

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

## Putting customers first makes Sunflower No. 1 in wind power

Choose a goal, pursue it single-mindedly and everything else will fall into place, like the wind power purchase that turned Sunflower Electric Power Corporation into a renewable energy leader.

Customer service was the goal when the west Kansas power wholesaler signed a 20-year contract with TradeWind Energy, LLC for 50.4 megawatts from the Smoky Hills Wind Farm. The contract will provide Sunflower member systems a hedge against volatile energy markets and higher-cost fuels like natural gas, said Sunflower Spokesman Steve Miller. "Cooperatives always work to serve the best interests of the people at the end of the line—that is the cooperative way," Miller explained.

The deal puts Sunflower out in front of other Kansas utilities, with 9 percent of its portfolio dedicated to wind energy. According to TradeWind CEO Rob Freeman, it also helped move the Smoky Hills development forward. "We were trying to get purchases to 100 MW



**Land-lease payments to farmers are one reason rural communities are often supportive of developments like the Smoky Hills Wind Farm in western Kansas. (Photo by TradeWind Energy, LLC)**

to get the economy of scale," he said. "Shortly after we signed with Sunflower, we got commitments from Kansas Board of Public Utilities and Midwest Energy Inc."

### Many pieces fit

Sunflower tried to purchase wind-generated power in 2003, but the agreement fell through when the project investor was unable to follow through on construction. "We had a good relationship with the community and the developer, but the investor/developer relationship fell apart in the end," said Miller. "Still, it was excellent background for pursuing the current

deal. It gave us experience putting together a favorable renewable energy purchase contract."

TradeWind's Smoky Hills Wind Farm proposal was one of many Sunflower received in response to a request for proposals it issued in 2006. "The Smoky Hills project had the ability to be online by the end of the year, which was important to us," said Miller. "Also, it is located in and around communities our member cooperatives serve, and the energy was very competitively priced. Sunflower's board policy does not allow renewable

*See SUNFLOWER, page 2*

### What's inside

Utility TOU programs .....	3
Web site of the month .....	4
Power Line.....	6
Energy shorts .....	7

# Sunflower

from page 1

energy purchases to increase our member wholesale rates.”

Miller acknowledged that closing the deal was like putting a puzzle together one piece at a time. “The project had to be economical for Sunflower, which required a significant amount of financial modeling and assumptions,” he said. “The facility couldn’t exceed our capability to add intermittent resources to our load/resource mix. Also, the developer had to obtain turbines and other necessary equipment to complete the project in time for the investor to receive tax benefits.”

## Community’s trust

Support from the local community and permitting agencies is another critical aspect of a wind deal, and Smoky Hills was not without opposition. Environmental groups expressed concern about the impact of the

facility on wildlife and the undisturbed grasslands in the region. Other opponents observed that developers make most of the money from wind farms while communities absorb the costs in higher electricity prices and depreciated land values.

On the whole, however, western Kansas residents are supportive of wind development, especially farmers who see land lease payments as a valuable source of revenue. TradeWind will make payments in lieu of property taxes to the two counties over several years. Lincoln County commissioners plan to use the money for long-term economic development investments in the county of 3,600 people.

Miller attributes the support for Sunflower’s generation expansion plans to their long-standing relationship with communities in the region. “They know the character of our organization and that we take our responsibility to our member cooperatives and the consumers seriously,” he said.

## Transmission needed

The Smoky Hills Wind Farm and Sunflower’s power purchase represent a positive step in the state’s development of its wind energy potential—third in the nation. Historically, Kansas enjoyed cheap electricity rates, and state utilities had a huge amount of excess capacity. “Today, Sunflower’s excess capacity is gone, but we are partnering with other cooperatives to meet our systems’ generation needs,” Miller observed.

Transmission issues are probably the biggest challenge to developing wind energy in Kansas, Miller be-

lieves. “When the maximum capability of the wind resource reaches a certain percentage of a utility’s peak load, the load/resource mix hits an operational limit. Western Kansas is already bumping this limit,” he said. “Wind farms in Kansas will need access to larger markets outside the state, and that will require transmission system upgrades.”

One such transmission project is planned in conjunction with the expansion of Sunflower’s Holcomb Station. The high-voltage lines connecting the station to eastern Colorado will also be able to deliver wind energy to larger markets in the West.

Freeman agreed that additional transmission would help Kansas develop its wind resources, but acknowledged that many competing interests must first be resolved. He pointed out that Gov. Kathleen Sebelius and Lt. Gov. Mark Parkinson are working to bring together utilities and regulators to increase the state’s use and development of renewables.

Electric cooperatives, especially ones with renewable energy purchasing experience, will be major players in that process because they have earned their customers’ trust. And keeping that trust is the most important thing to Sunflower Electric Power Corporation. “That’s the mission of cooperatives, and we can’t lose sight of our mission,” declared Miller. ⚡

## 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) 962-7065.

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# Utilities manage loads, build relationships with TOU rates

**C**aught between a decidedly mixed history and new Federal regulations, with one eye on improved technologies and another on the budget, utilities that once shied away from time-of-use rates are now wondering how to make this strategy work for their business and their consumers.

The 2005 Energy Policy Act requires utilities to consider offering time-based metering and pricing options—TOU rates—to customers. TOU rate schedules, which impose higher charges for energy use during peak periods, can lead to more efficient use of resources, energy and capacity. They can also help utilities shift loads, avoid expensive supplemental power purchases and put off building even more expensive new generation.

## Pros and cons

That is, when they work, and there are certainly cases where TOU schedules did not achieve the desired results. A three-year demonstration by Puget Sound Energy shifted only 5 percent of the load from peak hours and reduced energy use by only 1 percent. Worse yet, most of the participants ended up paying more than the standard flat rate for power. “If customers don’t see the savings, they won’t participate,” said Energy Services Manager Ron Horstman.

Utilities need tangible results—in other words, cost savings—to recoup their investment in advanced metering technology and installation. The current generation of “smart meters” offers many advantages beyond TOU capabilities, and utilities are switching to the units for a variety of reasons. However, a system-wide upgrade can

be a daunting expense, and a tough sell to a board of directors looking for ways to save money.

## Established programs

Getting customers to change their habits is critical to successful TOU rates, said Horstman. “And that doesn’t happen without extensive outreach on the part of the utility,” he said.

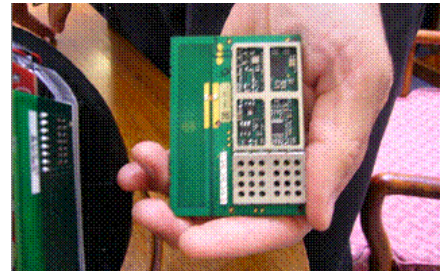
Jennie King, a principal planning analyst with Salt River Project, agreed with Horstman’s views about customer education. The Phoenix, Ariz., utility offers both residential and commercial TOU rates to manage the extreme summer peaks caused by the desert climate. Even though the schedules have been in place for more than 20 years, SRP continues to do a lot of communication and outreach, she noted. King recently educated her parents about the benefits of switching to the TOU rate. “That was a one-on-one job,” she admitted.

## High participation rate

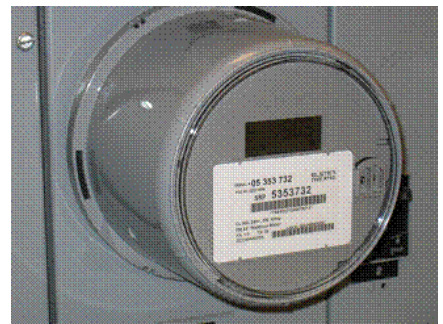
Over the years, SRP’s TOU program has grown so well because it largely sells itself. Currently, about 175,000 residential customers and about 6,000 commercial customers take advantage of the TOU plan. “It is harder for businesses to shift their use,” King acknowledged. “High-use residential customers, especially ones who aren’t home during the day, are most likely to benefit from the schedule.”

And the benefits are significant. “I’m on TOU myself and during the hottest summer months, I can save up to \$50 per month,” said King. “This is something that we know is good for our customers.”

Pool owners, a large portion of SRP residential customers, can save up to



The difference between the “SmartMeter” (above) and a conventional meter is complex electronics (below) that allow two-way communication between the meter and the utility. (Photos by Salt River Project)



\$100 or more annually by putting their pool pumps and cleaning systems on timers that shift operation to overnight and combining that with lower-cost nighttime TOU rates.

## New meters

SRP is updating its equipment, replacing older TOU meters with smart meters. Over the next five to seven years, the utility hopes to complete the transition to meters with remote reading capabilities and many with connect/disconnect switches. Many of the 150,000 meters SRP has installed so far are in apartment complexes and areas that pose safety hazards to field personnel. In addition to cutting down on field trips and employee injuries, the units make it easier for customers to switch to TOU rates.

Eventually, TOU participants will be able to access records of their

*See TOU RATES, page 5*

## Web site of the month:

# U.S. DOE Office of Energy Efficiency and Renewable Energy

The information resources on the Web are so vast, it can be hard to find the site you need, especially since search engines don't rank results by quality.

To help Western customers cut through the filler and get to the killer, Energy Services Bulletin is launching *Web site of the month*. Each issue will feature a profile of a Web site that offers reliable, current and above all, useful content on subjects related to energy efficiency and renewable energy.

Rather than promoting products or services, the column will focus on information utilities need to make effective decisions about technologies and measures. The featured Web site may belong to an association, government agency or educational or research institution. It could even be a Western customer Web site.

## Comprehensive site

The inaugural Web site of the month is a "go-to" reference for Western's Energy Services—the U.S. Department of Energy Office of Energy Efficiency and Renewable Energy. The EERE mission is to strengthen America's energy security, environmental quality and economic vitality. Through public-private partnerships, EERE seeks to enhance energy efficiency and productivity; bring clean, reliable and affordable energy technologies to the marketplace; and improve citizens' quality of life by broadening our energy choices. These goals dovetail neatly with Energy Services' commitment to Western customers.

The home page displays the latest news about EERE programs and

initiatives and provides links to EERE offices. A "Quick Links" section offers shortcuts to recent press releases, consumer and educator information, an interactive kids' site, financial opportunities announcements and state-specific news.

Resources are classified by EERE's 10 technology programs:

- Biomass
- Building technologies
- Federal Energy Management Program
- FreedomCAR and vehicle technologies
- Geothermal technologies
- Hydrogen, fuel cells and infrastructure technologies
- Industrial technologies
- Solar energy technologies
- Weatherization and intergovernmental
- Wind and hydropower technologies

Each technology site details its program areas, information resources, financial opportunities, technologies and deployment. Technology-specific news and events appear on the right side of the technology home page.

## Information and tools

The sites dedicated to energy resources provide a brief history, an overview of current technology and a look at research and development in the field. Additional information specific to the resource is available, such as geothermal resource maps or reports on process engineering for biofuels.

Utilities will find a wealth of tools to help their customers on the best practices sites. The Weatherization Assistance Program, for instance, con-



**Information on the DOE Office of Energy Efficiency and Renewable Energy Web site educates industry and consumers about a broad spectrum of energy options. (Artwork by U.S. DOE EERE)**

nects users to calculators, free software downloads and fact sheets on insulation, air sealing, windows and more.

The Industrial Technologies Program offers valuable resources to help commercial and industrial customers reduce their energy consumption. ITP sponsors Industrial Assessment Centers, which provide eligible small- and medium-sized manufacturers with no-cost energy assessments and collects the data in the searchable IAC database. The program's Save Energy Now initiative focuses on heavy manufacturing facilities, completing 200 Energy Savings Assessments in 2006. The ITP E-bulletin keeps subscribers up to date on the latest program news.

## Technical assistance

EERE offers a full menu of newsletters on a broad range of topics, including the free weekly EERE Network News and the e-mail bulletin Progress Alerts. Or, newshounds can automatically track the latest development with the EERE News RSS feed. The feature also allows Web site owners to post the news onto their own sites.

*See WEB SITE OF THE MONTH, page 5*

## Web site of the month

from page 4

The EERE Information Center provides an online form for specific questions about EERE products, services and technology programs.

Users can also call a toll-free number to get answers from a customer service specialist or energy expert.

As its name implies, DOE's Office of Energy Efficiency and Renewable Energy is a comprehensive resource on issues that increasingly concern utilities. Future profiles may include

Web sites that focus on a single resource or strategy. If you have a favorite Web site that you use to help customers or improve your operations, contact the Energy Services Bulletin editor, and tell us about your experience. ⚡

Want to know more?

Visit [www.wapa.gov/es/pubs/esb/2007/jul/jul073.htm](http://www.wapa.gov/es/pubs/esb/2007/jul/jul073.htm)

## TOU rates

from page 3

energy use online. "As a future enhancement, customers will log onto our Web site and see how much they saved the previous day," said King. "That will be a great motivator."

### TOU for C&I

In Central California, Turlock Irrigation District time-of-use customers with 500-kW or higher demand are able to monitor their energy use online with the Meter Manager program. The Web-based tool is a relatively recent addition to a system that relies mostly on older metering technology. Like Salt River Project, TID's TOU schedule dates back many years.

Unlike SRP and many other utilities, TID offers TOU rates to every customer class except residential customers. Commercial, industrial and agricultural customers are usually highly motivated to control energy costs, and TID automatically places businesses with a demand of 500 kW or more on a TOU schedule. "We once offered large customers the option of non-TOU rates, but so few chose it that we discontinued the option," said Utility Rate Analyst Chris Poley.

Facilities must install a dedicated

phone line to connect to an interval meter, which feeds data to Meter Manager. Customers can use this data to manage their energy consumption. An almond processor, for example, put off a large hulling order one month in order to avoid three consecutive months of energy use that would have forced the business to a rate schedule that would have increased their annual costs. Rate schedules are based on the customer's kW demand over three consecutive months in a 12-month period.

Meter Manager can also help customers pinpoint the cause of sudden spikes in their electric bill, said TID Area Manager Kate Schulenberg. "The owner of a business that was closed for most of December couldn't understand why its electric bill was so high during that period," she recalled. "The spike coincided with the days the maintenance crew was cleaning and tuning up equipment. Everything in the building was turned on, creating a high demand the management didn't expect."

### Change operations for savings

Smaller commercial customers with demand between 35 and 499 kW can choose the TOU schedule, and many do. "Customers in this service category are sometimes less

attuned to energy costs than heavy industrial facilities, but they often find that shifting their use can result in substantial savings," explained Schulenberg.

"For a 24/7 business, the savings from TOU are automatic, but others may have to make some changes," Schulenberg said. "A meat packing plant cut its costs by starting its work day earlier and closing by 2 p.m."

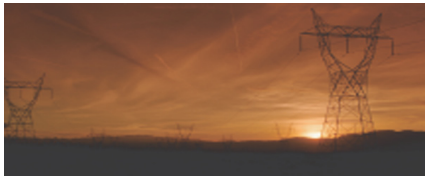
Still, some types of businesses are unable to shift work to get the benefit from TOU, added Schulenberg. "Manufacturers can schedule projects, but agriculture processors can't. When a crop is in, it's in and it has to be chilled right away. It can't wait six hours for 'off-peak' power."

Those are reasons utilities typically design time-of-use schedules to target residential loads, but Turlock has yet to develop a residential TOU schedule. "We are looking at it for the first time in several years because of the 2005 EPAct provisions," said Poley.

A successful time-of-use schedule benefits both utility and consumer, whether the consumers are homeowners or business owners as the different approaches at Salt River Project and Turlock Irrigation District prove. In both cases the utilities have turned customers into partners in managing energy use, and that may be one of the biggest benefits. ⚡

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Visit [www.wapa.gov/es/pubs/esb/2007/jul/jul072.htm](http://www.wapa.gov/es/pubs/esb/2007/jul/jul072.htm)



## TOPICS from the POWER LINE

### TOU results differ from study to study

*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:

Our board of directors has asked us to look into time-of-use rates as a way to control supplemental power purchases. What are some of the pros and cons of TOU schedules?

#### Answer:

A look at the resources below shows that results and opinions on time-of-use rates are mixed.

A search of the Utility Options Database produced a 2003 study by Puget Sound Energy. The final report concluded that PSE's time-of-use program shifted only 5 percent of the load away from peak hours and reduced energy use by 1 percent. The program cost most of the 300,000 commercial and residential participants more than the standard flat rate for power and cost PSE \$1.05 per customer per month. The program ended in November 2002, almost a year ahead of schedule. The full report outlines changes that might have made the program cost effective.

#### Little change in peak

The findings were somewhat more positive in the California Bill Analysis Pilot, Final Report, a research project from the California Statewide Pricing Pilot. To determine if customers responded to dynamic pricing, the study provided participants with advanced meters that measured hourly electric use and time-based electric rates of several designs.

Most participants—77 percent—visited the website at some point during the program and said that they found it helpful in reducing their energy use. Nearly half stated that they took actions during the critical peak periods that they would not have taken if they hadn't received the bill analysis, and about 62 percent noticed reductions in their bills while participating in the study.

The bill analysis appeared to have an impact between 2 and 7 p.m. on all days, suggesting a general "conservation effect" — participants not only shifting their time of use, but also using less electricity. However, load savings during critical peak periods ranging from a low of 0.010 kW to a high of 0.113 kW, for an average critical peak period savings of 0.061 kW, were not found to be statistically significant.

The report estimated that the process of supplementing utility bill information on the Web using the techniques in the pilot would cost \$2 to \$4 per customer per year for a large-scale rollout.

#### TOU works in Chicago

*Changing How People Think About Energy* from the American Council for an Energy Efficient Economy's 2006 Summer Study on Energy Efficient Buildings evaluated Community Energy Cooperative's Energy-Smart Pricing Plan. Conducted by Summit Blue Consulting for the Chicago-area utility, the three-year study showed consistent reductions in peak load and a conservation effect.

As this sampling of studies indicates, there are almost as many variables affecting the outcome of time-of-use schedules as there are utilities. To learn more about this strategy, you may want to attend *Designing and Implementing Time-of-Use Rates in Your Utility*, a workshop being offered by American Public Power Association Aug. 2 to 3, in Portland, Ore. ⚡

Want to know more?  
Visit [www.wapa.gov/es/pubs/esb/2007/jul/jul074.htm](http://www.wapa.gov/es/pubs/esb/2007/jul/jul074.htm)



# Energy Shorts

## Public comment on proposed IRP changes

Western is seeking public comment on changes proposed to the current regulations governing the integrated resource plans Western requires its customers to submit.

Customers will receive a letter notifying them of the date and location of a public forum, to be held later this summer in Denver, Colo. Western will also be accepting written comments from customers. More information about the public comment process will appear on the Western and Energy Services Web sites.

The proposed changes will cover three aspects of the current IRP regulations. The first proposal involves making customer IRPs more accessible for public review, such as by posting them on Western's external Web site.

The second proposal addresses issues faced by some member-based associations due to their large number of members and diverse member interests. Western is proposing to modify the requirement that each member of an MBA approve the IRP, confirming that all requirements have been met. Instead, the proposal would require only the governing body of an MBA, which serves the interest of each member, to approve the IRP.

Finally, Western is proposing to give advance approval to customers preparing regional IRPs, even though the customers may not be members of an MBA. The proposal is intended

to encourage cooperation on projects that would benefit from a regional approach to planning, such as collaborating on transmission projects.

Written comments will be accepted for 90 days following the publication of the Federal Register notice launching the formal process for the revisions. Comments from the public on other possible changes to Western's IRP regulations will also be considered. For more information, contact Energy Services Manager Ron Horstman at 720-962-7419.

## \$8.3 million awarded for biofuels research

The development of alternative fuel resources recently received a big push when Departments of Energy and Agriculture selected 11 biobased-fuel research projects for awards totaling \$8.3 million.

The funding represents a continuing commitment to fundamental research into biomass genomics that will further the use of woody plant tissue for bioenergy and biofuels. The program was announced at last year's Advancing Renewable Energy: An American Rural Renaissance, a conference jointly hosted by the two agencies in St. Louis, Mo. In its second year, new research projects on cordgrass, rice, switchgrass, sorghum, poplar and perennial grasses join the projects on poplar, alfalfa, sorghum and wheat.

Starting in 2007, DOE will provide \$5.5 million in funding for seven projects, while USDA will award

more than \$1.5 million to fund three projects; one project will receive \$1.3 million in joint funding from both agencies. Initial funding will support research projects for up to three years.

The awards will be made through the Office of Biological and Environmental Research in the DOE Office of Science, and USDA Cooperative State Research, Education and Extension Service National Research Initiative.

## Tidal power explored in SF Bay

Pacific Gas and Electric Company signed an agreement with the City and County of San Francisco and the Golden Gate Energy Company to conduct a comprehensive study on harnessing the tides in San Francisco Bay to create a new source of zero-emissions, renewable electric power.

The initial phases of the multifaceted study will begin this summer and are estimated to take approximately twelve months. It will include thorough analyses of the Bay's energy potential, existing and emerging technologies to capture tidal energy, possible environmental impacts from such a project and the economic feasibility and other costs and benefits of tapping this new energy supply. If initial research findings affirm the feasibility and promise of tidal power, future plans could lead to the development of a full-scale commercial project.

*See ENERGY SHORTS, page 8*

## Energy shorts

from page 7

The study effort will combine the resources and expertise of PG&E, CCSF and Golden Gate Energy. PG&E is committing to provide up to \$1.5 million to fund research by third-party experts, dovetailing with up to \$346,000 from CCSF for feasibility studies and stakeholder outreach. Golden Gate Energy, which currently holds key federal regulatory permits necessary to study the San Francisco Bay location, will work cooperatively to support the effort.

If the study results were to support the development of a project, the parties estimate that operation would be at least three to five years away.

### Applications for NABCEP's next exam

The North American Board of Certified Energy Practitioners announced that applications are available for the September 29,

2007, Solar Electric and Solar Thermal exams for installer certification. Applications are due by July 27, 2007.

Applicants should first read the PV Candidate Information Handbook or the Solar Thermal Candidate Information Handbook for eligibility requirements. Application forms for the PV exam or the solar thermal exam can be downloaded. Users can also register free of charge to apply online for the September 2007 testing date.

Signed application forms must be accompanied by the required permits, inspection certificates, training transcripts and other documentation. A check or money order for the \$50.00 application fee must be included for processing. For more information, contact NABCEP at 518-899-8186.

NABCEP offers national certifications for solar electric/photovoltaic installers and solar thermal installers. Exams are administered twice a year, usually in the fall and spring.

### DOE, Disney join for energy-saving campaign

Rodents named Remy, Emile and Skinner will be spreading the message about energy-efficient lighting this summer through a partnership between the Department of Energy and Disney.

A 30-second animated spot featuring characters from Disney Pixar's new film, "Ratatouille," encourages viewers to switch from incandescent light bulbs to EnergyStar compact fluorescent lighting. Viewers are urged to visit the DOE Web site for more tips on saving energy or using renewable energy technologies in the home.

The spot began airing on cable networks nationwide June 15, with a particular emphasis in northern portions of Virginia and northern and southern California, and will continue through the summer. While the spot points out that energy can be used in a variety of ways, it emphasizes that we can all be more energy-efficient by employing technologies such as CFLs. ⚡

Want to know more?

Visit [www.wapa.gov/es/esnews.htm](http://www.wapa.gov/es/esnews.htm)

## Key Account Tool Box

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[www.keyaccounttoolbox.org](http://www.keyaccounttoolbox.org)

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- Improve economic growth and vitality
- Reduce costs and increase productivity

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