

EnergySmart Update

Weatherization and Intergovernmental Program

DOE/EE-0292 • January – February 2004

Seattle Region's Peer Forum Draws a Crowd

Rebuild America community partnerships and program representatives from the West exchanged challenges and solutions at the 9th Seattle Regional Peer Forum, January 13-14 in Scottsdale, AZ. Presenters shared their knowledge of improving and revitalizing communities through energy-saving projects. "Joy through efficiency," as one attendee described it.

Maxine Robertson, of the Arizona Department of Commerce, Energy Office, welcomed the nearly 80 people who filled a room. She remarked that Arizona is fortunate to be part of Rebuild America because the state energy office now oversees energy-efficiency standards for public buildings.

Jim Westberg and Jim Arwood, also with the state energy office, thanked Richard Putnam, the retiring team leader for the region, for his work with Rebuild America and the state. Eileen

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Cathy Woolard installing a compact fluorescent light bulb.

Atlanta Saves by Revamping Operations and Utility Rates

When Council President Cathy Woolard took office in 2001, the City of Atlanta was facing an \$80 million budget deficit. Instead of seeing an obstacle, she saw an opportunity to save money and increase efficiency. By the summer of 2003, Woolard would announce that her Energy Conservation Program had saved the City of Atlanta nearly \$500,000.

The program began when Woolard convened a group of federal, state and non-profit groups to help develop an energy policy for the city. Arranged with the assistance of the regional Rebuild America team, the group explored energy-saving and money-saving possibilities.

Woolard and Councilmember Clair Muller, staffers from the City Council and the mayor's office, and energy experts from the U.S. Department of Energy and the Georgia Environmental Facilities Authority (GEFA) attended a charrette hosted by Atlanta-based Southface Energy Institute, a nonprofit group of energy and environmental specialists.

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Financial Incentives Open Doors for Technologies

Many states, local governments, utilities and the federal government have deployed an array of financial incentives to spark sales of new technologies for energy efficiency, renewable energy and distributed generation.

Doubts about the financial payoff for an investment can deter development of a market. In some cases – such as fuel cells – the technology obviously falls into the not-yet-ready-for-prime-time category. In other cases, the technology is proven but still selling poorly if at all.

Rebates, discount prices, tax credits, tax deductions, tax exemptions and low-interest loans can kick-start sales for a technology.

In promoting energy efficiency and renewable energy, many government agencies and utilities are responding to the will of the public as expressed through local and state elected officials. There also can be a business logic in utility promotion of energy efficiency. The utility often calculates that the costs of providing efficiency incentives are less than the avoided cost of building new generating capacity to meet higher demand.

Austin Energy, the Texas state capital's city-owned electric utility, is a Rebuild America community partner with an array of energy-efficiency rebates for commercial and residential customers.

"Last year more than 500 businesses used our commercial rebate program," the utility reports. "Together they reduced their annual energy usage by an estimated 29 million kWh. That's an annual savings of over \$2 million."

Rebates from Austin Energy run as high as \$100,000. They promote improvements in lighting, HVAC chillers and direct-expansion air-conditioning systems, ceiling and roof insulation, reflective roof coatings, solar screens, electric motors and more.

Austin Energy also offers small businesses discounts for upgrading interior lighting with high-efficiency equipment. The utility provides cash rebates for energy-efficiency improvements in apartment buildings and other multifamily housing.

In 2003, Austin Energy began a pilot program of low-interest loans to commercial customers for energy-efficiency retrofits,

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REGISTER NOW! ENERGY SMART AMERICA 2004: TOOLS AND SOLUTIONS FOR STATES AND COMMUNITIES

May 11-14, 2004
Minneapolis, MN | Hilton Minneapolis

The conference, hosted by the Office of Energy Efficiency and Renewable Energy, will foster connections among leaders and decision-makers in the field, disseminate energy-saving information not offered by anyone else, and facilitate discussions that are outcomes-driven, solutions-based and forward-thinking.

Who should attend?

- State energy program leaders
- Community-based partnership leaders and representatives
- Business and strategic partners
- Federal, state, and local public officials
- Tribal energy managers
- Public housing authorities
- Economic development authorities
- Transportation authorities
- Redevelopment planners
- Schools and higher education facilities planners and managers
- Energy service companies
- Corporate energy users
- Building owners and managers
- Architects, energy engineers, developers and builders
- Energy efficiency organizations, professional societies and civic groups
- Technology, market and financial experts
- Association executives

To register and find out more information, visit www.energysmartamerica.org.

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Rebates



Austin Energy keeps electricity and rebates flowing.

with the financing coming from US Energy Capital Corp., a Rebuild America Business Partner. Because lighting retrofits are especially economical, the program's interest rate for that category is: zero.

Incentives All Over

New programs of financial incentives keep springing up around the country.

Last year, utility Hawaiian Electric Co., a Rebuild America partner, launched a lighting retrofit program for medium-size businesses with rebates as part of the incentive. Hawaiian Electric already had an on-going program of such retrofits and rebates for small businesses, devised with the help of Rebuild America. Medium-size businesses learned of that older program and asked if they, too, could benefit.

Also last year, the San Francisco Board of Supervisors approved a \$16.3 million energy-efficiency pilot project as a joint effort of utility Pacific Gas and Electric Co. and the

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To Our Readers

Times change, and so do we. *Partner Update* is now *EnergySmart Update*. The new name is a reflection of our mission to provide information to anyone seeking to reduce energy costs and consumption through adoption of the best technologies and practices.

View From DC

by Daniel Sze

Right at the end of December, Philadelphia officials released an uncomfortable forecast: the city is headed toward a \$144 million budget deficit for its next fiscal year, starting July 1. Agencies will be asked to trim spending, services may be cut, and layoffs may occur, officials warned.

Budgets are being squeezed at the local level all across the country. In late November, the National League of Cities released the results of a 328-city survey in which four out of five finance directors judged their cities less able to meet financial needs than in the previous year. Counties and school districts are struggling along with the cities.

Energy expenses are not the heaviest burdens for communities, but they are among the costs that can be reduced without layoffs or reductions in services. As a starting point, Philadelphia can learn from the experience of Atlanta, where a budget shortfall prompted an outstanding and still-expanding campaign for energy efficiency, detailed in this *EnergySmart Update* issue. We helped Atlanta learn from Portland, OR, by the way.

No one needs to wait for a budget crunch to arrive, but it often does seem to require a crisis – or at least a certain amount of discomfort – to motivate people. Market prices, like budget imbalances, are such a motivator, and they could be entering the discomfort zone as I write this. Wholesale natural gas prices tend to peak in January or February. When gas prices remain high, as they did last year and are now, they have a double whammy – driving up the cost of gas heat and adding to electricity costs through gas-fired power generation.

But as prices rise, so does the value of energy efficiency. That is the cue for Rebuild America. Any current or prospective partners of the program should be making opportune visits and phone calls to get the ball rolling on energy efficiency at a time when budget crunches and high prices are concentrating attention.

The experiences of Rebuild America's community partners constitute a superb library of information on how to save money by saving energy. The knowledge of our business partners represents another library ready for use, backed up by the expertise of Rebuild America representatives and the national energy laboratories. We can expand your comfort zone.

Dan Sze is National Program Manager of Rebuild America. Your comments are always welcome at danielsze@rebuild.org.

Good Lighting Linked to Worker Performance

Can different forms of realistic office lighting affect the performance or the well-being of office employees? A recent study shows that well-designed office lighting can increase worker comfort and motivation while maintaining or improving energy efficiency.

The study was organized by the Light Right Consortium, a public-private partnership whose goal is to understand and educate people about the impact of lighting on workers. The Light Right Consortium is managed by the Pacific Northwest National Laboratory and is sponsored by the U.S. Department of Energy, the National Electrical Manufacturers Association, New York State Energy Research and Development Authority, Steelcase, Johnson Controls and several industry groups.

Light Right's premise is that workplace lighting should be designed and installed in a way that considers the physical and psychological needs of the occupants. Light Right emphasizes lighting quality and energy efficiency as well as economic performance.

Looking for Evidence

Preliminary studies indicated that improved lighting design in offices can have positive effects such as improved performance, reduced health complaints and increased occupant satisfaction. Light Right seeks concrete evidence of these purported effects for a good reason: labor is by far the biggest cost for office-based companies, so decreasing labor-related costs and improving worker performance can provide compelling incentives for improving workplace lighting.

To test these assumptions, Light Right designed a research study in Albany, NY. An office was furnished with a typical open-plan workplace for nine workers, and experiments were conducted with six different lighting scenarios. The researchers collected data from temporary office workers hired to work under one of the lighting installations for a complete day. During that day the participants carried out tasks involving clerical and cognitive office work. They were also asked to evaluate the physical environment and assess their mood.

Study Results

The results showed that occupants felt better and worked more effectively under certain lighting conditions. Specifically, the researchers found the following:



One of the several lighting arrangements that Light Right tested.

- Lighting designs that used indirect lighting (uplighting), wallwashing and personal lighting controls were significantly more comfortable for the workers than direct-only systems (e.g., 2x4 troffers). The increase in comfort ranged from 12 to 20 percent. Importantly, the comfort rating for direct-only systems was only 69 to 71 percent, indicating that about 30 percent of the office population could be uncomfortable with the most commonly installed lighting systems.
- People who were more satisfied with their lighting also rated the space as more attractive and said they were happier, more comfortable, and more satisfied with their environment and their work. This indicates that the benefits of improved lighting extend beyond lighting to include mood states and opinions about other aspects of the workplace.
- Personal dimming control of overhead light levels had a measurable impact on the persistence and vigilance of workers. The ability to control the lighting in this way improved worker motivation over the length of the day, which translated into increased persistence on difficult tasks and improved accuracy on a task requiring sustained attention.
- The presence of dimming control yielded energy savings, because most people chose light levels lower than current standard practice. However, the diversity of preferences suggests that if a fixed lower ambient room illuminance is chosen, it must be supplemented with means of providing higher local light levels for those who prefer them. This suggests that the most successful strategy is to separate the general ambient lighting systems from the local desktop lighting systems. This way light is not wasted on transition areas, but there is sufficient lighting in the workstations.

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Peer Forum

Yoshinaka is the interim team leader for the region.

Paul Johnson, acting deputy director for the Seattle Regional Office, praised the attendees for their efforts, noting that the region has a large percentage of Rebuild America partnerships actively engaged in energy projects. Over 450 million square feet of building space has been retrofitted in the region by connecting communities with resources, he said.

Clare Bressani Tanko, energy efficiency program manager for Energy Action/Local Initiative Support Corporation, was one of the first presenters. She described her work with a partnership of energy and housing organizations in the San Francisco Bay Area that targets privately-owned affordable housing units. They chose to focus on this portion of the affording housing market because it is among the most difficult to reach. The partnership has provided energy audits, technical assistance and training for operations and maintenance personnel, property managers and tenants.

East Bay Business

Nancy Hoeffler, with Community Energy Services Corporation – the lead organization for ReEnergize East Bay Consortium – presented information on the Smart Lights Program that offers lighting audits for small businesses. Hoeffler outlined barriers to working with small businesses, such as lack of trust, time and capital. Solutions to these problems include engaging trusted community organizations, such as the Chamber of Commerce; customizing audits to fit businesses' needs; and providing financial incentives.

Later in the day, attendees split into two program tracks. Highlights of the concurrent training sessions included a presentation by Barry Vesser, with the North Fork Community Development Council. The small town of North Fork, CA, is working to redevelop a former mill site using



Rebuild America representatives join Paul Johnson (center at back) to wish Richard Putnam (holding plaque, standing with his wife) a happy retirement.

sustainability as its guiding principle.

Councilman Jeff Leonard, of Eureka, CA, and Maureen Hart, the executive director of the Redwood Coast Energy Authority, described a Joint Power Authority developed to bring local governments together to improve Humboldt County communities through energy projects.

Ken Baker, Rebuild America program coordinator, and Betty Merrill, Oregon Energy Office, offered information on green buildings. Merrill addressed high-performance school buildings, emphasizing the need for commissioning to achieve maximum savings.

On the second day of the peer forum, Johnson provided an overview of the U.S. Department of Energy's community-based programs as part of an integrated approach to deploy resources to communities working to save energy.

Later in the morning, three communities presented various energy challenges each faced. Their peers split into teams to brainstorm on solutions, then presented their ideas to the group.

Sponsors of the event included Chevron Energy Solutions, Siemens and Magnaray International.

For more information, the Seattle Regional Peer Forum materials will be posted on Rebuild America's Web site soon.

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Lighting

The Light Right Consortium will continue to gather data through an upcoming field study of improved lighting design in an actual office setting. In the meantime, Light Right has several recommendations for building owners and managers. First, consider tangible lighting improvements as opposed to simple component retrofits, and hire a lighting specialist. Second, reduce overhead glare by using direct/indirect fixtures with lamp wattages that provide

appropriate (not excessive) light levels. Third, provide personal control of workstation-specific light fixtures wherever possible. Finally, consider the value of increased occupant comfort and satisfaction, reduced energy costs, and improved work environment when evaluating the costs of your office lighting system.

For more information, visit www.LightRight.org or contact Carol Jones, program manager, at carol.jones@pnl.gov.

Increasingly Popular LEED Ratings Now Apply to Existing Buildings as Well as New Construction

Last November at its annual conference and exposition, the U.S. Green Building Council (USGBC) recognized the first pilot projects to complete certification under its new LEED Green Building Rating System for Existing Buildings (LEED-EB).

The National Geographic Society's headquarters complex in Washington, DC, earned silver certification, and the Thomas Properties Group's building in Sacramento, CA, which serves as headquarters for the California Environmental Protection Agency, earned gold certification.

Those are the first two of more than 90 buildings participating in the LEED-EB pilot program, comprising more than 25 million square feet of floor space.

The rating system for existing buildings addresses the 4.5 million buildings already standing in the United States. Many of them need only some fine-tuning to meet green standards. Others require significant system retrofits or operational improvements. Even buildings previously built and certified under the LEED for New Construction Rating System can benefit from LEED-EB by going back and verifying their increased energy performance and savings.

Certification for existing buildings is the latest expansion of the LEED (Leadership in Energy and Environmental Design) Green Building Rating System. LEED is a nationally recognized voluntary standard for defining and measuring green buildings. It originally debuted in early 2000 as a standard for rating new construction projects and eventually will address the entire building market with rating systems for existing buildings, commercial interiors (LEED-CI), core and shell (LEED-CS), homes (LEED-H) and neighborhood development (LEED-ND).

Growing Interest

Presentations on the LEED system have been packing people into seminars and conference sessions. In 2002, nearly 3,000 people attended LEED workshops, and the attendance number climbed to almost 7,000 in 2003.

More than 1,000 building projects have registered or certified under LEED-NC, representing approximately 4 percent of new commercial buildings.

"We've hit every projected number that we've gone after," says Brendan Owens, USGBC LEED engineer, who gave a presentation last year at a meeting of the National

Association of Energy Service Companies.

Increased education within industries has contributed to the success of LEED, as well as other factors, such as the fact that higher standards reduce building operating costs. Higher standards also can qualify for tax incentives, utility rebates and additional legal and regulatory incentives such as density development incentives, which allow greater development if a building incorporates sustainable elements.

"In terms of numbers, if you want to impact energy use, you need to address existing buildings."

More generally, the idea of sustainability, encompassing energy efficiency with an array of other environmental elements, often may have more appeal to decision-makers than the idea of energy efficiency alone.

The Existing Market

The LEED-EB market is up to 80 times larger than the new construction market. Because the turnover rate for buildings is not rapid, the existing population of buildings has far more energy significance than new buildings.

"In terms of numbers, if you want to impact energy use, you need to address existing buildings," says Michael Arny, who chairs the LEED-EB Committee at USGBC. "We'd like to get them all to participate in LEED. The formal goal of the USGBC is to get the top 25 percent of the market to engage in LEED. My view is that this really is something whose time has come."

The LEED-EB program will shift from the pilot phase with an official launch in the spring or summer of this year. Program participants are still being accepted within the pilot program. The LEED-EB point system (detailed in the sidebar to this story) was still evolving in January for the pilot.

The USGBC is a coalition of builders, other corporations, universities, government agencies and nonprofit organizations working together to promote buildings that are environmentally responsible, profitable and healthy places to work and learn.

For more information on the USGBC, visit www.usgbc.org. For more information on LEED-EB, contact Michael Arny, president of the Leonardo Academy, 608-280-0255, email michaelarny@leonardoacademy.org.

LEED-EB Pilot Point System

Point Distribution

Energy and Atmosphere	22
Indoor Environmental Quality	18
Sustainable Sites	16
Materials and Resources	10
Water Efficiency	5
Design and Process Innovation	5
Total points available	76

Energy and Atmosphere

Comprehensive commissioning	Required
Minimum energy performance	Required
Ozone protection	Required
Optimize energy performance	2-10
Renewable energy	1-3
Continuous commissioning and maintenance	1-3
Additional ozone protection	1
Measurement and verification	1-4
Green power	1

Indoor Environmental Quality

Minimum IAQ performance	Required
Environmental tobacco smoke control	Required
Asbestos removal or encapsulation	Required
Carbon dioxide monitoring	1
Increased ventilation effectiveness	1
Construction IAQ management plan	1
Green housekeeping	1-7
Controllability of systems	1-2
Thermal comfort	1-2
Daylighting and views	1-3
Contemporary IAQ practice	1

Sustainable Sites

Erosion and sedimentation control	Required
Site selection	1
Urban redevelopment	2
Environmentally preferable transportation	1-4
Reduced site disturbance	1-2
Stormwater management	1-2
Reduced heat islands	1-2
Light pollution reduction	1
Green site and building exterior management	1-2

Materials and Resources

Waste management	Required
Continued existing building use	1
Construction waste management	1
Resource reuse	1
Recycled content	1
Local/regional materials	1
Rapidly renewable materials	1
Certified wood	1
Occupant recycling	1-3

Water Efficiency

Minimum water efficiency	Required
Discharge water compliance	Required
Water-efficient landscaping	1-2
Innovative wastewater technology	1
Water use reduction	1-2

Design and Process Innovation

Innovation credit 1	1
Innovation credit 2	1
Innovation credit 3	1
Innovation credit 4	1
LEED accredited professional	1

BUSINESS PARTNER

It All Adds Up for Johnson Controls

For Johnson Controls, the first steps into energy technologies may have started simply enough, with such equipment as the familiar wall-mounted thermostat. But the company's work has grown and diversified to a remarkable extent, and it has extended beyond pure business into the basic energy educations of students.

Johnson Controls has done approximately \$3 billion worth of business through energy savings performance contracts (ESPCs), especially in the public sector. It currently is managing 1.2 billion square feet of space for other organizations, including the Pentagon and the Kennedy Space Center in Florida.

The company, based in Milwaukee, is one of the most active Business Partners for Rebuild America, thanks in part to the lending of Johnson Controls expertise to the program's technology seminars.

Public Sector Action

The expansion of Johnson Controls' energy-related business has taken it into the service sector and closer to customers, especially by means of performance contracts. Most of the customers for performance contracts are in the public sector – federal, state and local government, K-12 schools and colleges and universities. Some customers also are found in the health care sector.

Although commercial buildings vastly outnumber government buildings, there are several good reasons why ESPC customers are especially found in the public sector, explains Jeff Crenshaw, director of public sector sales for Johnson Controls.

Governments tend to be owner-occupiers, for one thing. There is less likely to be a mismatch of interest between the owner-manager of a building and the energy-consuming, bill-paying occupants.

The use of a government building is fairly predictable over 10 or even 20 years, while commercial buildings are more likely to be repurposed in ways that could undercut the planning or value of energy-efficiency measures.

Performance contracting works better with government cash accounting than with company financial planning geared to maximizing return on investment.

Governments are risk-averse. The long-term guarantees that come with performance contracts suit their preference for fiscal security.



"Customers are looking to transfer risk, and we're willing to take that risk," says Crenshaw.

The Life Cycle

Performance contracts typically have terms of 10 to 12 years, though they can be longer or shorter. There is a still-longer view that can be found at Johnson Controls – the full life cycle of a set of equipment or even a whole facility.

The company's willingness to take on a customer's life-cycle risks for various aspects of a facility is a small but growing part of its business. The cost guarantees in such an arrangement might seem to expose Johnson Controls to too much risk, but the company's view is that it has the expertise to manage that risk.

While employing expertise, Johnson Controls also prefers the better technologies, which is one good way to reduce risk. The company is active not only in Rebuild America but in ENERGY STAR®, a Strategic Partner of Rebuild America.

Education

The longest-term action may be the education of future generations. Johnson Controls helps train educators on energy subjects through its partnership with the National Energy Foundation (NEF).

NEF, another Rebuild America Strategic Partner, is a nonprofit group devoted to improving education on energy and related subjects.

Johnson Controls provides materials, funds and some personnel to work with NEF in training teachers and supplying them with materials to use in preparing the next generations for making decisions on energy efficiency.

For more information about Johnson Controls, visit its Business Partner entry at www.rebuild.gov or visit the company Web site at www.johnsoncontrols.com. To get a sense of the company's work with NEF, visit the Academy of Energy Education site, www.academyofenergy.org.

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Rebates

city. Cash rebates were to be made available for all business customers who replace old equipment with new energy-efficient technologies. That program especially targets hotels, motels, restaurants and apartment buildings.

Nationwide, more than \$1.5 billion is made available annually by utilities and government agencies to help finance energy and water efficiency in buildings, according to RealWinWin Inc., a Philadelphia-based consulting company specializing in energy efficiency.

Corporations around the country can find tax credits or deductions ranging from 10 percent to 35 percent against the cost of buying or installing equipment involving renewable energy, says the U.S. Environmental Protection Agency.

Multiplying Databases

One of the first rules for anyone considering energy-efficiency improvements, renewable-energy projects or distributed generation is to look for the financial incentives. One place to check is a state energy office. The National Association of State Energy Officials, www.naseo.org, provides links to all U.S. state and territory energy offices. NASEO is a Rebuild America Strategic Partner.

Another Strategic Partner, the National Conference of State Legislatures, www.ncsl.org, keeps tabs on state incentives for energy efficiency in the private sector. Their list for the private sector is at www.ncsl.org/programs/esnr/eepriv.htm. Their list for state agencies and school districts is at www.ncsl.org/programs/esnr/eepubl.htm.

The U.S. Department of Energy funds the Database of State Incentives for Renewable Energy, at www.dsireusa.org. It lists federal as well as state incentives for renewable energy, and it lists energy-efficiency incentives.

A trade group, the Association for Better Insulation, maintains a database on energy-efficiency incentives in each state. It can be reached at www.betterinsulation.org.

New Partnerships

- Bannock County Community, ID
- Carson City School District, NV
- CenterPoint Energy Minnegasco, MN
- Department of Correction, ID
- Division of Public Works, ID

2004 Grants Available

DOE's National Energy Technology Laboratory has issued an announcement for the Office of Energy Efficiency and Renewable Energy (EERE) inviting applicants for its 2004 State Energy Program Special Projects.

About \$16 million will be available for states to use for projects tied to Rebuild America and several other EERE programs. Last year, 29 Rebuild America State Programs projects won grants. Projects ranged from the Public Housing Energy Efficiency Project in Massachusetts to Rebuild Iowa's partnerships to develop new building or renovation projects to serve as models of energy efficiency for colleges.

For 2004, proposed projects can range in length from one to three years. In addition to Rebuild America, EERE deployment programs covered by the solicitation include Building America; Building Codes and Standards; Clean Cities; Industrial Technology; Federal Energy Management Program; Solar Technology; State Wind Energy Support; Distributed Energy; and Biomass.

For Biomass program proposals, one of the key evaluation criteria is "diversity of project partnerships," including partnerships with Rebuild America.

Proposals for Rebuild America projects are due by 8 p.m. March 31. Twenty percent cost sharing is required, although a higher level of cost sharing is encouraged.

For more information, see the master announcement, available online. Visit <http://www.netl.doe.gov>, select "What's New" and find the January 23 posting.

Premier Business Partners

Acuity Brands Lighting	Sarnafil US
Earth Protection Services	Siemens Building Technologies
EnLink Geoenergy Services	Sun Energy Solutions
GE Lighting North America	TRACO
Johnson Controls	Trane
McQuay International	The Watt Stopper
NORESCO	
OSRAM SYLVANIA	

Rebuild America Progress Calculator

Number of Partnerships:
583

Total Number of Committed or Completed Square Feet:
1,246,794,740

as of January 26, 2004

Web Site Update

The Rebuild America Web site has been redesigned as part of a broader redesign of printed materials and Internet-based resources within the Office of Energy Efficiency and Renewable Energy.

The Solution Center, an important component of the Web site, keeps expanding – with more than 235 resources and counting. If you have any relevant resources you would like posted to the Web site, send them to the program for review. Recent additions to the Solution Center are:

Ground-Source Heat Pumps Applied to Federal Facilities – A conventional water-source heat pump design has been transformed to use the thermodynamic properties of earth and groundwater for heating and cooling federal facilities. A 47-page PDF document.

Renewable Energy Annual 2002 – The Energy Information Administration has issued its eighth annual report on U.S. renewable energy, with preliminary information for 2002, in a 140-page PDF document.

EnergyPlus Software – EnergyPlus is a building energy simulation program that builds on the most popular features of BLAST and DOE-2 but includes such advanced capacities as time steps of less than an hour, multizone air flow, heat balance-based zone simulation and photovoltaic systems. Available on the Web via Solution Center link.

Safe School Bus Clean Fuel Efficiency Demonstration Program Report – The final report on Phase 4 of this demonstration program. The 16-page PDF report summarizes the program – designed to replace school buses built prior to 1977 – and provides a glimpse at the future of alternative fuels.

EnergySmart Schools Program Brief – Schools around the country struggle with the need to improve the learning environment while managing strained budgets. This is a two-page PDF document highlighting Rebuild America accomplishments in the K-12 schools sector.

Commercial Buildings Program Brief – Businesses always look for ways to improve the bottom line, but many do not realize how much can be accomplished through energy efficiency. This is a two-page PDF document designed to serve as a marketing tool for Rebuild America.

2003 College Construction Report – College construction reached \$11 billion in 2002 and was expected to total \$11.1 billion in 2003. About 36 percent of the 2002 spending and 31 percent in 2003 went into renovating or expanding existing structures. An eight-page PDF document.

Directory of Energy-Efficient School Programs and Resources – Compiled by the staff of the Consortium for Energy Efficiency, this 17-page PDF document provides a listing of school energy-efficiency programs for grades K-12.

Upcoming Events

March

10-13 Building Energy Conference, presented by the Northeast Sustainable Energy Association, Boston University, Boston, MA. Visit www.nesea.org/buildings/be/ or call 413-774-6051.

18 Building Automation and Energy Management, presented by Rebuild America and Arlington County government. NRECA Conference Center, Arlington, VA. Contact John Morrill, CEM, at 703-228-4426 or email jmorrill@co.arlington.va.us.

18-19 Greenprints Conference & Trade Show, Westin Peachtree Plaza, Atlanta, GA. Visit www.greenprints.org or call 404-872-3549.

April

15 Energy Technology Seminar: Windows and Daylighting, presented by Rebuild America and Arlington County government. NRECA Conference Center, Arlington, VA. Contact John Morrill, CEM, at 703-228-4426 or email jmorrill@co.arlington.va.us.

19-23 School Building Week, sponsored by the Council of Educational Facility Planners International, DOE, EPA and more than 40 associations. Events nationwide. Visit <http://sbw.cefpi.org/>

26-1 Affordable Comfort, Hyatt Regency, Minneapolis, MN. Call 1-800-344-4866 or email hperrine@affordablecomfort.org.

May

11-14 Energy Smart America 2004: Tools and Solutions for States and Communities, sponsored by the DOE Office of Energy Efficiency and Renewable Energy, Hilton Minneapolis, MN. Visit www.energysmartamerica.org.

27-29 Alaska Rural Energy Conference, Talkeetna Alaskan Lodge, Talkeetna, AK. Visit www.uaf.edu/aetdl/conferences.html.

Visit the Events page in the Rebuild America Web site to read about or post other events. You can also keep up on events and provide event listings through the Flash Report, with subscriptions available via the Web site's News page.

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Atlanta

Woolard first asked how much the city was paying for electricity. The first answer was: nobody knew. After a little digging, the second answer was: about \$21 million a year. The discussions that ensued led to several no-cost conservation recommendations and actions.

Rebuild America personnel took part in walk-through energy assessments at several buildings – City Hall, City Hall East, a sewage treatment plant and the City Detention Center. City staff and consultants also joined with Rebuild America specialists in analyzing the electricity consumption data for City Hall and City Hall East. The analyses showed that a substantial amount of electricity consumption in those two buildings occurred during unoccupied periods.

To address this waste, the city hosted an employee energy conservation workshop and implemented operational and maintenance improvements. Operational changes were launched during the holiday period in late December 2002. (See sidebar: Tweaking City Hall.)

To change the utility rate structure for municipal operations, Atlanta revamped contract terms, corrected billing errors and explored alternate rates for some buildings. If the correction of billing errors sounds too simple to be noteworthy, consider the fact that correction of two of those errors is projected to contribute annual combined savings of \$90,700. For rate changes, the single largest revision produced savings of \$130,400 annually.

Those were the first steps of a campaign to improve energy efficiency. With help from Rebuild America in the form of expert advice, networking and a grant, the city now is on track to save \$367,000 a year – \$100,000 from operational changes and \$267,000 from utility rate restructuring and corrections.

More savings are to come. The city is looking at expanding its operational changes to all municipal buildings. All new buildings must achieve a silver rating under the LEED (Leadership in Energy and Environmental Design) Green Building Rating System. The city is considering a variety of other actions, including retrofits and re-commissioning in several buildings.

To fund some of these initiatives, half of the program's energy savings, up to \$500,000 a year, will be set aside to finance future energy projects.

The long-term goal of the Energy Conservation Program is to cut annual energy expenditures 10 percent – \$2.1 million – in five years.

For more information, contact Benjamin Taube, Atlanta environmental manager, btaube@atlantaga.gov, 404-330-6752, or Kirk Bond, Rebuild America coordinator, 816-587-0311, email kbond@rebuild.org, or visit www.cathyatlanta.com/work/issues/energy_policy.htm.

Tweaking City Hall

In the Atlanta City Hall, an array of changes launched at the end of 2002 amounted to systematic better housekeeping. The changes, begun as a pilot test, altered operations and maintenance without requiring additional expenditures:

- Set points for heating, ventilation and air conditioning were adjusted to reduce hours of operation.
- All lights were turned off in mechanical equipment rooms.
- Lights were turned off in suites and offices after completion of nightly cleaning.
- Lights were monitored and turned off when appropriate in council chambers, meeting rooms, computer room and auditorium.
- At least 225 incandescent lamps in ceiling reflector fixtures were replaced with 27-watt compact fluorescent light bulbs.
- Cafeteria operators were asked to turn off nonessential equipment and lights after normal business hours.
- Contract security personnel were asked to turn off X-ray scanning equipment after closing.

Recommendations followed. As with the changes in the pilot test, an important factor was the avoidance of capital expenditures. The recommendations included:

- Eliminate infiltration of outside air.
- Eliminate use of individual auxiliary equipment such as space heaters and fans, while setting heat at an appropriate comfort point.
- Optimize function of control systems.
- Reduce lighting use in meeting rooms and common areas through the use of lighting controls.
- Reduce fan speed setting on individual heating units in the tower section of City Hall.
- Have some managers and staff focus on operation and maintenance changes.
- Provide on-going energy management training.
- Install power management software on all city-owned computers.
- Mandate purchase or lease of ENERGY STAR® equipment by all city departments.
- Ensure that LEED or a similar protocol is used in the planning of all new construction or major renovation of city facilities.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. By investing in technology breakthroughs today, our nation can look forward to a more resilient economy and secure future.

Far-reaching technology changes will be essential to America's energy future. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a portfolio of energy technologies that will:

- Conserve energy in the residential, commercial, industrial, government, and transportation sectors
- Increase and diversify energy supply, with a focus on renewable domestic sources
- Upgrade our national energy infrastructure
- Facilitate the emergence of hydrogen technologies as a vital new "energy carrier."

The Opportunities

Biomass Program

Using domestic, plant-derived resources to meet our fuel, power, and chemical needs

Building Technologies Program

Homes, schools, and businesses that use less energy, cost less to operate, and ultimately, generate as much power as they use

Distributed Energy & Electric Reliability Program

A more reliable energy infrastructure and reduced need for new power plants

Federal Energy Management Program

Leading by example, saving energy and taxpayer dollars in federal facilities

FreedomCAR & Vehicle Technologies Program

Less dependence on foreign oil, and eventual transition to an emissions-free, petroleum-free vehicle

Geothermal Technologies Program

Tapping the earth's energy to meet our heat and power needs

Hydrogen, Fuel Cells & Infrastructure Technologies Program

Paving the way toward a hydrogen economy and net-zero carbon energy future

Industrial Technologies Program

Boosting the productivity and competitiveness of U.S. industry through improvements in energy and environmental performance

Solar Energy Technology Program

Utilizing the sun's natural energy to generate electricity and provide water and space heating

Weatherization & Intergovernmental Program

Accelerating the use of today's best energy-efficient and renewable technologies in homes, communities, and businesses

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Harnessing America's abundant natural resources for clean power generation

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**Energy Efficiency
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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, EnergySmart Update also incorporates news of other programs within the Office of Energy Efficiency and Renewable Energy.

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