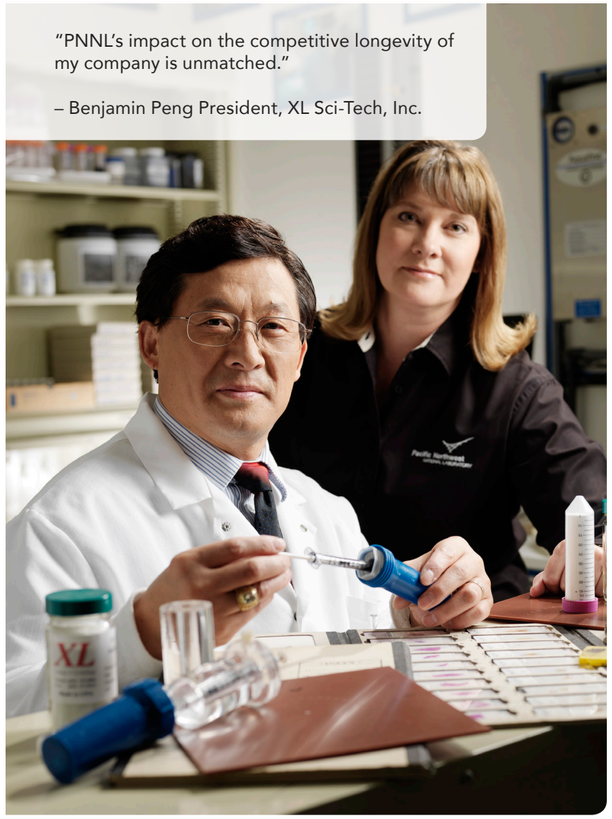
Pacific Northwest
NATIONAL LABORATORY
Proudly Operated by Battelle *Since 1965*

"PNNL's impact on the competitive longevity of my company is unmatched."

– Benjamin Peng President, XL Sci-Tech, Inc.



Founder Benjamin Peng of XL Sci-Tech used technology and entrepreneurial assistance from PNNL to develop his glass and metal microspheres for the medical and electronics industries.

Learn more about how we can help your business:

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www.pnnl.gov/business

BUSINESS PARTNERS

From startups to Fortune 100 companies, we've partnered with hundreds of businesses, including:

Alcoa Inc. ... Alstom Grid ... Bruker Daltonics Inc. Cisco Systems, Inc. ... Con-Agra Foods, Lamb-Weston, Inc. Cray ... Cummins, Inc. ... General Motors, LLC ... Genifuel Corporation ... IsoRay Medical ... L-3 Security & Detection Systems PepsiCo ... PerkinElmer ... Thermo Fisher Scientific ... TWB Company, LLC ... UniEnergy Technologies ... Xerox®

INDUSTRY SECTORS

We collaborate with businesses in the following areas:

- Analytical instruments
- Bio-based fuels and products
- Bioinformatics, biomaterials, and biotechnology
- Building efficiency
- Data analytics
- Carbon capture and sequestration
- Catalysts
- Chemistry
- Coatings/film
- Electrical grid
- Energy
- Environmental systems
- Information technology
- Manufacturing
- Materials
- Microtechnology
- Sensors
- Vehicle technology
- … and more

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U.S. DEPARTMENT OF ENERGY

"The contribution of the PNNL advanced vanadium flow battery chemistry is key to our system. Without it, UET's system would not have the operational flexibility, safety, cost-effectiveness, reliability, and innovation needed to help create a more stable, reliable, clean, and affordable energy future."

– Gary Yang,
President & CEO,
UniEnergy Technologies

The UniEnergy Technologies team, shown here, commercialized PNNL's flow battery technology to create a breakthrough product. By storing solar and wind energy for when it's needed later, the Uni.System™ battery helps power generators meet peak electrical requirements and improve grid reliability.

How Pacific Northwest National Laboratory Can Help Your Business Succeed

Every year at Pacific Northwest National Laboratory, we are privileged to help hundreds of businesses ranging from entrepreneurial startups to multi-national corporations. Here they can tap into thousands of experts to help them solve perplexing technical problems, develop new technology products, obtain the rights to technologies and software, and receive specialized assistance for competitive advantage.

As a U.S. Department of Energy national laboratory, PNNL helps businesses that support national missions and strengthen U.S. economic competitiveness.

HOW YOUR BUSINESS CAN TAP INTO THE NATIONAL LABORATORY

- Collaborate on technology development to transform technologies into customized products for your business
- Obtain new technologies and other intellectual property available for licensing
- Access nationally and internationally known, entrepreneurial-minded staff who understand the fast-paced, solution-focused culture of industry
- Receive technology assistance—at no cost—for qualifying businesses
- Connect to a vast entrepreneurial ecosystem for specialized expertise

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U.S. DEPARTMENT OF ENERGY

InEnTec Inc.®, which transforms waste into clean energy products, got started with technology from PNNL and the Massachusetts Institute of Technology, representing a combined federal research investment of more than $300 million.

QUESTIONS BUSINESSES ASK

Q: What are the ways my business can work with PNNL?

The table on the opposite page shows ways we can work with you. Our experts will help you determine the best approach for your needs.

Q: How will you protect my proprietary information, and what rights do I have for any resulting intellectual property?

Businesses can use a nondisclosure agreement to protect their own proprietary information before the work starts. U.S.-based companies often can obtain rights to resulting inventions and proprietary information, depending on the agreement type.

Q: What's the difference between Strategic Partnership Projects (SPPs) and the Agreement for Commercializing Technology (ACT)?

SPPs are based on federal terms and conditions, advance payment is required, and the sponsoring company is responsible for any risks. Under ACT, the terms are commercial, the risk is shared, and payment terms are negotiable. However, businesses can't use federal funding, such as grants, to pay for ACT research.

Q: How long does it take to get an agreement in place?

Some agreements, such as for technology assistance, typically take a few days. For ACT and SPP agreements, once terms are agreed upon, they can be approved in as little as a few days to a week. Intellectual property agreements vary based on time to negotiate and terms. Some agreements, such as those for Cooperative Research and Development Agreements and non-U.S. companies, must go through additional approvals and may take longer.

Q: Where can I find your technologies available for licensing?

Browse http://availabletechnologies.pnnl.gov to see technologies and software in more than 20 portfolio areas. We can also work with you to adapt these specifically for your business.

Q: How can I offer my products and services to PNNL?

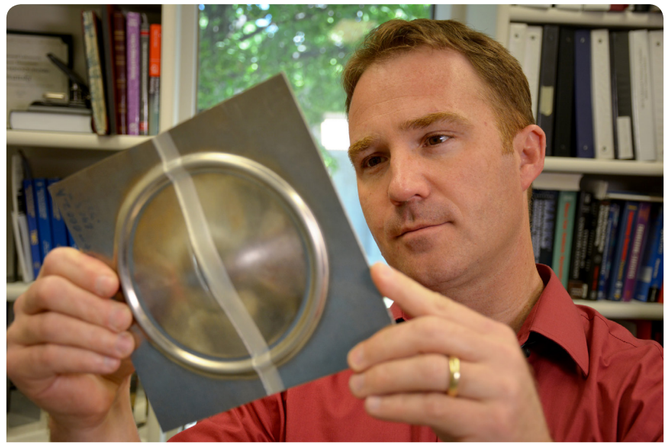
You can list your company in our Acquisition Supplier Portal System, search solicitations, and see bid results. See more at www.pnnl.gov/contracts.

OPTIONS FOR WORKING WITH PNNL

Collaboration Type	Agreement	Financial Terms	Resulting Intellectual Property (IP)
Sponsored research. PNNL conducts work for Company using specialized DOE facilities, services, and technical expertise	Strategic Partnership Projects (SPP)	- Company funds all costs - Most agreement terms are not negotiable - Advance payment required - Company assumes all risk	- Company can own all IP unless federal funds are used for the SPP; Government retains a royalty free, non-exclusive right to IP - Must comply with DOE reporting requirements - DOE can take back patents if obligations not met - PNNL can generate proprietary information for Company unless federal funds are used
Sponsored research. PNNL conducts work for Company using specialized DOE facilities, services, and technical expertise *Not available for companies using U.S. federal funding*	Agreement for Commercializing Technology (ACT)	- Terms and conditions are commercially based and negotiable - Payment terms are flexible - Risk may be shared	- Either U.S. party can take the lead on IP - If Battelle (PNNL) leads, PNNL will address the patenting cost and reporting obligations, and provide the Company with access to license the IP -Government retains a royalty free, non-exclusive right to IP
Collaborative research. Company and PNNL conduct R&D together under a joint statement of work	Cooperative Research and Development Agreement (CRADA)	Each party to the CRADA funds its own effort and contribution to the joint statement of work	- Battelle can own IP - IP can be licensed to Company - PNNL and Company each can get copyrights to sole and joint data - Proprietary info can be protected for 5 years
Licensing. Company obtains rights to PNNL patents and technologies, copyrighted software, or open-source tools	License or option to license	- Terms are negotiable - Typically includes % of sales and recovery of PNNL patent costs	n/a
Technology assistance. Company receives a week's worth of technology assistance annually from PNNL	Simple 2-page form	- No cost to businesses with U.S. jobs and up to 500 employees - Assistance can't be readily available in private sector	Company can get a royalty-free, non-exclusive license for IP
Facility use. Company conducts research in EMSL, a DOE scientific user facility at PNNL; www.emsl.pnnl.gov	User agreement	Company funds all costs for proprietary research; typically no costs for standard, competitive, non-proprietary research	IP belongs to inventor/Company; non-proprietary users expected to publish results

Notes

- Companies must manufacture resulting products substantially in the U.S., or in the case of technology assistance, must have U.S. jobs. Terms vary for non-U.S. companies.
- Companies also can seek space in APEL, a high-tech incubator; see www.apel.org.
- The government retains nonexclusive rights to IP, software, and data generated.



For improved fuel economy, DOE, PNNL, General Motors, Alcoa, and TWB Company LLC created a 62% lighter and 25% less costly car door panel.

Image courtesy of TWB Company LLC

"The team demonstrated how friction stir welding supports vehicle lightweighting, giving GM a competitive advantage for the future."

– Blair Carlson, GM Research and Development, Manufacturing Research Systems Lab