

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

## Businesses discover energy efficiency through specialized incentives

**A**s hard as it is for Energy Services professionals to imagine, not all businesses search out ways to reduce their electricity bills. Silicon Valley Power is reaching such customers with energy-efficiency programs for specific industrial systems and equipment.

Businesses vary much more than households do in the ways they use energy, a truth reflected in the extensive range of incentives offered by Silicon Valley Power's energy-efficiency programs. Commercial and industrial (C&I) customers can receive rebates for upgrading lighting, HVAC systems, chillers, commercial washing machines and motors and variable-frequency drives. The Santa Clara, Calif., municipal utility offers businesses energy audits and incentives for green building and installing solar panels. The Bright Start for New Business program encourages new tenants to move into Santa Clara business properties that already have energy-saving equipment installed.

### Steady gains needed

Launched in 1998, SVP's energy-efficiency programs not only help C&I customers reap big energy savings, they help Silicon Valley control the load that represents 87 percent of its sales. When California enacted a law in 2006 requiring cities to adopt energy-efficiency goals for the next 10 years, Silicon Valley Power already had tried-and-true tools for meeting its requirements. But a little fine-tuning was needed.

Energy-efficiency projects implemented by large key accounts have been Silicon Valley Power's greatest source of energy savings, but those are "lumpy" gains, explained Public Benefit Program Coordinator Mary Medeiros McEnroe. "A few data centers completing major upgrades can take us two thirds of the way to our goal for the year," she said. "But the rest of the year, customers may be waiting on project funding or making only minor improvements."

And some businesses simply aren't thinking much about saving energy. Reaching those customers was one way to achieve more consistent savings. "We had to go beyond the rebates and audits already available to get the attention of customers in underserved markets," Medeiros McEnroe recalled. "These customers weren't taking advantage of broad-category rebates, like lighting or HVAC."



**Silicon Valley Power's Bright Start for New Business program provides promotional incentives for brokers, property managers, owners and prospective tenants to upgrade facility lighting and HVAC in business properties. (Artwork by Silicon Valley Power)**

### Targeting systems popular

So Silicon Valley Power issued a request for proposals (RFP) in 2006 to more than 100 contractors for third-party energy-efficiency programs. From the responses came three new programs: Building Retrocommissioning, door gasket replacement in refrigeration systems and compressed air system maintenance and repair.

The Retrocommissioning Program captures significant energy savings by identifying measures that improve the overall energy performance of existing building systems and equipment, often at very low cost. Including program incentives, customers may recoup their investment in less than one year.

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## Specialized incentives

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Keep Your Cool helps cut electricity bills for markets, restaurants and bars by replacing broken door gaskets and installing new strip curtains on walk-in coolers—free! Refrigeration equipment consumes between 30 and 50 percent of the electricity used by the food and beverage industry. Broken door gaskets (the seal around the door) cause refrigerators and freezers to run harder and leak cold air into hot buildings. Missing strip curtains allow cold air to pour out of walk-in refrigerators every time the door is opened.

The Compressed Air Measurement Program (CAMP) targets inefficient compressed air systems. Customers receive detailed, measurement-based audits with reliable cost and savings estimates for possible energy-efficiency improvements. The auditor establishes a baseline model, and uses it to develop the list of measures. The customer makes the decision about what measures to implement, and Silicon Valley Power adjusts the incentive amount accordingly. “CAMP

was almost fully subscribed in the first year, and we had to add funding for Keep Your Cool,” said Medeiros McEnroe.

### Going after Energy Hogs

Based on the success of those programs, Silicon Valley Power issued a second RFP in May 2008 for third-party energy services providers. The programs took aim at refrigeration again, and that notorious energy guzzler, the data center. Silicon Valley Power partnered with National Resource Management, Inc., (NRM) for Express Refrigeration. The energy management company performs a free audit that details energy savings and incentives, recommends energy-efficiency measures and performs the installation if the customer decides to move forward. Silicon Valley Power’s incentive, based on the NRM’s annual kilowatt-hour (kWh) savings estimate, can cover the entire project cost. Even better, refrigeration retrofits can cut electric bills by as much as 30 percent for stores, restaurants and floral and food distributors.

For the Data Center Optimization Program (DCOP), Silicon Valley Power chose Quantum Energy Services & Technologies (QuEST) to help customers reduce energy use in their data centers without sacrificing reliability. “The program is intended for offices with small data centers,” Medeiros McEnroe observed. “Stand-alone data centers, as a rule, are now very aware of energy efficiency and take a lot of steps to manage their consumption.”

Customers can get rebates and incentives for improvements ranging from cooling control strategies, to server virtualization and active power

management. QuEST also provides participants with no-cost engineering services and energy-saving measures.

### Reaching contractors

Developing targeted incentive programs has given Silicon Valley Power the opportunity to build relationships with local contractors as well as customers. Initially, Medeiros McEnroe said, utility staff talked to other utilities and any industry contacts they could think of to compile the mailing list for the first RFP.

Silicon Valley Power’s cap of \$500,000 per contract posed a challenge for vendors accustomed to dealing with much the larger budgets of investor-owned utilities (IOUs). “It may not be worth their time to design a program for a relatively small contract,” Medeiros McEnroe pointed out.

However, California’s aggressive energy-efficiency policies work in Silicon Valley Power’s favor by pushing giants PG&E and Southern California Edison to offer consumer efficiency programs. “Once a contractor develops a program for a big IOU, it is easy to scale it down for a smaller utility,” said Medeiros McEnroe. “On our most recent RFP, we had contractors calling us, instead of the other way around.”

An example of a Silicon Valley Power RFP for third-party energy-efficiency programs is available online. “Targeted incentive programs can bring customers in the door who have never considered making energy-efficiency improvements or participating in utility programs,” Medeiros McEnroe observed. “Once they see the savings, they are ready for more.” ⚡

### Energy Services Bulletin

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# SunSmart pioneers first community solar project

**E**ven the most enthusiastic supporters of renewable energy, eligible for tax credits with a list of reliable contractors in hand, can hit a wall when it comes to siting a home solar array. The rooftop is too small, the building orientation isn't quite right or they just can't part with that gorgeous old shade tree—in short, they have no place to put the panels. St. George Energy Services Department has come up with an answer for city residents facing that conundrum: SunSmart.

The city teamed with Dixie Escalante Electric to build a photovoltaic (PV) facility and sell residents shares in the community solar farm. For an investment of as little as \$3,000, municipal utility and electric co-op customers receive locally-generated sustainable, maintenance-free solar energy—and a monthly credit on their bill. “It’s a great no-risk option for people who can’t put up their own solar system for whatever reason,” said city Conservation Coordinator René Fleming.

## Hedge on energy prices

The SunSmart program sells a 1-kilowatt (kW) “unit” of installed solar PV capacity for a one-time payment of \$6,000, or \$3,000 for a half unit, with a limit of four units or eight half units. Each month, participants receive a credit on their energy bill for the amount of energy produced by their units. The price of energy determines the value of the credit, so it goes up with the price of energy.

In response to customer questions about return on investment,

Fleming explained, “It’s more like paying your utility bill in advance to lock in a stable rate. It is also about environmental stewardship and powering your home in a sustainable way,” she added.

One unit supplies power equal to about 15 percent of the average home’s monthly power, or roughly 140 kilowatt-hours per month. SunSmart guarantees a minimum output of 800 kWh annually.

Subscribers own their units for a minimum of 19 years, equivalent to the average life of a solar panel. After 19 years, the city will evaluate the panels to determine if they need to be replaced or repaired, and how much it would cost. The owner may choose to pay the cost, if there is one, and continue owning the unit or decline and make the unit available for others to purchase.

## Project funding

Because the project is municipally-owned, subscribers may also be eligible for a one-time state tax credit of 25 percent of the purchase price, up to \$2,000. Bradley Last of the Utah House of Representatives sponsored an amendment to the state tax code so that it treated buying a unit from the SunSmart facility the same as installing a home solar array. Because the program is so new, the Federal tax



**Utah Governor Jon Huntsman speaks at the dedication of the SunSmart Solar Farm in St. George. The community solar farm allows town residents to invest in solar energy without having to put panels on their homes. (Photo by St. George Energy Services Department)**

code does not have a provision for buying shares in a solar facility.

Funding, too, can pose a challenge for an innovative project, but the partners came up with an innovative answer. Each power provider put up half the money to build the 100-kW first phase of what will ultimately be a 2-MW facility. The proceeds from the sale of all the units in phase one will finance the construction of phase two, and so on until the site is built out.

So far, 26.5 units of the farm’s first phase have been purchased. “We had a lot of interest from customers when the project started before the economic downturn,” Fleming noted. “Then, the stock

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# Social media offer utilities new ways to connect

Using social media, Internet communities are changing the way businesses and organizations talk to—or rather, with—their customers. While bill stuffers, newsletters and local newspaper ads still reach large swaths of ratepayers, utilities that don't join in the online conversation risk having their message being co-opted or overlooked entirely.

According to a 2008 Cone Business in Social Media Study, almost 60 percent of Americans interact with companies using a social media tool, and 25 percent interact more than once per week. The study also found that 93 percent of Americans believe a company should have a presence in social media, and 85 percent believe companies should use it to interact with consumers.

Yet businesses have been hesitant to wade into communications channels they don't own. Nevertheless, with so many people discussing their experiences with companies online, utilities have a major opportunity to harness social media to get closer to customers.

## How sites are used

One thing holding utilities back from getting involved in social media is that many aren't sure what purpose the different forms of "social networking" might serve in business. Those who use computers mainly for work, checking e-mail and looking up movie times may find a little background on the most popular sites helpful.

- Facebook and MySpace are free-access social networking sites where users may post messages that appear on their friends' "pages" as well as their own. Interactions

on both sites tend to be more social than professional. However, special interest and community groups and elected officials are increasingly using Facebook to spread news and to organize meetings and events.

- LinkedIn stands out as being a professional, rather than primarily social, networking site. Utilities can use this site for business-to-business functions, such as finding service providers, collaborating on projects, discussing issues and recruiting employees.
- Twitter, the hot site of the moment, allows users to send short messages of 140 characters or less known as "tweets." A utility might use Twitter to promote public meetings, news and new Web pages, briefly answer customer questions or communicate with customers during outages, since people can receive tweets on cell phones.
- YouTube is a video-hosting service where individuals can upload video clips for other users to view and comment upon. Businesses are using YouTube to demonstrate products or talk about services. You can also put links on your Web site to YouTube videos that address issues of interest to your customers, or reinforce your utility's message. Nobody has done more than The Light Pong Masters to make turning off the lights cool.
- A Web log, or blog, provides commentary or news on a particular subject—your utility,



**"Tweets," 140-character messages, are just long enough to send and receive outage reports or announce customer meetings. (Artwork by Twitter)**

for example—with brief stories, images and links to other news resources and blogs. It differs from an online newsletter in that it is updated more frequently, and generally allows visitors to engage with you by commenting on the content. Sites like WordPress allow businesses and individuals to set up blogs without in-house IT support.

## Challenges abound

The openness that makes social media such a potentially valuable business tool also makes it vulnerable to disruption—of the message and the technology.

Best practices for business involvement in social media are still evolving. Most social media sites have posting policies and offer screening tools to prevent abusive or off-topic comments. But don't ignore or evade appropriately-worded posts about subjects you would prefer to avoid. Keep in mind that social media tools are about dialogue and interaction. If you simply regurgitate the information on your company Web site, you lose the opportunity to guide the conversation and worse, risk alienating customers.

Technological disruptions may be more difficult to manage. Software and screening policies can help to filter out spam, viruses and

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## Social media

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hackers, but none are foolproof. A business that wants a social media presence should ask if it has the savvy IT support needed to combat disruptions—and if that is how the IT department should be spending its time.

### Educate yourself

Clearly, there is a lot a utility must consider before embracing social media: What format serves your communication needs? Is that where your customers are? Do you have the staff to support it? Do they have the necessary communication and technology skills?

The last question may ultimately answer itself as young people with a “lifetime” of online social experience move into the workforce. But you don’t have to wait to make social media part of your communication plan—there are plenty of resources to teach you how to get your business connected.

Start by downloading *Customer Services Meets Social Media: Best Practices for Engagement*, a complimentary white paper from Right Now Technologies. This report offers an excellent overview of using social media in a business setting. Next, hone in on the utility industry with *Social Media for Utilities*, a forum where utilities share information and lessons learned about venturing into the social media world.

The APPA Business & Financial Conference, in Savannah, Ga., Sept. 13-16, is offering session on how

utilities are using Facebook, Twitter, IMs and blogs. If you can’t make the conference, an Internet search is likely to turn up training opportunities closer to home—including online workshops.

Utilities should not let the wide-open nature of social media deter them from joining the conversation. Try thinking of it as a community meeting, where your members come

to talk about their needs and offer suggestions for new programs and services. It might get a little rowdy, a little passionate, like any gathering of unique individuals with a multitude of opinions. But ultimately, social media tools are another way to connect with your community, and that is something public power providers understand. ⚡

## Blogs, RSS feeds provide steady stream of news, feedback

Several Federal agencies now have blogs to encourage discussion about policies, programs and legislation. Users can get updates on energy efficiency and renewable energy initiatives from the EERE News Network RSS feed or learn about the work of the Environmental Protection Agency at Greenversations, one of many government blogs.

Regular and frequent updates are what set a blog apart—subscribers count on trusted sites to be a resource for the latest news on the topic of interest. This makes the format a very labor-intensive way to communicate with customers, which can be a problem for small utilities with limited staff. However, a temporary blog can give utilities a way to engage customers on a particular issue, such as a renewable energy project or an energy-efficiency program.

Visitor comments give the blog owner a means of assessing public reaction, but you must be prepared to guide the conversation. Judging when to just listen and when to jump into the discussion is a skill that corporate communicators must learn.

People who follow a particular blog may subscribe to an RSS feed to get the latest updates without having to browse or receive constant e-mail notices. RSS, which stands for really simple syndication, automatically delivers a simple summary of new content to the user’s browser window. Energy Services offers RSS feeds for Breaking News, and now for Energy Services Bulletin.

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## TOPICS from the POWER LINE

### Compare tankless to storage water heater before buying

#### Question:

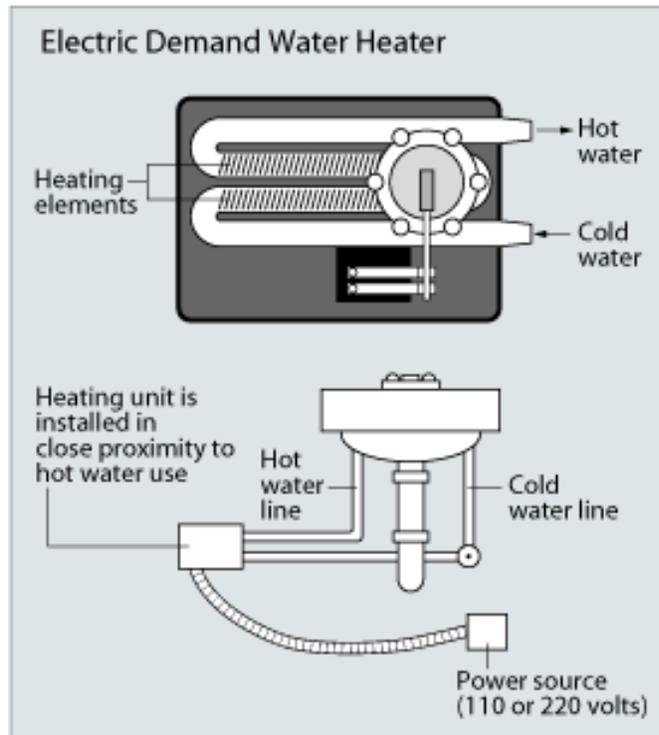
In terms of energy use and costs, how do tankless (also known as demand, on-demand, or instantaneous) water heaters compare with conventional storage water heaters?

#### Answer:

Demand water heaters (DWH) have been heavily promoted as an “energy-conserving” technology because their design eliminates the standby losses of storage water heaters. They are available in electric and gas-fired models and in several different sizes.

Contemporary electric storage water heaters are efficient. The fully submerged electric resistance heater provides 100-percent efficient conversion of electrical energy to heating water. Heat loss from the hot water in storage does decrease the overall efficiency of the equipment. This is reflected in the Energy Factor (EF) of the equipment. A conventional electric water heater has an EF of around 0.93 (a typical value). That means that 93 percent of the heat created in the water heater is used. Electric demand water heaters have an EF of about 0.98, so the demand water heater will heat an equivalent amount of water using 5 percent less energy.

Using these energy factors, for a family using an average of 113 gallons of hot water per day at eight cents per kWh, annual cost of water heating with the DWH is about \$636/



By heating water directly, demand water heaters avoid the standby heat losses associated with storage water heaters, but produce hot water at a slower rate. (Artwork by U.S. DOE Office of Energy Efficiency and Renewable Energy)

yr, compared to \$649/yr using the storage water heater — a savings of about \$13/year. For utility companies with much lower electric rates, savings might be one third to one fourth of that amount. In some parts of the country, if the installed cost of the demand water heater is \$1,000 and the annual savings average \$5/yr, payback will come in 200 years!

#### Comparing energy costs

PM Engineer reported on a well-designed test, “Tankless vs. Tank Type Storage Water Heater Efficiency Comparison Testing” in its January 2005 issue. The study concludes that

a tankless heater has a surprisingly small energy and cost advantage over a storage heater in a typical home application for a family of four with two bathrooms. This makes sense because the standby losses are not that great with four people using water every day.

A better application for a tankless heater would be for a single person or a couple, or better yet, a vacation home or somewhere where water sits in a tank heated for long periods of time. Then the payback for a tankless heater would look much more attractive.

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## Web site of the month:

**Bright Energy Solutions** <http://www.brightenergysolutions.com>

To support the demand-side management program launched last year, which will save 85 megawatts by 2020, Missouri River Energy Services (MRES) has redesigned its Bright Energy Solutions Web site. The new site is a one-stop resource for energy efficiency, complete with information, tools and tips for MRES member utilities and their customers.

The navigation is straightforward, categorizing the site's resources by region and by customer class. The regions are represented by a map of MRES's four-state territory (Iowa, Minnesota, North Dakota and South Dakota) that appears on the home page and on each of the customer pages. Large boxes along the bottom of the home page invite visitors to learn more about energy efficiency for home, business and trade allies. There are also tabs linking to customer resources across the top of each page.

### Find incentives, contractors

Selecting a state on the home page territory map will give the user a pop-up box listing customer categories. On the customer pages, the map links to a list of MRES member utilities in each state. By clicking on a utility, the user gets the list of incentives the power provider offers for specific customer classes.

In addition to the map, customer pages have left-hand navigation

linking to information specific to the type of customer, as well as general resources. Homeowners, for example, will find online tools to help assess their home energy use. The energy calculator for homes lists appliances and links to energy audit programs, while businesses can estimate the savings for efficient chillers, food service equipment and motors.

Both commercial and residential customers can search for local contractors in the Trade Allies database. Users select a program from a dropdown list, enter a city and state, and get the contact information for vendors in their area, in addition to a list of affiliated incentives.

The Trade Allies section is where equipment and service providers can download applications to become a participating provider in Bright Energy Solutions. Contractors must become familiar with the energy-efficiency requirements of the programs and agree to comply with the guidelines, procedures, terms and conditions set forth in each program application. Trade Allies must also agree to make customers aware of incentives that may apply to them.

### Not just MRES members

The resources in the Bright Energy Solutions Information Center will be useful to visitors outside MRES's service territory as well as to members' customers.



**Bright Energy Solutions is a unique portfolio of energy-efficiency incentives Missouri River Energy Services and its participating members offer to help customers reduce energy consumption. (Artwork by Missouri River Energy Services)**

Energy Tips will benefit anyone looking to save energy in homes and businesses, as will the Energy Savers booklet available to download on the brochures page. Helpful links can connect users to a variety of resources, from consumer education to state and Federal energy offices to professional associations.

For MRES members and customers, Frequently Asked Questions explains Bright Energy Solutions programs, cash incentives and other details. News releases, an events calendar and success stories keep visitors up to date on program activities throughout MRES territory and in their communities. The Information Center is also a good place for other utilities to find inspiration they can apply to their own energy-efficiency programs. ⚡

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## Topics from the Power Line

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### Impact on peak demand

Because demand water heaters heat water as it runs through the unit, they must have roughly four to six times the capacity of a storage tank unit, which uses about 5 kW. Installing an electric demand water heater in an existing home requires about 60 to 80 amps of additional

electrical capacity, which is usually well beyond what the existing electrical panel can supply. Installation usually requires adding another panel, and increasing the size of the electrical service, which can be very expensive.

Widespread use of instant electric water heaters for whole house water heating may have a significant impact on peak load for the utility. To provide a flow rate of one gallon of hot water per minute with a temperature rise of 61 degrees F

will require an input rating of 9 kW. More than one instant water heater may be needed if larger volumes of hot water are required. This may increase the peak kW even more. (Because of this, a gas-fired instantaneous system may be a better option.) ⚡

Want to know more?

Visit [www.wapa.gov/es/pubs/2009/sep/sep094.htm](http://www.wapa.gov/es/pubs/2009/sep/sep094.htm)

## SunSmart

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market dropped and people got nervous about spending the money or they just didn't have it. As the economy picks up, we believe subscriptions will, too."

### Local control

Her confidence is based on the consumer demand that drove the creation of SunSmart in the first place. "Many of our residents have concerns about coal-fired powerplants, and they were urging the city to look into renewable energy options," Fleming recalled.

Located in southern Utah, St. George is blessed with both abundant solar resources. There is a strong community feeling, as well, that the Energy Services Department felt the project should

honor. Fleming described a wind development in neighboring Iron County that would be sending its generation to California. "So Utah doesn't get the benefit of its own resource, and California doesn't have control of that particular power supply." On the other hand, she said, "SunSmart generates power in Utah, for Utah consumers. That's not only good for the environment; it is good for the community, too."

The project also avoids wheeling fees and transmission losses associated with remote generation. The power from the solar farm is sent to one of St. George's substations and is then transmitted throughout the community on the existing distribution grid. Customers don't need to worry about interconnecting their system, but they can "visit" their

panels at the SunSmart facility. They can also check the plant's output online. "As a fringe benefit, it's a great tool for educating the public about renewable energy," observed Fleming.

SunSmart is a great response to the phrase, "I'd love to install solar on my home, but..." For now, it is available only to residents of St. George, but Fleming has fielded several calls forwarded to her by the Utah State Energy Office. The city of St. George can proudly claim the nation's first community solar farm, but it is not likely to be the last. ⚡

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