



FORGING THE FUTURE

from Appliance standards to Zirconium oxide

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News

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Staff Accomplishments

Alicia Gorton

Named a 2015 New Face of Civil Engineering Professional honoree by the American Society of Civil Engineers. [More...](#)

January 2015

In an effort to better represent the work we do on behalf of our clients - and save a few trees - welcome to the inaugural e-newsletter for the Energy and Environment Directorate at PNNL. Take a look around and let us know what you think!

Electricity Infrastructure



Power Grid in Line for Modern Makeover

The challenge to transform the U.S. power grid to meet the demands of the 21st century is daunting and urgent. To meet this challenge, the U.S. DOE harnessed the power of its

national laboratories with the formation of the Grid Modernization Laboratory Consortium. [More...](#)

Smart Grid Demo Project Concluding

Results from the five-year Battelle-led Pacific Northwest Smart Grid Demonstration Project will play an important role in shaping regional and national policy as well as approaches for advancing grid modernization. [More...](#)

Naomi Miller

Honored with the Louis B. Marks Award by the Illuminating Engineering Society. [More...](#)

Radha Motkuri

Featured on the cover of ChemComm in January. [More...](#)

Ramprashad Prabhakaran

Selected by The Minerals, Metals and Materials Society for the 2015 Structural Materials Division Young Leader Professional Development Award. [More...](#)

Dave Senior

Selected to serve on the Infrastructure Review Panel for the Advanced Test Reactor National Scientific User Facility. [More...](#)

Fred Zhang

Selected by the Soil Science Society of America Journal as an Associate Editor for the Soil Physics division. [More...](#)

To see more Energy & Environment staff accomplishments, visit our [Highlights](#) page.

Energy Experts Shape Smart Grid at Transactive Energy Conference

PNNL researchers joined nearly 200 other experts from government, industry, utilities, and academia to exchange information about advances in transactive energy concepts, systems and technologies, barriers to market adoption, and related legislative and policy issues. [More...](#)

Energy Efficiency and Renewable Energy**Efficiency Standard for Commercial Ice Makers**

PNNL helped DOE meet its goal of finalizing 10 energy efficiency standards in 2014 in support of the President's Climate Action Plan. The automatic commercial ice makers standard will reduce harmful carbon dioxide

pollution by 4 million metric tons and save Americans nearly \$600 million in electricity bills through 2030.

[More...](#)

Fish Research Taken to Next Level

Sensor Fish, a juvenile-salmon sized device filled with sensors, measures the physical stress experienced by fish during their passage through dams. The second-generation Sensor Fish costs 80 percent less than the original version of the technology and can be deployed in additional dam types. [More...](#)

Rewards for Responsible, Real-time Energy Management

Funded by the DOE's Building Technologies Office, PNNL and collaborators recently completed a 2-year Transactional Network Project that successfully demonstrated cooperative decision-making is possible for buildings. They used a software platform that allows communication between the grid and a building's physical devices or systems to control how and when those devices use electricity. [More...](#)

Accelerating Commercialization of Clean Energy Technologies

PNNL's most promising technologies related to building energy efficiency, biofuels, vehicles, water power, and/or advanced technology will receive a boost in commercialization efforts as a result of DOE's new Lab-Corps Program, which will enable lab teams to gain direct market feedback on technology. [More...](#)

Buoy Splashes Down in Virginia for Offshore Wind Project

In December, PNNL researchers launched an instrumented buoy off the coast of Virginia, it will remain there for up to a year while measuring the power-generating potential of offshore wind. [More...](#)

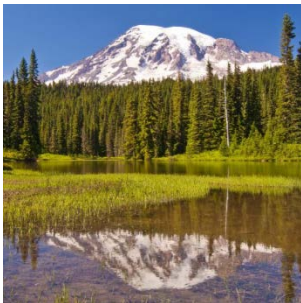
Buildings of the Future Project Launched

The U.S. DOE and PNNL are developing a vision for future buildings based on the collective views of thought leaders from industry and academia. Launched in December 2014, the project is collecting ideas that will contribute to a clear, compelling vision for the built environment while also advancing DOE program planning and strategies. [More...](#)

Driving Down the Cost of Renewable Gasoline

PNNL researchers improved processes that convert biomass directly into bio-oils and bio-crudes. This reduced the cost of making fuels from wood-based bio-oils by a whopping 60 percent, from \$12/gge in 2009 to \$4.60/gge today (gge = gasoline gallon equivalent). [More...](#)

Environmental Health and Remediation



Water Management in the Puget Sound

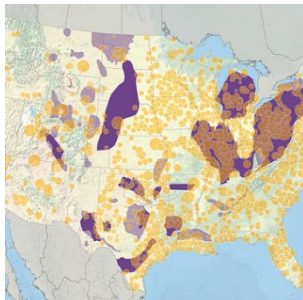
With climate change and increasing development in watersheds, what tools will water resource managers need in the next five to ten years? This is the question PNNL researchers set out to answer in the Environmental Protection Agency project 'Snow Caps to White Caps.' This question is especially important in fast-growing watersheds, such as the Snohomish Basin in the Puget Sound region of Washington State. [More...](#)

Successful Groundwater Workshop to Join Water Resource Training Program

At the request of the International Atomic Energy Agency (IAEA), Dawn Wellman, program manager for environmental remediation and health research at PNNL, organized and taught a week-long course on Groundwater Pollution, Hydrology, and Remediation at IAEA Headquarters in December 2014. The IAEA now plans to include the course in its annual training program for protection of

water resources. [More...](#)

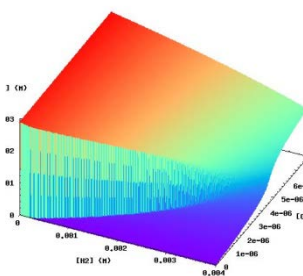
Clean Fossil Energy



Shale Shows Promising Potential for Carbon Dioxide Storage

A recent PNNL study shows that gas-bearing shales could play an important role in addressing carbon dioxide storage needs in the United States, particularly in the Northeast where other options are limited. Casie Davidson, a PNNL researcher, presented these exciting new findings at the 12th International Conference on Greenhouse Gas Control Technologies. [More...](#)

Nuclear



Radiolysis Simulation Reveals Strange Behavior

Recently published PNNL research into radiolysis - or radiation's ability to cause molecular decomposition in substances - demonstrated a tendency for the radiolysis system to jump unpredictably from one condition to another. The findings may help explain some anomalies that have turned up in similar experiments in this research field. [More...](#)

Presidential Appointee to Lead Nuclear Process Science Initiative

Sue Clark, an internationally known environmental radiochemist, joined PNNL in January as a Battelle Fellow. Dr. Clark will lead PNNL's new Nuclear Process Science Initiative, which seeks to better understand waste processing and nuclear forensics, while leveraging the unique capabilities of PNNL's Radiochemical Processing Laboratory. [More...](#)

Separating Uranium from Seawater to Fuel Nuclear Energy

The world's uranium reserve could be increased by 1,000 with a high-performance absorbent that extracts uranium from seawater. PNNL researchers tested the new sorbent at its Marine Sciences Laboratory, and additional tests are planned at Woods Hole Oceanographic Institution and the University of Miami to compare results.

[More...](#)

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