Instead, your budget is attached to (and incorporated by reference in) the award documents
- Accuracy matters!
  - SC must make awards based on negotiated rates in effect when we make the award
  - This includes F&A rates *and* fringe benefit rates
- Subaward budgets in PAMS
  - Don't be fooled by the statement that they are optional
  - The existence of a subaward is optional
  - If one exists, we need a budget

Reading Award Documents

This is the standard Assistance Agreement form used by DOE to make its grant awards. It contains basic information such as the award number, the recipient, the period of performance, the total amount (lifetime) of the award, the funds obligated by this instrument, and other important information.

You can access these documents in FedConnect. Your PIs will often complain that they cannot see them in PAMS. This is intentional.

The assistance agreement form itself continues for a few pages with important terms and conditions.

But there's more.

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Award Documents, continued

- New and renewal awards will include a full package of special terms and conditions, usually as a Word file

<u>SPECIAL TERMS AND CONDITIONS</u>

FA-TC-0001-CH   LEGAL AUTHORITY AND EFFECT (DECEMBER 2014)

a.   A DOE financial assistance award is valid only if it is in writing and is signed, either in writing or electronically, by a DOE Contracting Officer.   This individual is reflected as the Grants/Agreements Officer on the Assistance Agreement.

b.   Recipients are free to accept or reject the award.   Acceptance of the award is effected by:
   1.   Performance;
   2.   Recipient's submission of a request for payment;
   3.   Recipient's withdrawal of funds obligated; or
   4.   Recipient's signature on the Assistance Agreement.

FA-TC-0001A   RESOLUTION OF CONFLICTING CONDITIONS

Any apparent inconsistency between Federal statutes and regulations and the terms and conditions contained in this award must be referred to the DOE Award Administrator for guidance.

FA-TC-0001B-CH   PART 605 AWARD AGREEMENT CONTENTS (DECEMBER 2014)

This award/agreement consists of the Assistance Agreement cover page, plus the following:
a.   Special terms and conditions.
b.   Attachments:

Attachment No.	Title
1	Intellectual Property Provisions
2	Federal Assistance Reporting Checklist and Instructions
3	Budget Pages
4	Federal-Wide Research Terms and Conditions and DOE Agency Specific Requirements (DRAFT)

Award Documents, continued

- There will be additional documents in new and renewal (and supplemental) awards—and possibly in other types of modifications:
  - Intellectual Property provisions
  - Budget Pages
  - Agency Terms and Conditions (updated after the final revision to the standard research terms and conditions)
  - New awards only may include an Inspector General Hotline poster
  - Federal Assistance Reporting Checklist and Instructions

Reporting Checklist

- Useful document, instructing where to submit reports and how frequently
- Applies to your investigators (progress reports, publications) and to you (SF-425s, closeout reports)

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GONE Act and Closeout

- Grants Oversight and New Efficiency (GONE) Act of 2016
- Objective is that all awards be closed out two years after expiration
- Congressional reporting of un-closed out awards
- SC has threatened to put awardees on invoice payment to encourage timely closeout of awards
- Closeout reports include financial reports, invention / patent certification, and technical report
  - Reports have different recipients—please check your reporting instructions and checklist!
  - Please bear with us: different recipients using different information systems means that sometimes, one office doesn't know that another office received a required report

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Prior Approval Requests

2 CFR 200.1 Definitions

Prior approval means the written approval obtained in advance by an authorized official of a Federal agency or pass-through entity of certain costs or programmatic decisions.

Prior Approval Requests

DOE has a 5-year cooperative agreement with Dynamic Research Co. After three years into the project, the Principal Investigator (PI) leaves the company for a new opportunity with Synergy Incorporated.

Is written prior approval required to replace the PI?

Answer: Yes.

2 CFR 200.308(f)(2) - Change in a key person specified in the application or Federal award.

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Prior Approval Requests

The University of Everywhere is nearing the completion of its 3-year grant with DOE. The PI stated some additional testing must be done and the work will be contracted out. The DOE Program Manager had no objections – said it was appropriate effort. University of Everywhere proceeded with the work.

Was prior approval required and obtained?

Answer: Yes required, but not obtained. Only the Contracting Officer can approve this request.

2 CFR 200.308(f)(6) - Subawarding, transferring or contracting out of any work under a Federal award, including fixed amount subawards as described in 200.333. This provision does not apply to the acquisition of supplies, material, equipment or general support services.

Prior Approval Requests

The National Research Association submitted a grant application to DOE. It was selected for award but the DOE Office of Financial Assistance was a little behind in making the award by the July 15, 2024 effective date.

Does the recipient need approval to incur pre-award costs within 60 days before the new award is made?

Answer: No (waived)

2 CFR 200.308(g)(1) - Incur project costs 90 calendar days before the Federal awarding agency makes the Federal award.

Prior Approval Requests

Global University has been progressing satisfactorily with their DOE research project. The Sponsored Research Office submitted a request to the Contract Specialist seeking approval to purchase a special piece of equipment not previously included in the approved budget.

Is written prior approval required?

Answer: Yes, through September 30, 2024. No, effective October 1, 2024.

 2 CFR 200.313(c)(1) - Encumber equipment acquired with Federal funds.

Prior Approval Matrix

Research Terms and Conditions Appendix A
[Prior Approval Matrix](#) November 12, 2020

Prior Approval Matrix Update (effective 10/1/24)

2 CFR 200 was updated to **remove** the following from the list of items requiring prior written approval:

- 200.201 Use of grant agreements
- 200.311 Real property
- 200.313 Equipment
- 200.413 Direct costs
- 200.438 Entertainment and prizes
- 200.454 Memberships, subscriptions and professional activity costs
- 200.456 Participant support costs
- 200.467 Selling and marketing costs
- 200.470 Taxes (including Value Added Tax)

Prior Approval Requests (Takeaways)

- PIs cannot request – and program managers cannot approve – any prior approval requests.

- Four requests may be submitted in PAMS
  - No Cost Extension
  - PI Transfer to New Institution (SF-425 and termination)
  - Change of PI
  - Change of Senior/Key Personnel (new biosketches and current and pending support)

- Other requests need to be in writing
  - **From** the Sponsored Research Office
  - **To** the Award Administrator and Contracting Officer
  - **CC** the program manager

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