Pacific Northwest
NATIONAL LABORATORY

INSIDE THE GRID STORAGE LAUNCHPAD

DISTINCTIVE CAPABILITIES IN A COLLABORATIVE FACILITY

Energy storage offers an exciting opportunity to increase energy affordability, improve energy security, and usher in a new chapter in grid modernization. The highly integrated capabilities of the Grid Storage Launchpad (GSL)—from fundamental analysis of battery materials to 100 kW scale testing of commercial systems—are accelerating innovation and technology breakthroughs in grid and transportation technologies. These advancements help meet the nation's emerging energy needs, making energy more accessible and strengthening U.S. competitiveness in the global energy market.

GSL Vitals

- Facility Cost: $75 Million
- Leveraged Funding: $35 Million from State of Washington, Battelle, and Pacific Northwest National Laboratory

93,000 Square Feet

34 Laboratories

100 Full-Time Researchers

GSL Mission

- **Validate:** Independent testing of next-generation storage materials and systems (<100 kW) under realistic grid operating conditions.
- **Accelerate:** Reduce risk and speed up the development of new technologies by propagating rigorous grid performance requirements to all stages of development.
- **Collaborate:** Link Department of Energy and storage research and development communities in a new collaboration center to overcome key crosscutting challenges.
- **Educate:** Provide standardized training and development of the next-generation workforce, from skilled laborers to first responders, safety officials, utility planners, and regulators.

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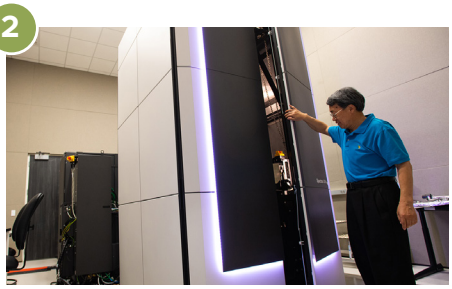
1

New Materials

Novel approaches are used for materials discovery and synthesis using digital twins, physics-informed data models, and high-throughput experimentation.

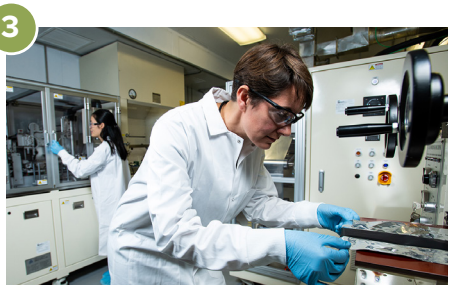
2



Advanced Characterization

Specialized facilities, insulated from sound and vibration, are used to better understand the fundamental material properties of storage technologies during operation.

3



Pilot Prototyping

Advanced equipment is used to design and build advanced prototype batteries quickly for testing, thereby reducing cost and risk in advancing new approaches.

4

Testing Capabilities

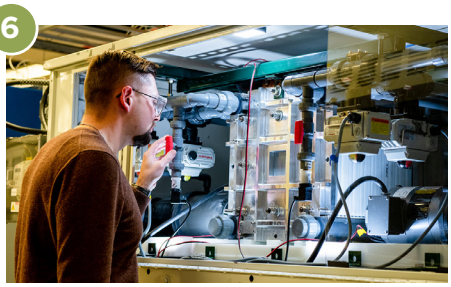
Specialized chambers for safely testing energy storage technologies from milliwatts to the 100 kW scale under realistic grid duty cycles, use cases, and operating conditions.

5

Visualization Laboratory

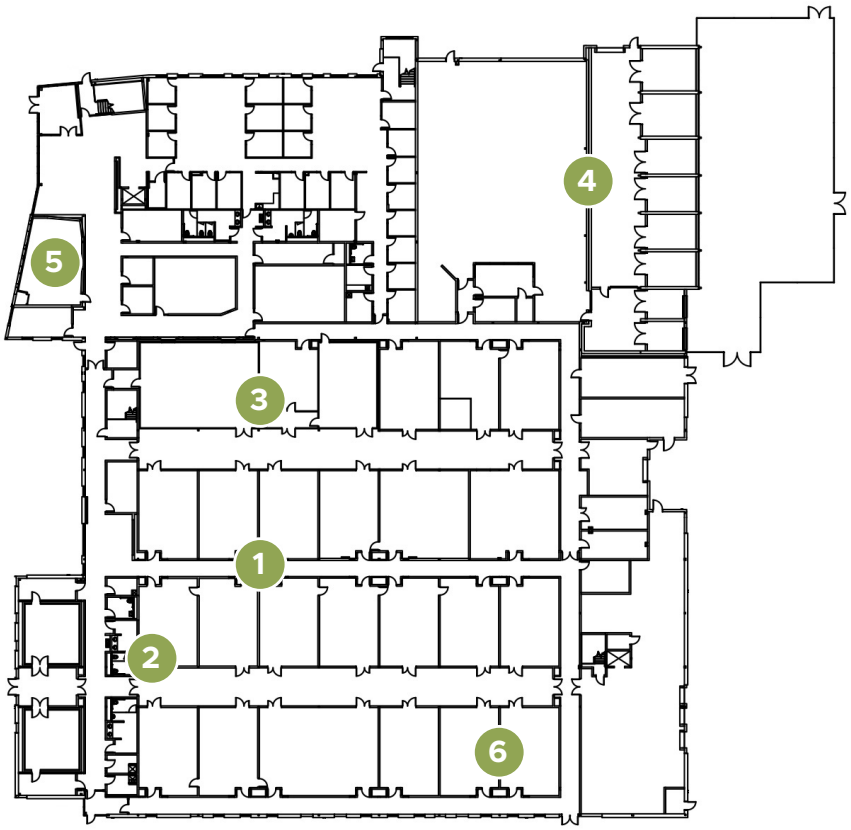
A visualization lab will leverage PNNL's Electricity Infrastructure and Operations Center to inform grid battery performance requirements and provide rigor to the battery development cycle.

6



Education/Training Laboratory

Interactive energy storage workspaces for stakeholders from around the world to advance knowledge and understanding of future technologies.



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