Richland, Washington **October 2002**

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PNNL to use local wind power

In an effort to jumpstart the use of clean wind power in the region, Pacific Northwest National Laboratory will purchase and use 8.8 million kilowatt hours of power produced by the new Stateline Wind Power Project, located on the Washington-Oregon border between Pasco and Walla Walla. As a result of the agreement, Richland, Wash., residents might soon have the option to purchase wind energy as well.

The PNNL purchase, through the City of Richland, is for a one-year period beginning Oct. 1 with an option to extend it. The purchase covers more than 10 percent of the energy PNNL needs to operate its facilities in north Richland and will make it one of the federal government's leaders in the use of "green energy," with 13.7 percent of its energy coming from renewable resources. PNNL's large purchase paves the way for the City of Richland to launch a green energy program that includes a survey to evaluate the interest of electric customers in purchasing green energy for a small premium. For more information see **http://www.pnl.gov/news/2002/02-32.htm**.

Recycling computers for education

One person's trash is another's treasure—Pacific Northwest National Laboratory is putting a high-tech spin on this adage by offering excess computers and lab equipment to high school and college science and computer labs.

To keep up with technology, PNNL researchers often replace their computers every few years. These machines are still fine for meeting most high school and college students' computing needs. The Equipment Gift and Loan Program targets schools and colleges in the Pacific Northwest and especially small, geographically isolated or economically disadvantaged schools.

For example, PNNL gave 75 computers to the Mathematics, Engineering, Science Achievement (MESA) Program, which serves middle and high schools in southeastern Washington with student populations underrepresented in science, such as Hispanics, Native Americans, Afro-Americans and women. Among the colleges using PNNL computers is Walla Walla College, whose physics department is building a "computing cluster" that links the hard drives of 16 computers to achieve the power of a supercomputer without the price. For more information see **http://science-ed.pnl.gov/giftloan.stm**.

Mozart — A genius at assessing your web site

Based on new risks posed by adversaries seeking strategic information available on the Internet, government agencies and industry have been combing their web sites to remove sensitive information. The task is time consuming and potentially expensive. But thanks to an Internet assessment tool under development at Pacific Northwest National Laboratory called Mozart, a thorough analysis soon will be just mouse clicks away.

Mozart quickly archives and analyzes entire web sites based on search terms provided by the user and built-in search libraries containing hundreds of key phrases designed to find sensitive information. The output is a hyperlinked report, including a prioritized listing of web pages containing potentially strategic or sensitive information both within the user's organization and at externally linked sites. This information also is presented in a three-dimensional, graphic representation. PNNL is interested in working with government and industry partners on continued development of Mozart.

Researchers assess impacts of dredging on Columbia River crab

Researchers at Pacific Northwest National Laboratory are studying how Dungeness crab in the Columbia River are affected by maintenance dredging and by a plan to deepen the river.

The Columbia River, which serves as a waterway for exports from the West and Mid-West, is dredged yearly to keep the river bottom deep enough for safe navigation. During dredging, Dungeness crab are taken up with the dredged materials. The Portland office of the U.S. Army Corps of Engineers, which is sponsoring the assessment, also is planning to deepen a three-mile segment of river near Portland so larger ships can call at ports on the Columbia.

During the dredging process, sediment and crab from the river bottom are taken up through pipes and passed into a hopper aboard the dredge. When the hopper is full, its contents are released at a dumpsite. PNNL scientists are trying to find out how many crab are being trapped as the dredge fills up and what happens to crab that get buried by sediment when the hopper is emptied. This fall, scientists will analyze data and build models to make projections about their findings in terms of the whole crab population and the future deepening project.

New lightweight materials produce cars of the future

Three prototype lightweight vehicle frames have been developed by Pacific Northwest National Laboratory and the Northwest Alliance for Transportation Technology (NATT), in partnership with DaimlerChrysler, the Department of Energy's Office of Heavy Vehicle Technologies and Alcoa, the world's largest aluminum producer. The prototypes, which are steel and aluminum hybrids, will be tested under real-world conditions on the chassis of a 2002 Dodge Durango later this year.

Almost half of all new vehicles sold in the United States are pickups, SUVs and vans. On average, they weigh more, are less fuel-efficient and present safety problems when they collide with lighter vehicles. Because these vehicles also consume the most fuel, the application of lightweight materials is expected to improve their fuel economy.

PNNL's research in lightweight materials goes beyond work in the lab to develop novel materials. The Laboratory's expertise in materials science and advanced manufacturing techniques gives it the means to focus on developing new, lighter weight materials that also are economical to manufacture. The Laboratory's computer modeling expertise allows researchers to simulate material behavior in the manufacturing process to see how the materials will work before building a prototype. For more information see **http://natt.pnl.gov/**.

Laboratory director addresses biotechnology in Washington economy

A guest editorial in the *Seattle Times* by Pacific Northwest National Laboratory Director Lura Powell outlines what she considers to be three steps that the State of Washington must take to protect its position in biotechnology, which contributes to the state's economy.

Powell describes the need for direct investment by the state in science initiatives, especially at universities. By comparison, Washington was ranked 35th in state funding for university research in 2000 by the National Science Foundation. The editorial also suggests that revising tax structures and reducing regulations would encourage entrepreneurs and increase opportunities for commercializing technologies. Removing barriers to commercialization would help keep new jobs and revenues from biotechnology advancements within the state.

Lastly, Powell suggests that Northwest research institutions work together more closely, allowing participants to bring their unique strengths to regional collaborations, such as the Northwest Bioproducts Research Institute formed in July by two national laboratories and two universities. Powell's guest editorial appeared in the Sept. 29, 2002, edition of the *Seattle Times* and is available at **http://seattletimes.nwsource.com/html/editorialsopinion/134544524_lura29.html**.

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This publication is available online at http://www.pnl.gov/sharingscience

RL-P00-007 Oct. 28, 2002