

Laboratory Safety in a Hybrid Research and Development Work Environment

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U.S. DEPARTMENT OF
ENERGY

Office of
Science



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ENERGY

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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.



More than **29,000** Researchers
Supported at **>300** Institutions and **17**
DOE Labs



Steward **10** of the 17
DOE National labs



More than **38,000** Users of
28 SC Scientific Facilities



\$8.1B
(FY 23 enacted)



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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

FY22

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, PUERTO RICO,
AND WASHINGTON, D.C.

>340

UNIVERSITIES AND
HIGHER-LEARNING
INSTITUTIONS

4
BIOENERGY
RESEARCH
CENTERS

2
ENERGY
INNOVATION
HUB
PROGRAMS

51
ENERGY
FRONTIER
RESEARCH
CENTERS²

STEWARDS

10

DOE NATIONAL
LABORATORIES

ESTIMATED
RESEARCHERS
SUPPORTED

10,300 Permanent PhDs

3,200 Postdoctoral
Associates

4,900 Graduate Students

9,000 Other Scientific
Personnel

OVER
38,500

USERS AT

28

OFFICE OF SCIENCE
FACILITIES

10
SITE OFFICES

1
CONSOLIDATED
SERVICE CENTER

OVER
100
NOBEL
PRIZES

\$7.5 BILLION
OVERALL
OFFICE OF
SCIENCE BUDGET

\$857 MILLION
USER
FACILITY
CONSTRUCTION

\$291 MILLION
SCIENCE
LABORATORY
INFRASTRUCTURE

3
World-Leading
Supercomputers

What Distinguishes a DOE National Laboratory?

A DOE national laboratory is distinguished by most, and typically all, of the following characteristics:

- ***Mission driven***, providing sustained support to further one or more long-term goals in support of the DOE mission.
- ***Science-of-scale***, comprising large-scale, long-term projects and programs.
- ***Multi-disciplinary teams***, integrating personnel across a broad suite of scientific and technical disciplines to execute the complex DOE missions and solve national problems.
- ***Distinctive, powerful research facilities***, hosting one or more major DOE-designated scientific user facilities which are made available to national and international research communities.
- ***Safe and secure operating environments***, managed to conduct research involving special operating considerations (e.g., operation of facilities that conduct hazardous, sensitive or classified research essential to national interests).

DOE's national laboratory system represents the most comprehensive research system of its kind in the world. The laboratories perform R&D that is not well suited to university or private sector research facilities because of its scope, infrastructure, or multidisciplinary nature, but for which there is a strong public and national purpose.

DOE SUPPORT FOR SC NATIONAL LABORATORIES

  Berkeley, California 202 acres and 97 buildings 3,396 FTEs 950 students & postdocs 9,320 facility users www.lbl.gov	  Richland, Washington 346 acres and 19 buildings 4,344 FTEs 550 students & postdocs 1,733 facility users www.pnnl.gov	  Ames, Iowa 8 acres and 12 buildings 308 FTEs 158 students & postdocs www.ameslab.gov	  Batavia, Illinois 6,800 acres and 354 buildings 1,720 FTEs 55 students & postdocs 2,097 facility users www.fnal.gov	  Argonne, Illinois 1,517 acres and 100 buildings 3,460 FTEs 1,054 students & postdocs 6,547 facility users www.anl.gov
  Menlo Park, California 426 acres and 151 buildings 1,596 FTEs 213 students & postdocs 4,474 facility users www.slac.stanford.edu	  Oak Ridge, Tennessee 4,421 acres and 194 buildings 4,586 FTEs 1,080 students & postdocs 3,215 facility users www.ornl.gov	  Newport News, Virginia 169 acres and 72 buildings 729 FTEs 60 students & postdocs 1,261 facility users www.jlab.org	  Princeton, New Jersey 89 acres and 34 buildings 429 FTEs 54 students & postdocs 290 facility users www.pppl.gov	  Upton, New York 5,322 acres and 310 buildings 2,882 FTEs 642 students & postdocs 4,134 facility users www.bnl.gov



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Safety Principles, Musings, Meaningful Cliches

Communication

Leadership Matters

Accountability

**Risk
Management**

Versus

**Risk
Aversion**

***Integrated
Stewardship
Model***

Avoid Tunnel Vision

Sense of Urgency

NEWSFLASH

Don't try to be the
smartest person in
the room

Continuous
Learning

Evaluating Risk is a Living
Exercise

Be Your Own
Devil's Advocate

**Complacency is
the Enemy**

What is the
downside to
the upside?

Risk Registry

Questioning Attitude

Mentoring is part of
your job

Signal and Noise

Proactive rather than Reactive

Nullius in verba



THANK YOU

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