

PARTNER UPDATE

Weatherization and Intergovernmental Program

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Stark Public Housing Saves on Natural Gas via Group Purchasing

There is strength in numbers. The Stark Metropolitan Housing Authority, a Rebuild America partnership, is saving money on its purchases of natural gas by buying as part of a group of seven Ohio public-housing authorities.

“We’re a buying group that gets together in a coalition or consortium so long as it’s beneficial to public housing,” says Steve Ewing, energy manager for the Stark housing agency, based in Canton, the largest city in Stark County.

There is proof in numbers, too. The Stark housing agency has been using the consortium to purchase gas from two suppliers, Dominion and Columbia, and in each case the cost is well below the supplier’s standard retail price or “gas recovery rate.” With Dominion, Stark’s price recently is \$1.96 below the standard rate per thousand cubic feet (Mcf). In the case of Columbia, the Stark price is 49 cents per Mcf below the gas recovery rate.

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National Renewable Energy Laboratory

A scientist at NREL conducts research on biofuels.

New Englanders Keep Warm Using Biodiesel Heating Fuel

Although the use of petroleum heating fuel has declined since the 1970s, more than 8 million households in the U.S. continue to use heating oil to keep out winter’s chill, with more than three-quarters of those users in the Northeast. Residential and commercial buildings consume over 90 percent of distillate fuel oil in the region, according to the Energy Information Administration. To reduce consumption of this fossil fuel, and its associated air emissions, the public school system in Warwick, RI, is blending heating oil with biodiesel, a domestically produced, renewable fuel.

Rhode Island may be the first state in the country to use a biodiesel blend to heat schools, according to Robert Cerio, energy educator/manager for the school district, a Rebuild America partnership.

Biodiesel, whose chemical name is methyl esters, is a fuel that is produced by removing glycerin from vegetable oil. In the United States, the most popular sources include soybean oil and recycled frying oil from restaurants. (Corn oil is the most popular for ethanol.) Although soybeans contribute to

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Stark Gas

Public Housing Authority Aggregation Consortium of Ohio (Phaaco), the buyers group, includes metropolitan housing authorities of Stark, Cleveland, Lorain, Lucas, Harrison County, Portage and Zanesville. The Lucas Metropolitan Housing Authority also is a Rebuild America partnership, and the other five authorities have been encouraged to join the program.

The group locks in the favorable prices for 70 percent of the gas that the Stark Metropolitan Housing needs.

Gas prices are negotiated for Phaaco by a broker, Energy Cooperative of Ohio. The broker promises that if the gas recovery rate of a utility drops below the negotiated price for Phaaco, the broker will make up the difference from funds it otherwise would distribute to its owners. Phaaco, a member of the nonprofit cooperative broker, is one of the owners.

The housing agencies can take an additional bite out of gas purchase prices because they are tax-exempt groups.

The unity of seven agencies of varying sizes allows each to be equally significant in the minds of the broker and the gas suppliers. "Most brokers look for a certain amount of load," notes Ewing. "If you're below that size, they do not actively look for you as a customer."

Energy Cooperative of Ohio now is willing to serve as broker for individuals – housing agency employees and others – who might want to join the Phaaco buyers group.

Phaaco's members look forward to doing more than buying gas together. The next obvious step is to apply the lessons to another energy commodity. "We anticipate being able to buy electricity together," Ewing says.

Phaaco also is encouraging other public housing authorities (PHAs) to join.

"We are trying to involve PHAs inside and outside Ohio," Ewing says. "We would love to have others participate."

Other plans are not as obvious. The seven agencies have



Stark Metropolitan Housing's Cherrie Turner Towers

agreed to gain efficiencies through working together on energy audits; utility allowance preparations, referring to the handling of allowances for subsidized utility payments by residents; analysis and planning for low-cost and no-cost energy-efficiency improvements; energy management and bill paying in general; weatherization; financing; training of staff; education of residents.

In addition to all of that, there can be outreach from the housing agencies to other institutions, businesses and individuals in their counties. "We can all work together to provide a better community," Ewing says.

Stark can contribute technical expertise to the consortium's plans partly because of its connections to Rebuild America and the Ohio Department of Development's Office of Energy Efficiency. In the state energy office, Manny Anunike serves as Rebuild America's state representative and a valued adviser to the Stark and Lucas partnerships.

Phaaco is about two and a half years old now. Representatives of the seven members of the group have been getting together twice a year but hope to shift to a quarterly meeting schedule. Participating officials in the group usually are selected by the executive directors of their housing authorities.

For more information, contact Steve Ewing at Stark Metropolitan Housing, 330-454-8051, email info@starkmha.org.

SAVE THE DATE

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ENERGY SMART AMERICA 2004

TOOLS AND SOLUTIONS FOR STATES AND COMMUNITIES

MAY 11-14, 2004

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Boston Forum Provides Tools, Ideas, Answers

Representatives from all seven states in the Boston Region met Nov. 5-6 to strengthen their skills for implementing the Rebuild America Program. The meeting, in Boston, focused on three goals for state representatives: to understand their role and the role of others in the Rebuild America team; to know the resources available through the national program and where to access those tools; and to network with peers.

Of the 20 state and local representatives in attendance, 14 were new to the program since the last forum, held in December 2001. The new representatives include Shirley Bartlett (ME); Lori Clark, Sharon Griffith, Joseph Barry, Rodger Smith, Patrice Courtney, Jessica Barry, Dean Zias, Ann Heidenreich, Lynn Cebula and Iris LaLuz (NY); Gary O'Connell (NH); and Erin Bralich and Andy Perchlik (VT).

Attendees took away a vibrant flavor of the Rebuild America program and how it fits in with other programs in the U.S. Department of Energy (DOE). The two-day meeting was an invaluable introduction to the program for new representatives and a useful update for others. Boston Regional Team Lead Greg Davoren, along with program coordinator Cyane Dandridge, presented the state representatives with tools and resources to initiate projects, carry them through and measure results.

Participants were asked to offer concerns and questions about their deployment of Rebuild America, which were then addressed throughout the meeting.

Kim Lundgren, from the City of Medford (MA) partnership, spoke on "Making a City Energy Efficient."

A presentation on grant opportunities addressed funding concerns voiced by attendees. Ken Liss, of Associated Grant Makers, offered a list of resources for grant research.

Representatives from New Hampshire and Rhode Island addressed pressing issues of schools. Robert Cerio, energy manager for Warwick (RI) Public Schools, discussed the need for weather-sensitive software to accurately measure energy savings, especially in the Northeast.

John Ruckes, state representative for Connecticut, ended the forum with a presentation on integration between Rebuild America and complimentary DOE and state activities. One of the projects that jump-started Ruckes' involvement in Rebuild America was a combined indoor air-quality and energy-efficiency solution to an asthma problem in New Haven Schools. Ruckes continues to take combined-program approaches to partnership projects.

For more information, presentations from the Boston Regional Peer Forum are posted at www.rebuild.org/events/eventdetails.asp?NewsID=1868.



View From DC

by Daniel Sze

During a year of high energy prices and dragged-out wrangling over energy legislation, the Rebuild America program quietly did what was needed to spread energy efficiency and renewable energy in buildings. The program's network of community partnerships proved the merits of its technologies and methods of operation by saving a great deal of energy and money.

The annual results have arrived earlier this year, because we have shifted to reporting a fiscal cycle rather than a calendar cycle. That change makes the numbers look a little less striking in year-to-year comparisons, because we did not work in a full 12 months between the last annual tally and this one. The 2003 results need to be measured against 75 percent of the calendar 2002 results for an apples-to-apples comparison. The results are impressive, either way.

The work of our partnerships is saving about 11.8 trillion Btu annually, or about \$142 million. That is energy and money in the bank for when we truly need them. Less energy waste also means less pollution. If estimated in terms of electricity consumption, that Btu reduction averts the release of 4,353 metric tons of sulfur dioxide and 2,049 metric tons of nitrogen oxides each year – while preventing emissions of almost 1 million metric tons of carbon dioxide.

The Rebuild America network also has achieved an exceptional bang for the buck. For every federal dollar invested, we have stimulated \$11.07 in private energy-efficiency investment and saved energy worth \$19.85. That's leverage.

We are getting the work done almost too quietly. Within our network are many community champions, local officials, state energy officials, business managers, association officials, engineers and others who are achieving more than the public realizes. Those partners deserve all the credit in the world.

So take a deep breath, relax a moment, and prepare to accomplish more. The point of the whole effort is to overcome market barriers to the best technologies and practices for energy efficiency and renewable energy. As people realize how much they can save, we will see a widening disconnect between economic growth and energy consumption – the economy steaming ahead while energy use is restrained.

In fact, it would be interesting to hear your thoughts on what indicators can be taken as a sign of success – what market shares or energy consumption plateaus or other market signals would tell us that we have done as much as we need to do for one market and it's time to move on to the next.

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

Fairfax County Schools Phase In Energy Upgrades

Fairfax County Public Schools (FCPS), educating 164,000 students in a Northern Virginia suburb, is improving its facilities by implementing energy performance contracts in successive phases. The projects will help this Rebuild America partnership reduce its energy costs, which currently run about \$28 million annually.

According to Thomas Brady, the school district's chief operating officer, FCPS learned of energy performance contracts from other school districts. After doing its homework on the contracts – which fund building improvements through future utility savings – the school district decided to give it a try. Rebuild America provided assistance when school officials were drafting a request for

The \$13 million in capital improvements under the three phases are projected to produce \$1.5 million in annual energy cost savings for the school district.

proposals (RFP) for energy services.

The school district awarded an energy performance contract to NORESKO L.L.C. last fall to implement energy-smart improvements. A subsidiary of Equitable Resources, NORESKO is a Rebuild America Business Partner.

“Energy performance contracts are one good way to use an existing operations budget to fund capital improvements that otherwise wouldn't happen,” notes NORESKO's Randy Clark. By being an early adopter of such contracts, FCPS is at the forefront of school districts in the state, adds Clark.

Big Step by Step

A lighting retrofit and window replacement at 14 schools was completed under Bundle No. 1 of the contract. Upgraded building controls are still being installed as part of the \$5.9 million investment. Savings for these components are expected to reach \$678,000 annually, says Tom Reinsel, the school system's project manager for the FCPS contract.

The second phase of the energy performance contract, approved in May, is in progress at seven schools. Bundle No. 2 focuses on lighting improvements, energy management systems and controls, and boiler tune-ups. The scope of this phase is limited to improvements with payback periods of 8 years or less, because the schools are likely to be renovated within a decade. The \$1.5 million improvements are expected to be finished by 2004, resulting in energy savings of \$233,000 annually.

This fall, the FCPS board approved an expansion of the energy performance contract. The third phase will result in an additional \$5.6 million in improvements for 19 schools and one administrative center. Boiler tune-ups, energy-efficient lighting, occupancy sensors, energy management systems and building controls are planned. Windows will be replaced at five schools, and an electric boiler at one school will be replaced with a high-efficiency gas-fired boiler. Improvements under Bundle No. 3 will save approximately \$616,000 each year.

Two Awards for School

The Alliance to Save Energy (Alliance) and ABB Inc. recently presented Manor Elementary School, of Fairfax, CA, with two awards recognizing the school's energy-saving activities.

The Alliance presented Earth Apple awards to the school – one in the elementary school category and a second, “Golden Apple,” for best overall K-12 school, a first for an elementary school. The awards recognize K-12 schools that teach energy education to their students while also engaging them in energy-saving activities.

Manor Elementary joined six other schools honored at a ceremony during the Alliance's Associates Summit on Energy Efficiency in Washington, DC. Winners included schools from California, Pennsylvania, Virginia and Florida. Several



From left: SEI's Mildred Dandridge, teacher Laura Honda, DOE's Paul Johnson, adviser Brian Prusnek, SEI's Cyane Dandridge

schools from Serbia were also among the recipients.

Honorable mention award winners included Greenway Elementary School, of the Marion County (FL) Public School system, and Atlantic Elementary, part of Brevard County (FL)

Additional Energy Savings

Outside of the energy performance contract, Fairfax County Public Schools (FCPS) is making strides in saving energy. Herndon High School implemented a program to reduce energy consumed by computer monitors. Over 800 computers were adapted with EnergyStar® technology to put the monitors in “sleep” mode when not in use. The school’s computer monitor power management program, known as “Sleep is Good,” cuts energy costs for each monitor by \$11 annually.

FCPS was honored for this effort with a certificate of recognition from the U.S. Environmental Protection Agency earlier this year. With the success of the Herndon High School initiative, FCPS proceeded to

install the EZ-Save Monitor Power Management software on 70,000 computers district-wide.

The school district is also participating in the ENERGY STAR Label for Buildings program that benchmarks energy performance and recognizes buildings that are the most energy efficient. Numerous projects – currently in the planning stages – take into account LEED (Leadership in Energy and Environmental Design) Green Building Rating System™ guidelines.

Additionally, FCPS consolidated multiple meters at a high school into one for the electric bill. Although there will be a low charge from the power company to make this switch, plus a monthly fee, the school district is expected to save around \$20,000 a year.

The \$13 million in capital improvements under the three phases are projected to produce \$1.5 million in annual energy cost savings for the school district. The projects will affect 40 schools and one administrative center.

However, 100 schools have been identified for future improvements. The school district is now exploring a fourth phase, which could begin as early as January 2004.

To ensure that class time will not be interrupted, improvements are being installed during evenings, weekends and holidays. Brady compliments NORESO for accommodating the school district’s schedule.

Information and Advice

FCPS, the largest school district in Virginia and one of the largest in the country, joined Rebuild America in July 2001 to reduce utility bills while improving the learning

environment. Brady explains that Rebuild America has been a good source of information for the school district.

To keep the community informed about the energy-efficiency projects, FCPS created a Web page, www.fcps.k12.va.us/fts/energysavings/, which answers common questions about energy performance contracts and outlines the school district’s energy-saving efforts.

Brady, a retired U.S. Army Colonel, offers some advice to other schools looking at energy-saving projects or energy performance contracts: “There’s a saying in the military: crawl, walk, run. Don’t leap into projects – do your research.” He suggests using RFPs for energy performance contracts, and to remember that these partnerships are long term. It’s important to feel comfortable with the project, he says.

For more information, contact Tom Reinsel at tom.reinsel@fcps.edu.

Public Schools. Both school districts are Rebuild America partnerships.

Manor Elementary School is part of the Ross Valley School District in Marin County, north of San Francisco. Marin County is a Rebuild America partnership, and all schools in the county are part of the partnership.

The school is a member of the San Francisco Bay Area Green Schools Project, led by Strategic Energy Innovations (SEI). The project is part of the Alliance’s Green Schools Project, an international program that aims to reduce energy use in K-12 schools by teaching students about energy and energy efficiency. Through the Green Schools Project, students help reduce energy use at their schools and often share their knowledge with their families and communities.

Students in Laura Honda’s fourth-grade class at Manor Elementary learn about energy and environmental issues each week. The students share their knowledge with their schoolmates, teachers, parents and community.

To encourage energy efficiency in the surrounding community, students sell compact fluorescent light bulbs at no profit. Over 600 of the bulbs have been sold, which will replace energy-wasting incandescent light bulbs.

The students are also practicing what they preach by turning off lights and computers in unoccupied rooms throughout the school. From March 2002 to March 2003, the students helped the school reduce electricity consumption by 16 percent, saving over \$4,000. Only schools that calculate and report savings are eligible for the Golden Apple award.

After the Ross Valley School District proposed installing air conditioning in Manor Elementary School, the students organized a campaign to choose energy-saving alternatives. The school has chosen not to use the cooling equipment, but instead will utilize natural ventilation.

For more information on Manor Elementary School, contact Mildred Dandridge, SEI, at 415-507-2183.

TECHNOLOGY

Combined Heat and Power with Gas Microturbine Provides Increasingly Practical On-Site Energy

Distributed generation and energy efficiency come together when gas-fired microturbines are installed in the multiple-use design known as combined heat and power (CHP).

On-site power generation has two obvious advantages – lower utility power bills and reduced vulnerability to blackouts or brownouts. The primary drawback always has been economics – the cost of installing and maintaining a separate technology that often lacks energy efficiency. Other drawbacks include the unproven nature of some technologies, such as fuel cells, and the air pollution of other generators, such as the old-fashioned diesel-burning reciprocating engine.

But when the highly efficient concept of CHP is linked with small turbines burning natural gas, one innovative source of distributed generation may finally move from the innovative novelty category to the list of pragmatic energy sources for Rebuild America projects.

“Most of the projects going in with microturbines are CHP,” says Debbie Haight, manager of the Microturbines Program in the U.S. Department of Energy (DOE). “That really is the direction everyone is going.”

Her program, a unit of the Office of Distributed Energy Resources within DOE’s Office of Energy Efficiency and

Renewable Energy (EERE), has demonstration projects going on in grocery stores, hotels and other sites around the country.

The general estimate is that energy efficiency can be raised to the 70-80 percent range when microturbines are used in CHP arrangements – up from a typical level of about 28 percent for a microturbine without heat recovery.

Canton Shows the Way

In a swimming pool facility in Canton, Ohio, two microturbines with a total generating capacity of 56 kilowatts (kW) are providing the facility with electrical

“Most of the projects going in with microturbines are CHP. That really is the direction everyone is going.”

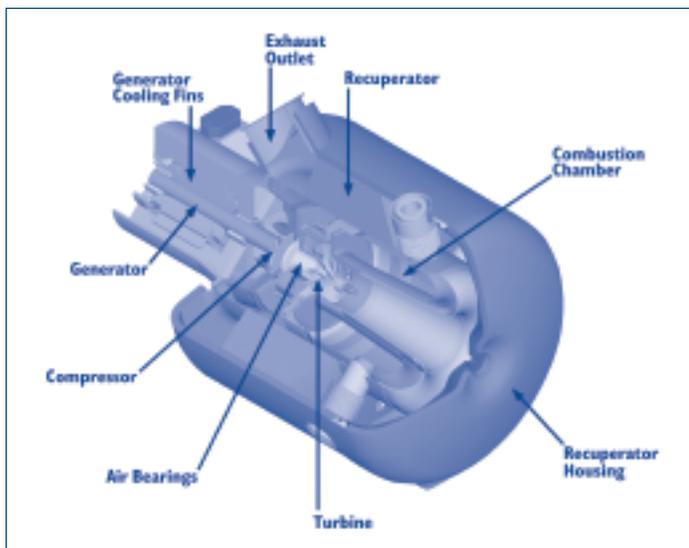
power. At the same time, the exhaust gases from the turbines heat pool water and help drive the building’s air conditioning system.

Electric utility FirstEnergy installed and is monitoring the system while working with Canton City Schools, the Ohio Department of Development and area businesses. The \$7 million, two-year demonstration project was financed in part by EERE and the National Association of State Energy Officials (NASEO, a Rebuild America Strategic Partner), along with the energy offices and research institutions of four other states.

The energy efficiency of the Canton turbines is approximately 70 percent, says Joe Waligorski, project manager at FirstEnergy for the installation. While heating pool water, the microturbines also allow the school system to avoid cranking up a boiler in an adjacent building solely for heating the pool during the summer. “There were inefficiencies in that,” Waligorski points out.

At the same time, the microturbine exhaust gases provide heat to an ammonia-based chiller for the swimming facility’s air conditioning.

Within the chiller, ammonia dissolved in water is vaporized by the exhaust gases, and the ammonia vapor carries heat away from the water. That chills the water for use in cooling the building’s air. The vaporized ammonia releases energy to the atmosphere from a heat exchanger,



Microturbines are power generators fired by natural gas.



Capstone Turbine Corp.

Microturbines provide electricity and heat for on-site energy.

then cools, condenses and dissolves back into the water to absorb more heat.

Industrial facilities have many uses for heat and can face tough regulations governing conventional boilers. Dominant U.S. microturbine manufacturer Capstone Turbine has supplied a set of four 30 kW microturbines in a CHP setup that is saving a California metal plating company more than \$57,000 a year. The project, at Faith Plating in Hollywood, cost less than \$200,000 and has a simple payback period of four years. The turbines' exhaust keeps water hot in plating tanks and dries sludge to shrink the weight and volume of the sludge before disposal.

The Office of Distributed Energy Resources and Oak Ridge National Laboratory (ORNL) worked with that retrofit to make it a demonstration project for the technologies.

Packaged Systems

EERE's Haight and others say the economics of microturbines in CHP setups will work best if sold as packaged systems, because their elements will be designed for the best fit with each other and the least installation costs.

Distributed Energy Resources has made that a part of its

mission – to contribute to the development of integrated systems that, as Haight puts it, “take the engineering away from the site.”

Manufacturers are working toward the same goal. According to Distributed Energy Resources, several U.S. companies are developing “ready to go” modular packaged systems to reduce system costs, improve overall energy efficiency and reduce operating and maintenance costs.

Capstone, for example, announced in October the first two installations of its new integrated CHP product, the C60-ICHP. The two units went into operation Oct. 24 at the Radisson Hotel in Santa Maria, CA. They can provide 120 kW of power while also serving the hotel's water-heating needs.

Another innovation: microturbines, CHP and landfill gases all used together. At a cleaned-up former Superfund site, the H.O.D. Landfill in Antioch, IL, extracted landfill gases are fed into a dozen Capstone microturbines to provide heat and power to the adjacent Antioch Community High School.

For more information, visit the Web site of Distributed Energy Resources at www.eere.energy.gov/der/, which also has links to the appropriate ORNL offices; and Capstone Turbine, www.microturbine.com, where many case studies (including Faith Plating) are posted.

BUSINESS PARTNER

OSRAM SYLVANIA Plugs in the New Tech

Lighting solutions provider OSRAM SYLVANIA has become one of the more active Business Partners in the Rebuild America program thanks to the energy and expertise it brings to program activities, such as hosting technology seminars.

Behind the expertise is a corporate culture that fosters research and innovation. Parent company OSRAM GmbH, part of the Siemens family of global businesses, promotes and rewards innovation in all of its subsidiaries, including OSRAM SYLVANIA, its North American operation.

As a frequent participant in Rebuild America technology seminars, OSRAM SYLVANIA offers a broad range of technology and lighting solutions, including fluorescent, halogen, metal halide and solid-state lighting systems manufactured and sold under both the SYLVANIA and OSRAM brand names.

Energy-Saving Fluorescents

SYLVANIA offers extensive lines of T-8 and T-5 fluorescent lamps but also produces its own energy-efficient electronic control systems, such as the PROStart programmed-start ballasts that are incorporated into the SYLVANIA QUICKTRONIC product line.

These programmed-start electronic ballasts have microcontroller-based circuitry that applies a precise amount of cathode heat prior to starting the lamp. This ensures that the cathodes reach optimum temperature before the lamp is started. Once the lamp is lighted, the ballast reduces the cathode heat to the optimum level to assure long lamp life – and reduced heat translates into energy savings.

Innovative Fluorescents

The ICETRON product line employs another technology that sets SYLVANIA apart – electrodeless fluorescence. A ferrite coil emits a magnetic field that induces a current inside the lamp, where a gas discharge excites the phosphor coating to produce light.

The electrodes in a conventional fluorescent lamp are one of the factors that limit a lamp's life (typically about 20,000 hours or about five years). ICETRON lamps have a rated life of 100,000 hours, or about 25 years for a 10-hour daily cycle.

Improved Halogens

All halogen lamps, like incandescent lamps, produce a significant amount of infrared energy, most of which is given off as waste heat. OSRAM SYLVANIA found a way to reduce that waste and produce a more efficient lamp in the SYLVANIA CAPSYLITE IR family of lamps. These light sources are manufactured with a multilayered coating on the tungsten halogen capsule to reflect infrared energy back to the filament. Because of that energy “recycling,” less electrical energy is required to maintain the filament at its optimal operating temperature.



Efficient Metal Halide

OSRAM SYLVANIA has been pushing the technology of metal halide lighting with its METALARC product line, combined with “pulse-start” technology. The idea is to start a lamp in such a way that produces less evaporation of tungsten. That means less darkening of the arc tube, which translates into improved lumen maintenance. This pulse-start technology translates into energy savings of as much as 20 percent in comparison to conventional metal halide systems.

A Solid State Leader

OSRAM has set up a separate technology developer, OSRAM Opto Semiconductors, which focuses on the rich possibilities of solid-state lighting in the form of light-emitting diodes (LEDs).

Some of the largest markets for LED technology are traffic signals and internally illuminated commercial signage. Other markets awaiting strong LED growth include architectural lighting, such as hallway lights, and task lighting, such as desk lamps.

OSRAM is a leader in developing thin-film technology, which gets more light out of the chip and dramatically improves LED efficiency. The company also is a pioneer in LED systems, offering preconfigured modules and arrays matched with power supplies and controllers.

For more information about OSRAM SYLVANIA, visit its Business Partner entry at www.rebuild.gov or visit the company at www.sylvania.com. For OSRAM Opto Semiconductors, visit www.osram-os.com.

Let ENERGY STAR Help Develop Your Project

By Donald Gilligan and Scott Serota, Predicate LLC

The Energy Star® for Buildings program can help Rebuild America program representatives, Business Partners and facility managers overcome a number of common marketing challenges, including:

Long project sales cycles, typically 12-18 months, when the energy service provider struggles to establish project buy-in and the customer struggles to sell the need for a project to decision-makers in the organization.

Complex project financing – blending leases, utility incentives, customer capital funds and state subsidies for public building construction – which customers have difficulty understanding.

No recognition for customers, particularly in the public sector, who take the risk of sponsoring energy-efficiency projects.

Difficulty converting short-term project objectives into long-term portfolio management relationships with customers.



ENERGY STAR for Buildings

The U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (EPA) want to help facility managers and energy service companies (ESCOs) address these challenges, because the

commercial and institutional buildings that host many ESCO projects consume about 16 percent of total U.S. energy, are responsible for about 18 percent of U.S. pollution, and on average waste about 30 percent of the energy they use.

ENERGY STAR began as an EPA program that for many products has become a joint program with DOE. It also is a Rebuild America Strategic Partner. The ENERGY STAR for Buildings program is modeled after the successful car and appliance rating systems. The idea is to promote building energy efficiency by applying ENERGY STAR performance ratings to many commercial and institutional buildings. ENERGY STAR offers free software that can be used to address these challenges.

Portfolio Manager reinforces ESCO credibility by

comparing a building's energy use against similar buildings in a geographic region, generating a building performance rating of 1 to 100. That can reinforce the ESCO's claim that a building needs substantial improvements. The customer can confirm the rating on the ENERGY STAR Web site, and use it to persuade decision-makers that an energy-efficiency project is necessary.

Cash Flow Opportunity Calculator simplifies complex project financing, allowing a customer to understand the value of improvements that can be purchased with a project savings stream, the trade-offs between various financing vehicles, and the cost of project delays.

ENERGY STAR for Buildings publicizes successful projects, offering recognition opportunities ranging from the ENERGY STAR label for buildings to annual awards for the best projects and partners in the country.

Portfolio Manager helps an ESCO establish a long-term relationship with a customer by quickly rating all of the customer's buildings and developing with the customer a long-term portfolio management and investment strategy.

Green Lights and More

Most ESCOs and many Rebuild America Business Partners participated in an earlier EPA program to push energy efficiency in buildings – the Green Lights program. The ENERGY STAR for Buildings program grew from that model: service providers become ENERGY STAR Partners, use specially-designed tools to help sell projects and benefit from DOE and EPA efforts to push the building market to embrace ENERGY STAR standards.

While Green Lights promoted a single technology, ENERGY STAR for Buildings promotes whole building energy-efficiency improvements, integrated into a portfolio approach that encourages customers to aggressively improve the efficiency of their entire stock of buildings.

Teamwork

Getting started in the ENERGY STAR for Buildings program is very easy. The National Association of Energy Service Companies (NAESCO) works with DOE and EPA to promote ENERGY STAR to ESCOs, so you can contact us directly to learn about trying Portfolio Manager on some of your projects. We can arrange a customized training session for your staff and show you how to upload your project data files into Portfolio Manager.

Gilligan and Serota are working with ENERGY STAR on behalf of NAESCO to provide industry input to the development and dissemination of the software. For more information, contact Serota at 781-784-2943, email serota@comcast.net, or visit www.energystar.gov.

Web Site Update

Advanced search options were recently added to the Rebuild America Web site for locating Business Partner products and services and Solution Center resources.

Business Partners are constantly updating and adding services to help partnerships start and complete building projects. Now Rebuild America program participants can search for Business Partners that work within a specific product type (such as lighting), service type (such as facility management), market sector or by location.

There are more than 200 resources currently in the Web site's Solution Center, and they can be searched by building process, market sector and technical level.

Recent additions to the Solution Center resources are:

Travel and Environmental Implications of School Siting

This report, in PDF format, was released Oct. 8, 2003, by the U.S. Environmental Protection Agency. It is the first study to empirically examine the relationship between school locations, the built environment around schools, how kids get to school and the impact on air emissions of those travel choices. Over the next few decades, communities making decisions about the construction and renovation of thousands of schools will be challenged to meet multiple goals – educational, fiscal, and environmental.

ASDBC Energy Efficiency Guide for Small Business

This guide, in PDF format, is for saving energy and dollars in small businesses. The Association of Small Business Development Centers (ASBDC), a Rebuild America Strategic Partner, worked on creating this 48-page guide. It covers: who benefits from energy efficiency; why energy efficiency is smart business; how to take advantage of new energy-saving techniques and products; how to calculate simple payback for your energy investments.

2003 School Construction Report

Based on School Construction Alert surveys, this year's School Construction Report provides estimates on construction completed in 2002, construction projected to be completed in 2003 and projects identified as starting in 2003. It is a 16-page PDF document. It reports that more school construction was put in place in the United States in 2002 than in any other year in history. Altogether, projects estimated to have cost \$21.6 billion were completed in 2002. The previous high for a single year occurred in 2000, when projects costing \$21.1 billion were completed.

Energy Quest's Resources for Teachers and Parents

In this section of the Web site of the California Energy Commission, parents and teachers will find various energy and environmental educational materials and resources.

Upcoming Events

January

13-14 DOE Seattle Region Rebuild America Peer Forum, Radisson Resort and Spa, Scottsdale, AZ. Contact Sherry Sykes at 252-459-6300 or email ssykes@aspensys.com.

15 Energy Technology Seminar: Motor, Drives & Transformers, 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.

15 Advanced School Design and Technologies for Hot and Dry Climate Zones, presented by Rebuild America, Arizona Dept. of Commerce Energy Office and Ameresco. Arizona State University – Downtown Center, Phoenix, AZ. Contact Gloria Castro at 602-771-1143 or email gloriac@azcommerce.com.

16-17 CEFPI's 2nd Annual High Performance Schools Symposium, Pointe South Mountain Resort, Phoenix, AZ. Visit www.cefpi.org/green2004/index.html.

27 High Performance School Buildings Seminar, presented by Rebuild America, Rebuild Sarasota County and Lithonia Lighting. Manatee Community College Center for Innovation and Technology, Sarasota, FL. Contact Nina Powers at 941-861-1463 or email npowers@scgov.net.

February

4-5 Greening the Hospitality Industry, Airle Conference Center, Warrenton, VA. Call 804-360-1500 or email mmalloy@convention-connections.com.

11-12 Active Physics – Light Up My Life Teacher Training Workshop, Little Rock, AR. Contact Markey Ford, Arkansas Energy Office, at 501-682-7690 or email mford@1800Arkansas.com.

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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Biodiesel

the nation's food supply – cooking oil, veggie burgers and more – there is a surplus.

Biodiesel can be used in its pure form but is primarily blended with other fuels, such as petroleum diesel. Biodiesel blends are most commonly used for transportation fuel in school buses and government vehicle fleets.

Warwick's Blend

With support from Warwick Mayor Scott Avedisian and school system Superintendent Robert Shapiro, Cerio tested three blends of petroleum heating oil and biodiesel fuel to heat three schools in 2001. A fourth school used heating oil alone, serving as the control group. The project was supported by the Rhode Island State Energy Office, the Northeast Regional Biomass Program and DOE's National Renewable Energy Laboratory.

After using different mixtures of heating oil and biodiesel, Cerio determined that a blend of 80 percent distillate fuel oil and 20 percent biodiesel was the best combination for the school district's equipment. The fuel, known as B20, burned more efficiently and produced less harmful emissions than heating oil alone. Other advantages of B20 are that no equipment modification is necessary to burn the fuel, and it has a Btu content similar to heating oil. The school district now burns B20 in the heating system at one school.

Bacharach Inc. tests for efficiency and emissions every month. By switching to B20, the school is reducing carbon dioxide, carbon monoxide and nitrogen oxide emissions. Because biodiesel does not contain sulfur, the use of B20 results in a 20 percent reduction in sulfur discharge.

With distillate heating oil, the maintenance personnel had to clean the heating equipment every year due to soot buildup from the sulfur. Since using biodiesel, soot buildup is no longer a problem, which reduces maintenance time and costs. In addition, there has been no need to change filters yet since switching to the biodiesel blend.

Warwick Public Schools buys its biodiesel from World Energy Alternatives, in Chelsea, MA. The fuel, processed in Florida, comes from soybeans grown in various locations throughout the U.S. Cerio blends it on site with heating oil. Although there are no commercial-scale production facilities for biodiesel in the region, Cerio says Rhode Island could produce up to 3 million gallons of biodiesel annually by reprocessing waste oil from the food service industry within southern New England.

The school district purchases heating oil futures to keep its distillate fuel costs down to around 80 cents per gallon.

Blending biodiesel adds 7 cents per gallon to the final cost, a good buy for the environmental benefits and reduced maintenance, says Cerio.

Maine Tries It

Farther north, in Maine, the state government announced it will use B20 in four or five state buildings this winter. The state recently ran a test on one of the boilers, producing positive results.

The use of biodiesel is part of Gov. John Baldacci's commitment to advance Maine as a leader in the use of renewable energy, explains Beth Nagusky, the state's director of energy independence. The state supports the use of the fuel because it is domestically produced, renewable and produces fewer harmful emissions than petroleum heating oil. Nagusky says she even used a biodiesel blend to heat her home last winter.

Back in Rhode Island, Warwick Public School's three-year program of using biodiesel blends for heating ends next March. Cerio hopes to continue the project by expanding the use of B20 from one building to 13. "It's been a really big success for us," he says. The school district also began using a B5 blend in its fleet of 70 school buses earlier this year, with support from DOE's Clean Cities program.

"Biodiesel creates jobs on the production end, supports farmers and is totally organic," says Cerio. "It's a win-win for the environment and the economy."

For more information, contact Robert Cerio, at cerior@wpsadmin.org or visit the National Biodiesel Board's Web site, www.biodiesel.org.

Rebuild America Progress Calculator

Number of Partnerships:

572

Total Number of Committed or Completed Square Feet:

1,240,201,043

as of November 26, 2003

New Partnerships

- Chattanooga Housing Authority, TN
- City of Pleasanton, CA
- Corvallis School District 509J, OR
- ICF Associates Inc., CA
- Salem-Keizer School District, OR
- Sonoma County Climate Protection Campaign, CA

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

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Solar Energy Technology Program

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