

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

Gilbert, Ariz., starts utility, saves water treatment costs

The do-it-yourself ethic is alive and well and saving the town of Gilbert, Ariz., money on water treatment—with a little help from Western.

One of Western's new Parker-Davis customers, the bedroom community half an hour outside of Phoenix set up its own utility four years ago as a way to control water rates. "We dedicated our Western allocation completely to the production and distribution of drinking water," explained Lonnie Frost, Gilbert Public Works director. "The low-cost hydropower from Western has helped the town save an average of about \$190,000 annually."

Challenged by growth

Water supply has always been a big concern for Gilbert, which was the hay capital of the United States in World War I. "One quarter to one third of the community area is still actively involved in agriculture," Frost noted.

Add to the agricultural demand the rapid growth of the Sunbelt that



Hay farming was big business in Gilbert a century ago. Today, residential demand competes with agricultural demand for water. (Photo by Gilbert, Ariz.)

swelled Gilbert's population of 9,000 in 1984 to more than 200,000 today. "We were ranked the fastest growing community in America in the 1990s," recalled Frost. "It was hard for town operations to keep up with that expansion."

Gilbert's unusual arrangement with its power providers complicated the situation further. Salt River Project (SRP) serves most of the town's energy needs, but a four-square-mile area in the middle of town gets its electricity from Arizona Public Service (APS). "We considered taking over the APS area as far back as 17 years ago, and the voters approved it," Frost said. "We began laying the groundwork to start a utility, but the situation with APS improved, so the project was shelved."

Never waste a good idea

But the seed was planted, and years later, as the town looked for ways to contain water treatment costs, the idea reemerged as the most promising way to accomplish that.

The time that had passed since Gilbert's first effort to create a utility had turned the project into something of a blank slate. The latest iteration of the utility would serve only municipal operations. "We didn't want to get into marketing power," Frost observed. "Also, we were committed to using 100 percent of the reclaimed water produced within the community."

As plans for establishing a municipal utility moved forward, Frost began researching power purchases.

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Utility Energy Forum delivers concentrated dose of energy education

Helping Western customers increase energy efficiency, use renewable energy, improve customer service and get the most from their energy resources is a big job that the Utility Energy Forum (UEF) makes a little bit easier for your dedicated Energy Services representatives.

Good for you, good for us

Our enthusiasm for this event, now in its 32nd year, goes well beyond self-interest, however. Smart Energy + Smart Technology + Smart Delivery = Smart, Satisfied Customers packs everything Energy Services shares all year long into a few days, May 9 to 11. Attendees will get the latest news about pressing issues, best practices and new technologies, and the connections they make with colleagues will make their jobs easier, too.

That's why Energy Services offers five \$100 scholarship discounts for customers who have never attended the meeting at Granlibakken Resort near Reno, Nev. "Attendees benefit tremendously from meeting their peers," said Paula Fronk, Energy Services representative for the Colorado River Storage Project.

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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For more than 30 years, the Utility Energy Forum has brought together utility program managers and energy efficiency experts for networking and professional development. (Artwork by Utility Energy Forum)

William Stacy, General Manager of Electrical District No. 3 in Maricopa, Ariz., applied for one of the scholarships offered by the Desert Southwest Region for that reason. "It sounded like a good way to network with people, to find out what everybody else is doing," he said. "I also liked that it was a smaller group than most professional conferences."

"It's good for Energy Services staff, too," Fronk insisted. "The forum lets us connect with customers who are very proactive with energy efficiency, as well as those who are just getting their feet wet. It's our chance to learn first-hand about what strategies are working for our customers and what Western can do to support them."

Experience informs agenda

The UEF executive committee boasts many Western customers who know a few things about what works in energy efficiency—and what doesn't. Readers will recognize utilities whose programs have been highlighted in Energy Services Bulletin: Azusa Light and Water, City of Palo Alto Utilities, Silicon Valley Power and Sacramento Municipal Utility District (SMUD) to name a few. And what an agenda they have assembled for this year's meeting. Utility experts from throughout the west will be on hand to explore how to engage customers and address environmental chal-

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lenges through policy, programs and technology.

The discussion begins early for utility and government attendees with a pre-conference roundtable on promoting utility messages through social media. Two keynote speakers carry on the conversation from their unique perspectives. Suzanne Shelton of the Shelton Group public and investor relations services explores the real hurdles to customers implementing energy efficiency improvements (hint: It's not awareness). Panama Bartholomy, deputy director of efficiency and renewable energy for the California Energy Commission, talks about the challenges facing the state's ambitious energy policy.

Attendees will get to talk about their issues and highlight their successes during sessions covering

policy, technology and customer relations, but that is just the beginning. The Stand-up Challenge and Ice Cream Social marries the poster session to speed dating to sundaes for a fun, tasty and educational afternoon mingle. The ever-popular "Any Port in a Storm" networking event is also back to stimulate conversation with a full course meal, port tasting and classic rock.

Scholarships as bait

Any event that packs in this much valuable energy information is an event Energy Services would like its customers to attend, and we don't mind offering a little incentive to get you there.

For the first time in 2011, customers from our Sierra Nevada region could apply for scholarship discounts to attend the UEF. That went over so well, we extended the offer to other Western regions. "The challenges utilities face are very similar even though they

have different geographic profiles, resource mixes and customer bases," said Energy Services Manager Ron Horstman. "At a meeting like this, you never know when you are going to hear something that gives you a fresh perspective on an old problem."

Fresh perspective may come from a small wholesaler like Calaveras Public Power Agency or a large municipality like SMUD, or it may come from the setting itself. Calaveras General Manager Dennis Dickman, who attended a previous UEF with a scholarship discount, observed, "You couldn't find a better place to hold a conference than Lake Tahoe in May. The snow is gone and the tourists haven't arrived yet."

What's important is that perspective comes from you, the participants—utilities of all sizes, decision makers and trade allies—who practice what Energy Services preaches. ⚡

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

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"I thought the water and wastewater industry had a lot of acronyms but, I learned the power industry uses a lot more, and I spent a lot of time googling the acronyms I heard in the meetings I attended."

Hydropower in action

Starting in 2008, the Western allocation, delivered to Gilbert through SRP, began powering the treatment and distribution of surface water from three river systems, 17 wells and numerous reservoirs and

booster stations.

The town has two water treatment plants: the North Water Treatment Plant (NWTP) and the Santan Vista Water Treatment Plant. Located on the north side of town, NWTP receives water from the Salt and Verde rivers. It can produce as much as 45 million gallons of water per day (MGD) and has a 16 million gallon (MG) reservoir onsite for water storage.

The Santan Vista plant processes 24 MGD from the Colorado River watershed, and will expand to 44 MGD by 2014. Gilbert built and

operates the plant in partnership with City of Chandler. Each community takes 50 percent of the plant's capacity and share operations for an estimated savings of \$600,000 annually.

Cost savings also come from routine efficiency evaluations the Gilbert water treatment staff periodically performs on the plants. SRP helps out the town with technical assistance and motor efficiency evaluation. But Frost is quick to acknowledge, "A big part of the savings is the Western hydropower." ⚡

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

Workshop, tools help Kansas utilities discover value of IRPs

Integrated resource planning (IRP) is not easy, but figuring out what form the plan should take to satisfy Energy Planning and Management Program (EPAMP) requirements shouldn't be the hardest part. Western teamed up with the Kansas Municipal Energy Agency (KMEA) recently to teach Kansas municipal utilities how to put together an IRP that meets Federal regulations and—just as important—helps them make their operations more efficient and reliable.

New experience

Rocky Mountain (RM) Regional Energy Services Representative Bob Langenberger presented a series of workshops to employees from 25 municipal utilities in Kansas. “Because most KMEA members received their initial allocation from the Loveland Area Projects around the same time, their five-year plans are due within a six-month window,” Langenberger explained. “So the workshops were very well attended.”

Another reason for the heavy attendance is the recent retirement of a KMEA employee who provided extensive support for members' planning processes in 2007. Many KMEA utilities found themselves developing their plans from scratch for the first time, and needed guidance. “Doing the plan entirely on our own, without the backup we've had from KMEA in the past, was new to us,” admitted Scott Nuzum, the power plant manager for Osborne, Kan.

Searching for an example of an IRP format, Rod Blake, who operates the Goodland power plant, came across an IRP from a neighboring town that looked like a



free-form essay. “I was dreading it,” he recalled.

Langenberger noted that those improvised IRPs were a lot of work for the utilities that did them, but the plans still didn't have all the required elements. What customers needed, he realized, was a template they could use as a starting point. “If utilities are going to get the full benefit of the planning process, they need to be able to focus on the content of their IRPs instead of worrying about the format,” noted Langenberger.

“When Western told us that templates would be available, I said, ‘Bring it!’” Blake declared.

Simplifying the process

Borrowing a summary-focused template some other Western regional offices were using, Langenberger expanded the format to capture the requirements of the five-year plan. In addition to developing a template for the IRP, he created one for the small cus-

tomers plan (SCP). Customers may file this IRP alternative plan if they have a total annual sales or use of 25 gigawatt-hours or less, averaged over the previous five years. The SCP helps utilities that don't belong to a joint action agency or get their power supply from a generation and transmission cooperative. These small, independent power providers often have limited economic and staff resources to dedicate to integrated resource planning.

Nuzum confirmed that the plan offers a valuable alternative for small utilities. After he attended the workshop, Osborne submitted its SCP, meeting all the Federal requirements. “The small customer template really helped out,” he said. “All we had to do was fill in the blanks.”

Western also has a template for the minimum investment report (MIR), another IRP alternative. Where state, tribal or Federal mandates require a utility to invest

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in demand-side management or renewable energy, Western accepts the MIR in lieu of an IRP. Some Western customers may use the MIR now that Colorado and Kansas have expanded their renewable energy standards to apply to certain public power providers.

In Colorado, electric cooperatives and municipal utilities serving more than 40,000 consumers are now required to get 10 percent of their energy from renewables by 2020. Rural electric cooperatives in Kansas must get 20 percent of their peak capacity from renewable energy by 2020. “If our customers are complying with state statutes, they are complying with IRP requirements,” said Langenberger.

“We’ve transitioned four customers to the MIR, and three more will be eligible when it’s time to file their next IRPs,” he added. “The important thing is that both types of report make the utility consider the measures it can take to use its resources most efficiently.”

Taking the show on the road

Designing the templates turned out to be only half the battle. After completing the tools last fall, Langenberger and KMEA began to promote them to KMEA members. The feedback from utilities—and a couple of IRPs Western received in January—made it clear that customers needed more help to work through the process.

Beloit, Colby and Osage City agreed to host workshops in January, and invitations went out. The meeting attracted representatives from all of Western’s municipal

customers in Kansas who have IRPs due this year. “If you are doing your own IRP, then you really need to go through the training,” Nuzum stated.

The workshop gave our Kansas customers the opportunity to ask a Western representative in person that most pressing question: “What do I need to have in my report to comply?”

“Now we can tell them, ‘If you’ve put something in every box in the template, it will meet the requirement,’” Langenberger said, adding that he, too, benefited from the face-to-face meeting. “It was a chance to offer suggestions and talk about issues specific to these customers,” he noted.

The attendees also enjoyed getting the chance to meet and talk with a Western representative. Mike Gilliland, Osage City utility director, said Langenberger was very knowledgeable about IRPs. “You can tell the difference between someone who is giving a rehearsed talk, and someone who really understands the subject. Bob understands.”

“It was good to have Bob there to highlight some areas we didn’t think about,” Blake concurred.

The wages of training

While planning is nothing new to utilities—“Five years is a pretty short time span in this business,” Nuzum pointed out—putting their efforts down on paper seemed daunting. But now that the Kansas municipalities have a better understanding of how the IRP process works, Langenberger predicts that they will take more ownership of

their plans going forward.

Blake signaled that Goodland intends to do exactly that. “We were adamant that if we were going to the trouble of doing a plan, it will have attainable goals, and we will follow it,” he said. “Let’s get some use out of it.”

Simplifying the job of submitting the plan is already benefiting both our customers’ and our own operations. “Anyone who has the job of doing our IRP in the future is going to have an easier time of it,” said Blake. He added that even though Goodland submitted its IRP before the training, the workshop was well worth his time. “I wish I had been able to take the training first,” he said.

On Western’s side, Langenberger said he is now able to review a report in an hour and respond to customers with recommendations in about two hours. “Process improvement is good for everyone,” he admitted.

Your IRP may be years away, but it never hurts to learn a little more about planning. Start by familiarizing yourself with the templates for the IRP, small customer plan or minimum investment report. Check out Western’s online IRP compliance training, a step-by-step guide through EPAMP requirements. And, as always, feel free to contact your Energy Services representative. ⚡

For links to more resources,
visit <http://ww2.wapa.gov/sites/western/es/pubs/esb/Pages/esb3.aspx>



Question

How can we use energy-efficiency improvements and onsite solar photovoltaic as ways to reduce our plant's carbon footprint?

Answer

Congratulations for embracing opportunities to improve plant sustainability. You'll find some great information and financial resources to support your investment in plant improvements that can deliver substantial short- and long-term benefits.

A properly sited and installed photovoltaic (PV) system offers many benefits. It can reduce your plant's carbon footprint, as well as reduce energy bills by producing the most power during the times when electricity prices are at their highest. Your area has an average July high of 88 degrees, meaning your utility has a large air conditioner load. Finally, it can help augment your company's image as being resource-efficient and environmentally responsible. Take advantage of utility and government financial incentives to make these benefits more cost-effective.

Do your homework

As you assess the feasibility of a PV system, consider the following steps:

1. **Optimize your plant's energy efficiency.** Before installing a PV system, make sure your plant's equipment and systems are operating at their most energy efficient. You mentioned that your plant is looking at lighting, ceiling fans and compressed air leaks. The last would likely provide the greatest potential energy savings, but don't overlook other opportunities that could dwarf all of these.
2. **Call your utility account representative to find out what technical and financial support they can provide and what agreements they offer.** Always include your local power provider in early discussions of PV installations. Your utility will clarify any incentives, rebates and other financial incentives that it may offer, as well as interconnection and net metering requirements and procedures.
3. **Given your possible PV potential and net metering limit, you may want to consider entering into a power purchase agreement (PPA) with your utility.** The U.S. Environmental Protection Agency (EPA) provides information about solar PPAs, and some case studies on the topic are available from Tioga Energy.
4. **Assess your building's structural capacity for supporting PV arrays.** Do a thorough evaluation of your facility's structural and electrical systems to determine if upgrades are necessary. A structural engineer will look at increased loads to the roof (dead, wind and snow). The condition of the roofing material must be taken into account, as the industry standard warranty is 20 to 25 years for PV modules. The installation of an array on older roofing at or near the end of its warranty period is unwise. A survey of the electrical system is also necessary to determine the suitability of interconnecting a PV system.
5. **Assess your solar resource—the hours and intensity of sun in your area.** A solar site survey will verify a site's solar resources and presence or absence of obstacles (current or future). Your area has a sunny and dry climate, which is excellent for PV. The solar resources for your area may be modeled with the PVWatts online calculator from the National Renewable Energy Laboratory (NREL); click on your state to begin. The nearest site to your area shows an average annual of 5.3 peak sun hours. Your local solar designer/developer/integrator will be able to conduct this survey.
6. **Explore financial incentives such as loans, grants and tax credits.** While financial incentives expire and change regularly, some of the very generous offerings around the country may help generate support among your management team for moving forward with the project. The Database of State Incentives for Renewables and Efficiency (DSIRE) includes current state, local, utility and Federal incentives and policies for solar (and other renewable technologies.) One Federal incentive of note is the U.S. Treasury 1603 Treasury Grant Program.
7. **Take advantage of great information resources and technical assistance, and learn from other industrial companies that invested in PV.** It may be helpful to look at articles about other industrial companies and commercial, government, educational and nonprofit sites that have invested in PV systems. ⚡

For links to more resources,
visit <http://ww2.wapa.gov/sites/western/es/pubs/esb/Pages/esb4.aspx>

Website of the month:

Everybody loves a “Smart App”

Smart Phones are everywhere, and with them, thousands of application software programs, or apps, for social networking, entertainment, business, education, news and more—much more. Apps process reams of data to give users personalized advice. Your customers are already using them to do everything from following local food trucks to picking stocks.

Some utilities are beginning to harness this phenomenon to educate customers about their energy use habits. Other power providers have discovered apps that help their own employees improve productivity. And some, perhaps most, still haven't thought about apps as a business tool at all. Well, there is no time like the present to start.

To learn more, do a search on “energy efficiency apps” or “energy saving apps.” Or just visit the iTunes or Android app stores. Developers often offer their apps for free, or they are available for only a couple of dollars. At present, Apple offers a greater variety of apps for hand-held devices, and that seems to be the direction the market is headed. The Apple products tend to be less expensive than Android, and more likely to be offered for free by their developers.

A few examples

For the Stand-up Challenge poster session at the upcoming Utility Energy Forum, Energy Services investigated a few energy-related apps that might be of interest to utilities. Once again, we enlisted Brady Fronk as our chief researcher. The teen-aged son of Energy Services Representative Paula Fronk has often filled the role of the young, tech-savvy consumer for Energy Services fact

sheets and posters. Brady's findings do not represent an endorsement of any product by Western. The apps mentioned below are simply examples of the hundreds of apps available to Smart Phone users.

Keep in mind that our limited sampling is due to the poster size, not to the availability of apps. And more apps are being created all the time.

For consumers

These apps build consumer awareness about energy use, and offer ways to reduce consumption. Could you build an outreach program around an app? Could an app help your member services representatives promote an incentive or rebate?

Green Genie — This app suggests more than 100 projects to tackle, like bringing your own grocery bags when you go shopping or reducing your company's paper use. It includes a glossary of green terms and has a library of “essential reading” on sustainability. Green Genie allows you to submit project ideas, and the database continues to grow as more people pitch in. This is definitely one of the most social, interactive green apps available.

- Cost: \$0.99
- Target audience: Customers who want to reduce their carbon footprint
- Ease of use: Very easy
- What it does:
 - Suggests DIY measures to reduce home energy costs, calculates how much money user can save from implementing projects, calculates measures' impact on planet
 - Plastics directory for recycling
 - Shares project ideas with other users



Green Genie is a highly interactive app that offers consumers ideas for reducing their energy use. (Artwork by Green Genie)

- Defines green terms
- Lists green products and services
- Library of “must read” articles and sustainability website links
- Pros: Good depth of information; jokes and fun features, like rubbing a lamp to get more information; very interactive at social networking level
- Cons: Some users report difficulty getting carbon footprint calculator to work
- Why customers would use it: Applying just one measure can pay for app many times over
- Why utilities would want customers to use it: Shows value of energy saving measures, raises awareness of energy use impacts

Super Green Solutions —

Designed by Super Green Solutions Energy Efficiency Products, this app estimates the payback, dollar savings and carbon emission savings of installing energy-efficiency upgrades, specifically Super Green products.

- Cost: Free
- Target audience: Consumer
- Ease of use: Easy

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Website of the month

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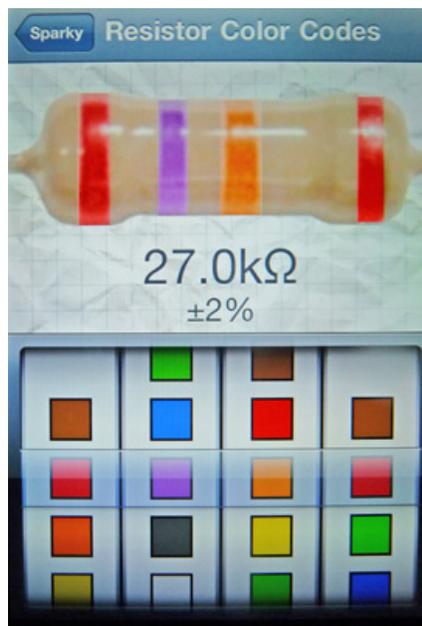
- What it does: Calculates savings from installing a variety of measures including renewable energy systems, lighting upgrades, ventilation, insulation and energy management
- Pros: Gives customers an idea of what they stand to save by making building improvements
- Cons: Images tiny even for app; designed to sell products for SuperGreen Solutions; iPhone only
- Why customers would use it: Determines if an energy-efficiency project fits their needs
- Why utilities would want customers to use it: Shows benefits of participating in rebate or incentive program

For utilities

One of the best things about apps is they put customized reference volumes right in the users' hands. Think how that could streamline maintenance or installation projects.

Sparky — Based on user input, this pocket electrical reference provides information about motor lead wiring diagrams, wire data types and color coding, conduit offset bends, capacity codes, resistor and inductor color codes and much more. There is no need to work out formulas, just enter your data and Sparky calculates it for you.

- Cost: \$1.99
- Target audience: Electrical crews, contractors, facility managers
- Ease of use: Very easy for target audience
- What it does: Provides references on:
 - Motor lead wiring diagrams
 - Motor full load current for single and three phase
 - Motor locked rotor current
 - NEMA starter sizing



Sparky is a handy pocket reference guide that calculates formulas for electricians based on user input. (Artwork by Sparky)

- Wire data (ampacity, insulation types and color coding)
- Enclosure information
- Schematic symbol reference
- Conduit offset bends
- Conduit wire fill
- Pros: Excellent depth of information; very user-friendly; extremely valuable field guide
- Cons: Very specific audience, no identifying home screen
- Why customers would use it: Makes maintenance easier; improves electrical equipment efficiency; ensures installations meet code, efficiency standards
- Why utilities would want customers to use it: Increases productivity of field crews; helps commercial and industrial customers identify efficiency improvements, ensures proper installation of equipment and services

Targeted uses

More apps are being created all the time that allow users to control

equipment and systems—even entire households—from their phones.

- Thermostats – Nest, Ecobee
- Power strips – UFO Power Center, Energy Hub
- Home automation – Control4, GE Nucleus
- Lighting – Light Bulb Finder

Getting in on the action

You don't have to have your own software developer to give your customers the energy-saving tools they need. Opower is a customer engagement platform for the utility industry that gives power providers a new path to interact with their consumers. Western customers Burbank Water & Power; Glendale Water & Power; the City of Loveland, Colo., and City of Palo Alto Utilities are all working with the company to make saving energy more engaging and—yes—fun.

Even the White House has developed its own energy saving app. The U.S. Office of Science and Technology Policy has teamed up with Pacific Gas & Electric and San Diego Gas & Electric and utilities across the country for the Green Button Initiative. The program will give consumers the tools to access their household energy use information and shrink their utility bills.

How about you?

Have you considered how your utility might use apps for customer engagement or education? Have your customers asked about energy-related apps?

People like Brady are not yet utilities' main customers, but they will be before we know it. In an industry that must plan for the long-term, it is not too soon to start thinking about the best way to reach your customer five years from now. And get acquainted with the tools they will be using—apps. ⚡

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