

Western's monthly energy efficiency and renewable energy newsletter dedicated to customer activities and sharing information on energy services.

Center highlights energy, water issues for Colorado Springs residents

In the belief that it is better to show than tell people about conservation, Colorado Springs Utilities has created a Conservation and Environmental Center where clever, informative exhibits teach visitors about wise energy and water use.

Housed in a former utility office building just northwest of the city, the Conservation and Environmental Center has been open for about two years. The municipal utility funds the facility as part of its customer outreach program.

Started with garden

Originally, the building housed the Springs Utilities water and energy conservation staff, and a Xeriscape Demonstration Garden decorated the grounds. Springs Utilities has used the garden for more than a decade to promote xeriscaping methods for water conservation in the semi-arid climate. "Overall, indigenous plants will always use less water than a green



Solar panels power the pump that runs the waterfall in the xeriscape garden at the Colorado Springs Utilities Conservation and Environmental Center.

lawn," said Conservation Specialist Stephen Leinweber. "Our customers are very receptive to the idea."

The garden also served as an inspiration when the utility moved the water conservation offices to a new location. "We decided to use the extra space to promote energy conservation along with wise water use," Leinweber recalled.

Springs Utilities remodeled the space, giving a permanent home to traveling educational exhibits. Leinweber has since created more exhibits with the help of the utility's carpentry shop. A library was added for pamphlets, DVDs, CDs and videos on energy and water conservation and xeriscaping. Visitors can do more research on a computer with Internet access to URLs selected by energy

experts. The center also provides a printer to allow people to print out the results.

Gardening enthusiasts can access the 10-year-old Xeriscape Plant Database from the center's computer. "It's a very popular tool," said Leinweber. "Say, someone wants all red flowers in their garden. They select the bloom type, growing season and conditions, and the database will list the plants that meet their specifications," said Leinweber. "Each entry has a picture of the plant and a profile with all the information about growing it."

To drive home the benefits of gardening with native plants, a diorama of a xeriscaped lawn compares water use with a model green lawn. "The

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green lawn has a Tyrannosaurus Rex figure in it because that type of lawn is for dinosaurs,” Leinweber joked.

Consumer education

Most of the Conservation Center exhibits are aimed at residential customers, said Leinweber. “Business and industrial customers are generally more attuned to energy management,” he observed. “Bigger users have higher energy bills, so they have more incentive to save.”

The first exhibit visitors encounter is designed to get them thinking about general residential efficiency. It includes an Energy Star clothes washer, low-flow showerhead and toilet and a rain sensor. “It’s a collection of simple and relatively inexpensive measures consumers can take to use less energy and water,” said Leinweber.

The weatherization and insulation displays get more specific, focusing on the building envelope. The “Truth Wall,” a wall cross-section mounted on wheels, reveals all the different penetration points where heating and cooling—and money—can leak

from a house. The display also shows different types of insulating material visitors might consider for upgrading their home insulation.

The electrical safety exhibit is an important aspect of consumer education, as is the water history timeline. Water played a central role in the development of the West, and continues to be major concern. The timeline illustrates that history with an overview of water development and use in the Springs area.

Meters make impression

The home lighting display connects incandescent and compact fluorescent lamps to Watt meters so visitors can compare the difference in consumption. Another Watt meter hooked up to a Christmas tree allows visitors to switch between C9, C7, mini-lights and LED decorations. “Next year, we are planning two trees, one with all mini-lights and the other with LEDs, connected to an analog meter,” said Leinweber. “The analogue meter makes a bigger impression on people. We are always looking for better ways of communicating energy use.”

Another lighting display focuses on municipal applications, such as LED traffic lights. “This exhibit is just informational—not designed to change anyone’s behavior,” Leinweber noted. “It lets people know that local government is doing its part to save energy, too.”

The automated meter reading exhibit has the same goal—to show customers how their utility is using technology to improve service. Springs Utilities is in the process of converting electric, natural gas and water meters to an automated system. “The display shows visitors the old method, what we have now and what we will have in the future,” said

Leinweber. “They get to see how the new system can read up to 250 meters in 30 seconds.”

Type of generation

Interactive exhibits are among the center’s most popular. The energy bike, for example, demonstrates how much energy appliances consume—the hard way. Visitors sit down on the manual generator and try to pedal hard enough to light an incandescent light, a CFL, radio, TV or hair dryer. “No one has been able to make the hair dryer work yet,” said Leinweber.

Some renewable energy exhibits also give visitors the chance to “be the resource.” To demonstrate wind power, visitors aim a hair dryer at a mini-turbine. The air current turns the turbine, which generates electricity to power a ceiling fan. In the solar exhibit, a halogen lamp shines on a miniature PV panel to turn the ceiling fan.

Outside in the xeriscape garden, a solar panel converts the real thing, sunlight, to power the pump that drives a decorative waterfall. The array includes a power inverter and a meter that lets visitors read the system’s monthly output.

Increasing visitor traffic

Bringing more Springs residents into the center is one of Leinweber’s goals for 2008. A new Web page for the Conservation Center and the Xeriscape Demonstration Garden will soon be a part of the utility Web site. It will feature pictures of exhibits and the garden, an events calendar and more information about the facilities. “People have become very interested in saving energy, and we want to let them know this is the place in Colorado Springs to learn more,” Leinweber said.

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Energy Services Bulletin

The Energy Services Bulletin is published by Western Area Power Administration for its power customers. The mailing address is Western Area Power Administration, P.O. Box 281213, Lakewood, CO 80228-8213; telephone (720) 962-7508.

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Roseville attacks peak with residential efficiency standards

Editor's note: This is the second story of two on Western customers that received awards from the Solar Electric Power Association for their solar programs. See the February issue of Energy Services Bulletin to read about Riverside Public Utilities' program.

Facing anticipated growth of its already-sharp summer energy peak demand over the next 10 years, Roseville Electric launched the ambitious , earning the municipal utility the Solar Electric Power Association's 2007 award for innovation in solar programs.

In a northern California town where the sun shines 257 days a year, residential solar systems could do much to meet electricity demand, especially during hot summer months. In a nutshell, "Rooftops are wasted space that could be generating power," Roseville Electric Director Tom Habashi told SEPA in an online interview.

With rising energy prices, buyers would certainly be interested in a new home that helps reduce energy use, which translates to lower utility bills. But there are also obstacles to building such homes. A big catch, Habashi explained, is that developers find it too time-consuming to deal with city permitting processes and utility rebate applications while trying to meet construction deadlines. But when several developers bought a huge land tract annexed to Roseville with plans to build 20,000 houses over the next 10 years, the opportunity—and necessity—arose to streamline the process.

Cooperation required

To ensure as many of those homes as possible had solar roofs

and energy-efficiency features, the utility invited a group of stakeholders to rethink residential new construction best practices. The partnership included members from city government, the state Building Industry Association, Roseville Chamber of Commerce and the general community. "We also hired a facilitator to figure out how to get everyone to talk to each other," noted Habashi.

It took nine months, but the committee created a program that met the needs of all parties. The updated Roseville Electric incentive program required homes to perform 20 percent better than California's Title 24 efficiency standards on cooling (30 percent as of 2008) and a variety of other water and energy efficient measures. "The program allows builders the flexibility to determine how best to achieve the threshold," explained New Construction Program Manager Mark Riffey.

To support the builders, and to promote residential solar installations, Roseville Electric developed the Blueprint for Energy Efficiency and Solar Technology—BEST—Homes program. Roseville Electric offers new home developers up to \$8,600 in rebates for each participating dwelling unit, plus \$30 per qualifying shade tree. Roseville also provides training, co-marketing support to promote the energy-efficient houses and a single point of contact to help developers navigate the rebate application process.



Solar panels are built onto the roof of this house. Builders participating in Roseville Electric's BEST Homes program are including features that keep down home energy consumption. (Artwork by Roseville Electric)

And builders are responding, said Habashi. "Since the program began, the city issued 2,500 permits for new home construction, and 1,400 of those permits are for BEST Homes," he noted.

Measures appeal to buyers

BEST Homes combine energy-efficient construction, water efficiency and solar generation to lower the house's energy consumption up to 50 percent. Qualified houses boast PV arrays of 1.0 to 2.5 kW, strategically placed shade trees, Energy Star appliances, enhanced ceiling insulation, furnaces with variable-speed fans and, most important, high-efficiency air conditioners. "These are the types of houses we want to see in Roseville—in the United States, really," said Habashi.

These measures help Roseville meet California's renewable portfolio standard and directly target the city's peak energy demand. Preferred Homes, another program Roseville Electric offers to local builders, also takes aim at the "needle" peak. The

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houses don't have solar panels, but are built with efficient air conditioning, Energy Star appliances and tested tight ducts boasting 6 percent leakage or less. One builder, Lennar, found that homes built with these features are so desirable; it now includes these components as standard features in all its northern California developments.

Any additional cost for solar arrays and energy-efficiency features is absorbed into the 30-year mortgage, making it less of a concern for buyers. Also, solar homes may be eligible for special mortgage financing because of lower monthly energy bills, and buyers may qualify for a Federal tax credit up to \$2,000.

Looking to the future

Like any new construction program, BEST Homes is designed only to slow down, not reduce Roseville's peak demand energy

growth. The program is only one year old, Riffey pointed out, and about 100 BEST Homes are now completed and occupied. "We will be watching to see what happens as more of the permitted homes come online," he said.

In the meantime, Roseville Electric has other strategies to yield more immediate results. The Roseville Shade Tree program has helped cut air conditioning needs by providing 13,000 free shade trees to homes, businesses and schools. "Builders who may not participate in the building programs still want the shade trees, because they add value to any property," said Riffey.

The municipal utility offers commercial and residential rebates on energy-efficient appliances and systems. A PV buy-down program to reduce the cost of retrofitting existing homes and businesses with solar systems has been in place for several years.

The Power Partners program enlists residential customers to voluntarily place their air conditioners on a cycling rotation on hot summer days. Roseville gives participants a \$10 credit for signing up and another credit for each summer in the program. "There are about 1,000 people participating now, so there is a huge potential for peak management there," Riffey said. "All of our efficiency and conservation programs basically go after that peak."

If taking on that peak means transforming the home market, Roseville Electric is willing to try it, and Habashi urges other utilities to do it, too. "We believe that BEST Homes can be a model for programs across the country. That's why we've posted the committee report on our Web site."

Then, all a city has to do, Habashi added, "is get everyone together and keep them talking." ⚡

Want to know more?

Visit www.wapa.gov/es/pubs/esb/2008/mar/mar082.htm

Water issues *from page 2*

Leinweber would also like to see more community groups take advantage of the facility's classrooms and meeting rooms.

There are a few times a year, however, when visitors flock to the center. Earth Day, this year on April 19, is big occasion for the center, as is the first week of October, Energy Conservation Month. Those celebrations feature docent-lead tours,

games that teach the participants about energy and conservation and lots of opportunities for visitors to ask questions. The utility gives away compact fluorescent lamps and low-flow showerheads to jumpstart home conservation programs. "And a lot of information about our incentive programs," added Leinweber. "Last year, about 300 people attended the Earth Day event and around 600 participated in Conservation Week activities."

Of course, visitors don't need to wait—groups or individuals can tour the Conservation Center and xeriscape garden Monday through Friday from 8 a.m. to 5 p.m. People can also volunteer to work in the garden from March to October. To arrange a tour or volunteer, contact Gerri Brown at Colorado Springs Utilities, 719-448-4800. ⚡

Want to know more?

Visit www.wapa.gov/es/pubs/esb/2008/mar/mar081.htm

New equipment loan form helps to measure program's value

In these times of ever-tightening budgets, even popular programs like Energy Service's Equipment Loan Program have to prove their worth, so we need to know how the borrowed equipment has helped Western customers.

Price of popularity

In a way, the Equipment Loan Program is all about tight budgets. It gives utilities access to diagnostic equipment that they might not have the funds to purchase otherwise. Utilities use the equipment to find and repair potential system malfunctions before they can cause costly outages. The equipment might help consumers identify and replace energy-hogging systems that contribute to expensive peak loads. A borrowed anemometer can help a Western customer figure out if a wind project would be cost-effective.

Any program that can do so much for so many is naturally going to see a lot of action. In 2007, Equipment Loan Manager Gary Hoffmann received 152 requests for loans. "The infrared camera is the most requested piece of equipment, especially in January," said Hoffmann. "Cold weather pushes homeowners and small businesses to ask their utilities for energy audits. There is another big rush in summer brought on by air conditioning demand and agricultural equipment. Requests involving large industrial accounts are pretty steady throughout the year."

The equipment loan manager must process each one of those requests, and Western pays for outbound shipping on all loans. When the equipment comes back, it has to be checked in again, cleaned and

sometimes repaired. Each year, some tools must be replaced or upgraded to keep pace with technology advancements. All of this costs money—about \$105,000 annually—yet Western offers the service to customers free of charge. Return shipping is the only cost to the customer.

All Energy Services asks in return is a little information about the outcome of the loan, to show budget decision-makers that the program helps customers make the most of their resources. The trouble is, Hoffmann noted, "We don't get much feedback."

Most valuable players

There have been notable success stories, many of which appeared in the *Energy Services Bulletin*, and the infrared camera most often plays the starring role.

Electrician Darrel Iverson of the University of North Dakota facilities department is an enthusiastic advocate of regular IR inspections. The UND facilities department borrows a camera twice a year to inspect the campus electrical system. Inspection records tell Iverson right where to go to work when semester breaks create a window of opportunity for repairs and preventive maintenance.

Preventive maintenance—finding and fixing a problem before it causes an outage—is a big cost saver for both power providers and their customers. Fort Morgan Light and Power in Colorado frequently borrows an IR camera for regular inspections of its key accounts' facilities as well as its own electrical system.

One of those accounts, Leprino Foods, put its large plant on a rotating inspection schedule enabling crews to perform repairs without loss of



The Equipment Loan Program gets many requests for the lighting display kit during Public Power Week.

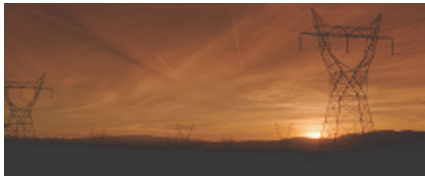
production time. Such inspections keep Fort Morgan's meters running and create a strong relationship between the utility and its customers, noted Electric Superintendent Larry Black.

Collecting critical data

Stories like that, along with the pile of e-mail requests, tell us that customers appreciate being able to borrow equipment for free. But budgets, like the Devil, are in the details. We need more customers to tell us more "what, when, where, why and how" to demonstrate the program's tangible benefits. In an effort to get more of those details, we are redesigning the evaluation form that is sent out with every loan.

The new form asks specific questions about what the equipment was used for, what the borrower learned with the equipment and what, if any, corrective action was taken. Borrowers also have the opportunity to report difficulties operating the equipment and to suggest ideas that would make the tool easier to use.

See *EQUIPMENT LOAN FORM* page 8



TOPICS from the POWER LINE

Utility seeks training to communicate value of energy efficiency

Editor's note: The Energy Services Bulletin features real answers to real questions posed to our staff at the Energy Services Power Line. We hope you find it useful.

Question:

Is training available for utility staff who “sell” energy-efficiency projects to commercial and industrial customers? Topics might include return on investment criteria used by CEOs to evaluate potential projects.

Answer:

Before you select someone to provide training, you may want to evaluate your current program to determine what is working and what isn't. If your program is not meeting your expectations, ask yourself some hard questions:

- Do we know our market? Who are the big players? Are we talking to the right people?
- Are we talking with customers at the right time? Are energy-efficiency measures being suggested too late in the project to be implemented? Is there some way we could anticipate projects more proactively?
- Are people resistant to talk with us? If so, why?
- If customers seem receptive, yet still don't accept our proposals, should we try a different approach?
- Is our analysis thorough and sound, and, perhaps most importantly, presented in an

understandable way?

- Do we have good relationships with our customers?
- Are customers in our service area generally aware of our energy-efficiency programs? If not, why not?
- The type of training you have in mind will most likely need to be customized to your situation. If you can identify any specific areas of weakness ahead of time, you can target those areas to make the training more effective.

Industry groups

The following organizations may offer courses that meet your needs, or should be able to make recommendations:

- Utility Energy Forum, a non-profit consortium of utility professionals, frequently co-sponsors workshops with a marketing focus, like the Geothermal Heat Pump workshop. Contact Guy Nelson to learn more about scheduled events.
- Northwest Public Power Association provides training and education, public information, communication, Federal legislative coordination, surveys, data and networking opportunities and products and services for the utility industry.
- Northwest Energy Education Institute, at Lane Community College in Eugene, Ore., offers certification courses in Energy Management, Building Operator

Certification and BPA Residential Certification, as well as customized, on-site training. The institute can even help with the type of analysis mentioned above to help you figure out what your strongest needs are.

- APPA Utility Education provides affordable training programs and educational services to keep members abreast of industry changes, upgrade skills and enhance customer and energy services.

Cost analysis tools

If you are looking for some fairly sophisticated financial tools to present the anticipated returns in a clear manner, check out the U.S. Department of Energy's free software collection. For example, MotorMaster+ software has a complete analysis module built into it that can calculate the life-cycle cost, ROI, net present value and, of course, payback for virtually any energy-efficiency motor project.

A “hard sell”

A challenging sector to penetrate is tenant-occupied commercial property. This ownership/occupant model has traditionally been a difficult market for utilities promoting significant energy-efficiency measures.

Property managers are typically interested in reducing their capital and operating costs to maximize

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Web site of the month:

Guidance for green product purchasing

Buying green—power or tags—helps to reduce carbon emissions and saves energy and natural resources. Purchasing environmentally preferable products—another way to “buy green”—makes a similar contribution to sustainability. But with so many products on the market claiming to be “green,” setting up a green purchasing program can almost make a power purchase agreement look easy. Fortunately, several Web sites exist to help purchasing agents and departments find equipment and supplies to meet their environmental goals.

Environmentally preferable products or services have a lesser effect on human health and the environment compared to competing products serving the same purpose. EPPs reduce the demand for energy and raw material used in manufacturing, create a market for recycled material and cut down on toxins in the workplace, to name only a few reasons to choose them. Green purchasing may be part of a company’s overall sustainability policy or a stand-alone measure to improve worker or customer health and safety. Whatever the reason, many benefits await the company that does its homework, and many online resources exist to help it succeed.

EPA hosts Web site

There are so many benefits, in fact, that Federal facilities are required to include EPP purchasing in their environmental management systems. The Environmental Protection Agency’s Environmentally Preferable

Products Web site (www.epa.gov/epp/index.htm) provides guidance to help Federal agencies comply.

Although the site is geared to Federal purchasers, green vendors, businesses and consumers will also find valuable information. Sections of the site most useful to non-Federal visitors include Green products and services, Hands-on tools and Related links.

The products and services section summarizes information about a range of commonly-used equipment and supplies. Users will learn what environmental attributes to look for when purchasing such products as construction and cleaning supplies, electronics, office supplies and paper. The section also offers procurement guidance, tools, case studies and other helpful resources. Or, simply browse the products and services database, a one-stop shop for environmental information on products and services the Federal government buys.

Hands-on tools has several resources to help users start their own green purchasing program. Promoting Green Purchasing: Tools and Resources to Quantify the Benefits of EPP provides guidance for estimating the benefits of environmentally preferable purchasing choices. A variety of software tools and calculators compares the economic and environmental impacts for specific products.

Additional resources

Under Related links, users will find more Web sites run by Federal, state and local governments; international programs and private EPP programs.



The U.S. EPA’s Environmentally Preferable Purchasing Web site helps Federal agencies “buy green,” and in doing so, stimulates market for green products and services. (Artwork by EPA)

USDA’s BioPreferred program (www.biopreferred.gov/) selects and prioritizes items to designate as “preferred” bio-based products, using criteria established in cooperation with other government agencies, private industry and independent manufacturers. The products the program targets for designation include an extensive list of industrial and agricultural chemicals and cleaning products. Items designated in the first round of documentation can be found in BioPreferred catalog.

The collection of success stories provides ammunition for selling green buying choices to decision makers and suggests uses for bio-based products.

For purchasing agents

Standards and best practices for environmentally preferable purchasing are still evolving, so you may want to bookmark some of the non-government sites under the EPP related links section. The Northwest Product Stewardship Council (www.productstewardship.net/) and the Responsible Purchasing Network (www.responsiblepurchasing.org/) focus on the broad topic of integrating environmental management strategies into company policy. ⚡

Want to know more?

Visit www.wapa.gov/es/pubs/esb/2008/mar/mar085.htm

Equipment loan form

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The completed form must be returned with the equipment to ensure that the customer can borrow equipment in the future. “The goal is to increase the program’s accountability. If we can’t prove that it is providing a valuable service to Western customers, we can’t continue to offer it,” said Hoffmann. “We need our customers’ help to do that.”

Ideally, customers would also provide an estimate of the potential dollar cost of problems identified with a borrowed diagnostic tool, but that’s not always possible. Knowing that the tool helped a utility prevent several hundred customers from losing power on a cold night or a hot day tells us the Equipment Loan Program is serving its purpose. And sometimes, the benefits are even

less tangible, said Hoffmann. “One customer at a co-op in New Mexico said that their consumers could buy electricity for less from the investor-owned utility, but the co-op is more reliable,” he explained. “It’s hard to put a price tag on trust.”

Different tools, questions

Public outreach is another area where value is hard to quantify, so we have developed a different evaluation form for the lighting display and fuel cell kit. “People borrow educational displays for a different reason than diagnostic tools,” Hoffmann observed. “The questions on the form are intended to give us ideas for tailoring material and adding new displays.”

We are asking customers to tell us the purpose of the event where the display was used and what kind of audience attended. The question about audience feedback will

help Energy Services improve its educational displays, as well as help borrowers evaluate their outreach programs.

Both forms carry a reminder to customers to avoid delays by reserving equipment ahead of time. “Energy efficiency is a hot topic right now, so we’ve been seeing more requests for diagnostic tools over the last several months,” said Hoffmann. He added that lighting displays get snapped up quickly during Public Power Week, so advanced reservations are highly recommended.

Planning ahead is, after all, a critical part of controlling costs, and so is sharing tools—and information. The new equipment loan evaluation forms will make it easier for our customers to share the information we need to support them in providing low-cost, reliable power to their members and neighbors. And that’s good for everybody’s budget. ⚡

Want to know more?

Visit www.wapa.gov/es/pubs/esb/2008/mar/mar083.htm

Topics from the Power Line

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profits. Capital investments that improve the building’s appearance or provide convenience for tenants are often seen as having more value than energy-efficiency measures. Tenants, on the other hand, though they are paying utility costs, often have very little capital. Also, those on short-term leases may not be around to realize a benefit from energy-efficiency measures with long paybacks.

The Energy Savers Program, one of the most successful programs for this market, started in 2002 and is still in place in California. The Small Business Energy Alliance runs the program and designed it specifically to serve the “hard-to-reach” market: small commercial customers (under 500 kW) outside the major metropolitan areas. The program has been particularly successful with customers who are leasing their property with a medium- to long-term lease. Call the Energy Saver Hotline at 800-881-7232 to learn more about this program. ⚡

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