Office of Science User Facilities
Fiscal Year 2015

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A Broad Impact
The U.S. Department of Energy Office of Science provides the Nation’s researchers with world-class scientific user facilities to propel the U.S. to the forefront of science and innovation.
A user facility is a federally sponsored research facility available for external use to advance scientific or technical knowledge under the following conditions:

**Open**
The facility is open to all interested potential users without regard to nationality or institutional affiliation.

**Accessible**
The facility provides resources sufficient for users to conduct work safely and efficiently.

**Competitive**
Allocation of facility resources is determined by merit review of the proposed work.

**Unique**
The facility capability does not compete with an available private sector capability.

**Free**
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.

**Collaborative**
The facility supports a formal user organization to represent the users and facilitate sharing of information, forming collaborations, and organizing research efforts among users.
The Office of Science manages its research and user facilities portfolio through six core program offices.

**Facility stewardship**

The program office is responsible for cradle-to-grave support and stewardship of the facility, from conceptualization and design, to construction and operations, to termination and decommissioning. In the conceptualization phase, the scientific user community plays a major role in articulating the scientific justification for the facility and in determining the most impactful facility capabilities. The Office of Science utilizes project management best practices. Facility operations are funded through congressional appropriations directly to the program office. The facility depends on no other source of funds for core operations.

**Core program offices**

<table>
<thead>
<tr>
<th>Program Office</th>
<th>Facility Name</th>
<th>Users</th>
<th>Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCR</td>
<td>ALCF - Argonne Leadership Computing Facility</td>
<td>990</td>
<td>Argonne National Laboratory</td>
</tr>
<tr>
<td></td>
<td>OLCF - Oak Ridge Leadership Computing Facility</td>
<td>1,107</td>
<td>Oak Ridge National Laboratory</td>
</tr>
<tr>
<td></td>
<td>ESnet - Energy Sciences Network</td>
<td>48</td>
<td>Lawrence Berkeley National Laboratory</td>
</tr>
<tr>
<td></td>
<td>NERSC - National Energy Research Scientific Computing Center</td>
<td>6,332</td>
<td>Lawrence Berkeley National Laboratory</td>
</tr>
</tbody>
</table>

**BES light sources**

<table>
<thead>
<tr>
<th>Light Source</th>
<th>Facility Name</th>
<th>Users</th>
<th>Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALS</td>
<td>Advanced Light Source</td>
<td>2,560</td>
<td>Lawrence Berkeley National Laboratory</td>
</tr>
<tr>
<td>APS</td>
<td>Advanced Photon Source</td>
<td>5,331</td>
<td>Argonne National Laboratory</td>
</tr>
<tr>
<td>LCLS</td>
<td>Linac Coherent Light Source</td>
<td>837</td>
<td>SLAC National Accelerator Laboratory</td>
</tr>
<tr>
<td>SSRL</td>
<td>Stanford Synchrotron Radiation Lightsource</td>
<td>1,626</td>
<td>SLAC National Accelerator Laboratory</td>
</tr>
<tr>
<td>NSLS II</td>
<td>National Synchrotron Light Source II</td>
<td>110</td>
<td>Brookhaven National Laboratory</td>
</tr>
</tbody>
</table>

Note: The National Synchrotron Light Source II (NSLS II) commenced operations on March 19, 2015.
The Accelerator Test Facility (ATF) was formally designated as a scientific user facility in fiscal year 2015.
Data collected for Fiscal Year 2015 reveal an interconnected and diverse research enterprise.
The 32,056 users span all 50 states, the District of Columbia, Puerto Rico and the U.S. Virgin Islands, and 68 countries on six continents.

Number of users by state

Quickfact

80% of users come from U.S. institutions

International users

Quickfact

6,276 users from international institutions

1,312 international institutions
Diverse Experiences

Users span the full spectrum of R&D institutions and career stages.

Number of users by institution type

1. U.S. Academia: 16,012
2. DOE National Laboratory: 7,441
3. Other U.S. Federal: 571
4. U.S. For-Profit: 1,095
5. U.S. Not-for-Profit Research or Charitable Organization: 761
6. International: 6,207
7. Other: 165

Number of users by employment level

1. Graduate Students: 6,596
2. Undergraduate Students: 1,165
3. Postdoctoral Research Associates: 4,408
4. Faculty or Research Scientists: 11,203

Quickfact

50% of users come from U.S. Academia

Quickfact

52% of users are students or postdocs
Each facility provides a unique scientific toolset. Users enhance their research by leveraging capabilities at multiple facilities.

Quickfact

3,000+
users performed research at two or more facilities in FY 2015
Users access a wide variety of research resources at the facilities. The majority of users come in person on site and many thousands more access resources and curated data remotely.

Quickfact

52% on-site users
46% remote users
02% data users
Many industrial and federal entities use Office of Science user facilities to advance their research and development goals.

Federal support of user projects

<table>
<thead>
<tr>
<th>Department of Energy</th>
<th>National Science Foundation</th>
<th>National Institutes of Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,574 projects</td>
<td>1,783 projects</td>
<td>1,182 projects</td>
</tr>
</tbody>
</table>

Other federal sponsors

- Environmental Protection Agency
- Department of Transportation
- United States Geological Survey
- Department of Homeland Security
- Department of Education
- Department of State
- National Institute of Standards and Technology
- National Oceanic and Atmospheric Administration
- Centers for Disease Control and Prevention
- Nuclear Regulatory Commission

Quickfact

- 5,688 projects supported by a non-DOE source
- 1,120 U.S. industrial users
For more information
Download the report and view an interactive map of user projects at science.energy.gov/user-facilities

Credits
All the images on the user facility spread are courtesy of the host institution
Design: Sandbox Studio, Chicago

User facility locations

1 Argonne National Laboratory
Argonne, Illinois
2 Brookhaven National Laboratory
Upton, New York
3 Fermi National Accelerator Laboratory
Batavia, Illinois
4 Lawrence Berkeley National Laboratory
Berkeley, California
5 Oak Ridge National Laboratory
Oak Ridge, Tennessee
6 Pacific Northwest National Laboratory
Richland, Washington
7 Princeton Plasma Physics Laboratory
Princeton, New Jersey
8 SLAC National Accelerator Laboratory
Menlo Park, California
9 Thomas Jefferson National Accelerator Facility
Newport News, Virginia
10 Los Alamos National Laboratory
Los Alamos, New Mexico
11 Sandia National Laboratories
Albuquerque, New Mexico
12 General Atomics
San Diego, California
13 Massachusetts Institute of Technology
Cambridge, Massachusetts — Atmospheric Radiation Measurement
Climate Research Facility global network (multiple sites)

Office of Science laboratories
- Office of Science laboratories
- Other host institutions

Above
The Cherenkov radiation glow in the reactor pool of the High Flux Isotope Reactor from stored fuel elements.
Credit: Enrico Sacchetti, Oak Ridge National Laboratory

Back cover top
The Gammasphere at the Argonne Tandem Linac Accelerator System, the world’s most powerful spectrometer for nuclear structure research.
Credit: Argonne National Laboratory

Below
A graduate student researcher at a beam line at the Stanford Synchrotron Radiation Lightsource.
Credit: SLAC National Accelerator Laboratory

Back cover bottom
Simulation of the distribution of water vapor in the climate system produced at the Oak Ridge Leadership Computing Facility.
Credit: Oak Ridge National Laboratory