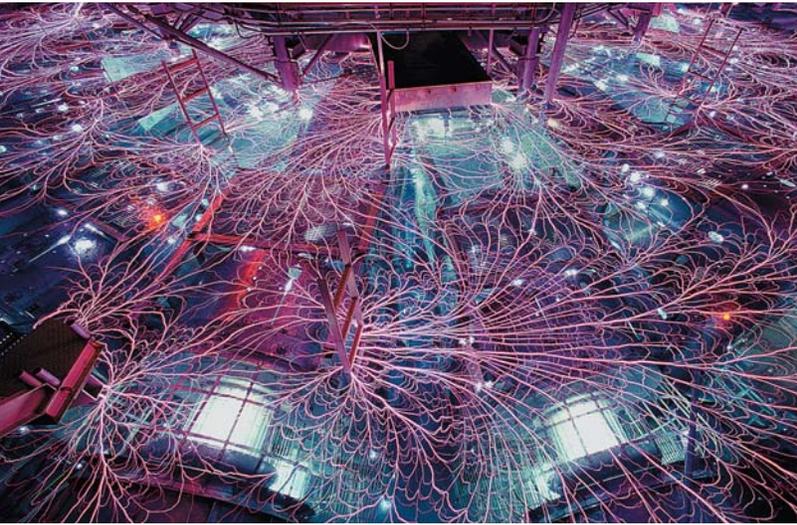


Sandia National Laboratories

National Security Missions/Background

Sandia National Laboratories is one of America's premier research and development laboratories. Our primary business is national security, and our core purpose is to help our nation secure a peaceful and free world through technology.



Sandia's huge Z machine, the world's most powerful X-ray source, is used for fusion energy research and to test the effects of radiation on materials.

Sandia was established in Albuquerque, New Mexico, in 1945 during the Manhattan Project, which produced the first nuclear weapons, and began operating as an independent laboratory in 1949. Our Livermore, California, facilities opened in 1956. Sandia has since grown into a broad national security laboratory encompassing a variety of technologies and programs. Our work involves missions in these key areas:

- **Nuclear Weapons** — Provides deterrence now and in the future, by ensuring the reliability, safety, and security of the nuclear weapons stockpile in an affordable manner. Sandia's primary mission is to support the Department of Energy and Department of Defense.
- **Defense Systems and Assessment** — Provides enabling systems, science, and technology in support

of national security objectives. Coordinating special projects to defend against weapons of mass destruction, defeat hardened, deeply buried targets, combat terrorism, and perform related missions.

- **Energy, Resources, and Nonproliferation** — Emphasizes all forms of energy supply, distribution, and end-use, including fossil fuels, renewable energy, and nuclear.
- **Homeland Security and Defense** — Supports homeland security, homeland defense, and physical security missions for multiple agencies, helping Americans maintain freedom, security, and quality of life in the face of terrorism and devastating natural disasters.

Lockheed Martin Corp. manages Sandia for the DOE's National Nuclear Security Administration. Sandia also works for, and partners with, other DOE agencies, the DoD, Department of Homeland Security, other federal/state/local government agencies, private industry, and academic institutions to accomplish our missions.

Research Foundations/ Emerging Areas

Sandia conducts a variety of ongoing research and development (R&D) projects in support of our key missions. Most R&D projects are in the areas of:

- Materials and Process Sciences
- Computational and Information Sciences
- Microelectronics and Photonics Sciences
- Engineering Sciences
- Pulsed Power Sciences
- Chemistry and Earth Sciences
- Biosciences and Technology

Technology Partnerships Benefit America

Sandia works closely with industry, universities, and other government agencies to bring new technologies to the marketplace. Sandia may negotiate with industry to sign cooperative R&D agreements that permit the labs to



Computer modeling and simulations—such as this simulation of a materials interaction—are becoming integral to understanding all types of complex phenomena in science and engineering.

collaborate with industry on mutually beneficial research. Other options for pursuing shared interests include licensing agreements, technical assistance, use of unique Sandia facilities, technical personnel exchanges, and memoranda of understanding.

Many technologies developed at Sandia benefit Americans directly or indirectly. A few notable examples:

- The laminar-flow clean room—used worldwide for microelectronics and pharmaceutical manufacturing and hospital surgery—was invented at Sandia in 1960.
- Sandia pioneered bomb-disablement technologies that allow technicians to “render safe” both crude and sophisticated terrorist-type explosive devices without approaching the bombs.
- MicroChemLab™ technology has made possible handheld and unmanned vehicle-carried systems for detecting and identifying chemical and biological agents for homeland security, defense, and environmental applications.

- Sandia's contributions in synthetic aperture radar (SAR), an all-weather, day/night imaging technology, have enabled mapping with a precision thousands of times greater than standard maps. SAR has many military and civilian applications, including aiding in search and rescue operations.
- Five generations of Sandia-developed radiation-hardened microchips have ensured that defense and space hardware electronics can operate in high-radiation environments.

Workforce/Budget

Sandia has about 8,600 employees, located mainly in Albuquerque, New Mexico, and Livermore, California. Others work at the Pantex Plant near Amarillo, Texas; the Waste Isolation Pilot Plant near Carlsbad, New Mexico; the Kauai Test Facility in Hawaii; and the Yucca Mountain Project and the Tonopah Test Range in Nevada. Our

workforce consists of highly educated and skilled engineers, scientists, technologists, and administrative support staff. About 18 percent of our employees hold doctoral degrees and about 30 percent hold master's degrees.

Our fiscal year 2007 budget is projected to be about \$2.28 billion. DOE funding is projected to be about \$1.45 billion, and other funding about \$826 million.



A Sandia team is developing the first solid-state, white-light-emitting device using quantum dots, which may represent a major application of nanotechnology.

Sandia Hound™ enables the detection of trace amounts of explosives, drugs, and other chemicals.

Information

For more details about Sandia, visit our web site at www.sandia.gov.

A 16-page overview booklet is available at www.sandia.gov/news-center/publications or contact the Public Relations and Communications Center (505) 844-4902 for a printed copy.