

Success Stories

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National Partnerships



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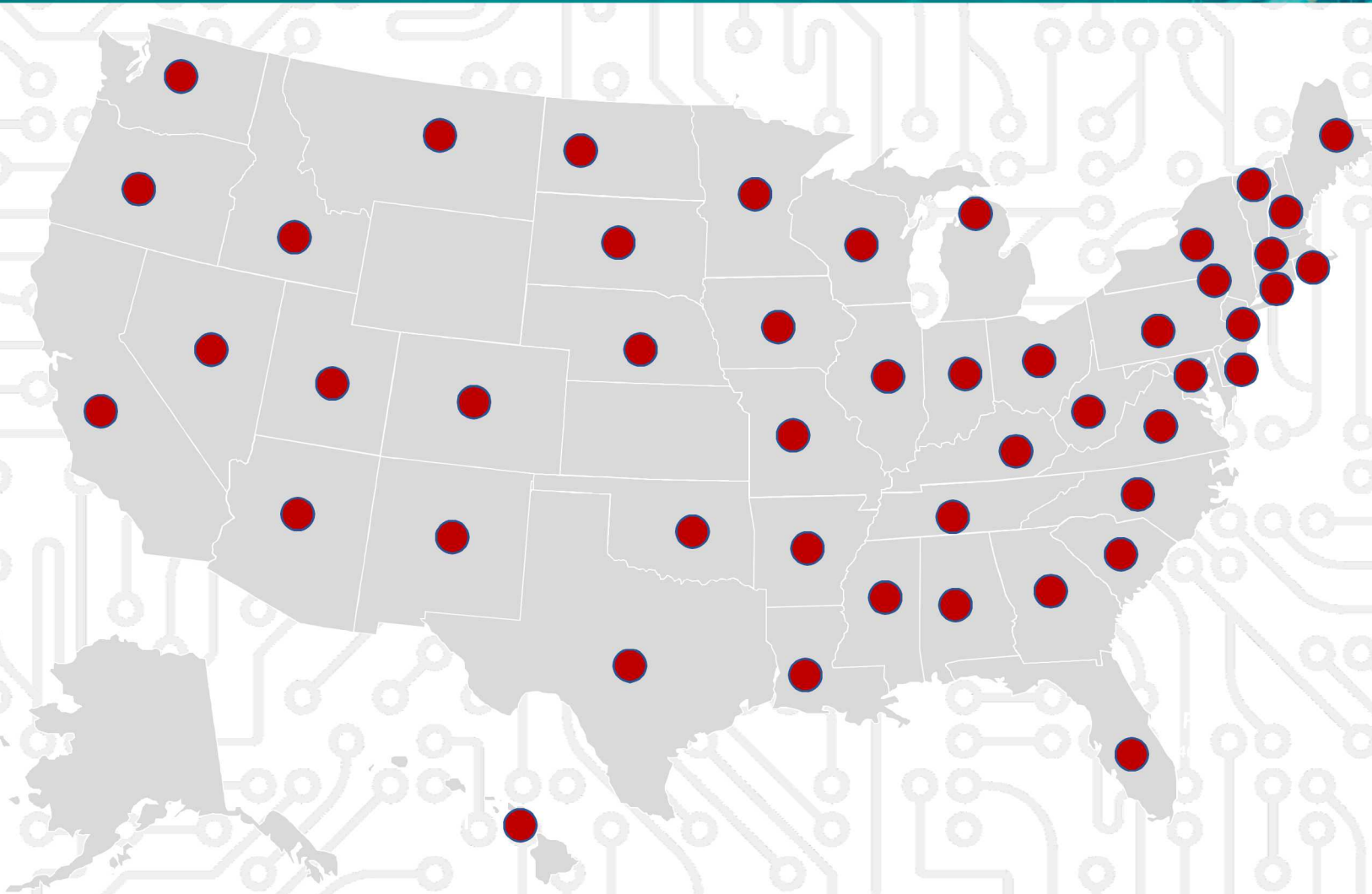
Partnering for Mission Success



Sandia National Laboratories uses strategic partnerships to **enhance its ability to deliver on its missions and meet national challenges**. Partnerships with industry, other national laboratories, and universities strengthen Sandia capabilities and **move technology towards adoption** for the public good. In some cases, technologies are being developed to directly address national security challenges. In others, technologies originally created for security or defense purposes are being adapted to create and enhance infrastructure and publicly available products.

Besides helping Sandia deliver on its missions, **partnerships are helping Sandia to improve its capabilities, develop new talent, leverage its strengths, facilitate technology transfer, and promote the nation's economic health** through commercial competitiveness.

National Industry Partnerships: FY2018



1,518 Agreements

987 Partners

Sandia provides its expertise, technology and capabilities for benefit of the United States economy and the needs of national security through several types of agreements including Cooperative Research and Development Agreements (CRADAs), Government Use Notices (GUNs), Licenses, Non-Federal Entity (NFE) Funds-In Agreements, New Mexico Small Business Assistance (NMSBA), University Partnership Program

Maximizing Oil and Gas Production with a New Methodology



CARBO and SNL

CARBO is a proppant manufacturer and production enhancement solutions provider. They help clients **optimize hydrocarbon recovery from oil and gas wells**. Although they had a product that could locate proppant near the wellbore, the industry lacked the ability to locate proppant that had traveled long distances away from the wellbore. For help solving this challenge, CARBO turned to Sandia National Laboratories. The company knew that Sandia had experience with both **advanced materials** and **subsurface geophysical detection and modeling**. Sandia proposed several possible solutions and CARBO chose electromagnetic detection. This method injects an electric current into a well and measures the electromagnetic fields returning from the subsurface with sensors located at the surface.

QUANTUM, CARBO's propped reservoir volume imaging service which locates their newly developed iON proppant, will help CARBO clients better understand how their wells are producing, and where the oil and gas are coming from. This will improve how oil and gas wells are planned, developed, and completed.





EMCORE uses Sandia
technology to prosper

[EMCORE uses Sandia technology to prosper](#)

A New Interface Moves a Radar System's Usability from F to A+



GA-ASI (General Atomics) and SNL

GA-ASI, an affiliate of General Atomics, is a leading manufacturer of Remotely Piloted Aircraft (RPA) systems, radars, and electro-optic and related mission systems. Sandia and GA-ASI have been **working together since 1996** to advance the performance of the Lynx radar. The partnership focused exclusively on sensor hardware and software until 2015, when GA-ASI heard from its U.S. Air Force customer that the Lynx interface was frustrating for operators to use. Sandia, with its expertise in human-system interaction, began working with GA-ASI's software engineers to enhance the usability of the radar by improving its Claw interface. Meanwhile, other teams continued work on hardware and software improvements.

By making the interface more operator-centric, the system's usability score went from F to A+. The Air Force is pleased to have an interface that enhances the usability of the Lynx radar in high-workload, high-stress mission environments. **This CRADA is a model for national laboratory-industry collaborations that enhance contributions to national security.** Over the life of the CRADA, there have been seven new patents and patents pending, including five jointly between Sandia and GA-ASI. Many CRADA developments have now found their way into other Sandia radar systems, benefiting Sandia partners and customers such as the U.S. Navy, U.S. DoD Unified Combatant Commands, and the U.S. intelligence community.



Portable anthrax testing with lab-in-a-pocket

[Portable anthrax testing with lab-in-a-pocket](#)



Recipes Extract More Oil from Wells While Using Less Water



NRG Systems and SNL

Although over 3 million barrels of oil per day is being produced from hydraulically fractured "tight" formations (low permeability rocks), this represents only about 6% of the oil in the formations. With the high cost of drilling, the high consumption of water used in the process, and the recent drop in oil prices, new ways of extracting more oil from each well are needed to make these wells **economically viable**.

NRG Systems (www.NRGsysinc.com) provides technology development solutions for the global energy industry. Working together, **Sandia can focus on the science while NRG contributes ideas about how to improve the methods being tested to meet the needs of the market**. Refinement and validation of these new ideas continues in the lab while plans are made for field testing and commercial introduction. A Commercialization Agreement between NRG and Sandia was negotiated up front, securing NRG's commercial rights to joint intellectual property (IP) developed under a CRADA. In addition to the Commercialization Agreement, NRG has licensed two pieces of Sandia's IP. And two additional patent applications resulting from collaboration under the CRADA have been filed so far.



FUKUSHIMA
DAIICHI

Cleaning contaminated water at Fukushima

[Cleaning contaminated water at Fukushima](#)

TEPCO ADMITS OCEAN CONTAMINATION

Disruptive Carbon nanomaterials Studied for Sensor Potential



Lockheed Martin and SNL

As a world leader in defense and aerospace solutions, Lockheed Martin sees potential for the type of advanced electronics that **nanomaterials** promise across their solutions space, from advanced sensor systems enhancing situational awareness for the warfighter to high-density electronics for increased power in commercial satellites. **Lockheed Martin and Sandia National Laboratories have been collaborating for several years under Cooperative Research and Development Agreements (CRADAs)** to harness the disruptive properties of nanomaterials, in particular those of carbon nanomaterials, such as carbon nanotubes and graphene.

Sandia **offers world-class competencies from advanced materials and directed energy to microelectronics**. Recent projects have drawn upon Sandia's unique infrastructure and expertise in creating, developing, and prototyping monolithic radio frequency optical filters; and in epitaxial growth, characterization, and modeling of compound semiconductors. As a technology partner, Lockheed Martin has turned to Sandia over many years for **applied technology, unique expertise, or facilities** that Lockheed Martin does not possess internally. In turn, through these partnerships, Sandia realizes a goal that is important to both Sandia and the National Nuclear Security Administration (NNSA): maturing and transitioning national laboratory technology. Sandia values these collaborations, as **Lockheed Martin provides real-world application pull for Sandia's technologies**.

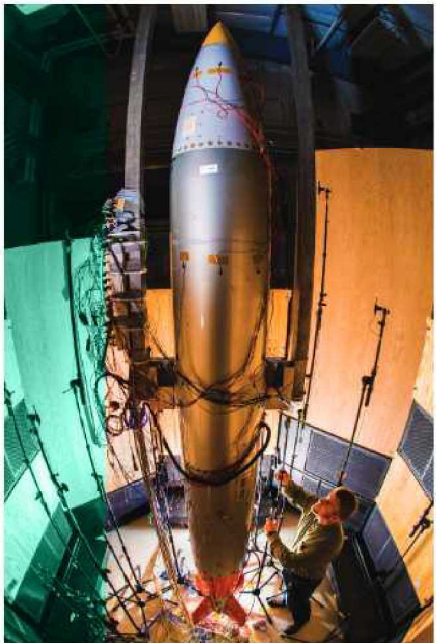


Integrated Portfolios



N

NUCLEAR DETERRENCE



Sandia's primary mission is ensuring the U.S. nuclear arsenal is safe, secure, and reliable, and can fully support our nation's deterrence policy.

G

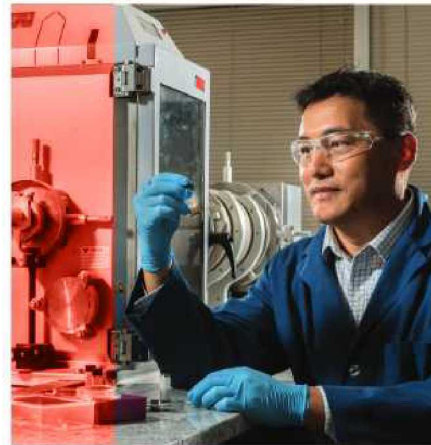
GLOBAL SECURITY



We protect the United States from threats at home and abroad by developing the technical expertise to monitor and assess emerging dangers, guard materials and critical assets, and respond to crises.

N

NATIONAL SECURITY PROGRAMS



Sandia provides systems, science, and technology to meet national security objectives in such areas as cybersecurity, science and technology products, and integrated military systems.

E

ENERGY & HOMELAND SECURITY



We support the resilience and security of the nation's energy system, protect digital and physical critical infrastructure, and reduce U.S. vulnerability to chemical, biological, radiological, and nuclear terrorism.

A

ADVANCED SCIENCE & TECHNOLOGY



Sandia provides the science needed to enable the U.S. nuclear stockpile, and does fundamental scientific, biomedical, and environmental research to enhance national security, economic competitiveness, and improved quality of life.