



FORGING THE FUTURE

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News

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New Flow Battery - Packed with Power Potential

A newly designed flow battery developed by researchers at PNNL has more energy than any other on the market. The battery, a zinc-polyiodide redox flow battery discharged 167 watt-hours per liter of

electrolyte during testing, about seven times as much as vanadium flow batteries. [Read more...](#)

Staff Accomplishments

Doug Elliott
Identified as one of the Top 125 People in the

Setting the Standard for Energy Storage System Performance

A new method for gauging the performance of large batteries and other grid-scale energy storage systems, called the Energy Storage Performance Protocol, is now available. The protocol was created in partnership

Advanced Bioeconomy for 2015. [Read more...](#)

Gordon Graff

Received 2015 FLEXI award along with the rest of the Barix team. [Read more...](#)

Carl Imhoff

Invited to present at National Academies Roundtable. [Read more...](#)

Wayne Johnson

Named to OSU's Academy of Distinguished Engineers. [Read more...](#)

Eric Nyberg

Delivered keynote at WSU's Dr. William R. Wiley Research Exposition. [Read more...](#)

Nik Qafoku

Invited to serve on Editorial Board of the Encyclopedia of Soil Science. [Read more...](#)

Jakob Stoustrup

Appointed by the IEEE Control Systems Society's Board of

with Sandia National Laboratories under the leadership of DOE and will be used as a starting point to draft official standards. [Read more...](#)

Remote Power Hardware-in-the-Loop Capability Demonstrated

Evaluating the impact of emerging technologies on energy distribution systems may get easier for manufacturing and utility industries, thanks to research performed by PNNL and the National Renewable Energy Laboratory. The labs partnered to demonstrate a novel co-simulation architecture that removes the need to convert existing grid models to a new platform in order to conduct testing. [Read more...](#)

Energy Efficiency and Renewable Energy



Assistant Secretary Visits PNNL with Industry Focus

David Danielson, Assistant Secretary for EERE, visited the Lab on March 6. In addition to touring unique PNNL facilities, he spoke to a packed auditorium about the impact of DOE's national labs and acknowledged the contributions of several PNNL teams. [Read more...](#)

Pilot Scale: Algae-to-Biocrude Conversion Process

Recognizing the need for more cost-effective biomass fuel options, researchers have found a way to use hydrothermal liquefaction, a form of dehydration, to streamline the algae-to-biocrude conversion process. Research was advanced to the pilot scale and recognized with a 2015 Federal Laboratory Consortium award for Excellence in Technology Transfer. [Read more...](#)

VOLTTRON???: Managing Building Energy Use

Created to meet the challenges of a rapidly changing energy system and the need to integrate renewable energy generation, energy storage, and electric vehicles, VOLTTRON ??? is a platform for distributed

Governors. [Read more...](#)

Mychailo Toloczko

Authored a manuscript that was named as a "hot paper" by the Institute for Science Information. [Read more...](#)

Mark Triplett

Recognized by the Consulate General of Japan for contributions to Japan-U.S. relations. [Read more...](#)

sensing and control for smart grid and building applications. A Connecticut firm recently licensed the software for managing building energy use. [Read more...](#)

Catch and Release - New Injectable Fish Tags

PNNL researchers have created a new injectable tracking device, the length of two grains of rice, that reduces fish handling time by 80%. Minimizing impact to the juvenile fish improves the reliability of the data collected during migration. [Read more...](#)

Fueling America's Transportation Industry

In mid-January, researchers at PNNL started up a 14-foot distillation column located to separate upgraded bio-oil into gasoline, diesel, and jet range fuels. During a test run, approximately 10 liter quantities of gasoline and diesel/jet range fuels were collected, bringing the technology one step closer to commercialization. [Read more...](#)

Sensor Suitcase: Packed to Improve Building Efficiency

Very few small commercial buildings in the United States have been evaluated and updated, or retro-commissioned, to ensure they operate efficiently. The Sensor Suitcase, a portable diagnostic toolkit, can streamline the retro-commissioning process by identifying energy-saving opportunities via deployed sensors. [Read more...](#)

New Air Chiller Helps Keep Navy Cool

The first high-efficiency microchannel air chiller was demonstrated by PNNL's Pete McGrail at the February ARPA-E summit. The device, referred to as an adsorption chiller, serves as an alternative to heat pumps and air conditioners. It houses a new sorbent - three times more absorbent than traditional silica gel - making it smaller in size and ideal for retrofitting naval vessels. [Read more...](#)

Creating Algal Biofuels Out of Thin Air

With a grant from DOE's Bioenergy Technologies Office, researchers at PNNL's Marine Sciences Laboratory will be partnering with MicroBio Engineering, Inc., while using a combination of manipulations to maximize the transfer of carbon dioxide from air into algal pond cultures. [Read more...](#)

High-Efficiency Lighting Validates Parking Savings

Well-lit parking lots provide a sense of security for many Americans who walk to their cars after the sun goes down. But how much energy does all that lighting use? The Lighting Energy Efficiency in Parking, or LEEP, Campaign helps building owners cut these costs, successfully saved participants a total of \$10 million annually since January 2010. [Read more...](#)

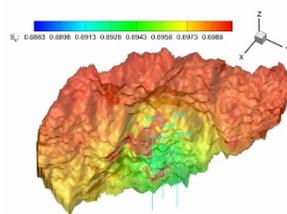
Environmental Health and Remediation



Solid Progress for Turning Nuclear Waste into Glass

PNNL staff worked along-side Waste Treatment Plant project staff to recently complete a mathematical algorithm that achieves an optimal waste and additive mixture for vitrifying high-level waste at the Hanford Site. The exact mixture of waste and additives is designed to meet 14 different property constraints and 7 optimization parameters for effective plant operations. [Read more...](#)

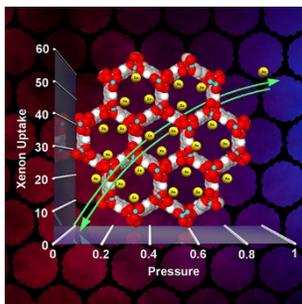
Clean Fossil Energy



New Computer Code Released for Enhanced Oil Recovery

Initially designed as a simulator for subsurface flow and transport, PNNL's Subsurface Transport Over Multiple Phases computer code - or STOMP - now has expanded capabilities. The additional code, an enhanced oil recovery module, was formally released at the 12th International Conference on Greenhouse Gas Control Technologies in Austin, Texas. [Read more...](#)

Nuclear



Recycling Waste, Wrangling Radionuclides

The United States currently does not reprocess used nuclear fuel because of the potential release of radioactive elements into the air. In partnership with the University of Amsterdam, researchers at PNNL, funded by the DOE Office of Nuclear Energy, have found that metal-organic frameworks, or MOFs, can capture the radionuclides that are released during reprocessing of used nuclear fuel. [Read more...](#)

PNNL Co-Hosts Regional Workshop on Nuclear Innovation

In partnership with Oregon State University in Corvallis, Ore., PNNL hosted one of six nationwide DOE workshops on nuclear energy innovation from March 3-5, 2015. Workshop focus areas included new concepts in energy systems and subsystems, use of existing technologies, improved R&D paradigms, and streamlined regulation. [Read more...](#)

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