



**Pacific
Northwest**
NATIONAL LABORATORY

Welcome Washington State University and Cascadia Sustainable Aviation Accelerator

August 27, 2025

Dr. Steven Ashby
Laboratory Director



PNNL is operated by Battelle for the U.S. Department of Energy

PNNL-EX-10359



We are one of DOE's 17 **national laboratories** addressing critical scientific challenges





PNNL is a regional, national, and international **scientific resource**





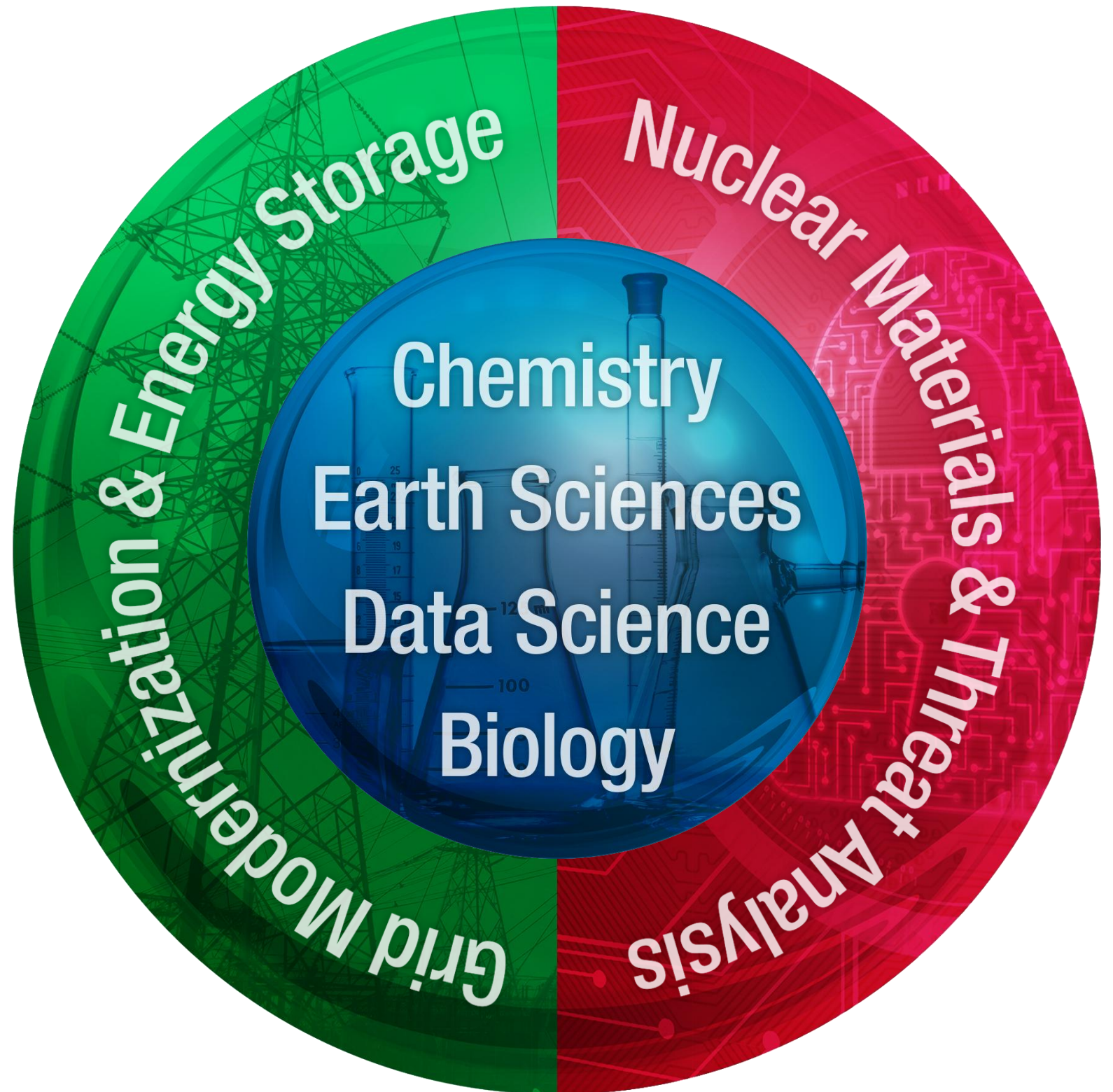
We **advance scientific frontiers** and **provide solutions** to critical national needs





Pacific
Northwest
NATIONAL LABORATORY

Our distinguishing
strengths enable
mission **impact**





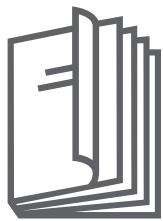
We are **one of DOE's most diversified** national laboratories



\$1.6B Annual Spending



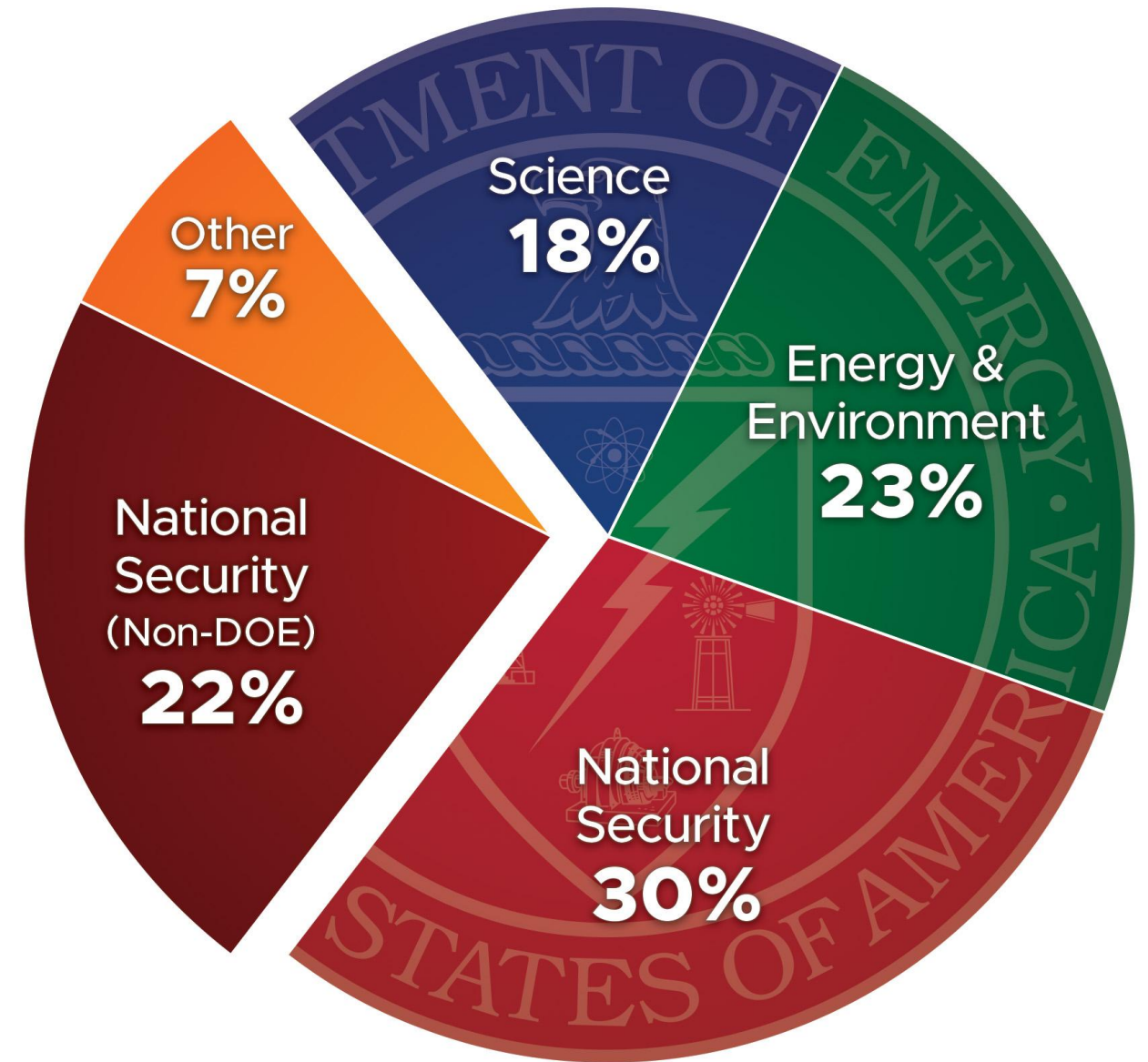
6,437 Staff



1,672 Peer-Reviewed Publications



319 Invention Disclosures



FY 2024 Funding

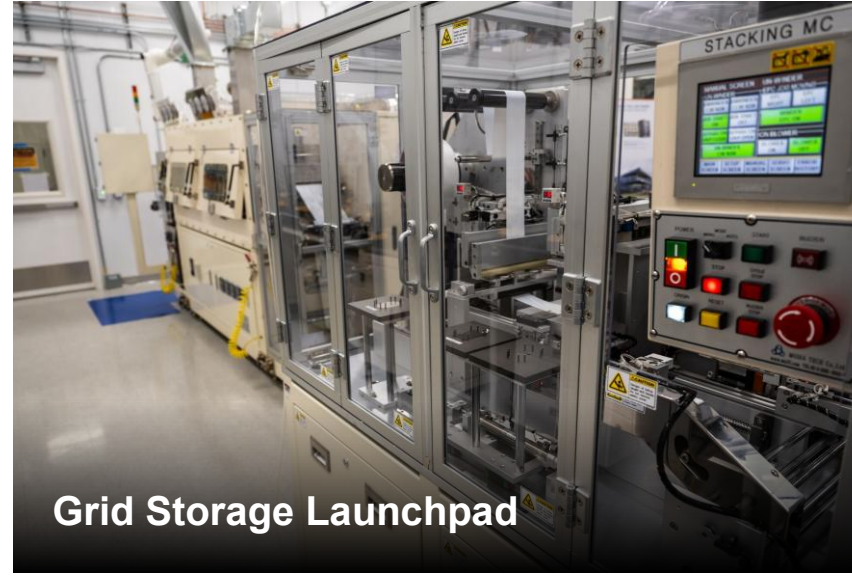


Investing \$1.2 billion over 10 years to modernize PNNL facilities and infrastructure





State-of-the-art capabilities enable world-class research



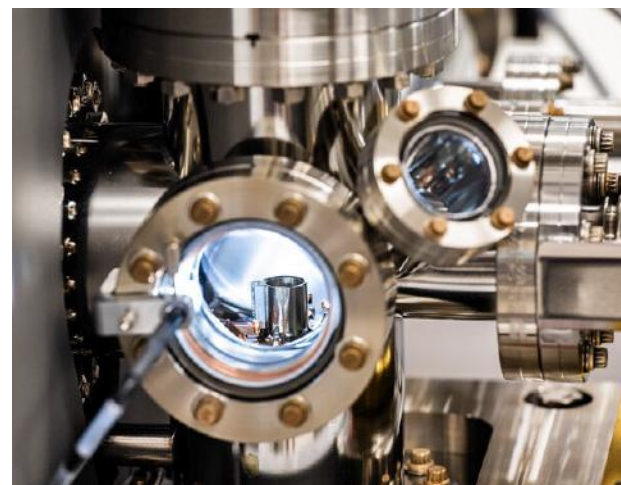
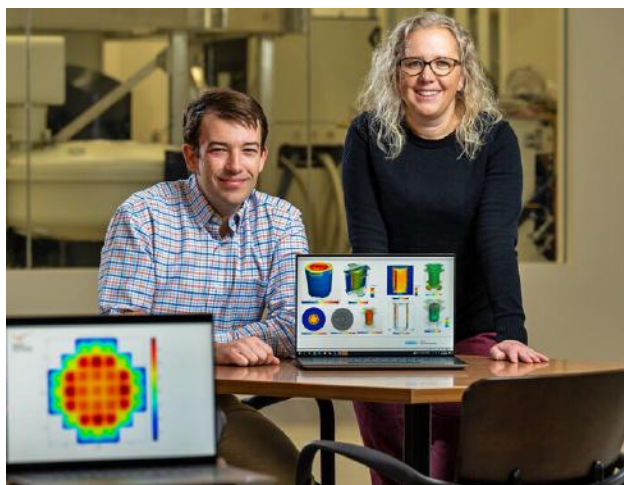
Bioproducts, Sciences, and Engineering Laboratory



A research partnership with Washington State University

- Creating carbon-based chemicals and materials from recycled and renewable carbon
- Developing sustainable fuels for aviation, heavy trucking, and shipping
- Providing expertise in chemical catalysis, fungal biotechnology, and multi-scale systems analyses
- Advancing scientific discovery and reducing technical risk for industrial deployment
- Supporting WSU-PNNL Bioproducts Institute

Energy Sciences Center



Accelerating scientific discovery

- Transforming abundant wastes into high-value fuels and materials
- Developing new catalysts to reduce vehicle emissions
- Discovering cheaper, safer, and higher-performing energy storage materials
- Developing more efficient ways to produce agricultural fertilizers
- Advancing materials and methodology for chemical separations

Expanding **academic partnerships**,
engaging **regional stakeholders**,
and collaborating with **industry**



PNNL technology and partnerships led to key milestones

- First 100% biomass-derived jet fuel, Seafair demo
Boeing, Honeywell UOP
- First commercial flight using SAF (jet fuel from ethanol)
LanzaTech
- First ethanol-to-sustainable aviation fuel plant
LanzaJet





Pacific Northwest NATIONAL LABORATORY

We transition our **technologies** to **industry**



Fiscal Year **2024:**



ONE INVENTION

nearly every day



73 U.S. & International **PATENTS**
3,213 since 1965

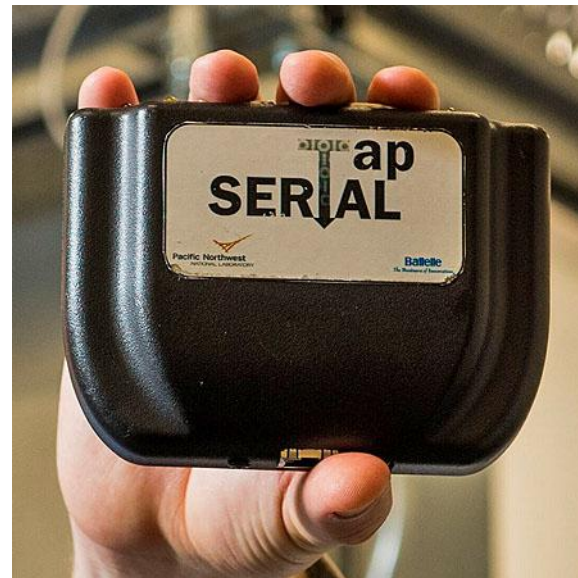


~1.2 PATENTS

received per week



11 LICENSES & OPTIONS
805 since 2000

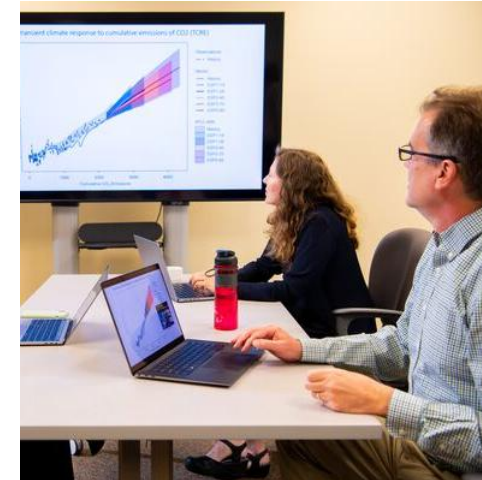


211 ACTIVE BUSINESSES

with PNNL roots since 1965



Six **joint institutes** bring together expertise and resources to **address major challenges**



Bioproducts Institute

Advanced Grid Institute

NW Impact

- Materials and Chemistry

PMedIC

- Biomedical Innovation

JGCRI

- Climate Impacts and Mitigation

ICARIS

- Critical Infrastructure Cybersecurity



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Thank you

www.pnnl.gov

