

# NATIONAL SECURITY

## MISSION-DRIVEN CAPABILITIES

### PNNL'S RESEARCH IN NATIONAL SECURITY

ranges from radionuclide detection for nonproliferation to critical infrastructure protection and new data analysis tools and methods. We combine innovation and critical capabilities to take on complex, real world threats to our nation's security.

#### OPERATIONAL SYSTEMS & TECHNOLOGY



- ▶ Field-ready technology integration
- ▶ Scalable engineering
- ▶ Managing ambitious, complex projects
- ▶ Legal and policy analysis
- ▶ Technical assessments
- ▶ Training and learning programs
- ▶ Testing and evaluating technologies

#### SIGNATURE SCIENCE & TECHNOLOGY



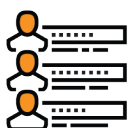
- ▶ Nuclear material production, forensics
- ▶ Chemical and biological signatures
- ▶ Explosives detection
- ▶ Materials science
- ▶ Non-destructive evaluation
- ▶ Nuclear explosion monitoring
- ▶ Fundamental physics
- ▶ Interdiction and response

#### COMPUTING & ANALYTICS



- ▶ Data science, artificial intelligence, and machine learning
- ▶ Cybersecurity
- ▶ Data visualization, analysis, and interpretation
- ▶ Applied statistics and computational modeling
- ▶ Software engineering and architecture

### PNNL BY THE NUMBERS (2019 DATA)



**4,722**

Scientists, engineers, and professional staff



**1,193**

Peer-reviewed, published articles in 2019



**88**

U.S. and foreign patents

# NATIONAL SECURITY

## GLOBAL IMPACT

### WE PROVIDE SCIENCE AND TECHNOLOGY

to reduce the threat of weapons of mass effect. Our S&T base supports missions of the Department of Energy, National Nuclear Security Administration, Department of Homeland Security, Department of Defense, and other agencies.

#### NUCLEAR SECURITY



#### HOMELAND SECURITY



#### DEFENSE



### DATA SCIENCE AND ADVANCED ANALYTICS

- ▶ R&D for nonproliferation and treaty compliance
- ▶ Nuclear material analysis, sensors, process monitoring, and production
- ▶ International treaties, export control, policy
- ▶ Partnering to reduce threats of nuclear materials use
- ▶ Counterterrorism and incident response

- ▶ Cyber and infrastructure security
- ▶ Border and maritime security
- ▶ Radiological and nuclear threat detection
- ▶ Chemical detection and biodefense
- ▶ First responder solutions
- ▶ Aviation security and explosives detection

- ▶ Countering weapons of mass destruction
- ▶ Cybersecurity solutions to protect and inform
- ▶ Energy resilience for assurance and deterrence
- ▶ Environmental intelligence to improve effectiveness
- ▶ Biomedical discovery for health and readiness

### PNNL BY THE NUMBERS (2019 DATA)



**\$1.01B**

Business volume



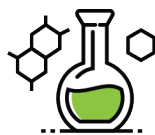
**140+**

Countries PNNL staff are deployed



**\$534.5M**

Business volume in National Security



**1,100**

Active S&T projects in National Security

LEARN MORE:

**[pnnl.gov](http://pnnl.gov)**

U.S. DEPARTMENT OF  
**ENERGY**

**BATTELLE**

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