

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

Kit Carson Electric embraces solar power

The clear blue sky of northern New Mexico that so captivated artists in the early 20th century has become a source of clean, renewable power for Kit Carson Electric Cooperative in the 21st.

With 300 days of sunshine annually and an altitude of 7,000 feet, the Taos Valley has abundant—and steady—solar resources. With two new solar power facilities that differ in size and technology, but are both firmly rooted in the community, the Taos-based co-op is showing that a utility can balance environmental and economic goals.

Thinking big

Blue Sky Energy, which came online Aug. 27, is a 5,280-panel photovoltaic (PV) array on a tracking system that follows the sun's path. The 1.2-megawatt (MW) installation generates enough energy to power almost 400 average New Mexico homes for a



Officials and students gather to cut the ribbon on the community-owned solar array at Taos Charter School. (From left): Douglas Howe, New Mexico Public Regulation Commissioner-District 3; Paul Spencer, CEO, Clean Energy Collective; Michelle Jacquez-Ortiz, representing New Mexico Senator Tom Udall, Jennifer Manzanares representing New Mexico Congressman Ben Ray Lujan; Mary Emery, Taos Charter School, Taos Charter School Student; Bobby Ortega, KCEC board of trustees chairman; Arthur Rodarte, KCEC board member; Luis Reyes, KCEC CEO; Ambrose Mascarenas and Francis Cordova, KCEC board members. (Photo by Kit Carson Electric Cooperative)

year, and offsets carbon emissions equivalent to planting 221 acres of forest.

Paradise Power Company of Taos, built, owns and maintains the installation, located about five miles north of town near the Rio Grande Gorge. Kit Carson signed a 25-year power purchase agreement (PPA) with the company to buy the array's output.

Blue Sky Energy joins the Rio Costilla Cooperative Livestock

Association Amalia Solar Array 1, another project Paradise Power coordinated, and a 1-MW concentrated solar array near Questa, N.M., to bring Kit Carson's solar portfolio to nearly 5.3 MW. The co-op also ranks second in the country in solar watts per consumer.

A piece of the sun

The second project, dedicated

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Kit Carson Electric

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in late August, is a community solar garden at the Taos Charter School consisting of 420 fixed PV panels. The fixed-panel array is small compared to Blue Sky, but it has the distinction of being the state's first community-owned solar project.

Clean Energy Collective (CEC) a Colorado company, built, maintains and warranties the solar gardens, and Kit Carson acquires the power they produce. Under the business model CEC pioneered, the company receives the tax credit, which is applied to the sale price of the panel.

Consumers can purchase the Taos Charter School array's 235-watt panels for \$845, and receive a credit on their monthly bills for the energy produced. "Our customers are very excited about the program because it actually gives them a return on their investment," explained Kit

Carson Public Information Officer Steve Fuhlendorf. "Panels pay off in about 12 years, and they are guaranteed for 50 years. Once subscribers pay off their panels, 100 percent of the energy produced applies to their electric bill."

Panel owners can sell their share in the solar farm if they move from Taos, or they can include the price of the panel in the sale of their home if the buyer is interested. "They can even leave the panels to family members in their will," Fuhlendorf said.

Reaching parents thru kids

To market the community solar farm, Kit Carson enlisted a ready-made army of advocates—the students of Taos Charter School. Part of CEC's marketing plan was to work with the school and get the children involved in presenting the idea to their parents.

The school will enjoy the educational advantages of having a renewable power plant in its own backyard. Students can follow the system's power production through an online monitor.

The charter school array joins other small solar installations at schools in Kit Carson's territory. There are arrays behind Taos High School and at Penasco Elementary School and another at the University of New Mexico, Taos Branch, Fuhlendorf noted. "The idea is to get young people accustomed to seeing solar arrays and thinking of the technology as part of their future," he said. "The kids can then pass their enthusiasm on to their parents."

Solar advantages

Kit Carson's grown-up customers didn't need much help recognizing a good idea, though. Developing solar resources offers a way to create local jobs and stabilize energy costs with minimal impact to the region's main industries—tourism and recreation.

Every year, thousands of people visit the area to enjoy skiing, hiking and camping as well as a lively arts scene and the heritage of the Taos Pueblo. By picking locations carefully, solar developers are able to protect historic structures and sweeping vistas. "Community solar also allows people who rent or lease buildings in the historic district to invest in renewable energy," Fuhlendorf pointed out.

Customers have already purchased about 35 percent of the panels in the short time Kit Carson has been offering the program. Community solar has proven more popular than the co-op's voluntary green power program that allows customers to buy blocks of wind power for a premium. "People feel like they are getting good value and contributing to the local economy," observed Fuhlendorf.

He added that plans are already underway with CEC to team with the co-op on another array. "As long as demand is there, Kit Carson will continue to make panels available through the community solar model," Fuhlendorf said. ⚡

Energy Services Bulletin

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For links to more resources,
visit <http://ww2.wapa.gov/sites/western/es/pubs/esb/Pages/esb1.aspx>

Kansas City utility launches first Facebook, Twitter pages

The Kansas City, Kan., Board of Public Utilities (BPU) has recently joined the growing number of utilities that communicate with their customers 21st century-style, launching a new Facebook page and Twitter feed.

Utilities need to find more creative ways to get their message to their customer base, acknowledged David Mehlhaff, BPU's public affairs officer. "With more and more people using electronic communications, we couldn't afford to neglect this avenue," he said.

One message

BPU's enhanced social media presence follows the launch of its new website, which offers a more user-friendly navigation and a real-time outage reporting map system. Press releases, events, outages, emergencies and other announcements are cross-posted to ensure maximum exposure. "We may be using multiple vehicles to talk to our customers, but the message is integrated," said Mehlhaff.

The look is as consistent as the information, with page design and layout tying the three platforms together. A mobile version of the website is also in the works.

Customers aren't just sitting back and absorbing BPU's message, though. In just a short time, the Facebook page has wracked up over 150 "likes," and the utility's Twitter feed has 55 followers. "The whole point of social media is having a two-way conversation with your customers," Mehlhaff pointed out. "If they have questions, or need our help, we can address that right away."



Utilities has integrated its electronic communications platforms to reach customers through Facebook, Twitter and its own redesigned website. (Artwork by KCBPU, Facebook, Twitter)

Diving in

Making the leap to social media was not difficult for BPU, or for Mehlhaff who admits to being "old school" marketing professional. "Learning new skills is part of every job," he said. "I just think of it as another way to communicate with our customers."

It helped that Mehlhaff was already using Facebook and Twitter personally. He talked to other communications professionals about their experiences with social media, and was soon up to speed. "It doesn't take long before you start getting ideas about how to use it, and to see the advantages," Mehlhaff observed.

One advantage—in addition to being a two-way forum—is that Facebook and Twitter are free services. Maintaining the pages, however, does require labor, time and the ability to craft concise messages that don't lose any important details. Mehlhaff has enjoyed launching BPU's social media presence, but is in the process of hiring two new staff members who will help manage the expanding role of his department.

The pages will start attracting new visitors when customers receive announcements about

the online resources in BPU's newsletter, bill stuffers and direct mailings. "We deliberately chose a 'soft launch' to give us time to work out the kinks and get a feel for this style of communication," Mehlhaff explained. "If you want customers to use a tool, you have to make sure it functions as promised."

Future just beginning

BPU wants to encourage their customers to adopt online tools, not only for improved communications, but to reduce paper use. With a significant database of customer cell phone numbers and email addresses, the utility will be able to offer more convenient ways to do business. Mehlhaff envisions customers paying their bills from their smart phones, and receiving monthly reminders and outage announcements by text message.

A YouTube channel for instructional videos and utility news is another communications product Mehlhaff hopes to launch soon. "Utilities shouldn't be afraid to change the way they talk to customers," he insisted. "Social media offers many opportunities to improve service—we should embrace it!" ⚡

For links to more resources,
visit <http://ww2.wapa.gov/sites/western/es/pubs/esb/Pages/esb2.aspx>

Resource planning: Not just the law, a good idea

Editor's note: *In the third of our three-part series on integrated resource planning, some of our customers explain how the process helped them understand their operations better and even improve them.*

Making sure there is enough clean, low-cost and reliable Federal hydropower for all the nonprofit power providers who want it doesn't happen without planning—on the part of both Western and our customers.

From the beginning, Western has carefully planned to meet our customers' needs, and to extend our resources to serve other eligible utilities. Going through the process helped us to prepare for changes in weather, fuel prices, the economy and more. It also showed us that long-term planning could help utilities protect their consumers against volatile conditions, too. In 1992, Congress passed the Energy Policy Act requiring Western customers to do integrated resource planning (IRP).

Unfortunately, the benefits of planning may be lost if the IRP is slapped together just in time for the deadline, then forgotten until the next year. Or, as Randall Bohlman, technology advancement coordinator for the University of North Dakota's (UND) facilities management department, puts it, "You get out of planning what you put into it."

So, as long as the law requires Western customers to do IRPs, utilities might as well approach the task as the opportunity it is.

Better know your utility

Even for small customers with predictable loads, planning can be an opportunity to learn a thing or two about their operations or about options they can offer their customers.

Seneca, Kan., with a population of less than 2,000, submitted its first IRP

in 2012, after years of being included in a joint action agency (JAA) report. City Administrator Tami Haverkamp was surprised to learn how many efficiency programs the utility had been offering residents for years. "We realized that if we were taking these opportunities for granted, our customers might be missing them, too," she said.

While developing its first small customer plan, the city of St. Marys, Kan., discovered that the JAA Kansas Power Pool the city joined this year offers energy-efficient appliance rebates. "Now we know we have that option if our customers want it," said City Manager Maurice Cordell.

Educate the bosses

Communicating with the supervisor or board of directors often takes a back seat to day-to-day utility operations, but power providers can use IRPs to update governing bodies on their goals and challenges.

The city of Lindsborg, Kan., is a residential community with a low load factor and summer peak, explains City Administrator Greg DuMars. Planning has shown the municipal utility that its current rate structure, which bills everything as energy, doesn't reflect the cost of demand. "We are starting to gather data to support changing to a rate structure that mirrors our cost structure," DuMars reported. "That may mean launching programs to modify customer behavior.

"The IRP identifies issues like this, and helps our board to better understand what drives our costs, and why we introduce programs to shoulder the peak," he added.

The UND facilities management department shares its annual plan with the vice president of operations, who reads the report cover to cover. "She goes straight to the strengths and weaknesses in our two-year and

five-year plan," said Bohlman. "Now, our projects and goals are on her radar, too. That really helps when it's time to sell our case for project funding to the higher administration."

Meet the customer

Accepting public comments on the plan can be one of the more challenging aspects of the process, but it represents a valuable opportunity to get the customer's point of view.

Colorado Springs Utilities conducted three customer meetings in 2011 as part of its Electric Integrated Resource Plan. DSM and Renewable Energy Manager Mark James noted that usually, renewable energy enthusiasts show up at the utility's public meetings. "During this EIRP, Colorado Springs Utilities also heard from people who were willing to accept more fossil fuels if it meant rate stabilization," he said. "It wasn't a big surprise, given the state of the economy, but the important thing is that we have a chance to listen to diverse customer perspectives to come to a final recommendation."

But customer feedback can take a surprising turn even at the facility level, where service providers are often closer to the consumer. The UND facilities department updates its energy plan annually to support the school's sustainability program to bring the campus to carbon neutrality. "We always post the plan on our website to remind the community of what our goals are and let them know what we're doing to reach them," Bohlman stated.

The original UND sustainability plan included building a wind turbine on campus to supply some of its energy needs with renewables. However, students and the surrounding community responded negatively to the idea of a wind turbine on campus grounds. "We switched our focus to solar instal-

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Question:

How can our church reduce its energy use for lighting? The sanctuary currently uses 1000W and 300W, mogul-based, incandescent lamps. The 1000W lamps hang from antique pendants 40 feet above the floor, so it would be great if we didn't have to replace lamps so often.

Answer:

In retrofitting church lighting, the challenges include limited resources and small, aging congregations with declining vision. When choosing between the fast, cheap (relatively), or effective solution, you are most likely to get only two of the three.

Weighing the options

If money was plentiful, you could hire a contractor to retrofit antique fixtures with modern lamps and ballasts that are both bright and energy efficient—and you would still need a high-lift for maintenance.

Assuming about 800 operating hours per year, you are changing bulbs annually, with considerable effort. If they are burning out even sooner, there may be other issues such as power surges, voltage fluctuations or vibration shortening lamp life. Although you might enjoy energy savings from a more efficient technology, getting longer lamp life from the church's existing stock of conventional 1000W lamps might be more practical.

Depending on how and where you purchase them, the lamps compare in cost to some large compact fluorescent products having eight to 10 times the lamp life. Dwindling demand for conventional lamps may affect future prices, especially if a product becomes

available from only one source. Stick to a well-known manufacturer with a good track record.

Keep in mind, however, that lighting technology is quickly evolving toward much more efficient lamps, leaving little demand for 1000W incandescent lamps. Currently, only one of the "big three" manufacturers, GE, is producing them, so eventually, a retrofit or replacement will be necessary.

Fluorescents and LEDs

Most of your light is coming from fixtures which are T-12 fluorescent fixtures. The hanging pendants and wall sconces would be mostly decorative, though undoubtedly provide some useful light.

Replacing T-12 fluorescent fixtures with high-light T-8 technology would improve their quality and light output. You could even add some fixtures to provide most of your ambient light needs. T-8 lighting offers many correlated color temperatures (CCT), including 2700K, that are similar to incandescent lighting. Dimming ballasts and controls are available if you want more than one light level.

Consider converting the 300W incandescent wall sconces to a medium base with an adaptor that uses the largest compact fluorescent lamps (CFLs) the fixture allows. They would maintain their decorative value, while continuing to provide useful, though reduced light. Be sure to match the CCT of the other lighting. If your current supply of 1000W lamps fit the fixture, you can use them up before switching to CFLs.

If the aisles or pews need more light for safety or reading, consider adding sturdy, efficient light emitting diode, or



The Gloria Dei Lutheran Church in Urbandale, Iowa, is an Energy Star-certified building, showing that church facilities can overcome their unique challenges to reduce energy consumption. (Photo by Energy Star)

LED, products in strategic spots. Also, for parishioners who require more light, you could offer small, battery-powered, reading lamps to clip onto books. Making sure the lights don't leave the church could be a challenge, though.

Making lights last

To extend the life of existing lamps and save energy, reduce both the amount of time the lights are on and the number of times they are switched off and on. When you turn on such large lamps, the substantial surge, or inrush, of electric current can damage the filament.

Be sure no one plays with the light switch or turns them on except for services. Use only the fluorescent lamps for rehearsals, and provide labeling and instructions near the switches and to groups who may be using the facility. Turn the incandescent lamps on only as people are entering the sanctuary, and then off as the last person leaves the sanctuary, or as the last part of the service con-

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Website of the month:

Alliance to Save Energy

www.ase.org

Now in its 35th year, the nonprofit Alliance to Save Energy (ASE) promotes energy efficiency worldwide through research, education and advocacy. That may sound like a very broad agenda to your average utility, but under that umbrella, power providers can find resources, inspiration and allies for achieving their own energy savings goals.

Talkin' about efficiency

The best place to start your exploration of ASE is to browse the topics section. Categories range from appliances to windows, from technology to policy, from local to global.

One page is dedicated to the challenges of Utilities and Distribution, but don't overlook the abundance of practical resources focused on day-to-day operations. Pick up energy- and money-saving tips to share with consumers, discover financing mechanisms for energy-efficiency projects and learn the best practices for evaluating your programs. And that's just a sampling of the topics ASE covers.

Each topic page starts with an overview, and then lists featured content. At the bottom of the page, a menu lets visitors browse the latest in news, resources and events related to the topic. The right side of the page displays a link to related programs and organizations.



Searchable databases

The resource library has an impressive collection of research papers, reports presentations and position statements. The featured content lists the most recent additions to the library, with search fields on the right. Visitors can sort resources by type (publications, videos or presentations), topic or associated program.

The Events calendar has a similar setup, with ASE's signature events at the top, followed by upcoming events. Visitors can add their own energy-efficiency events to the calendar, complete with a banner, description and registration link.

Partners in savings

Because energy efficiency is about working smarter, ASE works with more than 160 associated organizations on policies and programs to save energy in different sectors of the economy. Utilities could find partners of their own among ASE associates.

The Clean and Efficient Energy Program provides public power utilities with resources and assistance to create energy-saving programs. For program ideas addressing specific types of customers or issues, check out Zero

Energy Commercial Buildings Consortium, PowerSave Schools and ASE's Industrial Team.

Municipalities may find support for improving efficiency in new and existing buildings with the Building Codes Assistance Project and the Energy-Efficient Codes Coalition. Water providers may be interested in Watergy, a program that pioneers measures for reducing water and energy consumption.

Keeping up

No matter how successful your energy-efficiency program is, or how supportive your board or educated your customers are, things change fast in the utility industry. A reliable source for concise, but well researched articles covering the latest news about technology, strategies and legislation would come in handy—and that's what ASE's Efficiency News is.

Efficiency News regularly posts articles that draw on the expertise of its members, and often include coverage of projects and issues they are currently working on. The stories also provide links to references, product information and contacts. ⚡

For links to more resources,
visit <http://ww2.wapa.gov/sites/western/es/pubs/esb/Pages/esb5.aspx>

Energy Experts

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cludes, to help signal the members to move out to the social area. You might install a commercial-grade timer if you have problems finding a prompt and consistent “light monitor.”

More about CFLs

A single large CFL could replace the 1000W lamps where the lights are only used to illuminate antique fixtures. Either a mogul-base lamp, or one fitted with a porcelain medium-base adaptor, screwed in snugly but not over-tightened, could light up the fixture nicely, but would not do much more. Be sure any

CFLs are of the same warm color temperature—2700K, or possibly up to 3500K—and preferably of the same brand. The higher color temperature may improve visibility, even though it would provide the same actual light level and wattage as a warmer lamp.

Some consumers have complained that larger CFLs are frequently damaged in shipping. Shipping costs can make return and replacement prohibitive, so a good warranty is important, and perhaps shipping insurance would be worth looking into.

Beyond lighting

Your inquiry was specific to the church’s interior sanctuary lighting,

but the rest of the building may offer energy-saving opportunities with fewer complications. For example, installing timer switches on exit lights, stair wells, restrooms and closets and exterior walkways can ensure that lights are turned off after everyone has left. Also, parking lighting need not be left on all night when no one is there.

Here are some resources that may provide more inspiration:

- Energy Efficiency for Churches Conservation Toolkit; The Tributary Fund
- ENERGY STAR for Congregations
- The Interfaith Coalition on Energy 

For links to more resources,

visit <http://ww2.wapa.gov/sites/western/es/pubs/esb/Pages/esb4.aspx>

Resource planning

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lations, because of what we learned from asking for public comment,” observed Bohlman.

Worth doing right

Taking the planning process seriously has helped the University of North Dakota save \$1.3 million annually, and that is just one facility. Westernwide, customers’ demand-side management measures in all regions combined saved more than 2,000,000 megawatt-hours (MWh) in 2011. Renewable energy also played an important role in meeting the demand for electricity. Our customers used more than 18 million kW of non-hydro renewable electricity in 2011.

Admittedly, planning is a lot of work, especially for small utilities

with few employees who wear many hats. But there are ways to prepare for the process that are good for daily operations, too. “Maintaining records between reports simplifies the IRP, and it gives you data in timely fashion to manage your system,” advises DuMars.

Taking advantage of the technical assistance provided by Western’s Energy Services can also make your life a little easier—that’s why we’re here. Cordell is glad he attended one of the IRP submission workshops Energy Services Representative Bob Langenberger presented in Kansas earlier this year. “I’m a lot more comfortable with putting together the small customer plan now,” he said. “I definitely recommend that utilities use Western’s resources.”

Talk to us!

We have our own selfish reasons for wanting our customers to call us. Beyond fulfilling requirements and contributing to Western’s own planning, IRPs give us the opportunity to get to know our customers better.

Brent Osiek, who recently joined the Colorado River Storage Project (CRSP) as the new Energy Services representative, learned a lot from talking to a municipal customer about their recently completed IRP. “It started a conversation about how Western could help them out,” Osiek recalled. “Looking at their report, I started to see where they might find some energy savings. And I learned a few things about their city operations I didn’t know.”

And the more we know about your operations today, the more we’ll be able to help you plan for the future. 

For links to more resources,

visit <http://ww2.wapa.gov/sites/western/es/pubs/esb/Pages/esb3.aspx>