



FORGING THE FUTURE



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December 2015

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News

See how we were featured in the [news](#) and [read our press releases](#).

Staff Accomplishments

[Carlos Fernandez](#)
Received IChemE
award for Outstanding

Connected Campuses to Test Transactive Energy



As the first-of-its-kind regional partnership, research collaborators in Washington State are deploying smart technologies in a multi-campus demonstration to test "transaction-based" energy management - an energy management approach that uses dynamic control and coordination to balance energy use among and across multiple buildings. Equipped with PNNL's... [read more](#).

Advanced Research Projects Agency- Energy



[Three New Technologies for Cleaner Energy](#)

A computational tool to improve power grid planning, a process to create biofuel from kelp, and a hybrid device that makes hydrogen

Achievement in
Chemical and Process
Engineering

Jim Follum

Selected for Power &
Engineering Society's
Best of the Best
Conference Paper
Award

Satish Nune

Appointed to editorial
board for the Journal
of Heterocyclics

Ramprasad Prabhakaran

Selected as a rising
professional by The
Minerals, Metals and
Materials Society



and stores energy
are all being developed by
PNNL and its partners under new projects just
announced by DOE's Advanced Research Projects
Agency-Energy... [read more.](#)

Electricity Infrastructure



Taming the Electrical Distribution Beast

New technologies and the
evolving needs of society are
forcing changes in the
structure of the grid. To help
inform development of
system architecture and
control solutions, PNNL's Jeff
Taft helped develop a new
reference model for control of the electric distribution
system. The model recognizes that grid... [read more.](#)

Energy Efficiency and Renewable Energy



Where There is Waste, There is Energy - and Opportunity

Small, tailored mini-refineries located where waste is
produced - such as farms and ranches, waste water
treatment plants, food processing centers, and similar
locations - could convert 85 percent of the nation's
abandoned carbon into useful energy. By largely
eliminating secondary processing and transportation costs,
greenhouse gases can be reduced by... [read more.](#)

From Airports to Universities, GATEWAY Demonstrations Shine Bright

Two recent lighting demonstrations, one at an airport and one at a university,
addressed a different set of problems faced within the lighting industry. Together, the
DOE-supported demonstrations are estimated to save more than... [read more.](#)

Energy-Efficiency Technology Gets Better With Time

The newly updated Facility Energy Decision System, or FEDS software, simulates
building energy use and identifies cost-effective measures, such as upgrading
lighting or HVAC systems. Version 7.0 enhances the available... [read more.](#)

Buoy Makes Splash off New Jersey Coast

A \$1.3 million research buoy, the second of its kind, was recently deployed off of the
coast of New Jersey. Each buoy is equipped with meteorological and oceanographic
gear that measure and help predict the power-producing potential of... [read more.](#)

A Class of Their Own: Efficiency Standard Updated for Heat Pumps and Air Conditioners

Researchers from PNNL partnered with DOE to publish a Final Rule that enforces changes for Single Package Vertical Units. The new requirements are expected to save 16 billion kilowatt-hours of energy and reduce emissions by... [read more](#).

Building Efficiency for Neighbors to the North

BC Hydro - the predominant utility in Canada's western-most province - faces an electricity demand increase of 40 percent by 2035. Having recently partnered with PNNL to identify and analyze practical design solutions, they found... [read more](#).

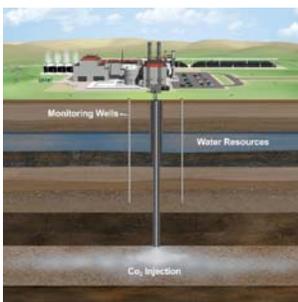
Environmental Health and Remediation



Hunkering Down with Radioactive Waste

A new tool for producing irradiated samples promises to tell researchers more about waste behavior during cleanup activities at the Hanford Site near Richland, Wash. The tool, known as an irradiator in the industry and dubbed the "gamma bunker" by the PNNL team that built it, consists of a lead-shielded cask with a radioactive source centered in the cavity. Researchers can arrange samples in different ways around the source depending on the... [read more](#).

Clean Fossil Energy



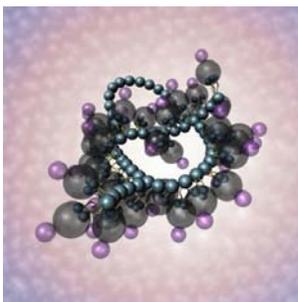
PNNL Software Helps Greenhouse Gases Go Underground

The Environmental Protection Agency (EPA) and PNNL have established an agreement to use and customize PNNL-developed software in the evaluation of permits for geological sequestration. EPA follows very strict protocols during permit application reviews, and PNNL's software will actively assist EPA with reporting, data management, and collaboration. This streamlines the permit... [read more](#).

Coaxing Carbon Dioxide into Tiny Underground Voids

Using computer simulations, PNNL researchers discovered that carbon dioxide can find its way into atomic voids on carbon sequestering minerals and solidify without the use of water-slurping carbonic acid. With just a small amount of... [read more](#).

Nuclear



Immobilizing Iodine with Silver-Functionalized Silica Aerogel

Nuclear fuel reprocessing plants sometimes emit iodine-129, a radioisotope that while low in activity, can persist in the environment for millions of years due to its long half-life. Researchers at PNNL are developing silver-functionalized silica aerogel for removal and immobilization of iodine compounds from the off-gas of these plants. In lab tests, the aerogel exhibited excellent... [read more](#).

New Watts Bar Reactor Gets Green Light for Operations

In October, the Nuclear Regulatory Commission granted an operating license for the Watts Bar Nuclear Generating Station Unit 2. The environmental review for the reactor, the first to be granted a license in two decades, used PNNL's... [read more](#).

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