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Idaho National Laboratory – Creating a Secure, Resilient, Clean Energy Future

Western Tribal Carbon Management Technologies Strategies Forum

Battelle Energy Alliance manages INL for the
U.S. Department of Energy's Office of Nuclear Energy



Idaho National Laboratory

Addressing the world's most challenging problems through research, development, and demonstration



VISION

INL will change the world's energy future and secure our critical infrastructure.

MISSION

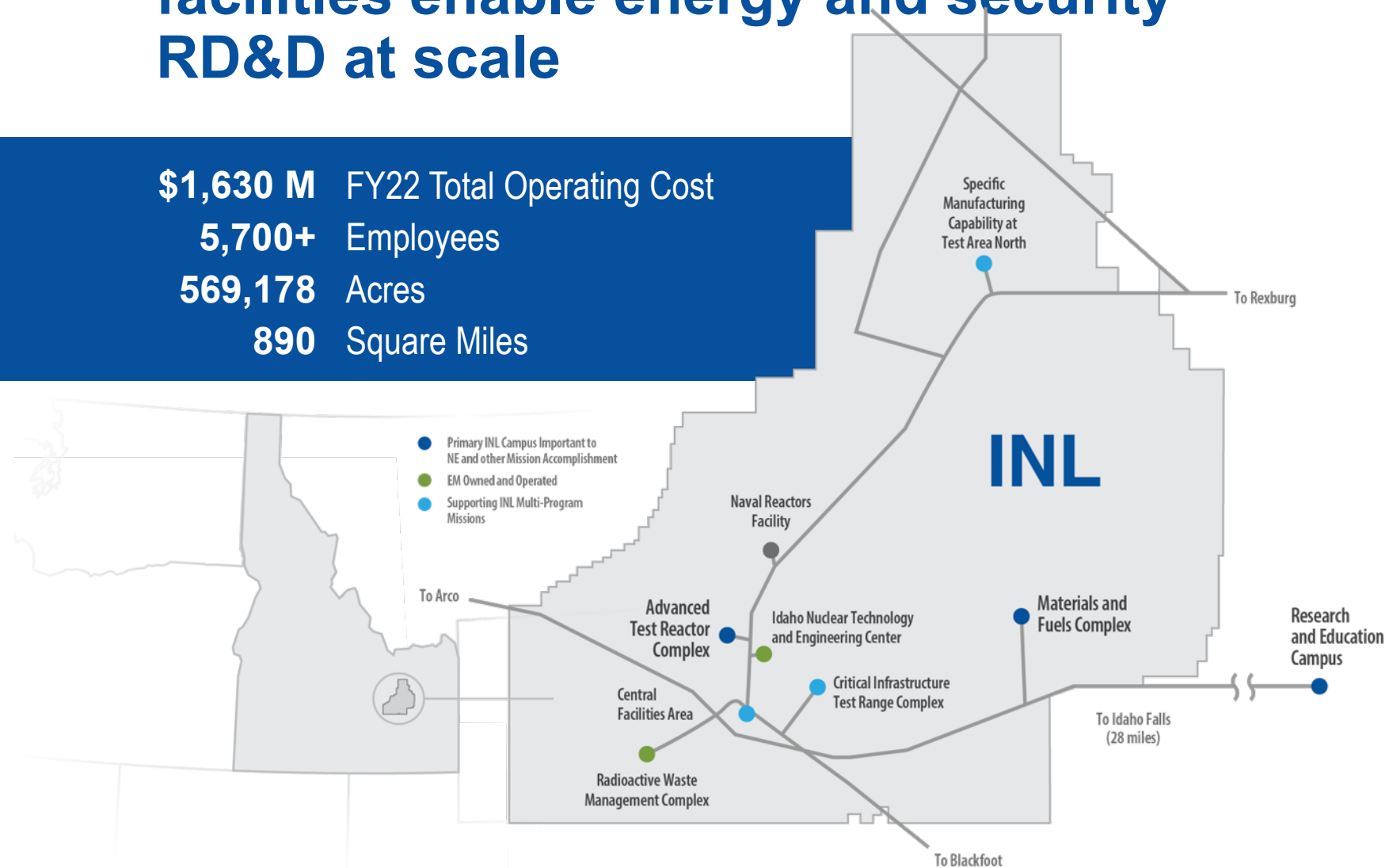
Discover, demonstrate and secure innovative nuclear energy solutions, clean energy options and critical infrastructure.

VALUES

Excellence, Inclusivity, Integrity, Ownership, Teamwork, Safety

Unique INL site, infrastructure, and facilities enable energy and security RD&D at scale

\$1,630 M FY22 Total Operating Cost
5,700+ Employees
569,178 Acres
890 Square Miles



4 Operating reactors

12 Hazard Category II & III non-reactor facilities/ activities

50 Radiological facilities/activities

17.5 Miles railroad for shipping nuclear fuel

44 Miles primary roads (125 miles total)

9 Substations with interfaces to two power providers

126 Miles high-voltage transmission lines

3 Fire Stations

Creating a secure, resilient, clean energy future



Nuclear Science & Technology

Advanced Test Reactor Complex

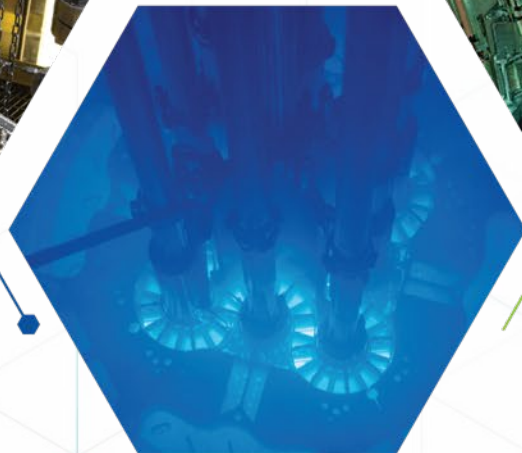


Materials and Fuels Complex

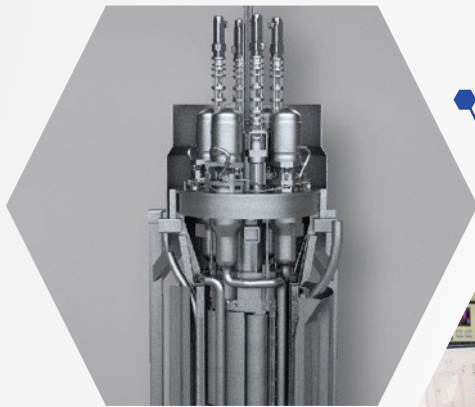
Energy & Environment Science & Technology



National & Homeland Security Science & Technology

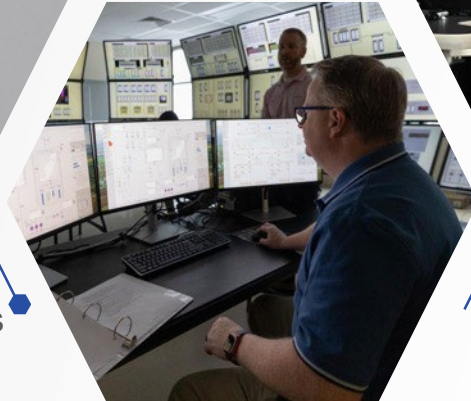


Sustaining the existing commercial reactor fleet and expanding deployment of future reactors



Advanced reactor technologies

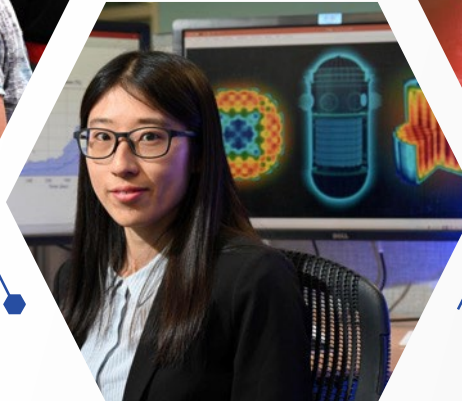
Regulatory and safety research



Fuel cycle and separations



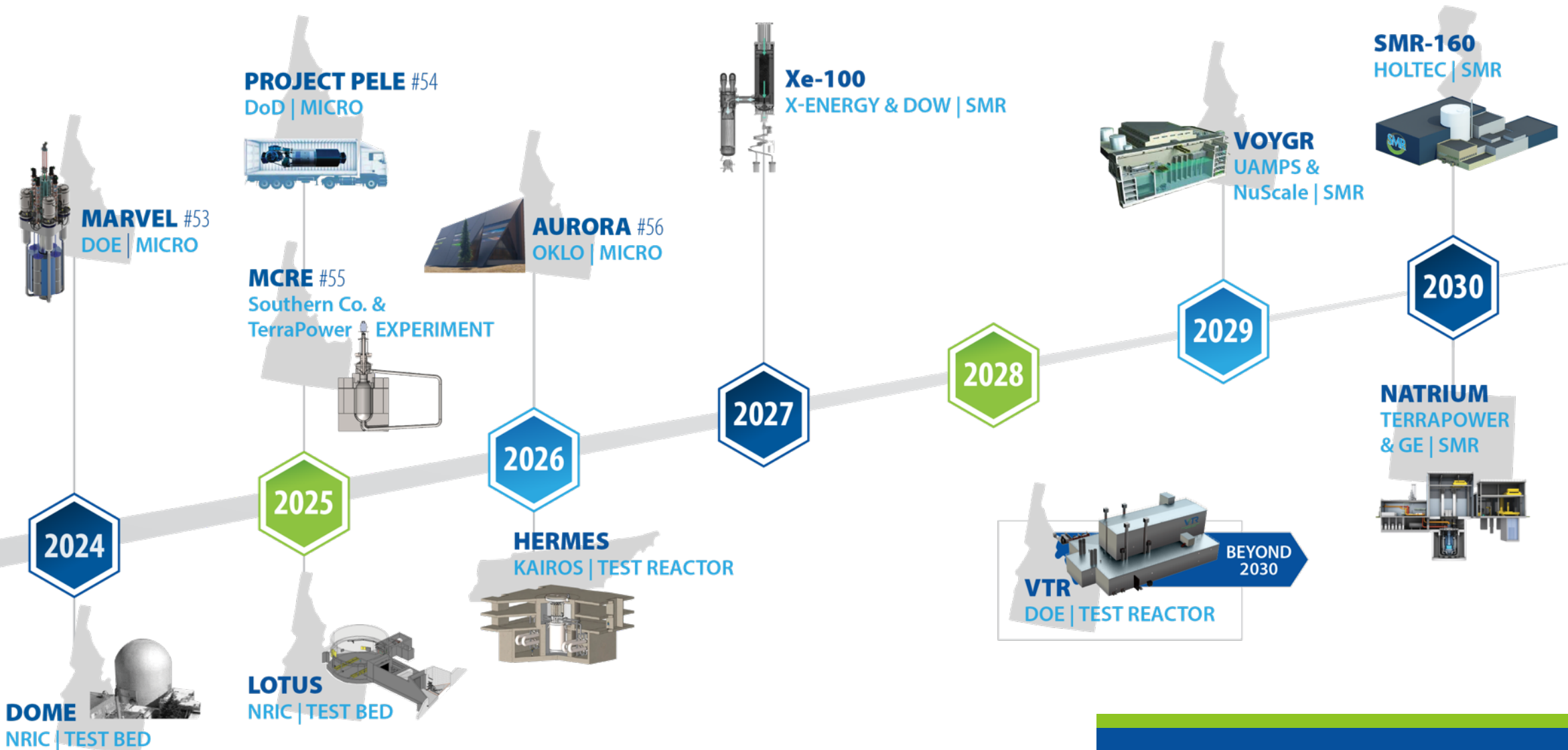
Advanced modeling and simulation



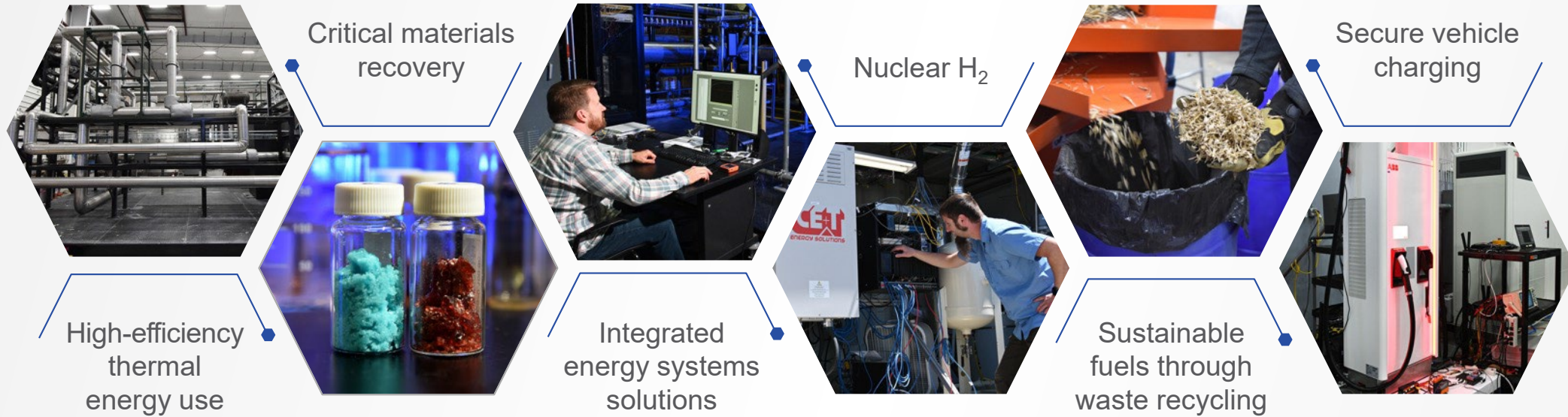
Nuclear fuels and materials



Accelerating advanced reactor demonstration & deployment



Transforming the energy paradigm through innovation and demonstration



Solving urgent national security challenges



Stewarding and managing cultural resources in partnership with the Shoshone-Bannock Tribes

“When artifacts are discovered and placed in curation, it is a form of ‘legal looting’ and the Tribes’ footprint and history is forever lost.”
– Larae Bill, Shoshone-Bannock

- INL property – 890 square miles – has been off-limits for more than 70 years including the ancient travel routes used by the Shoshone and Bannock people
- National Historic Preservation Act protects and preserves artifacts which remain where they were originally found



Collaborating to create a local STEM-ready talent pipeline

- MOU with the Shoshone-Bannock School District facilitates K-12 STEM learning
- Work with community colleges and technical schools focuses on designing advanced coursework
- Job placement assistance, mentorship, scholarship and internship opportunities are available for student cohorts as they graduate
- Workforce training program under development for Shoshone-Bannock Tribes

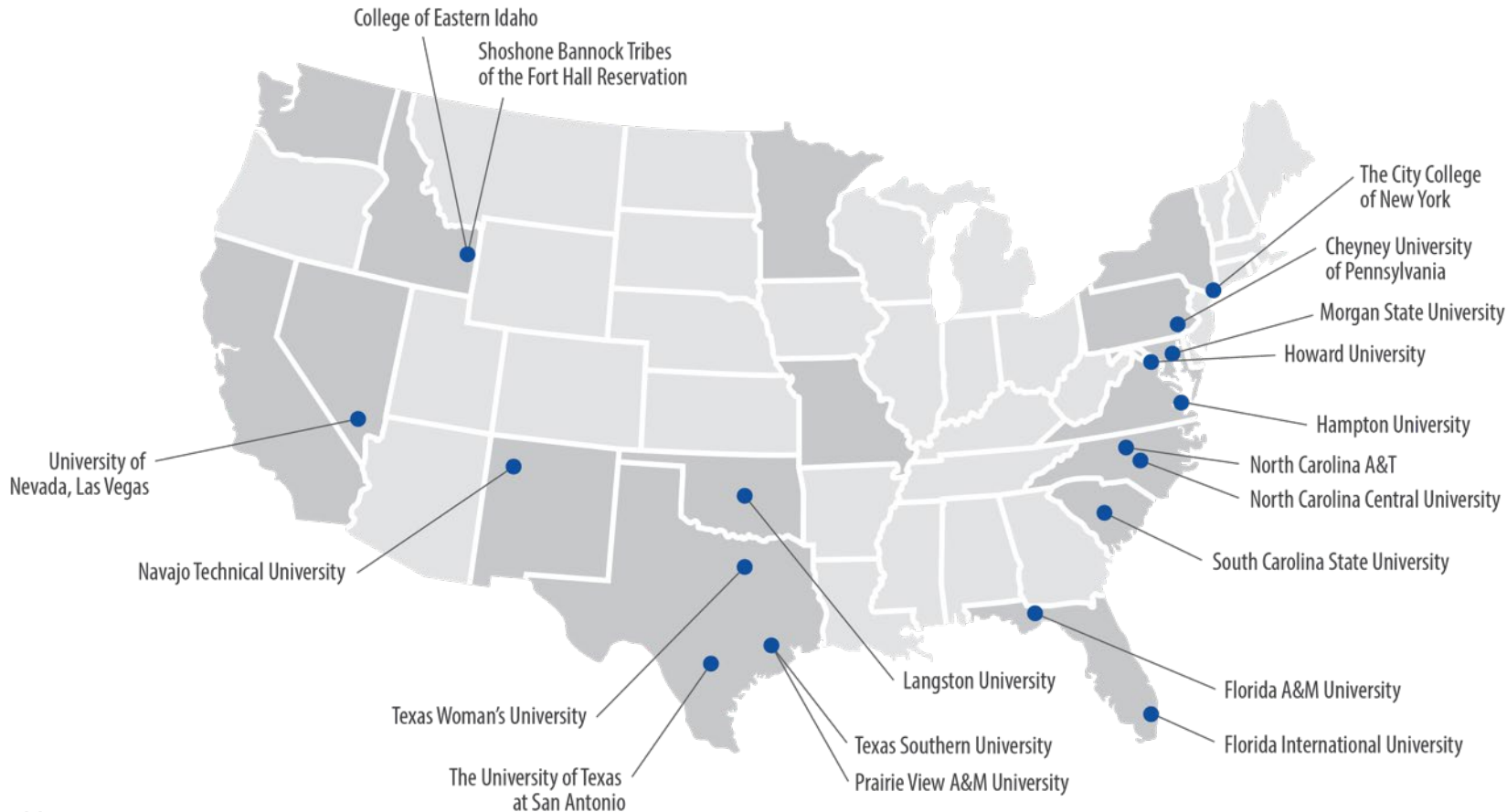


Strengthening tribal consultation and engagement



Expanding beyond our region to build the energy workforce of the future

Growing collaborations with HBCUs, MSIs, and community colleges



Collaborating with Navajo Technical University on cybersecurity and human factor aspects for solar-rich grid and advanced manufacturing.



Providing advice and support for the Enabling Native Researchers and Graduate Engineering (ENRGE) award from the DOE National Nuclear Security Administration.

Working with the Shoshone-Bannock Tribes to modernize irrigation infrastructure



- Ensuring the availability of a clean and abundant water supply and protecting the Snake River Aquifer.
- Technical analysis of current crops and water use.
- Integrated approach to link water and power systems.

Designing and testing real-world microgrids to ensure secure, reliable electricity for rural and remote communities

Blue Lake, California

A first-of-its-kind, smart, renewable microgrid at the Blue Lake Rancheria, the trust lands of a sovereign Native American tribe.



409-kW Solar Photovoltaic Array 950 kWh of Battery Storage 175-kW Biomass Gasified Fuel Cell Diesel Generators

Cordova, Alaska

A coalition of partners designed a system of microgrids to ensure power after a catastrophic event.



Maintains and Restores Power After a Catastrophic Event (Like an Earthquake or Tsunami) or Cyberattack

Resilient Alaskan Distribution System Improvements using Automation Network Analysis, Control and Energy Storage (RADIENCE)



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Battelle Energy Alliance manages INL for the U.S. Department of Energy's Office of Nuclear Energy. INL is the nation's center for nuclear energy research and development, and also performs research in each of DOE's strategic goal areas: energy, national security, science and the environment.