

Sandia National Laboratories

At a Glance



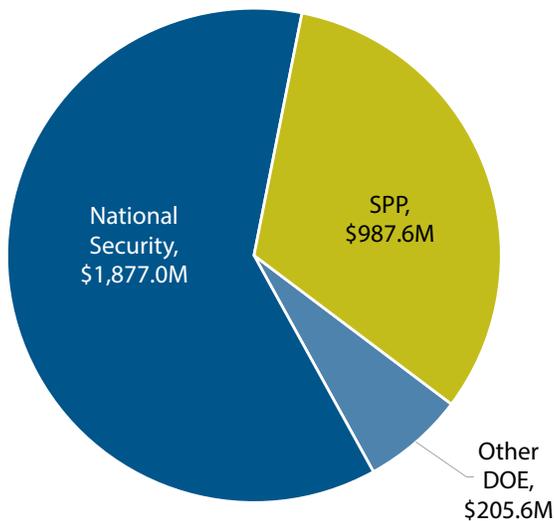
SNL grew out of the effort to develop the first atomic bombs. Today, keeping the U.S. nuclear stockpile safe, secure, and effective is a major part of SNL's work as a multi-mission national security, engineering Laboratory. SNL's role has evolved to address the complex threats facing the United States through research and development in the following areas:

- Nuclear Weapons – Supporting U.S. deterrence policy by helping sustain and secure the nuclear arsenal,
- Defense Systems and Assessments – Supplying new capabilities to U.S. defense and national security communities,

- Energy and Climate – Ensuring the stable supply of energy and resources, and protection of infrastructure,
- International, Homeland and Nuclear Security – Protecting nuclear assets and nuclear materials, and addressing nuclear emergency response and nonproliferation worldwide.

SNL's science, technology, and engineering foundations enable its unique mission. The Laboratories' highly specialized research staff is at the forefront of innovation, collaborating with universities and companies and performing multidisciplinary science and engineering research programs with significant impact on U.S. security.

FY 2016 Funding by Source



Lab operating costs: **\$3,070.2M**
DOE/NNSA operating costs: **\$2,082.6M**
SPP costs (non-DOE/non-NNSA/non-DHS): **\$987.6M**
SPP as % total Lab operating costs: **32.2%**

Facts

Location: Albuquerque, NM; Livermore, CA; Tonopah, NV; Amarillo, TX; Carlsbad, NM; Kauai, HI
Type: Multimission National Security Laboratory
Year Founded: 1949
Director: Dr. Stephen Younger
Contractor: National Technology and Engineering Solutions of Sandia, LLC
Responsible Site Office: Sandia Field Office

Physical Assets

193,483 acres and **1,001** buildings/trailers (all sites)
7,200,201 GSF in buildings and trailers
Replacement plant value: \$6.6B
13,942 GSF in **45** excess facilities
357,979 GSF in **15** contractor-leased facilities

Human Capital

10,650 full-time equivalent employees (FTEs)
2 joint faculty
223 postdoctoral researchers
738 undergraduate and graduate students

Core Capabilities

- Cyber technology
- High-reliability engineering
- Micro and nano devices and systems
- Modeling and simulation and experiment
- Natural and engineered materials
- Pathfinder engineered systems
- Radiation-hardened and trusted microelectronics development and production
- Reverse engineering
- Safety, risk, and vulnerability analysis
- Sensors and sensing systems

Mission Unique Facilities

- Z Machine
- Combustion Research Facility
- Microsystems and Engineering Sciences Applications (MESA) Complex



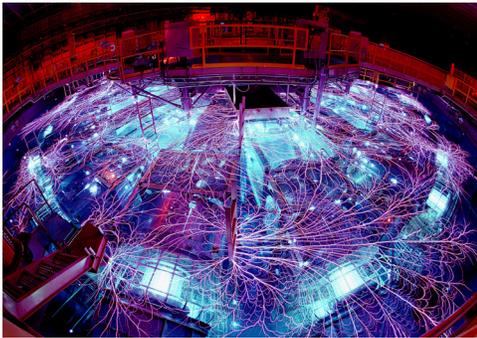
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Accomplishments



Unique Facility

Z Machine Creates Pressures, Temperatures Found Nowhere Else on Earth



SNL's Z machine is the world's most powerful and efficient laboratory radiation source. It uses high magnetic fields associated with high electrical currents to produce high temperatures, high pressures, and powerful x-rays, conditions found nowhere else on earth and crucial to SNL's mission to ensure the reliability and safety of the aging U.S. nuclear stockpile. Z provides the fastest, most accurate, and cheapest method to determine how materials will react under extreme pressures and temperatures, similar to those produced by the detonation of a nuclear weapon. It produces key data used to validate physics models in computer simulations. The Z machine's role in solving the world's energy challenges is directly tied to its potential for fusion.

Research Highlight

PANTHER Aids Analysts Hunting for National Security Needles in Data Haystacks



SNL's Pattern Analytics to Support High-Performance Exploitation and Reasoning (PANTHER) team is developing solutions that will enable national security analysts to work smarter, faster, and more effectively when looking at huge, complex amounts of data in real-time, stressful environments where the consequences might be life or death. Based in research in cognitive science, the team is developing ways to pre-process and analyze huge data sets to make it searchable and more meaningful, and designing software and tools to help those viewing the data glean deeper insights in minutes instead of months. They are rethinking how to compare motion and trajectories and developing software that can represent remote sensor images, couple them with additional information, and make them searchable.

Technology to Market Highlight

Decon Formula Battles Everything from Mold to Meth Labs to Ebola



SNL's Decontamination Technology for Chemical and Biological Agents, which won regional and national Federal Laboratory Consortium awards for Excellence in Technology Transfer, contains surfactants that kill 99.99999 percent of bacteria, viruses, and fungi on a surface. Originally used by military and first responders, SNL has licensed the formula to companies that have further developed it to battle toxic mold and decontaminate meth labs, disinfect healthcare facilities and schools, remove pesticides from agricultural packing plants, and fight the Ebola virus in Africa. Seven licensees are manufacturing and distributing products based on the SNL patents, and research efforts continue to discover applications that could lead to more products and licensees.