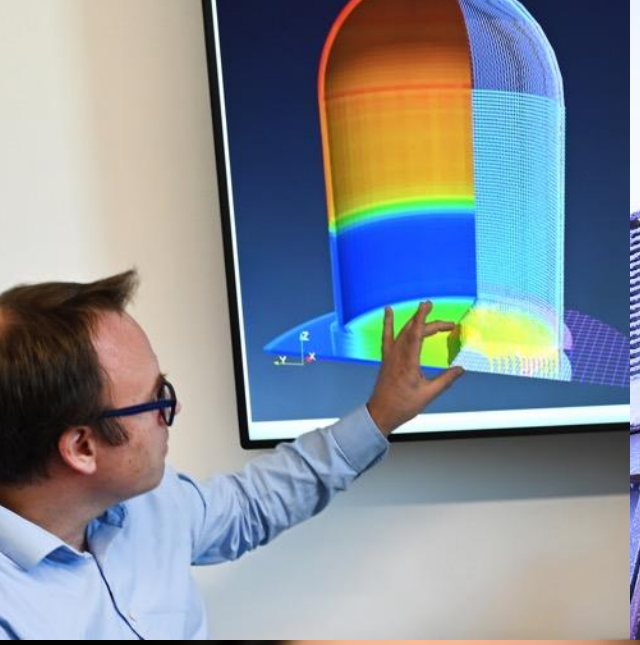
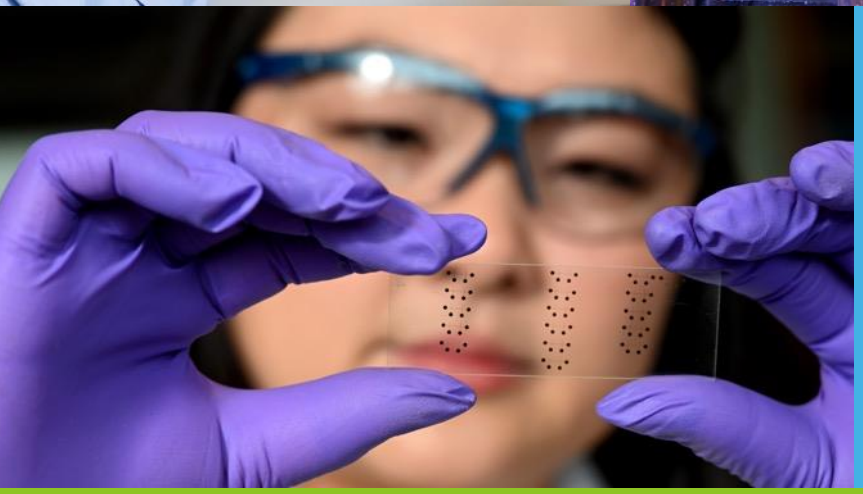






May 2024

Juan Alvarez
Deputy Director and Chief Operations Officer, Idaho National Laboratory
Juan.Alvarez@inl.gov



Idaho National Laboratory –

Creating a Secure, Resilient, Clean Energy Future

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

Idaho National Laboratory

Our Heritage: *The National Reactor Testing Station drove nuclear innovation in the U.S. and around the world*

1st Nuclear power plant

U.S. city to be powered by nuclear energy

Submarine reactor tested; training of nearly 40,000 reactor operators until mid-1990s

Mobile nuclear power plant for the army

Demonstration of self-sustaining fuel cycle

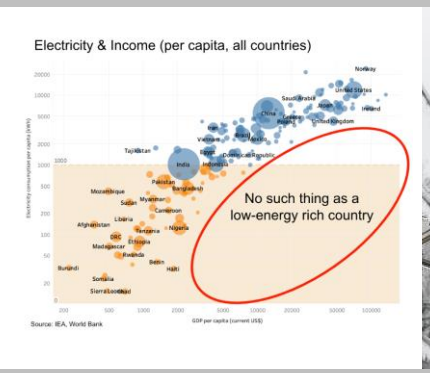
Basis for LWR reactor safety

Aircraft and aerospace reactor testing

Materials testing reactors



Addressing the world's most pressing challenges through research, development, and demonstration

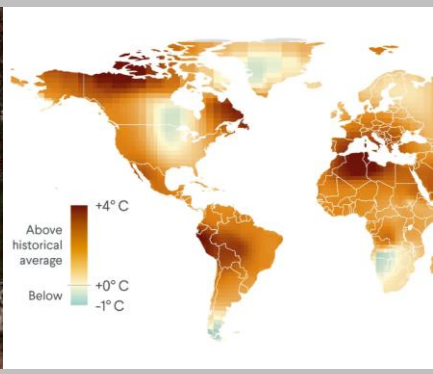












VISION

To change the world's energy future and secure our nation's critical infrastructure.

MISSION

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

VALUES

Excellence, Inclusivity, Integrity, Ownership, Teamwork, Safety

INL Senior Leadership Team



John Wagner
Laboratory Director



Juan Alvarez
DLD for Management and Operations and Chief Operating Officer



Erin Searcy *(Acting)*
DLD for Science and Technology and Chief Research Officer



Allison Hummel
Chief of Staff



Michelle Rutledge
Sr. Executive Assistant



Kimberly Evans Ross
Office of Risk, Assurance & Compliance, General Counsel



Eric Jurgensen
Senior Counterintelligence Officer



Jess Gehin
ALD Nuclear S&T



Ronald Crone
ALD Materials and Fuels Complex



Sean O'Kelly
ALD Advanced Test Reactor Complex



Todd Combs
ALD Energy and Environment S&T



Zachary Tudor
ALD National & Homeland Security S&T



Iris Anderson
Business Management, CFO



Randall Hughes
Safeguards and Security



Heidi Dillard
Human Resources and Diversity



John Revier
External Engagement and Communications



Jhansi Kandasamy
Net Zero Program Director



Carlo Melbihess
Facilities and Site Services

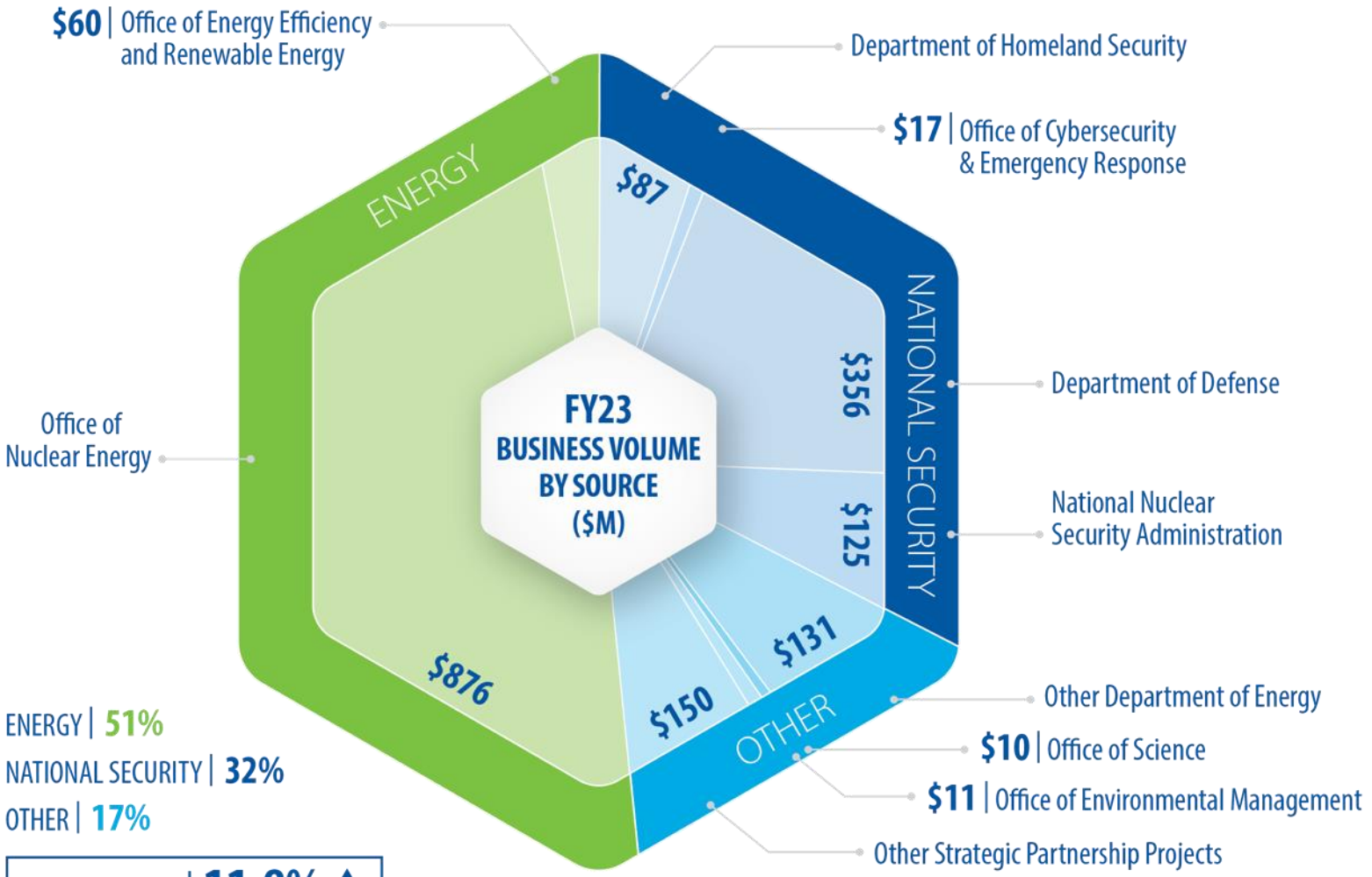


Mark Holtermann
Information Technology, CIO



Eric Papaioannou
Environment, Safety, Health and Quality

Mission-driven funding portfolio is growing and evolving



5th Largest DOE Laboratory

FY23 OPERATING COST

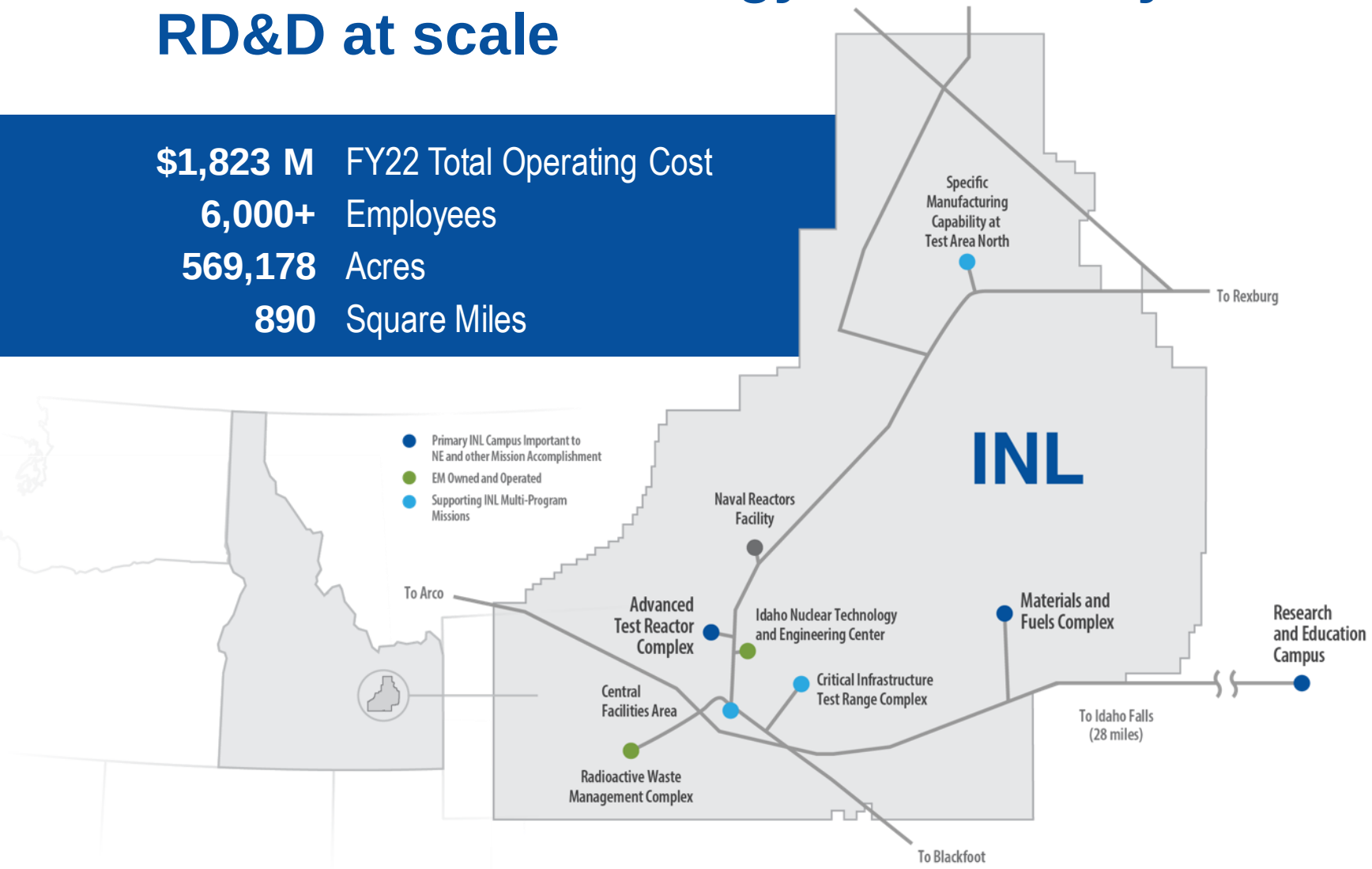
DOE/NNSA Costs: $1,213M
SPP (Non-DOE/Non-DHS): $502M
CRADA: $5M
DHS Costs: $104M
Total: $1,823M

FY23 HUMAN CAPITAL

6,045	Full-time equivalent employees
106	Postdoctoral researchers
56	Joint appointments
584	Interns
21	Graduate fellows
46	Visiting scientists
1,830	Facility users

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

$1,823 M	FY22 Total Operating Cost
6,000+	Employees
569,178	Acres
890	Square Miles

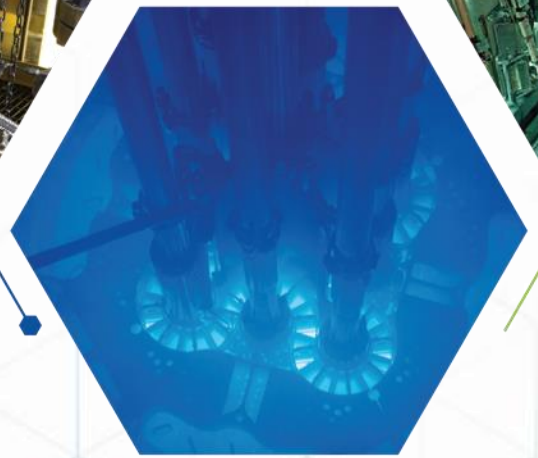


4	Operating reactors
12	Hazard Category II & III non-reactor facilities/ activities
50	Radiological facilities/activities
17.5	Miles railroad for shipping nuclear fuel
44	Miles primary roads (125 miles total)
9	Substations with interfaces to two power providers
126	Miles high-voltage transmission lines
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

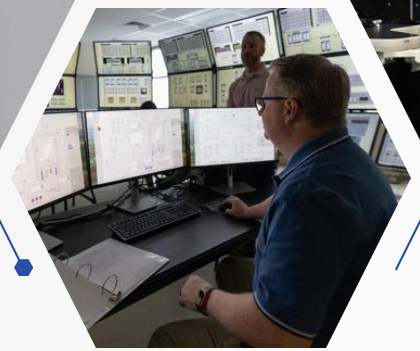


National & Homeland Security Science & Technology

Sustaining the existing commercial reactor fleet and expanding deployment of nuclear energy



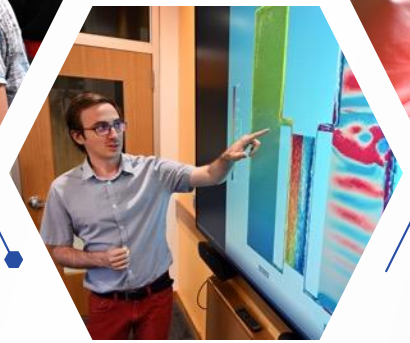
Advanced reactor technologies



Regulatory and safety research



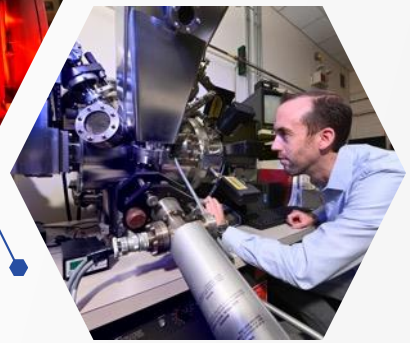
Fuel cycle and separations



Advanced modeling and simulation



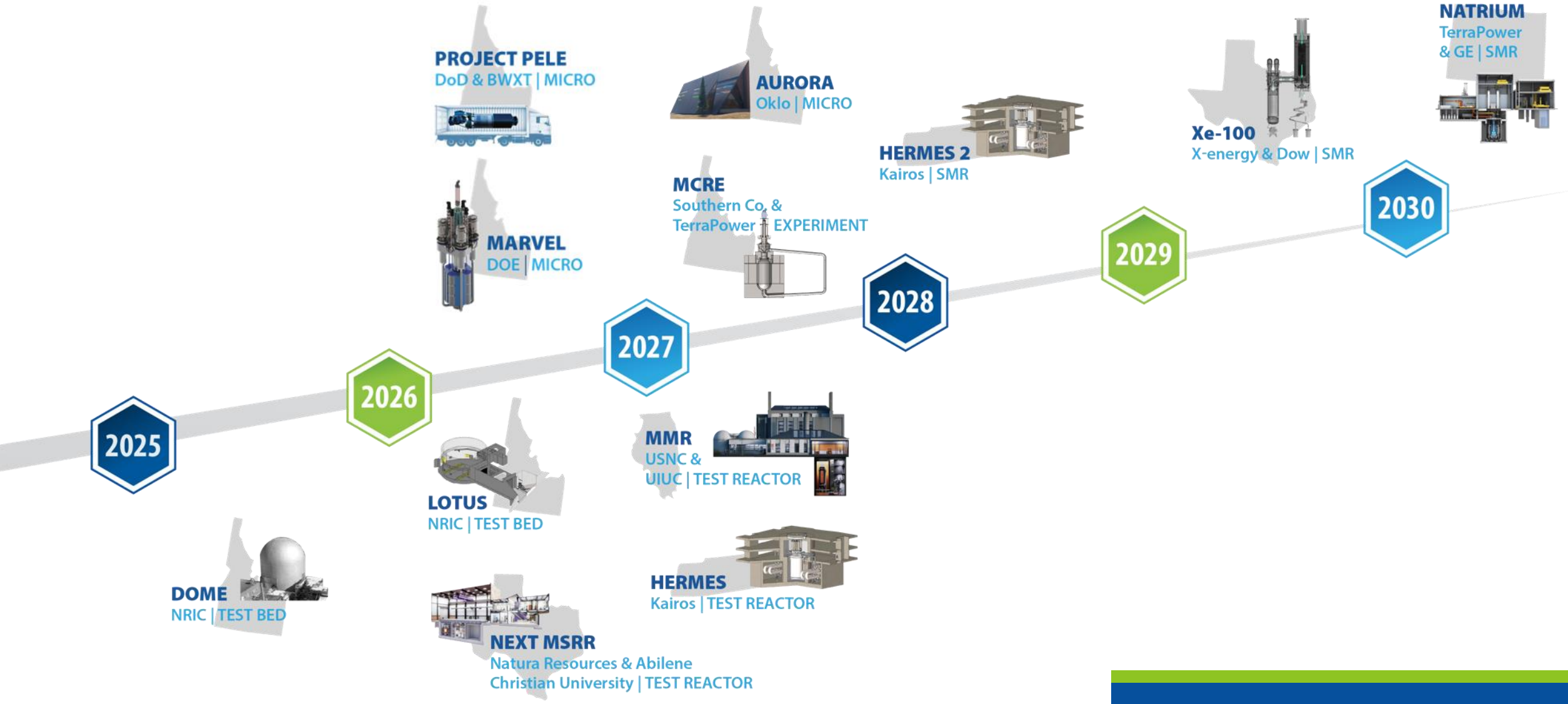
Nuclear fuels and materials



Fusion Energy

NSUF Nuclear Science User Facilities | GAIN Gateway for Accelerated Innovation in Nuclear | NRIC National Reactor Innovation Center

Accelerating advanced reactor demonstration & deployment



Discovering new technologies for sustainable clean energy integration for electricity, transportation, and industry



High-efficiency thermal energy use



Critical materials recovery



Integrated energy systems solutions



Nuclear H_2



Sustainable fuels through waste recycling



Secure vehicle charging

Establishing the Energy Technology Proving Ground (ETPG)









**Artist rendition of the ETPG.*

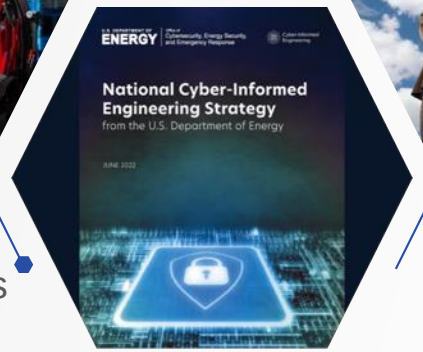
A demonstration and testing complex that:

- *Validates industrial technology at demonstration-relevant scale*
- *Designs and controls integrated energy systems*
- *Leverages contributions from nuclear energy*
- *Integrates and leverages other testbeds across the laboratory complex, e.g. ARIES*

Solving urgent national security challenges



Industrial Control Systems Security



Secure and Resilient Grid



Wireless Security



First Responder Training



Nuclear Safety and Security



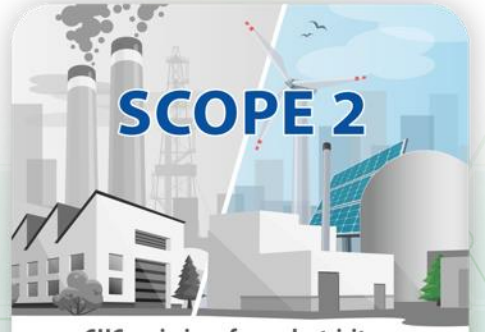
National Defense Support

Developing and deploying solutions to move towards net-zero operations



GHG emissions from sources owned or controlled by DOE

Mobile combustion	11.38%
On-site landfill	7.21%
On-site Wastewater Treatment	.17%
Fugitives & Refrigerants	.06%
Stationary Combustion	7.47%
($20,876\ MTCO_2e$)	26.28%



GHG emissions from electricity, heat or steam purchased by DOE

Purchased electricity	53.97%
Transmission & distribution loss *(owned)*	.48%
($43,252\ MTCO_2e$)	54.45%



GHG emissions from sources not owned or controlled by DOE

Employee commuting	11.03%
Business travel *(air & ground)*	4.84%
Contracted Wastewater & MSW	.38%
Transmissions & Distribution *(shared)*	3.02%
($15,311\ MTCO_2e$)	19.27%

INL's FY22 greenhouse gas (GHG) emissions in metric tons of carbon dioxide equivalent ($MTCO_2e$)

NET ZERO LABS
U.S. DEPARTMENT OF ENERGY

NET ZERO WORLD INITIATIVE



TRANSFORM INL TO NET-ZERO

Align mission activities with operations to achieve net-zero carbon emissions on the site by 2031



Idaho National Laboratory

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.