

Partner Update

U.S. Department of Energy • Office of Energy Efficiency and Renewable Energy

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UNH Bolsters Energy Leadership

Early December marked a milestone in the energy-efficient efforts of the **University of New Hampshire** (UNH), as a leader in building energy performance joined forces with Rebuild America. This alliance is unique because of the level of information sharing that is bound to occur, benefiting colleges and universities, as well as other partnerships, across the country.

Making smart energy decisions for 25 years, UNH, located in Durham, ranks in the top 5 percent of energy-efficient research universities in the country, based on data analyzed by the U.S. Department of Energy's Oak Ridge National Laboratory. Even with this ranking, reported in *Higher Education*

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Portland Pushes Ahead with New Fuel Technologies

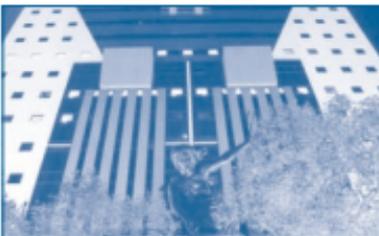


Photo Credit: Andrew Vail

The historic Portland Building will be modernized with an efficiency sweep that will shut down lights throughout the building at the same time every evening.

is the installation of a light sweep control in the famous, downtown Portland Building. The city is installing new controls in the government office building that will automatically shut off the lights every evening after employees have left for the day. Controls will be put in floors 2 through 15. The technology already was tested on one floor and showed a 29 percent reduction in lighting energy use.

The project will cost \$70,000 to complete, but Portland General Electric is working with the City of Portland to offer a \$26,000 rebate to help with costs. The city is funding the remaining \$44,000, with the investment projected to pay for itself in only 1.2 years. The project was completed in December, and energy savings are expected to be about 500,000-kWh per year.

The Portland Building, designed by **Michael Graves** in 1980, resides on a 200-square-foot city block and has been hailed as an icon of the post-modern movement among American architects. It was seen as both innovative and controversial when it was completed 21 years ago, and over time the building has become a defining feature of Portland.

Taking Rebuild America to the Streets

Energy-efficient efforts are moving outside Portland's buildings to the city streets. Portland energy management officials are busy making traffic lights throughout the city energy efficient by replacing traditional incandescent lights with highly efficient light emitting diode (LED) lamps. Portland officials had tested this technology before, but until recently LED lamps were cost prohibitive given the low electric rates in the Northwest. Now, LED prices have dropped, just as electricity prices have risen, and utilities are offering worthwhile incentives to convert to the more efficient technology.

The project is moving quickly, thanks in part to the city's option to lease LED lamps rather than purchase them. The approach allows a leasing subsidiary of Washington

The **City of Portland** and the **Portland Partners for Energy Efficiency (P.E.E)** are paving the way for American cities to aggressively explore cleaner and less expensive sources of fuel for city projects. With several active projects throughout the city, a case could be made that Portland is fast becoming the most energy-efficient city in America.

7 p.m. – Lights Out

One major project underway

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School Energy Officials Share at EnergySmart Schools Roundtable



Collaborating on energy-efficient issues in education at the November EnergySmart Schools Roundtable.

November's EnergySmart Schools Roundtable, hosted by the National Association of Counties, provided the setting for industry and organizational representatives to discuss educational tools, information pathways, and how to integrate efforts to improve EnergySmart Schools.

Energy efficiency leaders, architects, teachers and policymakers sat down on November 15 to find common ground in their quest to provide comfortable learning environments for students and faculty, while boosting the energy efficiency of educational buildings across the country.

"We want to give people a campaign that's customizable," one attendee said, explaining that energy information tailored to its recipients is far more beneficial than general material.

Rebuild America EnergySmart Schools is dedicated to improving energy efficiency in K-12 schools. Through hands-on learning exercises in the classroom and energy retrofits on facilities, schools save money, lower pollution and educate a new generation on the benefits of efficient energy use.

The roundtable served as a forum for representatives from

various groups involved in schools and energy education or energy-saving improvements to convene and share ideas. Representatives from the National School Board Association, Project Learning Tree, Association of School Business Officials, the U.S. Environmental Protection Agency (EPA), as well as EnergySmart Schools, among other groups, attended the roundtable. **Norma Dulin** of the Growth Factor and EnergySmart Schools Coordinator **Blanche Sheinkopf** presided over the meeting.

A primary focus of the discussion was how various parties could share knowledge and disseminate information more effectively. Organizations like the Alliance to Save Energy, which runs the Green Schools program, and Project Learning Tree, host of theme-based workshops in all 50 states, offered to share information on their projects and educational tools. Some members suggested that a Web site with customized information from all these groups through a single portal – like EnergySmart Schools – would be helpful.

Roundtable participants also discussed some of their less successful efforts at information sharing and provided suggestions for improvement. Several architects pointed to efforts in Pennsylvania, Georgia and Virginia to standardize school building design that were hampered by poor information sharing. Representatives from EPA emphasized the need to integrate indoor air quality requirements for schools into discussions on energy efficiency to "bring a more holistic view of the school" into decision-making.

For more information on EnergySmart Schools and the roundtable, contact Blanche Sheinkopf at 321-779-376 or bsheinkopf@energysmartschools.net.

Snap Shot

Jeff Brown has worked with Rebuild America for over five years, beginning with grant writing in 1995 and most recently enlisting as sales and customer service manager in 1998.



Jeff Brown

Vital Statistics

Lives in Spring Hope, NC, with wife, Kristen, an auditor with the North Carolina Department of Revenue. Has four children – three daughters and one son. Kelly is a senior at the University of North Carolina at Chapel Hill; Lindsey is a junior at Southern Nash High School; Ryan is in fifth grade; and Matthew attends preschool.

How long have you been working with Rebuild America?

I've been active in Rebuild America at the state and national level since 1995. In 1995, I wrote the first Rebuild America Special Projects Grant for North Carolina while I was the buildings and community program manager for the North Carolina Department of Commerce, Energy Division.

From 1995 to 1997 I managed the implementation of North Carolina's Rebuild America activities, incorporating \$800,000 worth of oil overcharge funding to support the development and expansion of 17 Rebuild America Community Partnerships.

In 1997, I joined Aspen Systems Corporation as a national Rebuild America program representative. And in 1998, I began managing Rebuild America's national sales and customer service activities.

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With New Rebuild Michigan Now All States are Partnerships



As Rebuild America surpasses the 400th partnership mark, the state of Michigan holds a celebration of its own – launching the first Rebuild America partnership in the state and becoming the last state in the union to join the U.S. Department of Energy (DOE) program.

Rebuild Michigan will encourage the development of community energy projects throughout the state. The state partnership will look for one or two communities with strong civic ties among businesses and neighborhoods, as well as some experience in energy efficiency. But ultimately decisions on retrofits and financing will be made at the local level.

"The type of building retrofits will depend largely on what the community feels they need," says **Kelly Launder**, Rebuild Michigan program coordinator.

Michigan officially ended its streak as the only state in the U.S. without a Rebuild America program by signing up at the state level. Launder says that the state applied for DOE support in Rebuild America's first year but was not chosen. The state tried again in 2001 and received that assistance.

"The DOE Chicago Regional Support Office was instrumental in encouraging our 2001 application. ... It was always in our minds to reapply, but other priorities and program needs intervened," says Launder.

According to a bulletin announcing its launch, "The primary focus of Rebuild Michigan is to reduce energy use in commercial, institutional and multifamily buildings. However, each community will determine its own needs and may decide to include other components, such as developing renewable energy and the use of alternative transportation fuels."

Rebuild Michigan has yet to decide on an organizational structure for the partnership, Launder says. But they plan to launch a pilot-scale program "to see what works best for Michigan communities," she explains.

"In the meantime, we will talk with people who have more Rebuild America experience than we do to explore options and to build a model for success here," Launder says.

For more information on Rebuild Michigan, contact Program Coordinator Kelly Launder at klaunder@michigan.gov.



View From DC By Daniel Sze

With a new year upon us, it's time to take a look back at our achievements, identify areas for improvement and look to the challenges and the promise of 2002. Here are a few of the Rebuild America highlights of 2001:

In cities – Two major cities formed Rebuild America partnerships in the latter part of the year. The **City of Houston** and the **City of Denver** are on board with progressive plans for using energy-saving measures as a catalyst for community improvement.

In schools – Rebuild America continues to make headway in efforts to improve the learning and teaching environment through energy-efficient improvements.

Fairfax County Public Schools District, VA, the largest school district in Virginia and the 11th largest in the nation, joined in July and is incorporating energy-efficient features in its schools. California's **West Contra Costa Unified School District** partnership began retrofitting two middle school classrooms to demonstrate energy-efficient technology, with help from over 10 Business Partners, including **Lennox** and **Phillips**.

In small towns – **Ford City, PA**, a town that suffered economically with the closing of a glass manufacturing plant in the early 1990s, is on the rebound with help from Rebuild America. The Ford City partnership is incorporating energy-efficient technologies in its efforts to redevelop the site of the abandoned plant and create incubator office space to attract new businesses to the waterfront site. (See the September/October 2001 issue of *Partner Update* for more details.)

In public housing – **Stark Metropolitan Housing Authority**, a partner of **Rebuild Ohio**, serves as an example of how partnerships can improve housing for seniors. Stark's redevelopment of low-income, senior housing in Canton, OH, included an extensive retrofit and installation of a geothermal heating and cooling system. (See the November/December 2001 issue of *Partner Update* for more details.)

On campuses – The **University of New Hampshire** (UNH), a partner of **Rebuild New Hampshire**, was formally recognized in December. Its energy-efficient practices are an integral part of campus life, involving administrators, maintenance personnel, faculty and students. (See page 1 of this issue for more on UNH.)

In energy education – GetSmart About Energy, an interactive CD-ROM for teachers and students, was introduced. The program contains energy activities aligned with National Science Foundation standards.

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Garman Highlights President's Energy Plan, Focuses on Energy Efficiency



Assistant Secretary for Energy Efficiency and Renewable Energy
David Garman

Focusing on energy efficiency, Assistant Secretary for Energy Efficiency and Renewable Energy **David Garman** detailed the president's plan for ensuring the nation's energy security. Garman delivered his mid-November address to a gathering of professionals, students, government workers and other interested parties.

Garman spoke at the National Building Museum, explaining that it serves as an example for the future.

He said the structure blends classic architecture with 21st century energy efficiency and building performance.

"It makes sense to meld our best technology with the past," he added.

His speech discussed the U.S. Department of Energy's (DOE) vision for the future. He said emerging technology will enable the U.S. to substantially trim its energy use, while avoiding current pollution loads.

Garman highlighted President **George Bush's** National Energy Policy which contains a series of recommendations for securing our nation's energy supply. The president and

DOE envision homeowners selling electricity back to the grid, generating power with wind turbines or solar shingles, vehicles running on fuel cells, and melding information technology with architectural and building technology. This will ensure building operations run in a "transparent, seamless manner," critical to the nation's energy security.

More than half of the plan's 105 recommendations focus on energy efficiency and the use of renewable fuels, he continued. Energy-efficient renovation and construction efforts supported by Rebuild America and Building America will help secure our energy supply, protect the environment and begin the cultural shift, Garman said.

Noting that industrial and commercial buildings consume the greatest amount of energy in the US, and that buildings are directly and indirectly responsible for one-third of carbon dioxide emissions, Garman emphasized that citizens, business and government can preserve the nation's energy security and reduce pollution by improving building performance.

He continued that energy education is vital, because builders usually only examine first costs – or the cost of construction – yet rarely the costs after the building is sold. "They're not paying the bills," Garman said, as he explained that programs, like Rebuild America and Building America, are working to change that mindset.

New Offices for Rebuild Shelby's Lead Partner

The **Uptown Shelby Association** – the lead partner for **Rebuild Shelby** in North Carolina – held a ribbon cutting ceremony to celebrate its new energy-efficient offices. The offices are part of a multi-business development approach that has revitalized the surrounding neighborhood of Shelby.

While the building has actually been in use for about a year, the Uptown Shelby Association hosted an October ceremony to celebrate its opening. These offices were the second of three businesses to move into the renovated abandoned warehouse.

At the ceremony, Uptown Shelby Association Board of Directors Chairman **Mike Alexander** said, "In every town, there are those who dream and talk, but more rare are those who dream, talk and do."

Rebuild Shelby, led by **Ted Alexander**, executive director of the Uptown Shelby Association, has turned its dreams into reality. Renovation of a seven-year vacant warehouse allowed for lighting changes, heating, ventilation and cooling system upgrades, insulation and weatherstripping. The project



The Uptown Shelby Association – lead partner of Rebuild Shelby – holds a ribbon cutting ceremony for their new highly energy-efficient offices that were part of the Uptown Shelby revitalization effort.

changed the internal design of the layout so that "dead space," such as closets and bathrooms were on the exposed side of the building, providing a cushion of insulation. The building also has a cool roof painted white and a vestibule, which acts as an air lock.

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Window Upgrades Provide Energy Benefits to New and Existing Construction



TRACO, a leading manufacturer of energy-efficient aluminum and vinyl windows and doors, joined Rebuild America in April 2001. TRACO provides expertise to all Rebuild America sectors with a strong base in the K-12 market. Experts from TRACO visit project sites and discuss individual school needs with school boards, principals, teachers and facility managers.

Recently, TRACO undertook the challenge of restoring and replacing windows in the Empire State Building and the Statue of Liberty. Its officials faced the task of searching for energy-efficient solutions while respecting the historic integrity of the landmark buildings. Last May, TRACO also served as an official sponsor for the Rebuild America's *Energy Treasure Hunt Program* in Northern California's **West Contra Costa Unified School District**.

Partner Update spoke with **Tony Bartonillo**, architectural services manager and main Business Partner contact, about trends in retrofitting, working with historic buildings, and why partnerships should consider window upgrades when striving for energy efficiency.

Question: What are the most important trends in the retrofit market?

As material and construction costs increase for new construction projects, it becomes more affordable and cost effective to renovate existing buildings. There is an abundance of buildings available for renovation. For instance, many schools were built for baby boomers. Later generations are smaller and require less school space. These properties provide an excellent source of assisted living facilities, senior housing and even office space. Not only are these properties available at a very competitive price, the renovations are typically minimal and, therefore, cost effective. A renovation project also shrinks construction time allowing for quick occupancy.

Q: Is energy efficiency top-of-mind for today's customers?

Energy efficiency is a major factor in product selection. Heightened awareness frequently comes from accessibility of information through the Internet. For example, a few years ago, Low-E glass was considered a little known, additional

cost that didn't provide much value. Today, Low-E glass is standard glazing for many manufacturers. It also is required to meet federal, state and local energy codes.

Q: You have done extensive work with the Statue of Liberty and the Empire State building. What were some of the challenges in tackling these projects?

TRACO is very proud of our selection as window manufacturer for the Statue of Liberty and the Empire State Building. These projects posed many challenges. Did you know that the Statue of Liberty is the most recognized structure in the world? Well, it is, and that made our job tricky. We had to maintain the statue's aesthetics while developing material for renovation.

The first challenge was that the windows were manufactured from solid bronze. Plus the windows were varying sizes, shapes, angles and curvatures. A template had to be made for each individual opening, with each solid bronze window handcrafted to fit its opening. As an added feature, the new windows pivot to the interior. This allows the exterior of the windows to be cleaned from inside the statue's crown.

The Empire State Building also had special requirements. TRACO had to design a window product that would withstand the stringent design pressures of a 102-story building. After scraping through many layers and years of paint, we realized that the original windows were actually red. We had to stay true to the original color. The new windows also have a tilt feature that allows for safe and inexpensive cleaning from inside the building.



Q: How does working on historic buildings differ from retrofitting more modern structures?

When working on historic buildings, we have to coordinate closely with the National Park Service, Historic Preservation Society and many state, county and local historical societies. Each project is unique and governed by a different set of rules and guidelines. Producing a window and pane system that maintains sightlines, profiles, muntin configurations and overall aesthetics is difficult.

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Reflective Roofs Save Energy and Money:

Recent Studies and New Financial Incentives Bolster Use of Cool Roofs



A cool roofing system, like this one on an Arizona high school, is a durable, attractive and energy-efficient technology.

We all have felt the effects of dark versus light clothing on a sunny summer day. Because dark colors reflect less solar energy, we know a navy blue shirt is hot and a pale yellow top is cool. The same principles govern roof temperatures. Reflective roofing systems are based on the simple principle that light-colored roof materials make for a cool roof by reflecting more of the sun's rays. All of which translates to energy conservation and costs savings. Recent successes in cool roof technology, including studies by the U.S. Department of Energy (DOE), U.S. Environmental Protection Agency (EPA) and retrofit-incentive programs in California, point to interest in temperature-controlling roofing systems.

Studies by the Florida Solar Energy Center and the EPA confirm that reflective roofs made of polyvinyl chloride membranes, or other single-ply materials, can reduce air-conditioning utility costs by as much as 50 percent. And cooling demand during peak hours can be decreased by 10 percent to 15 percent, reducing demand on the electrical grid. According to the EPA, \$40 billion is spent annually in the United States to air condition buildings, which is nearly 17 percent of all electricity generated in the U.S. each year.

Sarnafil's EnergySmart® White Reflective Roof Provides Bright Savings

A recent DOE and EPA study, conducted by the Heat Island Group at Lawrence Berkeley National Laboratory,

shows that white reflective roofs substantially cut summertime air-conditioning energy use and costs. Specifically, the study looked at the savings and power-demand associated with a Sarnafil EnergySmart® reflective roof, retrofitted on a large retail store in Austin, TX.

The new roof reduced the average summertime roof temperature of the store from 168°F to 126°F. Peak air-conditioning demand fell by 35-kilowatts – a 14 percent drop that translates into monthly savings of \$490. With an 11 percent decrease in total air conditioner energy use, this 100,000-square-foot building is expected to save about \$65,000 over the life of the roof.

California Incentives Draw Businesses to Use Cool Roofs

The State of California is the first to offer cash rebates for companies to replace dark roofing surfaces with highly reflective surfaces, such as single-ply vinyl roof membranes. The incentives, offered through the California Energy Commission Cool Roof Retrofit Program, apply to low-slope roofs on non-residential or multi-family buildings that are mechanically cooled in the summer. The program offers financial incentives to replace dark roofs reflecting less than 30 percent of sunlight with non-metallic cool roofs reflecting at least 65 percent.

While the incentives save money up front, the most significant savings come in reduced energy consumption over years of use. According to the California Energy Commission, cool roofs reduce peak electricity demand, the "heat island" effect and air pollution, as well as improve building comfort.

For more information on cool roof technology, contact Bill Miller with Oak Ridge National Laboratory's Buildings Technology Center, at 865-574-2013, visit <http://www.ornl.gov/roofs+walls/facts/RadiationControl.htm>, or contact Peter D'Antonio with Sarnafil Inc, at 800-576-2358.

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New Offices for Rebuild Shelby's Lead Partner

In spite of the energy improvements, much of the inside of the building remains the same. Original ceilings were left intact, as were the plaster, building materials and filigree.

Uptown Shelby Association's ribbon cutting is big news for an organization vital to the town's economic revitalization and energy-efficient efforts. Leading by example, the

Association has brought attention to Rebuild Shelby and the greater Rebuild America program.

The warehouse project, an initiative of Rebuild Shelby, received technical support from Rebuild America and the U.S. Department of Energy's Oak Ridge National Laboratory, as well as a grant from the state.

For more information on Rebuild Shelby, contact Ted Alexander at 704-484-3100.

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Portland Pushes Ahead with New Fuel Technologies



A Portland street light with incandescent bulbs is retrofitted with high-efficiency light emitting diodes.

Mutual Bank to receive a 35 percent state business energy tax credit. Through the lease agreement, the credit is shared between the private and public sectors.

"Saving energy is nice, but it's always nice when you can save money on the capital cost of the project too," says **Curt Nichols**, Portland's energy manager and a 1999 Rebuild America Energy Champion. Nichols, who was given the Association of Professional Energy Managers' "Energy Manager of the Year" award in 2000, is proud of the city's accomplishments. "Based on projects completed as of last summer, our energy projects have saved the city – and our taxpayers – more than \$9 million," Nichols adds.

It will cost \$2.2 million to retrofit more than 14,000 traffic signal lamps throughout the city, but the savings are projected to be 5,262,000-kWh annually. That's enough electricity to power nearly 440 typical Portland homes. At current electric rates, it will save the city \$368,000 per year. Utility rebates from Pacific Gas and Electric and Pacific Power equal \$797,000, and the business energy tax credit will net the city \$522,000.

The traffic lighting project, which includes a retrofit of all red and green traffic signal lights, flashing amber beacons and light rail transit signals was completed in late 2001.

Timing is Everything

Future energy-efficient projects are already in the works. The City of Portland recently received notice from the Climate Trust that its proposal for traffic signal optimization has been approved. The city, the Oregon Department of Transportation and Washington County created this joint proposal.

Traffic signal optimization is a low-cost, effective way to save fuel and reduce carbon dioxide emissions. This is accomplished by evaluating the old equipment that controls traffic signals to better facilitate traffic flow on major and minor roadways.

The project will begin next year. Funding from the Climate Trust will provide three quarters of the cost for 16-signal optimization projects over five years.

Reduce, Renew

Reducing energy is a goal for Portland. However, the city is working on renewable energy projects too. Portland is in the process of adding four 30-kilowatt biogas-powered microturbines at the city's primary wastewater treatment plant to operate beside award-winning fuel cells. Both environmentally friendly technologies – the fuel cells and the microturbines – will turn waste methane into electricity and usable heat.

Portland also is planning to erect a wind turbine on property near the Portland International Airport. This will be the first modern "urban windmill" in the United States. It will generate power for city facilities on that property, and any surplus power will be directed back to the electric grid through a net metering agreement with the local electric utility, Pacific Power.

The city is currently obtaining bids for solar-powered parking pay stations. Pay stations are placed in the middle of a block and will replace individual parking meters. The new pay stations will provide additional payment options for anyone parking in Portland, as well as eliminate the maintenance problems associated with old, mechanical-style parking meters. The pay stations also will provide a highly visible example of solar energy for Portland residents.

As a further commitment to reducing fossil fuel use, cutting carbon dioxide gas emissions, and encouraging others to use new, more efficient technologies, the city has ordered 30 Toyota Priuses to become part of the city's fleet. While this is likely the largest single purchase in the Pacific Northwest, it is just the start of many hybrid electric vehicle purchases Portland expects to make over the next few years.

The P.E. partnership was launched in 1996 and has surpassed its partnership goals by over 64 percent. The partnership has retrofitted more than 64-million square feet of building space in the public and private sectors.

For more information on *Portland Partners for Energy Efficiency* contact Curt Nichols at curtn@cityofportland.or.us.

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View From DC

This past year, Rebuild America's Strategic and Business Partners made progress in finding new approaches to getting information about energy efficiency before key audiences and engaging their participation. And Rebuild America Regional Peer Forums were held across the country, strengthening the bonds among partnerships, partners and program team members as they shared ideas and information to help meet the challenge of providing community-based, energy-saving solutions. Over 400 partnerships and growing, Rebuild America is positioned to make substantial progress this year in reaching decision makers and stakeholders in the effort to build an energy strong America.

Daniel Sze is National Program Manager of Rebuild America.

Active Physics Puts a Friendly Face on High School Science



Members of the Rebuild America community are teaming up with the National Science Foundation to shore up support for a new high school science

curriculum called Active Physics. The program is geared toward ninth grade students and teaches them how to uncover the physics of every day life.

Fifteen thousand students in Arkansas' Little Rock School District already benefit from the curriculum each year. The school district, along with its partnership, **Rebuild Little Rock**, is the first to successfully integrate Active Physics into its curriculum. Energy efficiency and building performance are now an integral part of the district's science curriculum, helping students understand the effects of science on their daily activities and teaching them how science can improve their environment. The program also encourages students who fall behind, or aren't inspired, in science and

mathematics to take a physics class.

Students in Arkansas have actually learned to like physics, thanks to Active Physics. A Little Rock student was quoted in *The Christian Science Monitor* last winter saying, "I always thought physics sounded evil, but anything that makes you think can't be bad. And it's a really fun class."

Rebuild America Lights Up the Classroom

Working with textbook company It's About Time, several Rebuild America partnerships are helping to produce a physics chapter titled *Light Up My Life*. The chapter uses an inquiry-based, or problem/solution, approach to physics curricula. The chapter analyzes how school lighting works and how it can be made more efficient. Students tackle a variety of challenges that enable them to determine how lighting is part of physics. For example, as part of the course, students are instructed to "develop and present a lamp/lighters plan for improvement of the existing environment of your choosing." As part of the plan, students analyze existing lighting-environment functions, energy consumption and costs, and then decipher and propose an improved system based on the findings.

February Energy Technology Seminar

Southern California Edison, Rebuild America and its Business Partners will present the first of several Energy Technology Seminars on February 13 in Irwindale, CA, located near Los Angeles. Attendees will learn how the latest energy-saving technologies in buildings can result in significant cost savings. The event's centerpiece will be "Virtual Building Solutions," a seminar where experts in the field will present real-life solutions for energy challenges.

For more information, contact Doug Avery at davery@tbl.gov.

Call for Sponsors and Exhibitors!

State Energy Program-Rebuild America Conference

Host an exhibit or help sponsor the 2002 State Energy Program-Rebuild America Conference. This is a great opportunity to raise your visibility or get a product or service noticed. There are many levels of participation. The conference, sponsored by the U.S. Department of Energy, is scheduled for July 28 to August 1 at the Hotel Inter-Continental in New Orleans, LA.

For more information call 202-466-7868 or email rebuildamerica@pcgpr.com.



Active Physics Is Practical Science

City and local officials also have hailed the program as a means to get young people enthused about science and community issues. In addition to learning about earth sciences – like why sunsets glow orange and what determines the force of a tornado – according to **Barbara Purdue**, executive director of the Arkansas

Department of Economic Development, students learn practical skills like how to build insulation, study its heat consumption and determine where it's losing energy.

The program is building support among a variety of sources. Representatives from Rebuild America, the National Science Foundation, It's About Time, Business Partners and Little Rock School District met in Washington, DC in mid-November to discuss the future of Active Physics within the Rebuild America program. Issues discussed included strategies for implementing the *Light Up My Life* chapter, incorporating the chapter into Rebuild America K-12 partnerships and recruiting new schools.

For more information on Active Physics, contact Kirk Bond at kirk.bond@tpul.gov.

Seattle and Boston Regional Peer Forums a Success

Recently, Rebuild America partnership, program and customer service representatives gathered on the East and West coasts for regional peer forums that highlighted team building, partnership successes and challenges, and new and emerging technology.

The three-day Seattle Regional Peer Forum took place in November. Over 60 participants contributed to workshops that focused on energy challenges and solutions for city management, K-12 schools and commercial buildings.

Cyane Dandridge, Rebuild America program representative for **Rebuild Presidio**, and **Sue Sieffert**, **Rebuild Idaho** lead, coordinated with **Paul Johnson** and **Richard Putnam** of the Seattle Regional Office to create a unique meeting, moderating panel discussions and presentations from partnership leaders, Business Partners and government officials. Speakers like Mayor **Garret Nancolas** of Calwell, ID, and Seattle City Councilman **Richard Conlin** proved that local government officials are hearing and responding to Rebuild America's efforts.

The high point of the meeting occurred on day two when



At the Boston Regional Peer Forum, customer service, state and partnership representatives tackle community partnership challenges together.

attendees gathered in teams to develop step-by-step approaches to addressing hypothetical energy problems. To do this, individuals analyzed issues in their respective challenge and consulted different stations hosted by energy industry experts. The groups then reconvened to talk about their findings. Challenges were issued in six categories: affordable housing, schools, city energy management, commercial buildings, small business and university campuses. These activities were followed by sessions based on actual challenges Rebuild America partnerships are facing in schools, public housing and local government.

In early December, the Boston Regional Peer Forum brought Northeast Rebuild America program representatives and partnerships together in Nashua, NH, in a similar fashion. The two-day forum incorporated team building,



Rebuild America colleagues at the Seattle Regional Peer Forum included (starting in the front, from left) Melissa Podersma, Sue Sieffert, Cyane Dandridge, Heather Mulligan, Paul Johnson, Glenn Sato, Richard Putnam

partnership success stories and challenges, and information on new and emerging energy-efficient technologies.

Boston Region Team Leader **Greg Davoren** together with **Deborah Lamm** and Cyane Dandridge from Customer Service organized a line-up of speakers, sessions and networking events. The peer forum was kicked off by the **University of New Hampshire** partnership launch event on December 4, which drew local television news coverage.

Maryann Manoojian, director of the New Hampshire Governor's Office of Energy and Community Services, lauded the university's achievement and emphasized that it was possible to gain both economic and environmental benefits through energy-efficient practices. With energy savings of \$4 million annually, UNH has been reducing greenhouse emissions by 14,000 tons, she said. **Christine Reinfeldt**, assistant director of the U.S. Department of Energy's Boston Regional Office, noted that UNH was "ready to be a leader" in energy efficiency and credited the tireless efforts of Rebuild New Hampshire Manager **Kirk Stone**, a catalyst behind the UNH partnership, and Maryann Manoojian for their strong leadership and support at the state level. Customer Service Team Leader **Jeff Brown** and UNH Energy Manager **Jim Dombrosk** joined Stone in offering public comments about the university and Rebuild America. (See page 1 of this issue for more on UNH.)

Program, state and customer service representatives met on the first day of the forum to discuss the framework and services provided through Rebuild America. The second day focused on Rebuild America's relationship with partnerships. Representatives of the University New Hampshire and **City of New Haven**, CT, partnerships presented the highlights of their substantial energy-saving initiatives. Forum attendees also gained insight into current energy security and technology issues through information sessions given by DesignLights Consortium's Northeast Energy Efficiency Partnerships, Inc., the Conservation Law Foundation and others.

For more information on the Seattle Regional Peer Forum, contact Richard Putnam at richard.putnam@ee.doe.gov.

For more information on the Boston Regional Peer Forum contact Greg Davoren at greg.davoren@ee.doe.gov.

Building America

Solving Problems with Energy Efficiency

A recent peer reviewed article from Building America details how problem solving that focuses on improving building energy efficiency leads to solutions that quickly and inexpensively benefit consumers, manufacturers and society.

At issue were concerns that many homes in the Southeast United States had moisture accumulating in their infrastructure. This moisture damaged wood parts, enabled the growth of mold and softened wallboard. Building America, a sister program of Rebuild America, investigated the problem from an energy performance standpoint and made a series of recommendations that corrected the moisture problem.

"Rather than install something else to try and fix the problem or, worse, ignore it altogether, the team examined the buildings' energy performance, found flaws and fixed them," Building America's **George James** says.

The focus of the investigation by the Building America **Industrialized Housing Partnership** (BAIHP), and led by the Florida Solar Energy Center, was 25 manufactured homes debilitated by moisture. These Housing and Urban Development-code (HUD) homes were built in a factory and transported to their present location.

Researchers with BAIHP conducted several intensive field tests that revealed pertinent information. The BAIHP team found the moisture problem did not stand alone. It was partially caused by the inadequate design of heating, ventilating, and air conditioning systems, and other aspects of the homes. In many homes the air conditioning thermostat

was set below the exterior dew point temperature, air-conditioning systems were oversized, and unbalanced air pressures existed across and within the building envelope. The homes also were located in hot, humid states, had ventilation systems that were either not in use or broken, and crawl spaces that were inadequately drained or ventilated.

To solve the moisture problem, BAIHP recommended keeping the inside temperature above the exterior dew point, tightly sealing ductwork and installing properly sized equipment. Action was taken, and at least one HUD-code home manufacturer and a BAIHP partner reported "no moisture vapor related failures on new homes" last year. The recommendations also save thousands in energy costs for consumers and call-back costs for the manufacturer. Most interestingly, it cost the factory at most \$10 per home to incorporate the BAIHP suggestions.

Dr. Subrato Chandra with the Florida Solar Energy Center shared this experience with Assistant Secretary of Energy Efficiency and Renewable Energy David Garman during Garman's November address at the National Building Museum in November. (Please see page 4 of this issue for full coverage of Garman's speech.) The BAIHP investigation is an example of how improving the efficiency of buildings can save money and energy by eliminating other visible and unforeseen problems.

In 1999, the Florida Solar Energy Center was competitively chosen to lead BAIHP in its goal to "serve the manufactured housing industry by fostering technology-based innovations that will increase energy efficiency through a systems engineering of the whole house." Cavalier Homes, Clayton Homes, Fleetwood Homes, Palm Harbor Homes and Southern Energy Homes, whose homes were the focus of the investigation, are BAIHP team members.

For more information, contact George James at george.james@ee.doe.gov.

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Snap Shot

How did you get into this line of work?

After receiving my undergraduate degree in Business Administration and Economics from Campbell University, I worked for a large, international, forest-products manufacturing company. In 1980, I moved on to regional management of a national, retail food chain, and in 1985 I joined the North Carolina Department of Commerce, Energy Division.

Being a licensed building contractor at the time, I had knowledge of, and interest in, how buildings performed, as well as how they are built. I wanted to be in an environment where I could acquire even more knowledge. And of all the programs I worked with in the Energy Division, I saw Rebuild America as the perfect platform for communities to find solutions to their energy problems.

What is the most rewarding aspect of your work?

Working with an extremely dedicated team and successfully interacting with people on the local level who are acting on their desire to improve their community. There is an end product that has clear economic and societal benefits.

What do you like to do in your spare time?

Coach soccer, work our land, be with my family.

What is your dream job?

Teaching high school political science or social studies and coaching the United States Women's National Soccer Team.

What is your dream vacation?

A month in a bungalow over a quiet lagoon in Tahiti with no telephone, cell phone or laptop.

Continued from page 5

Window Upgrades Provide Energy Benefits to New and Existing Construction

Historic muntins, for example, are typically three-quarters to seven-eighths of an inch wide. It is nearly impossible to maintain such a narrow muntin profile and incorporate modern insulating glass, which is twice as heavy as the original single glazing. Other factors, such as structural performance and egress requirements, also need to be addressed. Overall, historic projects require attention to detail that needs to be developed on an individual, per-job basis.

Q: How long does it take to benefit monetarily from an investment in new windows?

The payback period for fenestration products is a very important factor. Window replacement can be perceived as

an expensive aspect of an overall renovation project, with a lengthy payback period. Often this can defer window replacement, with the money allocated for windows sometimes spent elsewhere within the project for quicker paybacks.

Windows are a big-ticket item, which can account for a liberal amount of any project's budget. But the upfront investment is worth it, because the payback is typically far more substantial in terms of annual savings. Let's say new energy-efficient windows in a school reduce heating and cooling costs by \$30,000 annually, with a payback period of 12 years. This may appear to be a lengthy return on the original investment. However, after 12 years, the school will have \$30,000 available each year for other projects.

For more information on window retrofits, visit www.traco.com, or contact Tony Bartorillo at 724-776-7080 or tony.bartorillo@traco.com.

Continued from page 1

UNH Bolsters Energy Leadership



Morse Hall

Energy Performance Indicators, a Rebuild America/ Association of Higher Education Facilities Officers report, campus leaders realized the potential for learning from and providing insight on successes to Rebuild America.

"The University of New Hampshire is a terrific example of an energy-efficient university campus. ... Rebuild America is pleased to help UNH increase its efficiency even beyond where it is now," said **Mike MacDonald** of Oak Ridge National Laboratory.

UNH has incorporated energy-smart measures into the design and operation of campus buildings over the course of four decades. Through a series of building retrofits and educational programs, the university has saved \$4 million annually in energy costs compared to the national average. Efforts included lighting changeouts, revamped building control systems and new motors, and educating maintenance and operations staff, students and faculty on energy efficiency.

The driver behind this cut in energy consumption is actually two-fold – upper-level campus officials who are keenly aware of energy efficiency and its benefits, and an aggressive program in operation for decades. Assistance from

the New Hampshire Energy Office and the U.S. Department of Energy's programs helped UNH stay focused on its energy-efficient goals.

"The key factor here is 'continuous' – we never let up," UNH Campus Energy Manager **Jim Dombrosk** explains.

The campus seeks to incorporate Rebuild America's know-how into designing and constructing new buildings. UNH wants to learn from Rebuild America about new and emerging operations and maintenance procedures to ensure the campus' ranking as one of the most efficient research institutions around. The university also hopes to soon be able to monitor and track energy use and savings in order to find flaws, identify solutions to correct them and document best practices.



Thompson Hall

UNH decided that joining Rebuild America would boost the school's ability to procure information on energy efficiency and disseminate what it has learned. Rather than reinvent the wheel, the campus chose to tap into the vast information and education bank that Rebuild America offers its partnerships.

Information pathways are already in the works. The New Hampshire Governor's Office of Energy and Community Services is active in UNH activities, and Dombrosk hopes that this partnership resembles a two-direction highway in the exchange of information and anecdotes.

"Learning, improving, sharing. These are the things I hope the Rebuild America partnership brings, helping UNH maintain its high energy-efficiency ranking," Dombrosk says.

For more information on UNH's commitment to energy efficiency, visit www.energy.unh.edu.

Upcoming Events



Solar Sounds: The Green Local High School in Franklin Furnace, OH, celebrates the dedication of the school's new solar panels.

February

- 7-8 Valuation Modeling for Project Finance**
Marriott West Loop, Houston, TX Visit www.infocastinc.com/advff0202_agenda2.htm
- 10-13 National Association of Regulatory Utility Commissioners Winter Committee Meetings**
Hyatt Regency Washington on Capitol Hill, Washington, DC Visit www.naruc.org/Meetings/winter/2002/index.htm
- 11-13 National Association of State Energy Officials 2002 Energy Outlook Conference**
Westin Grand, Washington, DC
Visit www.naseo.org/events/outlook/default.htm
- 13 Rebuild America and Southern California Edison Energy Technology Seminar**
Irwindale, CA
Contact Doug Avery at davery@tbl.gov
- 26 Rebuild America and Lawrence Berkeley National Laboratory Lighting Best Practices Roundtable**
Berkeley, CA
Contact Doug Avery at davery@tbl.gov

March

- 8-11 TechAdvantage, 2002 Expo**
Dallas Convention Center, Dallas, TX
Visit www.techadvantage.org
- 19-21 Electric Power 2002 Conference & Exhibition**
America Center, St. Louis, MO
Visit www.electrictopconexpo.com
- 27-28 GLOBALCON 2002**
Pennsylvania Convention Center, Philadelphia, PA
Visit www.aawcenter.org/Shows

New Partnerships

- Montgomery County, OH
- Elmira City School District, NY
- City of Quincy Community Redevelopment Agency, FL
- Central State University, OH
- University of Cincinnati, OH
- Rebuild Denver: A Sustainability Initiative, CO
- Nampa School District, ID
- Boise State University, ID
- Heschong Mahone Group, CA
- Virginia Beach City Public Schools, VA

NEW!

Marketing and Communications Rebuild America Help Line 202-466-7868

To submit news or story ideas, contact:
Maureen O'Brien, 202-466-7391, or email
mobrien@pcgpr.com

Check Us Out: www.rebuild.org or 1-800-DOE-3732



Rebuild America is a network of partnerships – focused on communities – that save money by saving energy. These voluntary partnerships choose to improve the quality of life in their communities through energy efficiency. Rebuild America supports them with customized assistance backed by technical and business experts and resources.

Published bimonthly by the U.S. Department of Energy to report on Rebuild America activities, Partner Update now incorporates news from Building America and High Performance Buildings, energy-efficient initiatives of the Office of Building Technology, State and Community Programs.

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