

Partner Update

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

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Zero Energy Vacation House



Ever wish you could stop paying

utility bills? If so, you should consider building a zero energy house, like the one that was recently on display in Washington, DC. The demonstration house, open to the public, was temporarily set up on the National Mall for two days in May. The zero energy vacation house, built with readily available materials, is designed to produce as much energy as it consumes over the course of the year.

The zero energy house was designed and engineered by the U.S. Department of Energy's Building America Building Science Consortium, which has developed over one-hundred energy-efficient house designs and has

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Companies Save on Energy, Support National Conference



Some powerhouses have lined up to sponsor the 2002 SEP/Rebuild America National Conference. These organizations have offered their support to help make this first-ever, combined conference a memorable one, and all have a strong interest in advancing energy-efficiency efforts across the nation. Their participation has helped the conference planners make the most of our time together in New Orleans, and we would like to thank them for pitching in.

Siemens Building Technologies, Inc. heads the list as our Platinum Premier Sponsor. Based in Buffalo Grove, IL, this affiliate of international electronics giant Siemens AG brings a high degree of technical knowledge to the business of upgrading buildings in North America. The company recently achieved energy savings of more than \$274,000 in the first year of its 10-year contract with the St. Charles Parish school district in southern Louisiana – a contract funded by the savings it generates. In California, the company recently qualified as a provider of energy conservation services to all state facilities.

The **New York State Energy Research and Development Authority (NYSERDA)** joins Angelo Brothers, Honeywell and Entergy as our Premier Sponsors. NYSERDA is exceptionally active in energy work, overseeing Rebuild America projects in its state along with an array of other projects. NYSERDA's recent reorganization into regional partnerships across New York State focuses on Energy Target Zones to boost the use of resources at the grassroots level. Much of its work is designed to ease the state's transition to a more competitive energy market.

Angelo Brothers/Westinghouse, based in Philadelphia, PA, has the exclusive worldwide license for Westinghouse brand lights – including such energy savers as compact fluorescent

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Clark County Avoids Gambling with Energy Dollars



The Clark County Government Center, which houses 1,700 employees, is a showcase building of the county's energy conservation program.

Clark County, NV refuses to gamble with its energy budget and is instead pursuing an energy-efficiency plan expected to provide quick returns.

Clark County's Energy Management Program started in September 1999 in anticipation of electricity deregulation. Although deregulation was placed on hold indefinitely during the last legislative session, the County has seen a double-digit increase in electricity costs over the last few years and the focus of the program gradually switched from deregulation to energy

efficiency and energy conservation in general. Clark County is home to Las Vegas.

With assistance from Rebuild America Strategic Partner **Public Technology, Inc. (PTI)**, Clark County began an initial assessment of its energy use in February 2001. That assessment set the framework for the County's major analysis later in the year. The County also hosted workshops for County employees, teaching them simple tasks that help lower energy use.

PTI introduced Clark County to Rebuild America and has been instrumental in assisting the County with its energy endeavors. During the second half of 2001, an energy management consulting group conducted an assessment of the County's 12 most expensive accounts and of four other mid-sized buildings. The result of that audit was a 2-inch-thick binder of energy-efficiency recommendations.

County officials knew that most of the recommendations in that binder would not be implemented for fiscal year 2002, but were pleased when the Clark County Board of Commissioners in January appropriated \$1 million dollars for energy improvements.

Broken down, \$600,000 is being used to retrofit traffic lights at 50 to 60 intersections with LED lamps; \$185,000 will pay for indoor lighting retrofits with more efficient fluorescent lamps and ballasts; and \$215,000 will pay for the early stages of the implementation of an energy management information system (EMIS). The County will report back to the Board on the return on the energy investments.

Clark County chose these investments because of their relative ease of implementation and quick payback. The Public Works Department had already retrofitted several traffic lights, so there was no need to conduct much research for that project. And Clark County heard from similar local governments that indoor lighting retrofits were modestly

priced, easy, and the investment dollars were quickly recovered. The County is researching an EMIS, knowing that it will allow the County to track its energy use and make adjustments in the future.

One key to this endeavor, says **Deyanira Flores** of **Rebuild Clark County**, is the energy-efficiency knowledge other PTI communities provide the County. An important element of Rebuild America, this type of information sharing hastens project implementation.

By asking, "How did you go about this," Flores says, the County picks up advice from other communities, which saves time and money on projects.

The County relies heavily on taxes generated by tourism to pay for County services. Drops in tourism can seriously impair the County's ability to stay within budget, as seen at the end of 2001.

And, like every other county in the U.S., the goal is to lower taxes for its residents – not raise them. Coupled with environmental stewardship, these two philosophies drive Clark County's energy goals. Lower energy costs means a lower operating budget for the County – which also stabilizes the financial position of the County.

For more information, contact Deyanira Flores with Clark County at deyanira@co.clark.nv.us or 702-455-3530.



PUBLIC TECHNOLOGY, INC.

Public Technology Inc. (PTI) is a not-for-profit organization that was founded in 1971 to "bring the benefits of technology to local governments." It is the technology and research development organization for the National League of Cities, National Association of Counties and the International City/County Management Association.

PTI's membership organization, the Urban Consortium, is a one-of-a-kind network of jurisdictions created to address major urban problems and find practical, economical solutions that work. The Urban Consortium represents America's most progressive cities and counties. Through its five task forces: energy, environment, public safety, telecommunications and information, and transportation, the Consortium is a catalyst for research and development of emerging technologies that can solve problems facing all local governments.

The Applied Energy Research and Development Program of PTI in conjunction with the Urban Consortium Energy Task Force identifies proven technologies and develops innovative ways to deploy them while improving energy efficiency, reducing local government utility expenditures and maximizing opportunities for local economic growth through energy initiatives.

NEED Energy Solutions? Ask the Kids

Energy efficiency has never been a stronger part of the science curriculum than it is now. As kids learn the basics of earth sciences, they are gaining knowledge of energy and conservation that will lay the foundation of good habits for a lifetime. Such was evidenced at the **National Energy Education Development (NEED)** Project's 22nd Annual National Recognition Ceremony in Washington, DC on June 24.

NEED sponsors the Youth Awards Program for Energy Achievement each year to honor schools that are serious about energy efficiency. Awards are issued at the local, state and national levels to outstanding teachers and students. Winners gather in Washington each June to exchange ideas, share projects and learn new activities.

The Youth Awards were inspired by NEED's drive to engage students in hands-on activities that explore forms and sources of energy, economic and environmental concerns associated with energy production and consumption and educate them about energy issues, technology and conservation.

Mike Smith, policy advisor to U.S. Department of Energy Secretary Spencer Abraham, addressed the excited crowd at an event held at the U.S. Department of the Interior.

Top honors in varying categories were as follows:

Student Leader of the Year – Justin Paschell

Justin is the director of Brighton High School's Energy Education Team in Tennessee which has brought the influence of energy to daily life to over 7,000 people in the community. The group implemented a district-wide project that contacted schools across the state to inform them about NEED and provided energy education materials to classrooms. The project included creating activities for all grade levels to learn about energy and its uses.

State of the Year – Michigan

The Michigan NEED Project hosted eight workshops last year that brought new networks of teachers into the NEED program. Teachers traveled across the state with their students to expand and support new NEED networks. In addition, NEED programs were offered at the Michigan Association of Middle School Educators conferences and the Michigan science education network.

District of the Year – Upper Arlington School District, OH

Energy smart Ohioans in Upper Arlington have involved every fifth grader in learning about energy sources and conservation. Using the "Kids Teaching Kids" motto, elementary students have fun with energy workshops organized by NEED. Each fifth grade class has an energy bike in its classroom and manages a recycling program for the school.

For more information about NEED, the Youth Awards Program, photos and this year's winners, see www.rebuild.org/news/news.asp and enter the keyword "NEED" into the News Search feature.



View From DC By Daniel Sze

I'd like to extend a warm welcome to all of you who are attending the 2002 State Energy Program/Rebuild America National Conference at the Hotel Inter-Continental in New Orleans. We are pleased to be partnering this year with the State Energy Program (SEP) and are confident that the pairing of the two programs to present this year's conference will add significant value for participants. Rebuild America and SEP share common ground on many levels. While Rebuild America partnerships introduce energy-saving solutions at the local level, SEP brings the resources of the state energy offices to bear to research and implement energy-saving initiatives that can be replicated statewide, as well as to sustain local actions. The desired outcome of blending the synergies of these two programs is to lay the groundwork for sustaining an effective and far-reaching campaign to save energy across the nation.

To paraphrase what President Bush said about children and education, when it comes to saving energy, Rebuild America and SEP don't want to leave any community, or any state, behind. There isn't one community or state in this country that doesn't stand to benefit substantially from saving energy in buildings, outdoor lighting, appliances and transportation. When we save energy by adopting smart technologies and practices, we reduce the demand for burning fossil fuels and protect the environment. Those of us in metropolitan areas are receiving frequent, painful reminders this summer about the unhealthy levels of ozone in the air we breathe – a situation directly linked to our daily consumption of energy. And today – as never before – we know how important it is for the nation to use energy wisely and reduce our dependence on foreign oil.

When it comes to energy consumption, there is vast room for improvement in this country. And that is what this conference is all about. Rebuild America partners and partnerships, SEP representatives, and all stakeholders in the effort to save energy have something to contribute to this conference. The conference presents a unique opportunity to network, to listen and learn from those who have been there, to share information, and to explore new technologies, trends, practices and ideas.

And while you are here, I hope you will get an opportunity to get a taste and a feel for our wonderful,

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Idaho Communities Win with Rebuild

With electric and natural gas prices rising between 43 percent and 60 percent over the past 18 months, Rebuild Idaho faces tremendous challenges with energy budgets, especially those within Idaho public agencies and schools. In a mid-sized Idaho city, for example, dollars spent on agency facilities due to utility rate increases may approach \$100,000 annually. That can put a significant crimp in a city or county budget. Perhaps more alarming, a school district in the same city could easily see their energy budget increase by three times that amount. Rural Idaho school districts maintain significantly more square footage than rural cities or counties, and many times the districts provide a larger community service through extended operating hours to host community functions.

The Solution

Fortunately, over the past few years, even prior to rate increases, energy champions have emerged in many communities across the state. These leaders – mayors, county commissioners, superintendents, and building managers – have made deliberate efforts to reduce energy expenditures and save community dollars through implementation of sound energy-efficiency strategies.

But it's the building managers, the people most frequently in charge of the building and operations budget, who form the front line in the fight for budget increases to cover ever-rising utility costs. It should come as no surprise then, that when given solid recommendations for saving operations dollars through energy efficiency, most of them take time to listen. And the good building managers go a bit further. They take action.

For example, just over two years ago Dave Logan, Ada County Operations Director, with encouragement and support from the commissioners, led the county on a journey into energy efficiency. The first step for Ada County was to join the Rebuild Idaho partnership and consult with the Rebuild America staff on development of a five-year energy plan for county buildings.

The Idaho Department of Water Resources Energy Division's Rebuild Idaho program has been a strong voice for building energy efficiency for more than four years. Currently in partnership with over 25 statewide school districts, universities, colleges, cities and counties, Rebuild Idaho provides energy-efficiency assistance and operations and maintenance (O&M) training to partnership building staff.

One of the first actions of the newly formed Rebuild Ada County partnership was to gain a better understanding of utility expenditures. County operations staff were trained on the use of utility tracking software provided by Rebuild Idaho. The software makes it easy to compare past energy use with current use to determine if efficiency measures

undertaken are saving energy. It also gives Rebuild America partnerships a way to effectively measure the success of their efforts.

The next steps for the county included the implementation of a low-cost O&M program and the decision to build the new 350,000 square-foot courthouse as energy- and resource-efficient as possible. To pursue this goal the courthouse was designed and constructed to meet the Idaho Commercial Energy Code, a voluntary standard based on ASHRAE 90.1, 1989. The O&M program included low-cost activities such as turning out lights in unoccupied spaces and using setback functions on thermostats to reduce heating and cooling loads after work hours.

The Success Story

The payoff for Ada County was big. Led by Logan and his operations staff, from calendar year 2000 to calendar year 2001 the county reaped a healthy \$144,000 in low-cost savings through changes in the way they operated three building complexes – the Public Safety Complex, Juvenile Detention, and the Western Idaho Fairgrounds (see Table 1).

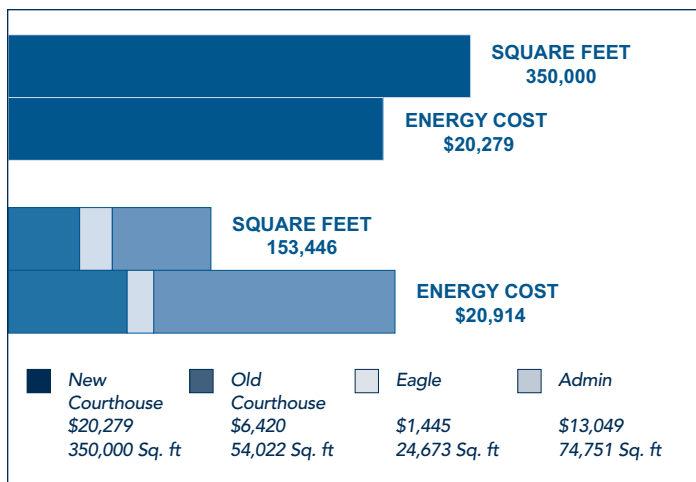
Table 1: Rate and weather adjusted utility costs and savings for Ada County

Building	Year 2000	Year 2001	Savings
Public Safety Complex	\$438,782	\$337,166	\$101,616
Juvenile Detention	\$85,239	\$69,319	\$15,920
Western Idaho Fairgrounds	\$135,086	\$108,535	\$26,551
Total Savings			\$144,087

Perhaps more dramatic is the energy efficiency observed in the newly built and recently occupied Ada County

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Figure 1. – One-month energy use per square foot comparison



Energy Fund Boosts Performance Contracts, Energy Investment in Louisiana



B.W. Cooper Apartments is one of the housing structures targeted for retrofit under a performance contract through Louisiana's Energy Fund.

Louisiana is taking aim at the strains high energy consumption puts on publicly funded entities such as schools, government agencies and hospitals through its new Energy Fund – a program that encourages the use of performance contracting to upgrade building energy efficiency.

Due to regulations and limited tax revenues that inhibit outright investment in energy efficiency projects, the Energy Fund encourages these public entities to pursue performance contracting. This means of using projected savings from the project to finance its implementation benefits the environment, improves comfort levels and reduces the drain on tight budgets.

“From universities to hospitals, even to the Department of Natural Resources (DNR), we are leveraging existing funds to create investment where otherwise it wouldn't be possible,” says **Louis McArthur**, marketing representative with the Louisiana DNR.

Prior to the creation of the Louisiana Energy Fund, there had been only 10 performance contracts in the history of the state. Now there are plans in the works for more than 50 – all at no expense to the Louisiana taxpayer.

The Energy Fund is a new resource created from money in the state's Petroleum Violation Escrow Account (PVEA), a trust available to states from penalties incurred by oil companies due to unscrupulous practices in the 1970s. This money, collected by the federal government, was allocated to the states. Louisiana had spent all but \$5 million of their share.

Through the late 1990s and into this decade, **Rebuild Louisiana** has been active in educating state officials on the benefits of energy efficiency. It offers free energy audits, provides technical assistance, financing information and quality control.

But when organization representatives – excited about the possibility of investing in energy efficiency – asked how to obtain money from the state, McArthur and his conferees told them there was none. “People turned around and said,

Louisiana Eyes Avoided Pollution Emissions Credit Program

Louisiana is crafting a plan for an emissions credit program that would generate funds for the state to invest in future energy-efficiency projects. Credits would stem from pollution avoided in implementing energy-efficiency projects financed through the state's Energy Fund.

While Louisiana has no “cap” that often accompanies similar emissions credit programs, many areas of the state are in ozone non-attainment areas and will have to reduce pollution levels to meet those requirements. This Emissions Banking Program could provide a single incentive to both reduce pollution and invest in energy efficiency.

The Emissions Banking Program is still in development and its implementation date remains undecided. But basically, as energy-efficiency projects are executed through the Energy Fund and the reduced energy consumption reported, the amount of pollution that has been avoided is calculated and turned into credits.

The credits can then be sold and those funds used to finance future energy-saving projects. As public entities generate credits, other emitters of ozone precursors can purchase them to help meet reduced emissions levels. In theory, those in industry could also lower their emissions, generate credits, and sell them in this trading program to allow others to meet U.S. Environmental Protection Agency standards for ozone.

“see ya,” McArthur lamented.

Taking that \$5 million residual from the PVEA, however, the state crafted a public/private partnership with the Louisiana Public Facilities Authority, Lehman Brothers and Hibernia Bank. The state is using that \$5 million to purchase credit enhancement insurance to safeguard the investments – in essence, to “buy down the insurance rate to 3.69 percent” for the bond issues that will finance the projects.

Over the past few years, Louisiana, Rebuild America representatives, Business Partners and Strategic Partners have worked together to develop the Energy Fund. The target date for approving the financing of its first pool of projects is September 2002. There are four additional pools slated for approval in the coming months.

This first pool involves the state's public schools, a highly targeted market sector not just in Louisiana but around the United States because of the declining condition of education

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Zero Energy School Proposed in Southern Ohio

When you think of visionary, energy-efficient design for K-12 schools, does rural Ohio come to mind? It soon may, thanks to the Wheelersburg School District, located just across the Ohio River from Kentucky. Officials in this small, Appalachian town are planning to build the country's first zero energy school. With the school district recently joining as a partner of the **1500 Days: The Ohio Energy Efficiency Project** Rebuild America partnership and the Ohio Department of Development's Office of Energy Efficiency, Rebuild America is poised to help them reach their goal.

Wheelersburg is no stranger to energy-efficiency projects. In the fall of 2000, a 1 kW photovoltaic array was installed at the local elementary school. The solar panels were mounted on poles next to the school, so teachers can use the photovoltaic array as a teaching tool. **American Electric Power (AEP)**, the **Foundation for Environmental Education**, the **Ohio Department of Development's Office of Energy Efficiency**, and the **U.S. Department of Energy's (DOE) Million Solar Roofs Initiative** sponsored the project and the students helped by organizing a fundraiser.

Although the high school in Wheelersburg, built in 1957, was once a modern facility, the school is ill-suited for today's learning environment—there is little natural light, it is only partially air-conditioned, and the electrical system limits the number of computers that can be used. A new school with modern technology, however, would mean an increase in energy use and operating costs. To address this issue, Superintendent John Eaton met with Larry Schoff, of the Rebuild America EnergySmart Schools team, and Elaine Barnes, from the Ohio counterpart of EnergySmart Schools, to explore the idea of building a zero energy school: one that produces the same amount of electricity as it uses over the course of a year. DOE is actively supporting zero energy homes research through Building America's Building Science Consortium and the Solar Buildings Program, and several universities are studying the concept for commercial buildings. The Wheelersburg project, however, would be the

first zero energy school building in this country.

A 100 kW photovoltaic roof would supply enough power to operate the proposed school during the day. At night, the school would use electricity from AEP, the local utility company. Any excess power produced by the photovoltaic array during the day, on weekends, and over the summer would be sold back to AEP. The design of the new 140,000 square foot school serving 650 students would include such features as geothermal heating and cooling and increased use of natural daylighting.

Schools are a viable choice for this type of project due to their pattern of energy use: schools are only used during the day and there is little energy use on the weekends and during summer break. Although design costs may be higher because this is a first-of-its-kind project, the construction costs are expected to be lower than a traditional school. Most schools waste about 25% of their energy due to inefficient design. With more efficient design, smaller HVAC systems can be installed, which significantly lowers construction and operational costs. EnergySmart Schools has already provided the school district with a list of architects to consult with on sustainable design. Rebuild America will continue to provide technical assistance as needed throughout the process.

Up to 70% of the funding for the proposed school will be provided by the state of Ohio, pending approval of the design. The remaining costs will be raised through a bond which the citizens will vote on in November. Because the community needs a new high school, the bond is expected to pass. Upon completion, the new school will provide a healthier and more productive learning environment for the students of Wheelersburg. As a real-life laboratory for energy efficiency, the cutting-edge high school will be positioned as the model for zero energy schools, with the hope that it will inspire other school districts around the country to do the same.

For more information on 1,500 Days: The Ohio Energy Efficiency Project or the Wheelersburg zero energy school, contact Glen Kizer at gkizer@columbus.rr.com.

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Idaho Communities Win with Rebuild

courthouse. At over twice the square footage, the February 2002 energy bill for the new courthouse was almost \$700 less than the combined February 2001 bills for the three buildings it replaced. There was a 56 percent reduction in cost per square foot during the first full month of operation of the new courthouse when compared to the previous year costs. (Figure 1)

The Keys to Success

Paying attention to your energy bills can make a difference in your bottom line. Understanding what you currently pay, meter by meter, can motivate institutions to change perspective about energy solutions in buildings.

But real change always takes a champion—that one person who steps up to the plate to assume responsibility, focus on needs and work toward positive change. Deciding to act, and then taking action, is the real key to savings within a community, school district or institution.

Marin County Homes and Buildings Seek the BEST

Rebuild America is helping the **County of Marin, CA Community Development Agency (CDA)** in its quest to become a county-wide energy-efficiency and green-building program. The community partnership joins residential, commercial and municipal sectors in a plan to reduce the county's energy use by exceeding Title 24 standards by 15 percent.

Title 24 is a residential and non-residential legislative building standard established in 1978 to reduce California's energy consumption. The standards are updated periodically to allow for the incorporation of new, efficient technologies. The latest set of standards took effect in June 2001 and is credited with saving more than \$20 billion in overall energy costs for California.

"Title 24 goes a long way in enhancing energy efficiency," said Sam Ruark, sustainability assistant planner for CDA. "CDA is taking its standards to the next level."

A large part of CDA's objective is to unite with the 11 cities of Marin through an incentive-based program called BEST (Building Energy Efficient Structures Today). CDA established BEST in October of 2001 as a vehicle for enhancing energy efficiency in residential, commercial and community facilities.

Through BEST, CDA provides residents of Marin with the following programs and resources to aid them in reaching their goals.

- *The Energy-Efficient Building Incentive Program* – Buildings must either exceed Title 24 requirements by 10 percent or meet the criteria in a set checklist designed for each specific project category. Building managers can also install an on-site renewable energy system that produces a minimum of 75 percent of energy consumed by the building and its amenities to achieve compliance.
- *The BEST Rebate Program* – In conjunction with the incentive program, the rebate program rewards local residences, businesses and county employees who take action to reduce energy consumption in their buildings. Rebates come from allotted funds in the CDA budget and are available by project-based application.
- *BEST Trainings* – BEST hosts public workshops throughout the county to train individuals on energy efficiency and green building practices.
- *BEST Exhibit* – CDA created a green building exhibit to showcase new technologies, green products and the fundamentals of efficient design and construction. The traveling exhibit visits planning and building offices throughout Marin and various community events.
- *BEST Library* – The BEST Library houses hundreds of print and electronic resources on energy efficiency, green buildings, renewable energy, architecture, landscaping and environmental justice among other topics. The resources are available to the public.

- *Green Building Technical Assistance* – Free technical assistance based on the LEED™ Rating System and the Alameda County Green Building Guidelines is available to all residents in Marin. Marin is the first county planning department in the U.S. to have a LEED-certified professional on staff.

"Rebates, technical assistance, trainings and incentives make this an exciting program to implement," Ruark said. "It's great to see this program grow in popularity and help people take advantage of these resources."

"Title 24 goes a long way in enhancing energy efficiency. CDA is taking its standards to the next level."

-Sam Ruark

Providing participants with resources, incentives and multiple options for retrofits and upgrades allows for greater flexibility and encourages participation from projects of varying sizes. Rebuild America provides additional products and services, connections with energy planners and network support for the projects and workshops. Through partnership with Rebuild America, CDA can share its successes and benefit from achievements in communities throughout the country.

CDA is creating a standard for larger houses in the county called the Big and Tall Ordinance. Many homes in Marin County are large, and require lots of energy. The new ordinance mandates that homes over 4,000 square feet not exceed the energy usage of a 4,000 square foot house. If these homes cannot meet Title 24, they may offset any excess energy consumption with renewable energy systems.

Leading by example, Marin County has fully upgraded its own civic center, a Frank Lloyd Wright building which houses CDA office space. Installing T-8 lighting, an efficient boiler and chiller, and modifying energy consumption has cut the power demand by 50 percent.

To learn more about Marin County and the BEST program, see Community Partnerships at www.rebuild.gov or contact Sam Ruark directly at sruark@co.marin.ca.us. For additional information on the LEED Rating System, visit the U.S. Green Building Council online at www.usgbc.org.

Waterless Urinal Ensures Money Isn't Flushed Down the Drain

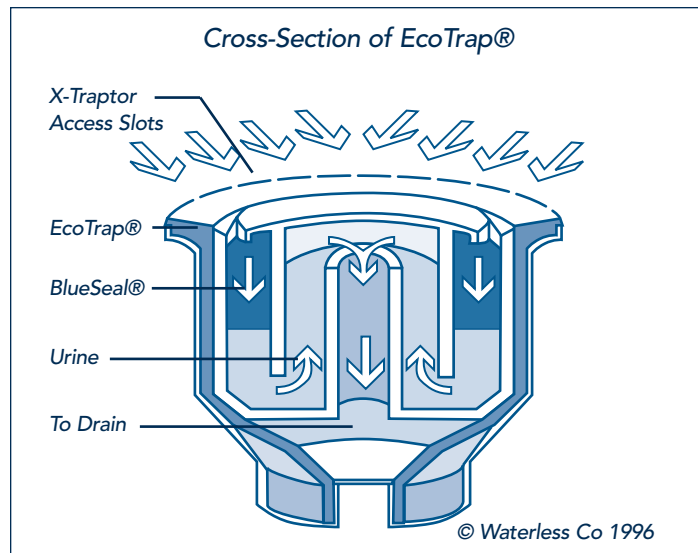
When most people hear the words Kalahari and Sonora, they think “deserts.” Mention those names to the people at Rebuild America Business Partner **Waterless Company LLC** and they'll talk about their line of urinals that don't use water. Since 1991, the California-based company has offered the Waterless No-Flush™ urinal. A urinal may seem an unlikely place to start conserving water, but the technical, scientific, and economic reasoning for using the device gives waterless urinal proponents a sound argument for its use.

“Waterless No-Flush urinals save on average between 30,000-50,000 gallons of water and sewer per urinal per year.”
-Klaus Reichardt

The conventional urinal uses about 1-3 gallons of water per flush. Current government mandates require that new urinals use no more than one-gallon of water per flush. With roughly 8 million urinals in the U.S., there is potential for significant water savings. Because water can transport itself, no flush is needed in this dry surface fixture. While conventional urinals use two plumbing lines—supply and waste—a Waterless urinal only uses a waste line. Because there is no flush valve and, therefore, no moving parts, the waterless urinal requires less maintenance than a conventional fixture. Should the valve on a traditional urinal break, it can allow water to keep flowing until it is fixed, a problem that can never occur with a No-Flush device.

So, how does a Waterless urinal work? The No-Flush fixture uses a cartridge called EcoTrap® that fits in the drain. The cartridge acts much like standing water does in the trap of a toilet or sink drain- it allows waste to drain while blocking sewer gas or odors from seeping out. Inside the EcoTrap, a biodegradable liquid called BlueSeal® floats at the top of the trap and does not mix with other liquids. The waste can pass through BlueSeal to a trap where it then exits to the drainage line. Under typical use, the 3 ounces of BlueSeal liquid used in the cartridge will need to be replaced 1-4 times per month, while the EcoTraps, which cost \$5.50 each, should be replaced 2-4 times per year.

According to **Klaus Reichardt**, Managing Partner, Waterless Company, “Waterless No-Flush urinals save on average between 30,000-50,000 gallons of water and sewer



The patented EcoTrap system relies on the proven vertical trap system and fits a standard two-inch drain connection.

per urinal per year.” Saving water also means saving money. The manufacturer estimates the waterless urinal costs about \$1 per 1000 uses, while conventional urinals cost \$2-\$18 per 1000 uses, depending on local water and sewerage fees and the amount of water used per flush. The Waterless urinal, which installs into existing 2-inch drain connections, normally pays for itself through reduced maintenance costs and water savings within 24 months.

Along with the economic and environmental reasons for using the product, the Waterless Company also boasts that the No-Flush urinal is more hygienic than a conventional one. Traditional urinals have areas that are constantly wet, which can be a breeding ground for bacteria. The Waterless fixture is a drier surface, less suitable for bacterial growth, and with no flush, there are fewer airborne droplets that can carry disease.

The Waterless Company has sold thousands of Waterless No-Flush urinals over the past 11 years, which are comparable in cost to conventional fixtures of the same size. Although schools, the military and commercial businesses are the company's top customers, the product is also used in several high profile attractions, including the Statue of Liberty. With the environmental, financial, and health benefits associated with the Waterless fixture, it may just make the conventional flush urinal a thing of the past.

For more information on the Waterless No-Flush urinal, visit www.rebuild.org/partnerships/bp_search.asp and select Waterless Company LLC.

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Leave Utility Bills Behind at Zero Energy Vacation House

constructed over 6,500 energy-efficient houses through its builder members. The \$200,000 showcase house, constructed by Certified Living, Inc., of Atlanta, GA and the Captain Planet Foundation, uses passive heating and cooling design; low-emissivity, spectrally selective, high performance windows; integrated HVAC design; R-38 roof and R-23 wall and floor airtight panels; and energy-efficient appliances. The entire building envelope is made up of pre-manufactured structural insulated panels (SIPs). Studies show that houses built with SIPs, which are sturdy, load-bearing laminates made of polystyrene or polyisocyanurate rigid foam and wood board facing, use 50% less energy and are three times stronger than conventional wood-framed houses with fiberglass insulation. While the 1700 square foot house is well-insulated, mechanical fresh air ventilation insures good indoor air-quality.

Because the house is 90% more efficient than the average house, it is possible to generate enough electricity on-site for the homeowners, without sacrificing comforts or conveniences. Homeowners, however, do need to tune their electricity use to the available solar supply. Eight photovoltaic (PV) panels, measuring 7'x 6' each, were installed on the roof to provide the household with 4 kilowatts (peak) of electricity. A 30,000 Btu solar water heating roof panel, when operating at peak efficiency, can deliver most of the hot water needs of a family of four. Plans call for the house to be connected to the local utility company's electric grid power supply, when night-time and rainy days can result in peak power demands exceeding the PV supply. When the photovoltaic panels produce more electricity than the house needs, the excess power can be sold back to the local electric utility provider. Photovoltaic panels installed next to the house during construction even provided enough power for operating the power tools.

The demonstration house was a popular attraction at the Atlanta Home Show, and the nation's capital, this spring. According to Betsy Pettit, President of the Building Science Consortium, "The builder has already sold several of the houses to people who attended the displays in Atlanta, GA, and Washington, DC." Although the house has many energy-efficient features that come with a premium—high performance windows, high-efficiency HVAC system, long-lasting metal roof—much of their added cost can be offset by smaller mechanical components and reduced operational, maintenance, and replacement costs. Many home lenders even offer energy-efficient or "green" mortgages that allow buyers of qualified energy-efficient houses to subtract the expected energy savings from the monthly Principal, Interest, Tax and Insurance (PITI) formula before calculating the expense-to-income ratio for a mortgage. This allows many borrowers to qualify for larger loans, possibly at lower interest rates.

The cost of the photovoltaic system for the house, about \$32,000, is a significant investment. However, for an increasing number of vacation and first homes, the cost of getting utilities to remote sites, dealing with unreliable utility power supply and increasing utility rates is fueling strong interest in houses that can produce most, if not all, of their energy supply. More states are even offering substantial subsidies for residential solar systems, which can help offset the cost of investing in a PV system.

The vacation house was designed not only to demonstrate the zero energy concept, but also to show the public some practical ways to increase energy efficiency in their own houses. After successful demonstrations in Atlanta and Washington, DC this spring, plans call for the house to return to Atlanta to be displayed later in the year at SciTrek, an interactive science and technology museum. With rising costs of utilities, zero energy houses are becoming more attractive to consumers. The combination of available technology and construction costs that rival a conventional house has turned the dream of an energy self-sufficient house into a reality.

For more information on Building America and the zero energy demonstration house, contact George James at george.james@ee.doe.gov or visit Building America online at http://www.eren.doe.gov/buildings/building_america/.

Some electricity usage figures for common household items and appliances. Add up the watts for items you might imagine being turned on at the same time for an idea of peak usage.

Kitchen	
Coffee Maker	219 W
Dishwasher	166 W
Microwave Oven	1500 W
Lighting	
60-W Incandescent Lamp	60 W
100-W Incandescent Lamp	100 W
Bedroom and Bathroom	
Hair Dryer	710 W
Laundry Room	
Clothes Washer	138 W
Home Electronics	
Computer (CPU & Monitor)	182 W/30 W
Rock Stereo	53 W
Color Television	83 W
Heating & Cooling	
Furnace Fan	295 W
Window Fan	30 W
Water Heating	
Water Heater-Family of 4	4500 W
Miscellaneous	
Well Pump	725 W
Total Peak Load Potential	8791 W

Snap Shot: Carla Clemons



Carla Clemons

Carla Clemons is a Rebuild America Team Lead in the U.S. Department of Energy (DOE) Chicago Regional Office.

Vital Statistics

Carla lives in Crystal Lake, IL, with her 18-year-old son, Scott, who will be attending McHenry County College this fall.

How long have you been working with the Rebuild America program?

I have been involved with Rebuild America since 1998; first at the local level implementing community energy programs and second as a DOE Regional Team Lead.

How did you get into this line of work?

I responded to a help-wanted ad in 1982 for an intake/outreach worker and building assessor for the Illinois Home Weatherization and Energy Assistance programs. Then, in 1993, I began working with the State Energy Office of Illinois to develop the state's first community energy programs. We began incorporating the resources of Rebuild America in 1998.

What brought you to Chicago?

I grew up in Woodstock, IL, a rural suburb of Chicago (where the movies "Groundhog Day" and "Planes, Trains and Automobiles" were filmed) and I have lived in the area most of my life. I love Chicago and the Midwest.

What do you find most rewarding about your work?

Facilitating knowledge transfer (best practices) among our Rebuild America partnerships; helping them to tap the endless resources of the Rebuild America network. I also enjoy visiting local communities with our Rebuild America State Energy Office Representatives in the region.

What do you like to do in your spare time?

Just about anything outdoors and helping my son restore his classic car (a 1969 Chevy Chevelle SS).

What is your favorite thing about Chicago?

The skyline is among the most beautiful in the world.

What is your dream job?

I really enjoy what I'm doing, but I'd love to be able to telecommute from my home. My commute is two hours per day via train.

What is your dream vacation?

My dream is to visit every state in the U.S. and every continent on earth.

Continued from page 3
View from DC

one-of-a-kind host city, New Orleans. Don't miss our *Stroll through the French Quarter* reception Monday evening in the Exhibit Hall; our *Celebrate New Orleans!* event on Wednesday night, held off-site at Generations Hall; and our awards luncheon on Thursday where all of our best of the best will be honored.

We greatly appreciate our generous sponsors who have contributed so much to creating a successful conference. Special recognition goes to our Platinum Premier Sponsor, **Siemens Building Technologies**. We also salute our Premier Sponsors: **Angelo Brothers/Westinghouse, Entergy, Honeywell** and **NYSERDA**. We also want to recognize our Supporting Sponsors: **Magnaray International, McQuay International, TRACO, Trane** and **Universal Natural Light**. Be sure to visit our sponsors and exhibitors in the Exhibit Hall.

I wish all of you an enjoyable and successful conference experience. For those of you who couldn't join us, please be sure to look for details and photos on www.rebuild.gov in the days and weeks to follow. We hope to see you all at our next conference in 2004.

Dan Sze is National Program Manager of Rebuild America

Continued from page 1

Companies Save on Energy, Support National Conference

lamps. In late June, the company announced the creation of the Westinghouse Energy Group, a unit focused on promoting energy efficiency within the Westinghouse lighting product line.

Weighing in from the world of high tech is **Honeywell International Inc.**, a supplier of industrial control systems and high-efficiency electrical power transformers, among a large number of other products and services. From its headquarters in Morristown, NJ, Honeywell runs a business empire that has a hand in everything from polyester to space exploration.

Adding local color is a literal as well as metaphorical powerhouse – **Entergy Corporation**, the New Orleans-based electric utility giant. The company announced last year its own greenhouse gas reduction program, which also targets improvements in the energy efficiency of its power plants. As of May 2002, Entergy had devoted \$8.1 million to 26 such reduction projects, 18 of them involving increases in operating efficiencies at five power plants.

Our supporting sponsors include **McQuay International**, **The Trane Company**, **TRACO** and **MAGNARAY® International**. Two of them help keep us cool: McQuay International (based in Minneapolis, MN) and Trane (an American Standard division directing its commercial and industrial operations from La Crosse, WI). Both are makers of air conditioning equipment. They also provide equipment for other needs, such as heating and ventilating, with attention to

the technologies that minimize energy consumption for such systems.

Two supporters that provide people with a view of the surrounding world are TRACO (based in Cranberry Township, PA, north of Pittsburgh) and **Universal Natural Light** (headquartered in Los Angeles, CA), both makers of windows and skylights. When windows, skylights and sunrooms are made with insulating elements built in, they minimize heat loss in winter or overheating in summer while allowing the full advantage of daylighting.

MAGNARAY® International (based in Sarasota, FL), manufactures energy-efficient lighting for exterior uses – signs, parking lots, sports fields, landscaping and security lighting.

From the centerpiece Celebrate New Orleans! event on July 31 at historic Generations Hall to any of the pre-conference tours and other events throughout the week, the commitment from these organizations is sure to make this conference a special one. Watch for their representatives in sessions and on the exhibit floor... and say hello. They'll appreciate knowing you value their contributions.

Watch for post-conference features, photos and more on www.rebuild.gov. It's one more opportunity to catch up on what you might have missed.

Continued from page 5

Energy Fund Boosts Performance Contracts, Energy Investment in Louisiana

facilities. Sixteen schools will receive financing to conduct energy-efficiency upgrades such as lighting change outs, boiler replacement and solar panels.

McArthur anticipates that the other four pools will receive approval in late 2002 or early 2003. These include:

- Pool 2 – \$50 million in retrofits of public housing
- Pool 3 – \$200 million toward state buildings which include prisons, agency facilities and universities
- Pool 4 – hospitals
- Pool 5 – schools not included in Pool 1

Michael Army of the **Energy Services Coalition**, a Rebuild America Strategic Partner, played a vital role, assisting the state in drafting model Requests for Proposals and contracts. Various Business Partners are part of the newly-formed Louisiana Energy Services Coalition, a group eager to offer their services to the various public entities participating in the Energy Fund.

These companies realize the business opportunity that will come with the enormous energy security and environmental gains the Energy Fund offers. As a result, Louisiana DNR has had to do less leg work in promoting the program.

"They're going out and selling the program," McArthur says.

While Rebuild Louisiana now has the means to offer financing for these projects, it has not abandoned its educational and technical consulting mission. The state partnership develops profiles, conducts energy analyses and audits, and assists public institutions to determine where energy savings can best be realized. The Louisiana DNR will monitor the projects to ensure that they are achieving their full energy-savings potential.

For more information on Rebuild Louisiana and the Energy Fund, contact Louis McArthur at louisism@dnr.state.la.us, or visit www.rebuild.org/partnerships/cp_find.asp and select Rebuild Louisiana.

Upcoming Events

July

29-8/1 2002 SEP/Rebuild America National Conference
Hotel Intercontinental, New Orleans, LA
Information online at www.2002conference.com

August

4-8 8th International Symposium on Renewable Energy Education (ISREE8)

The Grosvenor Resort, Orlando, FL
Visit www.doce-conferences.ufl.edu/isree8/

7-8 Southwest Renewable Energy Fair
Held in conjunction with the **Southwest Renewable Energy Conference**

Northern Arizona University, Flagstaff, AZ
On the Web at <http://www.gfec.org/suref/>

8-10 3rd Annual Indoor Air Quality Tools for Schools Symposium

Grand Hyatt Hotel, Washington, DC
See <http://www.epa.gov/iaq/schools/symposium.html>

17 Southern California Renewable Energy Expo

The Fairplex, Pomona, CA

Visit www.socalenergyexpo.com

18-23 Summer Study on Energy Efficiency in Buildings

Asilomar Conference Center, Pacific Grove, CA
Online at <http://www.aceee.org/conf/bldindex.htm>

September

10-11 Effective Approaches to Improving Energy Efficiency in Public Housing Buildings

Canton, OH
Contact Norma Getto 330-454-8051 x336, or Manny Anunike 614-466-4092

12-13 High Performance Buildings Conference

Milwaukee, WI
Contact the DOE Chicago Regional Office at 312-353-6749



Secretary of Energy Spencer Abraham (right) at a June 12 event co-sponsored by the **United States Energy Association (USEA)** and **Johnson Controls, Inc.** at the National Press Club in Washington, DC. Johnson Controls Vice President **Tom Gannon** surprises Secretary Abraham and his wife with a birthday cake.

New Partnerships

- City of Apache Junction, AZ
- City of Dayton, OH
- Maryland Energy Administration, MD
- Ohio Farm Bureau Development Corporation, OH
- Orange County Public Schools, FL
- Rebuild Alameda, CA
- Rebuild LA County, CA
- Rebuild Minnesota – City of Duluth, MN
- Rebuild Tenakee Springs, AK
- The Family Project, Healthy House, MN
- TME Energy Services, AR
- Vallivue School District, ID

NEW!

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

To submit news or story ideas, contact:

Brian Meeley, 202-466-7391, or email bmeeley@pcgpr.com

Check Us Out: www.rebuild.gov 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 Energy Efficiency and Renewable Energy.



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