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. PNNL’s research lays a foundation for innovations that advance sustainable energy through decarbonization and energy storage, and enhance national security through threat analyses and nuclear materials processing. PNNL collaborates with academia in its fundamental research and with industry to transition technologies to market.

PNNL BY THE NUMBERS

- **5,314** Scientists, engineers and professional staff in FY21
- **$1.24B** Research & Development expenditures in FY21
- **1,280** Peer-reviewed, published articles in FY20
- **5,254** Invention disclosures (since 2000)
- **2,977** U.S. and foreign patents (since 1965)
- **$29.5M** in Community investments (since 1965)
- **119** R&D 100 awards (since 1969)
Six institution-wide **MAJOR INITIATIVES** exemplify PNNL’s efforts to integrate scientific discovery and technological innovation to address some of the nation’s most complex and pressing challenges. Each Major Initiative embodies a five-to-ten-year commitment of resources to achieve significant, breakthrough progress in its focus area.

**Reinventing Chemical Conversions and Energy Storage Materials** seeks to design and synthesize new catalysts and battery materials to reduce the carbon intensity of fuels, increase battery efficiencies, and enable the cost-competitive use of waste carbon as a feedstock.

**Understanding Multiscale Earth Dynamics and the Role of Coastal Systems** strives to increase predictive power of Earth system models by observing, simulating, and analyzing dynamic interactions among atmospheric, geological, and biological processes, integrated human-Earth systems, and coastal ecosystems.

**Understanding, Predicting, and Controlling the Phenome** draws on capabilities of the Environmental Molecular Sciences Laboratory to explore biosystem resiliency to environmental perturbations, discover molecular predictors of disease, and engineer biological systems to produce new materials and chemicals.

**Scalable Machine Reasoning for Scientific Discovery** aims to make machine reasoning a reality, apply it to scientific discovery in catalysis, Earth systems, cybersecurity, and predictive phenomics, and address key needs such as power grid control and resilience.

**Energy Decarbonization through Grid Control and Energy Storage** combines insights from large data set analysis with PNNL’s foundational strengths in catalysis and chemical conversions, data sciences, and machine learning to modernize the nation’s electric power system.

**Accelerating Development and Characterization of Nuclear Materials Processing** draws on capabilities across the DOE national laboratories to strengthen the scientific foundations for modernization of nuclear materials processing, stockpile stewardship, and development of advanced nuclear energy technologies.

Learn more: [pnnl.gov](http://pnnl.gov)