

Exceptional service in the national interest



Sandia's Defense Energy Research, Development, Test & Evaluation Capabilities & Projects

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Bottom Line Up Front

Intro to Sandia National Laboratories

Strategic Aspects of Sandia's Defense Energy Work:

- Focused on critical needs to enhance military capability, readiness and resilience for the warfighter, while mitigating risks and costs in the supply and use of energy in operations and at home stations
 - Installation Energy Resilience
 - Current and Future Force Operational Energy Needs and Requirements
 - Enabling Technologies R&D
 - Modeling, Simulation and Decision Analytics
- Leveraging the DoD/DOE Energy R&D Collaboration MOU
 - DoD Energy Security, Resiliency, Microgrids & Decision Analytics
 - DOE Grid Modernization, Microgrids, Renewables and Energy Storage

Partners: DOE Labs: NREL, PNNL, LLNL & INL; DoD Labs; DoD FFRDCs; Industry; EPRI and Universities

Sponsors: OSD(Energy), Military Energy Offices, PEOs & PMs and COCOMs

SANDIA IS A FEDERALLY FUNDED RESEARCH AND DEVELOPMENT CENTER (FFRDC) MANAGED AND OPERATED BY

National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc.

Government owned, contractor operated

FFRDCs are long-term strategic partners to the federal government, operating in the public interest with objectivity and independence and maintaining core competencies in missions of national significance



SANDIA HAS FACILITIES ACROSS THE NATION

Activity locations

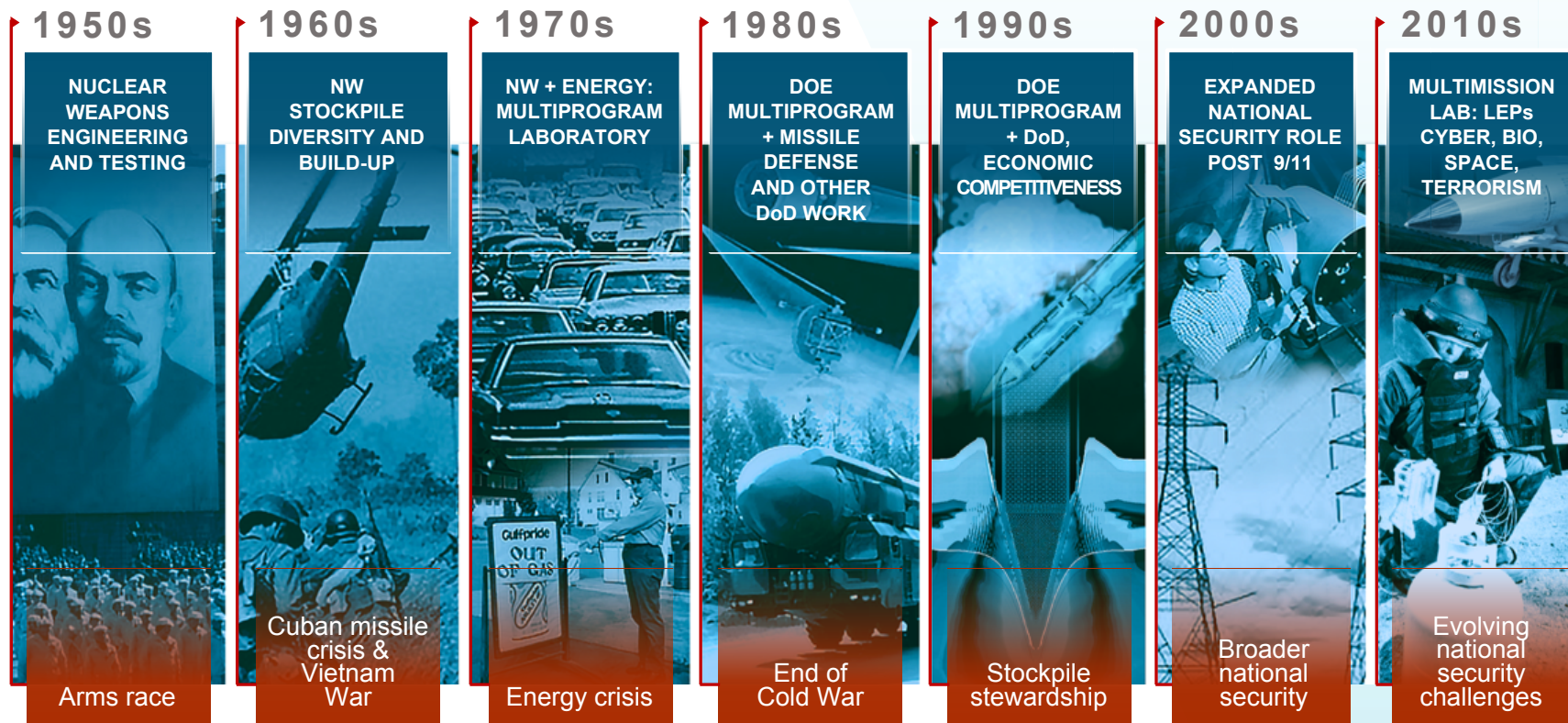
- Kauai, Hawaii
- Waste Isolation Pilot Plant, Carlsbad, New Mexico
- Pantex Plant, Amarillo, Texas
- Tonopah, Nevada

Main sites

- Albuquerque, New Mexico
- Livermore, California



SANDIA ADDRESSES NATIONAL SECURITY CHALLENGES



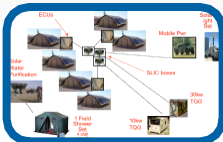
SANDIA HAS FIVE MAJOR PROGRAM PORTFOLIOS



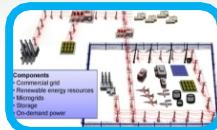
Engaged in Defense Energy Challenges

Transition Solutions to
Industry and Government
Applications

Research, Development
and Prototyping

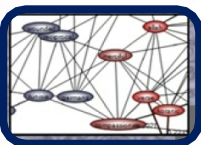
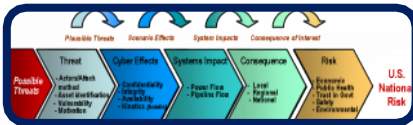


Systems Integration,
Test and Evaluation &
Sustainment Analyses

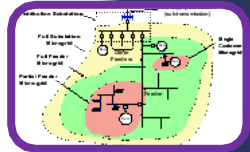
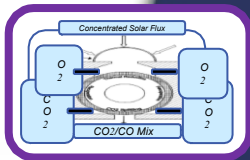


**Defense
Energy Life
Cycle**

Modeling, Simulation &
System Assessments



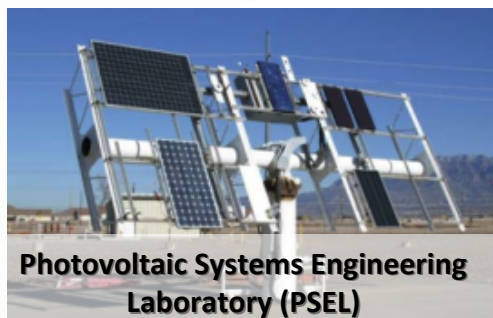
Conceptual
Designs



Sandia has comprehensive research, development, test and
evaluation (RDTE&E) expertise & capabilities

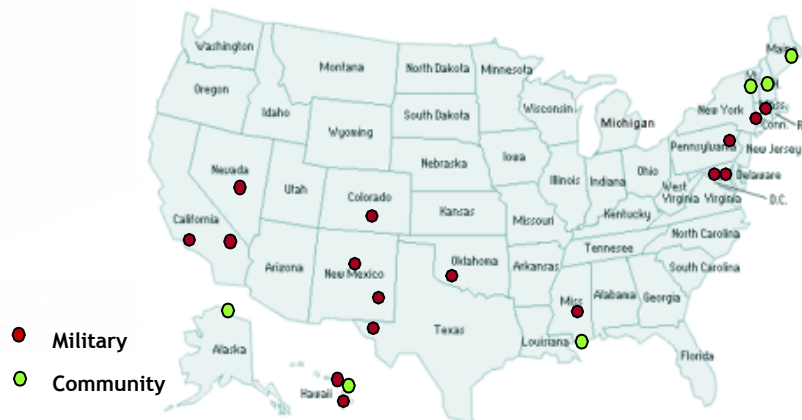


Sandia's Defense Energy Research, Development, Test and Evaluation Facilities and Capabilities



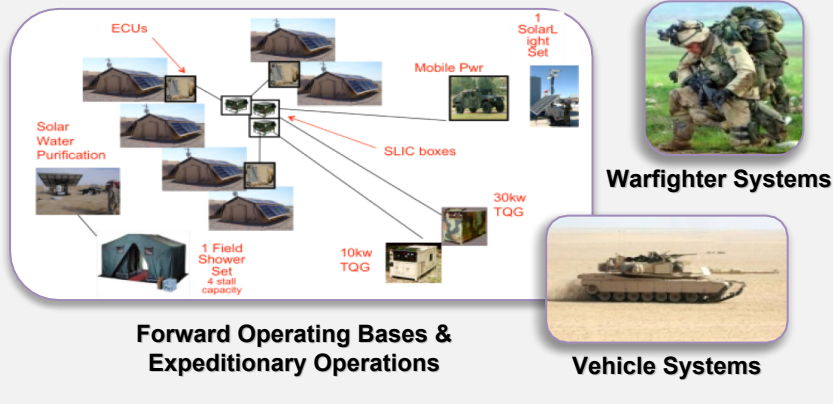
Advanced Microgrid Concepts Projects for Military Installations and Communities

Energy Security and Resiliency Assessments & Microgrid Conceptual Designs	<1 MW Microgrid Operations	Large Scale Microgrid Operations	Community Microgrid Designs
<ul style="list-style-type: none"> • Creech AFB • Soto Cano • West Point • Osan AFB • Philadelphia Navy Yard • Camp Smith • Indian Head NWC • Ft. Sill • Ft. Bliss • Ft. Carson • Ft. Devens (99th ANG) • Ft. Belvoir • Cannon AFB • Vandenberg AFB • Kirtland AFB • Maxwell AFB • Bagram • Kuwait • 29 Palms • Norfolk Naval Station 	<ul style="list-style-type: none"> • Maxwell AFB • Ft. Sill • Ft. Bliss 	<ul style="list-style-type: none"> • SPIDERS JCTD <ul style="list-style-type: none"> • Camp Smith • Ft. Carson • Hickam AFB • Ft. Belvoir 	<ul style="list-style-type: none"> • Northampton, MA • NJ Transit • Hoboken, NJ • Lihue, Kauai • New Orleans, LA • Alaskan Villages



Defense Operational Energy Security and Resiliency Modeling, Simulation and Analysis Capabilities

Operational Energy Security Analyses



- Systems Performance Modeling and Analysis
- Technology Trades
- Energy Efficiency Analysis
- Operational Effectiveness
- System of Systems Assessments & Trade Studies
- Advanced Design Tools
- Optimization & Decision Support
- Technology Roadmapping

Sandia Provides the DoD and the Military Services Custom Modeling, Simulation, Analysis for Critical Decision Making

Wrap Up

- **Summary**

- Sandia is developing new technologies, analytics, metrics, R&D labs and testbeds to address critical defense energy gaps, needs, designs and decisions
- DOE National Labs are collaborating with DoD/OSD and Military Services to address defense energy R&D strategies and capability needs
- Proven capabilities and resources can be leveraged to address energy security & resiliency challenges

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