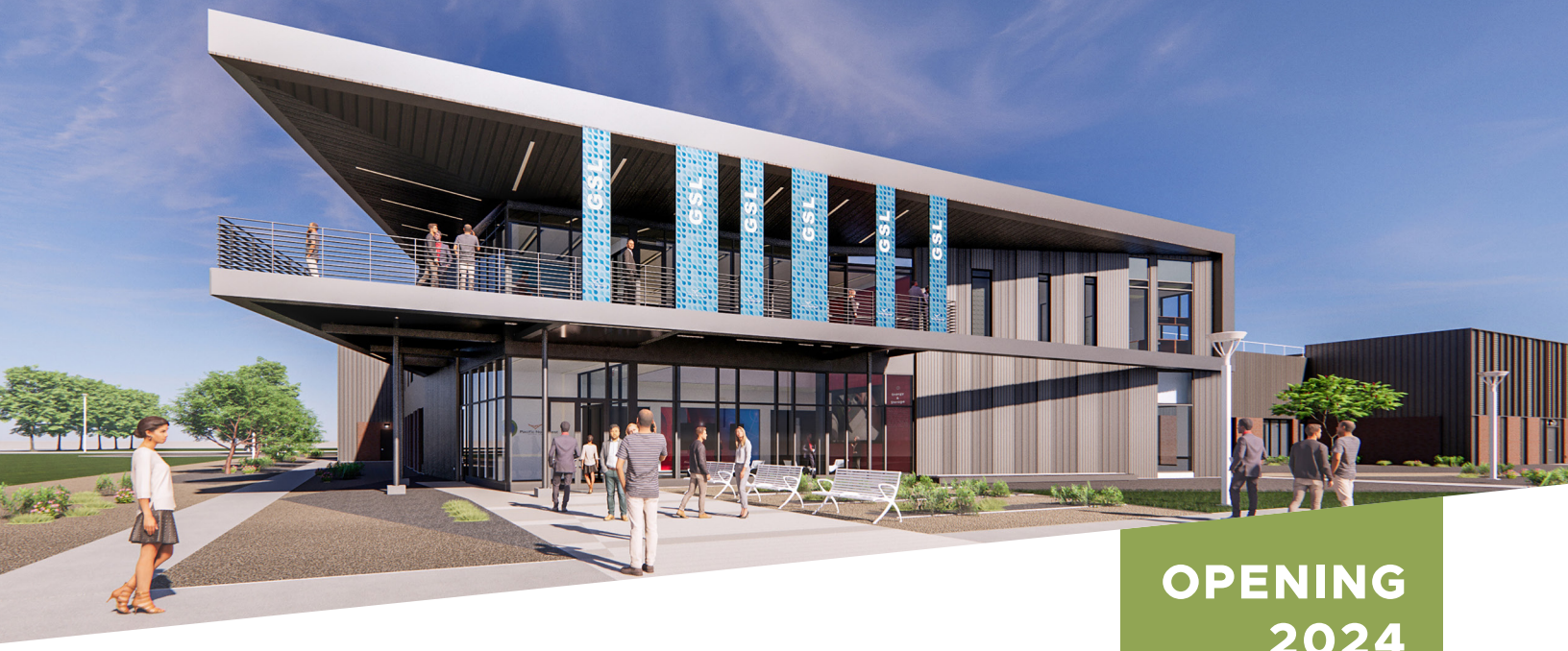
U.S. DEPARTMENT OF ENERGY | Pacific Northwest NATIONAL LABORATORY

GSL GRID STORAGE LAUNCHPAD



OPENING 2024

Validate | Accelerate | Collaborate

In 2018, the U.S. Department of Energy's (DOE) Office of Electricity identified a national capability gap needed to accelerate the development and testing of new grid energy storage technologies that are more cost effective, safer, and more durable.

Grid energy storage is critical to a future resilient and flexible U.S. electric grid that will enable deep decarbonization of energy supply, ensure transition of cars from oil to electrons, and unlock a broad array of economic and societal benefits for all U.S. citizens.

In August 2019, the Department of Energy selected Pacific Northwest National Laboratory in Richland, Washington, as the site for a new $75 million facility called the Grid Storage Launchpad (GSL).

The GSL will provide systematic and independent validation of new grid storage technologies, from basic materials and components to prototypes, to accelerate the development and deployment of long-duration, low-cost grid energy storage. Strategic investments from the State of Washington, Battelle and PNNL provide additional support for GSL equipment, and research and development activities.

PNNL-SA-159565

Research Directions

Through independent testing and validation of grid energy storage technologies, the GSL at PNNL will develop and promulgate rigorous grid performance standards and requirements that span the entire energy storage R&D development cycle — from basic materials synthesis to advanced prototyping. This mission focuses on three outcomes that address critical challenges in grid energy storage development:

- **Validate:** Independent testing of next generation storage materials and systems (<100kW) under realistic grid operating conditions
- **Accelerate:** Reduce risk and speed development of new technologies by propagating rigorous grid performance requirements to all stages of development
- **Collaborate:** Link DOE and storage R&D communities in a new collaboration center to solve key crosscutting challenges

- AUGUST **2019:** DOE selects PNNL as site for Grid Storage Launchpad
- JULY **2020:** Solicitation for design-build contractor bids issued
- AUGUST **2020:** Secretary of Energy visits PNNL to dedicate GSL site
- SPRING **2021:** Award of design-build contract
- SPRING **2022:** Groundbreaking
- **2024:** Expected dedication and occupancy

Facility Cost Estimate: $75M

- **$28 million** in FY20 and FY21 from the DOE to fund facility design and initiate construction
- **Balance of funding** subject to future Congressional appropriations

Leveraged Funding: $35M

- **$20 million** in advanced research equipment and specialized instrumentation ($8 million from State of Washington, $7 million from PNNL, $5 million from Battelle)
- **$15 million** from PNNL in Lab-directed R&D support

Pacific Northwest NATIONAL LABORATORY

Pacific Northwest National Laboratory advances the frontiers of knowledge, taking on some of the world's greatest science and technology challenges. Distinctive strengths in chemistry, Earth sciences, biology and data science are central to our scientific discovery mission, laying a foundation for innovations that advance sustainable energy through decarbonization and energy storage, and enhancing national security through nuclear materials and threat analyses. PNNL collaborates with academia in its fundamental research and with industry to transition technologies to market.