SAND2015-9664PE

Exceptional service in the national interest

Sandia National Laboratories

Sandia National Laboratories

Engineering for national challenges

Jill Hruby, Director

U.S. DEPARTMENT OF ENERGY | NNSA National Nuclear Security Administration

Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

History and Characteristics of the DOE National Laboratories

The U.S. has a long and rich history in science

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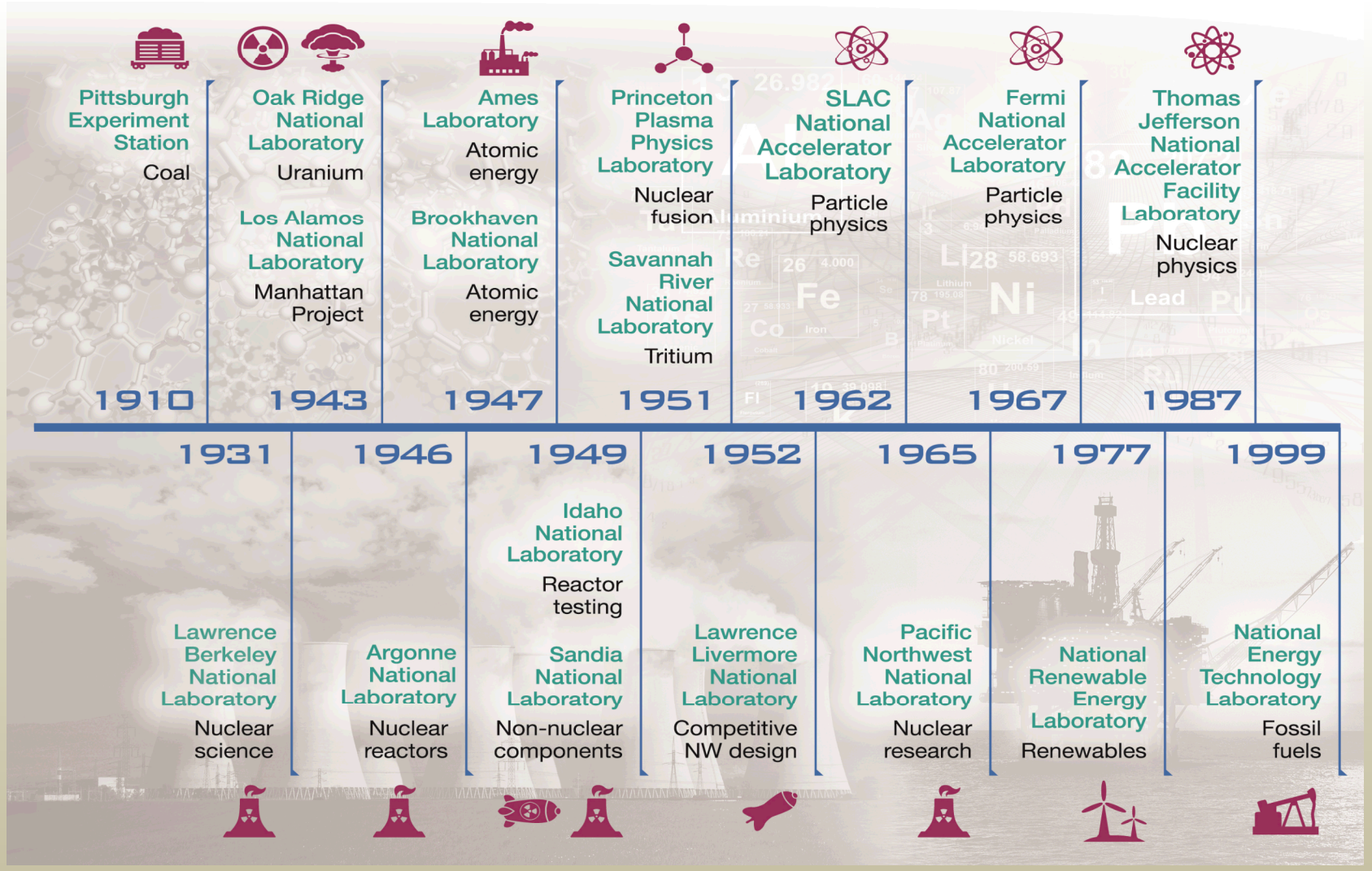
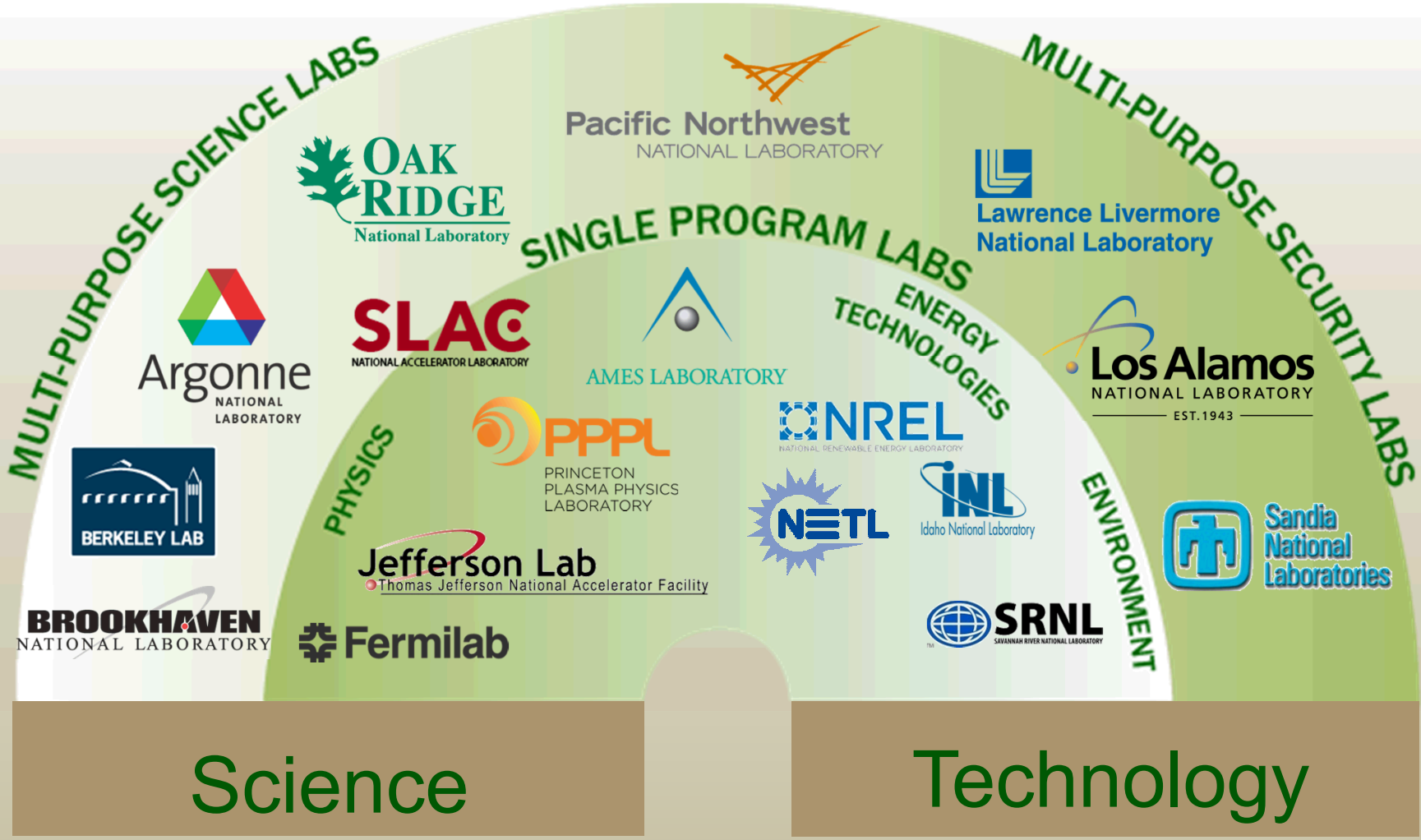
National Labs Origins | Scientific Needs



A system of 17 national labs



The importance of the FFRDC

*Key FFRDC attributes**

- Long-term relationships with the government afford the continuity that will ***attract high-quality personnel*** to the FFRDC and encourage the FFRDC to *maintain currency in its field(s)* of expertise.
- Meets ***special long-term research or development needs***.
- Operates in the public interest with ***objectivity and independence***, is ***free from organizational conflicts of interest***, and fully discloses its affairs to the sponsoring agency.
- Is operated, ***managed***, and/or administered as an ***autonomous organization*** or as an identifiable separate operating unit of a parent organization.
- ***Does not*** use privileged information to ***compete with the private sector*** but may work for other than the sponsoring agency when the work is not available from the private sector.

** Abridged definition from the Federal Acquisition Regulation*

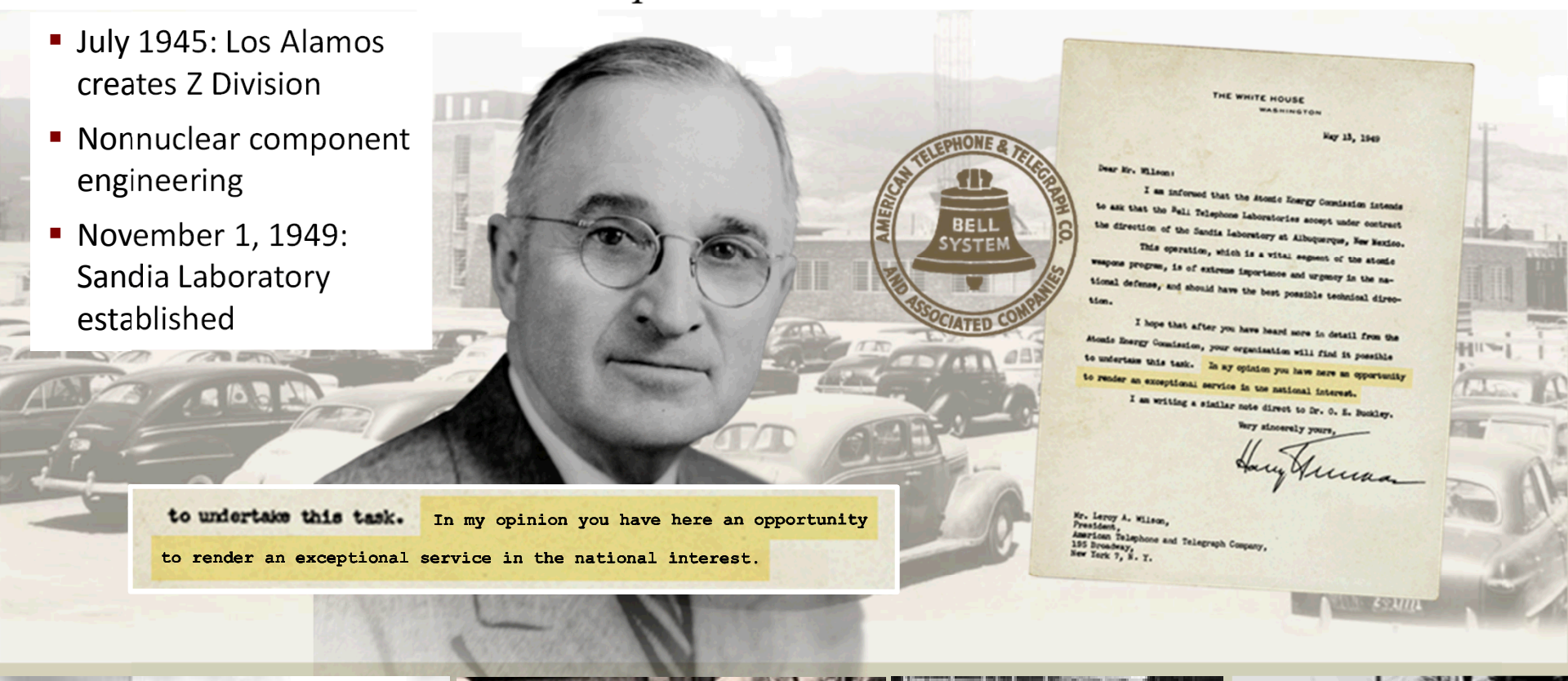
Sandia National Laboratories

About Sandia

Our history

Exceptional service in the national interest

- July 1945: Los Alamos creates Z Division
- Nonnuclear component engineering
- November 1, 1949: Sandia Laboratory established



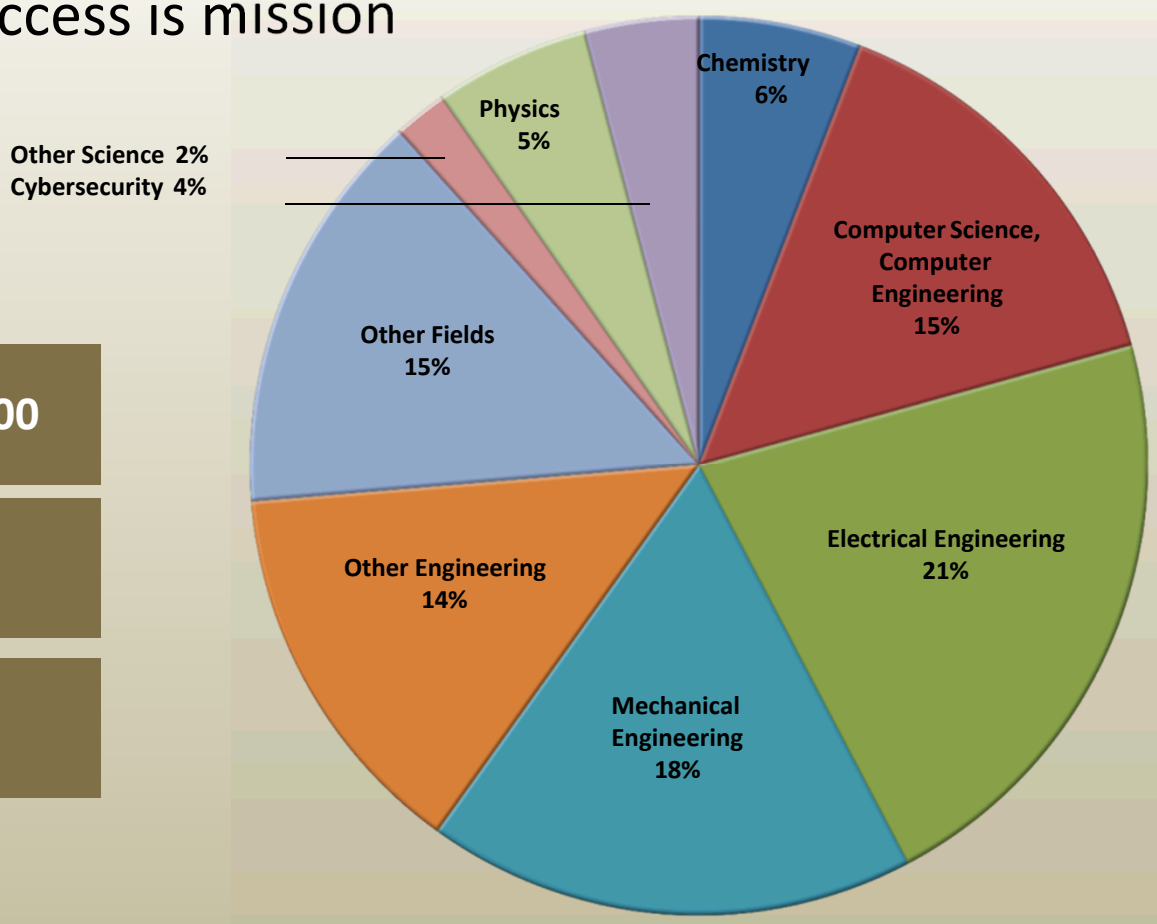
to undertake this task. In my opinion you have here an opportunity to render an exceptional service in the national interest.

Vision and mission statements

- On behalf of our nation, we anticipate and solve the most challenging problems that threaten security in the 21st century.
- The synergy and interdependence between our nuclear deterrence mission and broader national security missions forge a robust capability base and empower us to solve complex national security problems.

Our people

- An engineering workforce with a strong science underpinning
- Our measure of success is mission impact



Total Sandia Workforce: **12,600**

Advanced degrees: **5,790**

Regular employees: **10,300**

Sandia's sites

Sandia National Laboratories

Albuquerque, New Mexico

Livermore, California

Kauai, Hawaii

Waste Isolation Pilot Plant, Carlsbad, New Mexico

Pantex Plant, Amarillo, Texas

Tonopah, Nevada

Our mission work reflects a dynamic national security landscape

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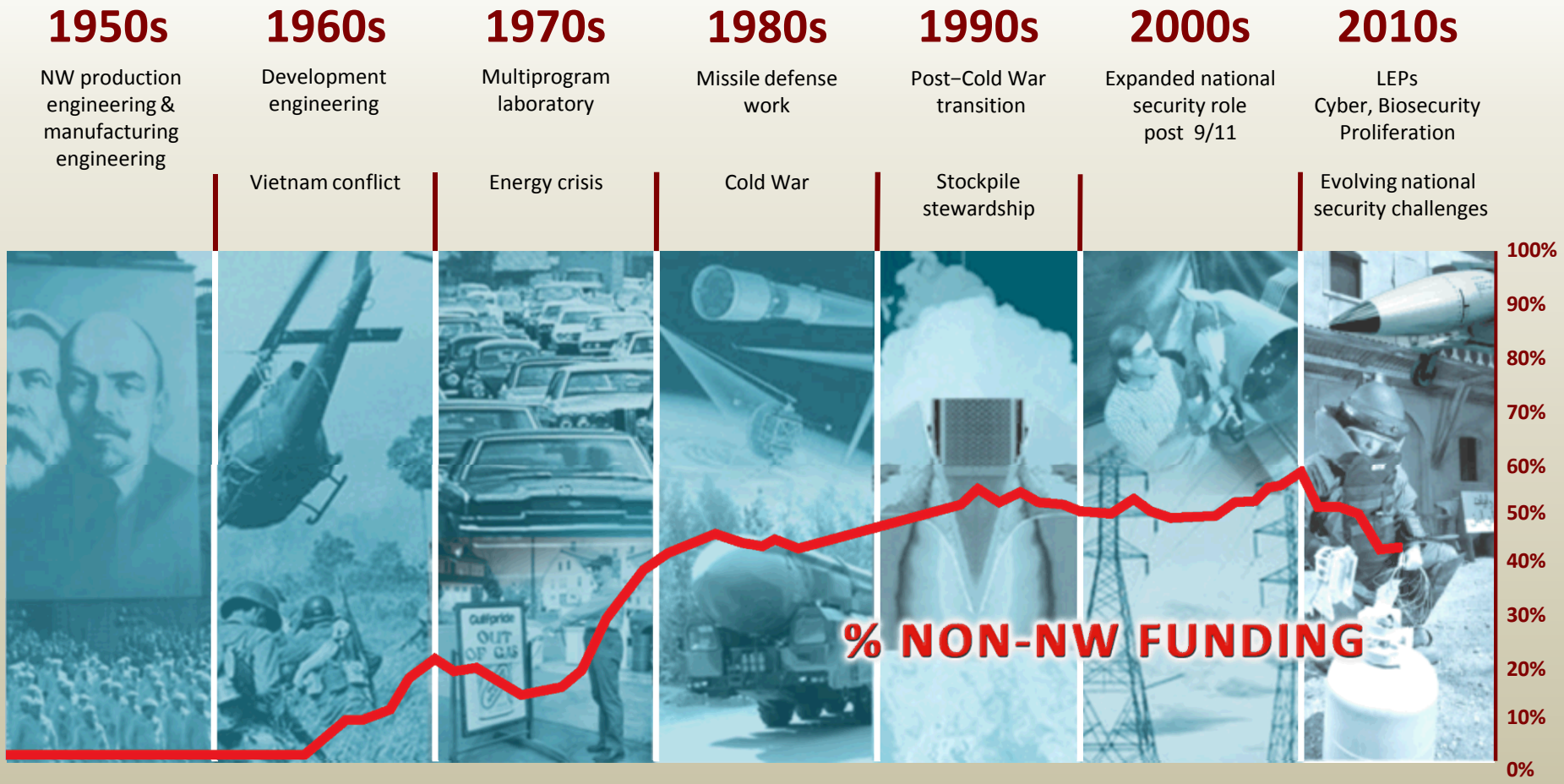

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The Diversity of Our Work

Nuclear weapons

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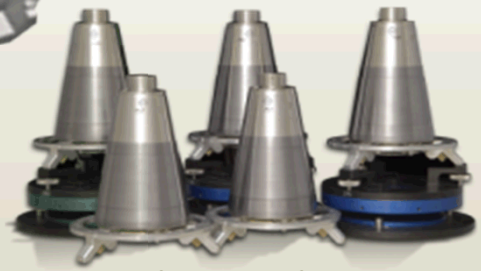
Warhead systems engineering and integration

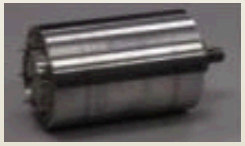
Design agency for nonnuclear components

Gas Transfer systems



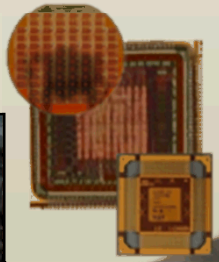
Arming, fuzing, and firing systems

Safety systems



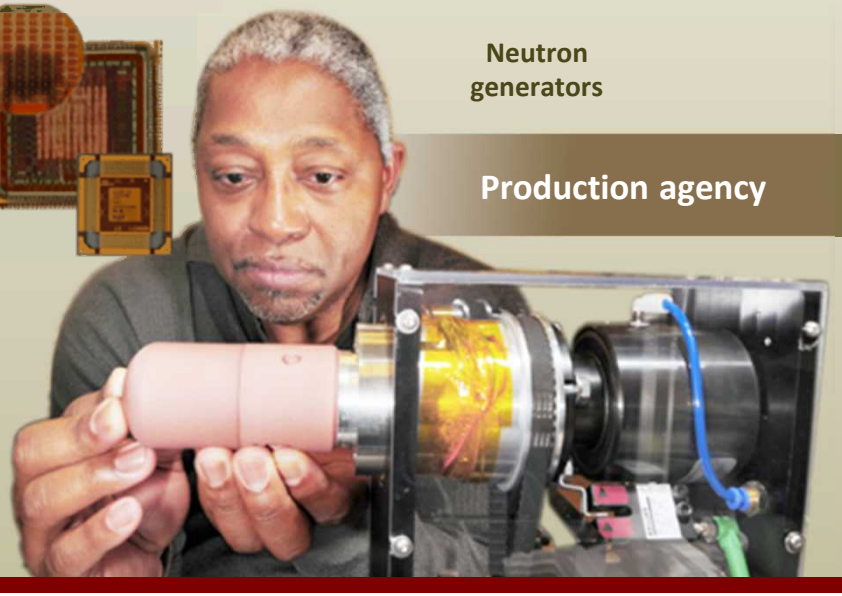
An extensive suite of multi-disciplinary capabilities are required for design, qualification, production, surveillance, experimentation, and computation

MESA Microelectronics

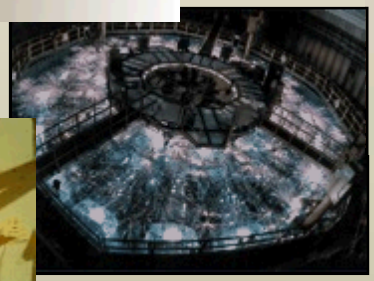


Neutron generators

Production agency



Major Environmental Test Facilities and Diagnostics



Z Machine

Light Initiated High Explosive

Annular core research reactor

Some examples of recent work in nuclear weapons

Defense systems & assessments

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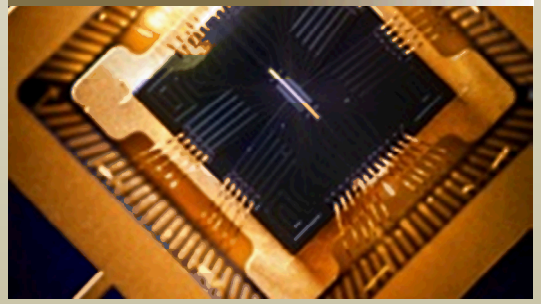
Information operations

Surveillance & reconnaissance

Remote sensing & verification

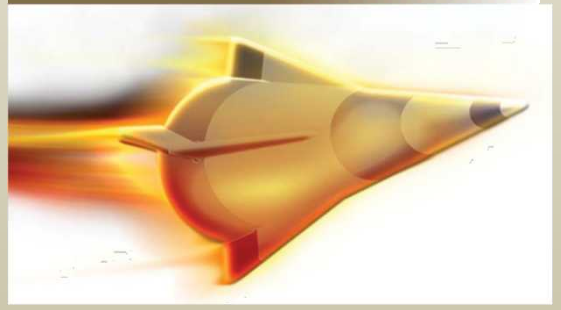
Space mission

Science & technology products



Proliferation assessment

Integrated military systems



Energy & climate

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Energy research

ARPAe, BES Chem Sciences, ASCR, CINT, Geo Bio Science, BES Material Science

Climate & environment

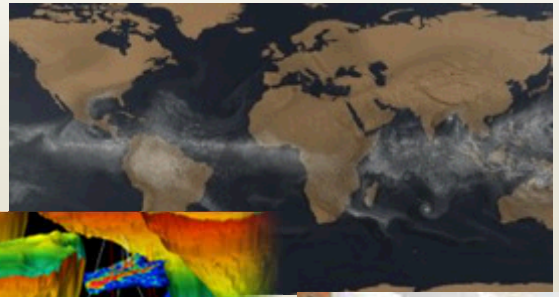
Measurement & Modeling, Carbon Management, Water & Environment, and Biofuels

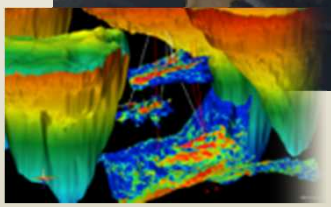
Nuclear energy & fuel cycle

Commercial Nuclear Power & Fuel, Nuclear Energy Safety & Security, DOE Managed Nuclear Waste Disposal

Renewable systems & energy infrastructure

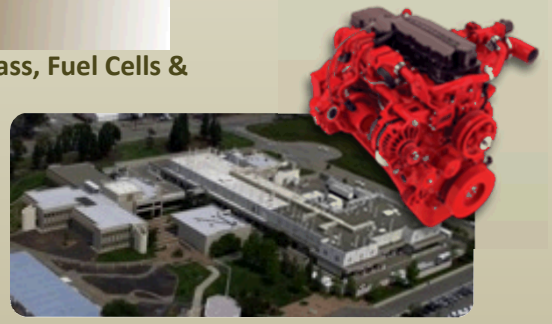
Renewable Energy, Energy Efficiency, Grid and Storage Systems





Transportation energy & systems

Vehicle Technologies, Biomass, Fuel Cells & Hydrogen Technology



Hydrogen fuel cells as a green power source

International, homeland, & nuclear security

Sandia National Laboratories

Global security

WMD counterterrorism and response

Homeland security

Homeland defense and force protection

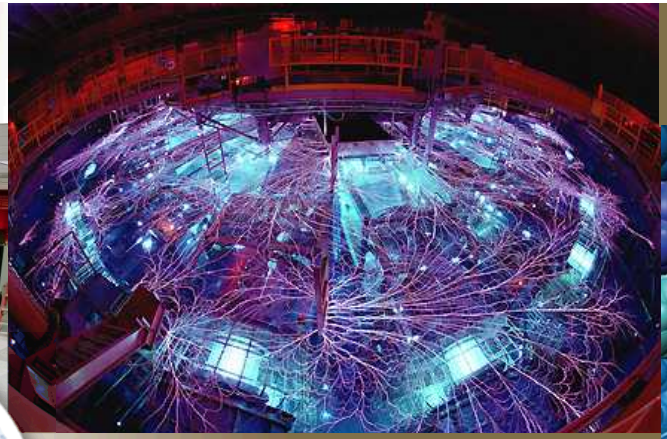
Cyber and infrastructure security

A new approach to emergency management

Our research foundation

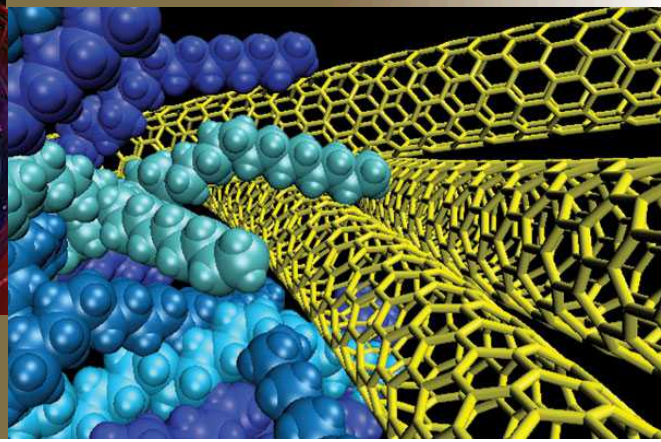
Strong research foundations play a differentiating role in our mission delivery

Computing & information sciences

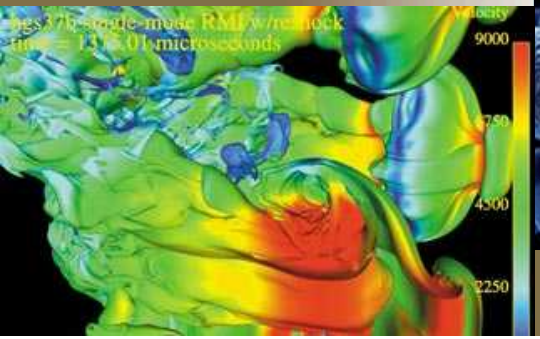


Radiation effects & high energy density science

Materials sciences

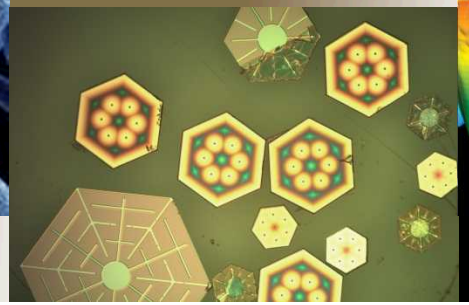


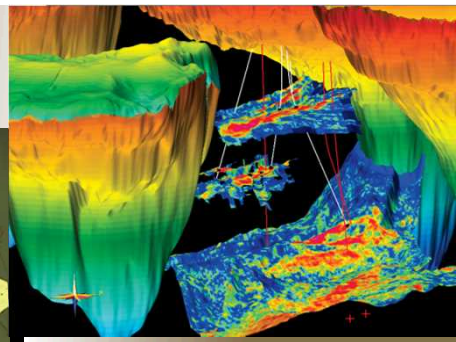
Engineering sciences



Bioscience

Nanodevices & microsystems





Geoscience

Academic alliances

- Strategic research
- National impact
- Attraction and retention
- Technology and knowledge transfer

THE UNIVERSITY of NEW MEXICO

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

PURDUE UNIVERSITY

Georgia Tech

Closing thoughts…

- The work we do at Sandia matters
- We serve the nation by doing research and development in science and technology
- Science and engineering can change and improve the lives of millions of Americans. The national labs address large-scale complex problems in a multidisciplinary way, as seen in this last video.

Mining big data for different applications