

# Technology Commercialization

## Transforming Research to Reality

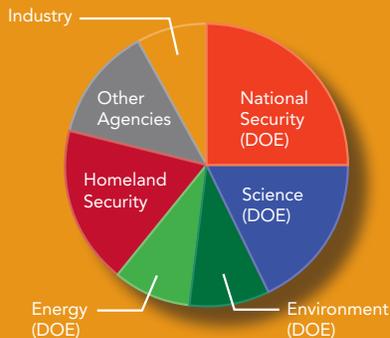


**Pacific Northwest**  
NATIONAL LABORATORY



## PNNL FAST FACTS

- **Staff:** More than 4,000, including more than 800 Ph.D.s
- **Annual budget outlay (allocated as shown in the pie chart):** \$855 million, including \$50 million for new building construction



- **Customers:** Federal agencies including the U.S. Departments of Energy, Homeland Security, and Defense; National Institutes of Health; Nuclear Regulatory Commission; Environmental Protection Agency; the intelligence community; state governments; universities; and industry
- **Patents:** More than 1,550 U.S. and international, and growing
- **Licenses:** More than 200 active for technologies developed at PNNL
- **Publications:** More than 650 peer-reviewed journal articles annually
- Named "One of the 20 great employers for new grads" in 2008 by *Fortune* magazine

## Who we are

### *Advancing frontiers – and your marketplace*

Innovation is preeminent to remaining competitive in many of today's industry sectors. Companies must be proactive about their evolution to be successful in an increasingly demanding, technology-driven global marketplace. Pacific Northwest National Laboratory's (PNNL) Technology Commercialization Program (Tech Comm) was established with the singular focus of matching scientific innovation with marketplace needs, and facilitating the transfer of lab-developed technologies into the hands of industry partners who can use them.

### *Our resources work to your benefit*

Tech Comm has the technologies, intellectual property, staff, experience, and results-driven passion to help find solutions to your toughest challenges. A partnership with us could dramatically shape and expand your role in the marketplace, thus improving your capability to meet and far exceed the expectations of your customers, and putting you miles ahead of the competition.

### *A hands on approach to technology transfer*

We understand that technology transfer is a contact sport, requiring continuous interaction between technology sources, academia, the government, industry, and end users. Our priority is to get a partnership established, get the transfer completed, and get out of your way so you can achieve maximum impact in the marketplace as quickly as possible. At the same time, we strongly believe in maintaining close contact with licensees to help them be successful.



## Why we do what we do

*“The Technology Commercialization Program at PNNL has helped to transfer hundreds of technologies from the laboratory to private industry. Once in the marketplace, these technologies improve the lives of millions, benefiting society and creating jobs.”*

— Mike Schwenk, director, Technology Deployment & Outreach, PNNL

### *Furthering economic development*

Located at the Laboratory in collaboration with Technology Commercialization, PNNL’s Economic Development Office focuses on using science as a catalyst for new business creation. Working to attract entrepreneurs and companies looking for new opportunities from the massive volume of research and development done at our facilities is important to us. Through these efforts, we realize a key component of our mission: to transfer knowledge and science from the laboratory to the marketplace. To date, this office is responsible for helping more than 400 companies in our region, and 100 more across the nation, to start, grow, or revitalize.

### *Encouraging industry and government collaboration*

PNNL’s work for U.S. government agencies largely focuses on fundamental and applied research to address important issues including securing our homeland, reducing our dependence on foreign oil, and protecting our country’s natural resources. Conducting research that spans these areas allows us to gain valuable tools and knowledge that are directly applicable to private industry. PNNL is in the unique position to leverage those tools to serve both the public and private sectors, and to identify the synergistic value which may emerge.

For example, the relationships PNNL has established with companies licensing its technologies have often led to increased industry sponsored research activity. Since many of PNNL’s technologies are licensed at an early stage, they typically require some additional development effort to make them commercially viable. Licensees often collaborate with PNNL or other parties to continue this work. PNNL has access to a variety of targeted ‘gap’ or technology maturation funds that may be applied for selected developments, on a discretionary basis.



Partnering with other community leaders, Pacific Northwest National Laboratory provides leadership to the developing Tri-Cities Research District, a 1,600-acre science and technology park surrounding the Laboratory, and featuring a clean technology theme.

### *Improving quality of life*

Facilitating technology transfer from our Laboratory to the marketplace allows groundbreaking scientific discoveries to have a tangible impact on society. From cancer treatments to environmental remediation technologies to advanced security solutions and beyond, the world-leading research and development at PNNL is devoted to changing all of our lives for the better.

Technology Commercialization is firmly committed to connecting PNNL innovation to your marketplace needs, paving the path for us to make this impact possible, together.

# What we bring to the table

## History of innovation

For more than forty years, Battelle (operator of PNNL) has partnered with the Federal government to provide a unique culture of innovation at PNNL. PNNL has a long standing international reputation for advancing frontiers in the development of technologies that translate into industrial products and consumer goods. In the 1970s, for example, PNNL scientists developed a technology that allowed information to be stored on compact discs, ultimately transforming multimedia data storage in the homes and workplaces of billions of people worldwide, and resulting in AOL mailing billions of discs to innocent consumers.



## Our technology portfolio

Development and deployment of socially and economically valuable science and technology is a primary component of Battelle's and PNNL's mission. Making new discoveries that support our mission is a daily way of life at PNNL. And many of them evolve into patented technologies or copyrighted software products that become available for licensing. Currently PNNL holds more than 1,550 U.S. and foreign patents, with new patent applications being filed at a rate of approximately one per week.

Our growing portfolio spans numerous scientific areas and applies to many industry applications, as shown below. Additionally, the Laboratory's Available Technologies website organizes our technologies by PNNL portfolio name and by potential industry application. This tool makes finding possible solutions to your challenges quick and easy.

### PNNL PORTFOLIO

- Analytical Instrumentation
- Chemistry
- Electrochemical
- Electronics
- Energy
- Environmental
- Information Technology
- Life Sciences
- Materials
- Microsystems
- Nuclear & Radiological
- Sensors
- Ultrasonics

### INDUSTRY APPLICATIONS

- Aerospace & Defense
- Agriculture & Mining
- Automotive & Transportation
- Chemicals
- Communications & Media
- Computers & Electronics
- Consumer Products
- Education
- Energy & Utilities
- Entertainment & Recreation
- Fabric & Apparel
- Food, Beverage & Tobacco
- Healthcare, Pharma, Biotech & Medical
- Manufacturing & Warehousing
- Oil & Gas
- Professional Services
- Public Administration & Government
- Recycling & Waste Management
- Security
- Wood, Paper & Forestry

Visit the Available Technologies web site at: <http://availabletechnologies.pnl.gov/> to view technologies available for licensing or further research.

## **Interdisciplinary expertise**

Highly esteemed scientists and engineers come from around the world to do their research at PNNL's state-of-the-art facilities. Our track record for successful innovation draws some of the most brilliant talent in numerous scientific areas to a single location to collaborate on finding solutions to our world's most complex challenges.

## **Awards and recognition**

Since its establishment in 1965, PNNL has generated dozens of major innovations and made significant advances in the areas of energy, environment, health, national security and fundamental sciences. And numerous PNNL technologies have been translated into award-winning commercial applications. To date, PNNL has earned an impressive 74 R&D 100 awards, which are presented to the most technologically significant products and advancements in the world. In addition, PNNL has earned 67 Federal Laboratory Consortium awards for Excellence in Technology Transfer, far more than any other national laboratory.

## **Proven commercial successes**

### **Startup of Safeview based on PNNL millimeter wave technology**

Many new companies have formed based on technology licensed from PNNL. One success story centers around the life-saving deployment of our millimeter wave technology, licensed for personnel security screening applications. The newly formed company, Safeview, developed the technology into a commercial product that scans the body for concealed weapons or explosives. Safeview was subsequently acquired by L3 Communications, a global security and defense business. Their product based on our technology is now being deployed by the Transportation Safety Administration in airports nationwide, playing a pivotal role in maintaining national security.



The millimeter wave technology used in security scanners like this one was licensed and further developed by SafeView, a company acquired by L-3 Communications in 2006. Today, the company's systems are accepted by the U.S. Transportation Safety Administration and being installed in airports across the country as well as other locations around the world.

### **University students discover golden opportunity based on PNNL thermoelectric ambient energy harvesting technology**

Another such success unfolded through a PNNL-sponsored entrepreneurship program at the University of Oregon. As part of the program, a group of MBA students wrote an award-winning business plan based on a technology that continually generates energy from its natural environment to power remote sensors for monitoring the integrity of important structures. Following graduation, one of the students approached PNNL to license the technology, and formed a new company, Perpetua Power Source Technologies Inc. A creative licensing agreement allowed Perpetua to further develop the technology into a prototype product that attracted key investors, resulting in the manufacture and marketing of a commercial product. The Perpetua Power Puck™ will displace batteries in remote sensing applications, making it possible to cost effectively monitor crucial structures such as dams, bridges, and pipelines.

These are just two examples representing PNNL's numerous successful technology transfer stories, to companies large and small. Tech Comm continuously searches for opportunities to match innovation with industry needs to achieve maximum impact on your marketplace, and our society.

## How you can work with us

*"We are fortunate at PNNL to have a diverse team of professionals with a keen sense of customer service in our Technology Commercialization group. We also enjoy a great rapport with our research staff and are excited about their level of interest in commercializing innovative discoveries. Additionally, we take the time to meet with our clients, understand their needs, and work with them to develop customized, efficient and effective solutions. Together, we can work to strengthen your products or services, and our technology-based economy."*

— Cheryl Cejka, director, Technology Commercialization, PNNL

Do you need an answer to a scientific question? Is there a technology gap that your organization wants or needs to fill? As you consider PNNL's capabilities, take some time to compare them with your own capabilities, needs, and ideas. There are a variety of ways to partner with us, and we take a creative approach to exploring collaborative possibilities, and long term alliances.

### **Flexible partnering to fit your needs**

Maybe your small business needs expert advice on a technical problem. Or your university research project requires state-of-the-art facilities not currently available to you. Or maybe your Fortune 500 Corporation is looking to add a new capability or technology to your product portfolio. If you have an energy, environmental, computational, national security, or health sciences challenge, PNNL stands ready to help you overcome it in ways that will complement your unique business strategy.

Whether our expertise is most useful as an extension of your own R&D efforts, or one of our technologies is just what you've been looking for, or whether we may discover something together through collaborative research, we have the flexibility to be exactly the kind of partner you need.

Visit <http://www.pnl.gov/business/> for more information.



### **Existing technology transfer mechanisms**

**Licensing agreements** allow you to incorporate, manufacture, sell, or leverage intellectual property developed at PNNL in your own products. We make the process as simple as possible by using common terms used by universities, other research organizations, and industrial firms.

**Cooperative Research and Development Agreements** provide you with quick, unique access to extensive government-funded R&D resources that can be pooled with your own to yield powerful research results, while providing intellectual property protection as you move swiftly toward commercialization.

The **Work for Others Program** allows federal agencies and companies to access PNNL's immense research and development capabilities and employ them to deliver solutions to complex problems.

The **Use Permit** is a direct contract with Battelle, the private company that operates PNNL for the Department of Energy. It allows Battelle staff working at PNNL to use both Battelle- and government-owned facilities and equipment to conduct research for both government and commercial clients. This unique option gives partners more exclusive access to core Laboratory science and technology, with added flexibility in contract and payment terms.

For more information about PNNL's existing contracting mechanisms, visit [http://www.pnl.gov/business/contract/contracting\\_mechanisms.asp](http://www.pnl.gov/business/contract/contracting_mechanisms.asp).

**Imagine the possibilities, and let's make them reality...together.**