



City of Palo Alto partners with school district in energy-saving competition

The Palo Alto City Council recently approved giving \$1 million to the Palo Alto Unified School District (PAUSD) if the city wins the \$5 million Georgetown University Energy Prize Competition.

The multi-year national competition taps into the imagination, creativity and hometown spirit of small- and medium-sized communities across the country to develop sustainable programs to improve energy efficiency and reduce carbon emissions. It is set up to encourage innovation in energy-saving programs and education offered by local governments to residential, municipal and public school utility customers. The city with

the greatest energy savings from January 2015 to December 2016 could win a \$5 million dollar prize to use in continuing energy-efficiency programs.

To win the competition, the City of Palo Alto is encouraging residents to reduce electric and natural gas use. Each participating community will be rated not just on energy savings, which Palo Alto has actively pursued for more

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than 30 years, but also on program innovation, potential for replication, future performance, equitable access, education and overall quality of services. The city's municipal utility (CPAU) is introducing new programs, tools and incentives to personalize saving energy.

Educating tomorrow's consumers

Another strategy Palo Alto is using to increase its success is partnering with PAUSD to identify and prioritize energy-efficiency and sustainability projects that involve students. The city hopes PAUSD can tie the competition into class curriculums, allowing students to come up with ideas for saving energy to win the "Million Dollar Challenge" for the schools. The school district may be able to use the \$1 million prize money for incorporating new or additional educational programs for energy-efficiency, putting solar on schools, or upgrading lighting and HVAC systems.

"This is a tremendous leadership opportunity for students, which teaches practical, real-world applications for understanding and managing energy use," said City Manager James Keene. "These students are the future generation that will be faced with the impacts of climate change if we don't act with urgency. We all benefit by engaging students through education and providing an avenue for potential funding of programs to help sustain and grow this knowledge."

The city is engaging a team of high school students by sponsoring an internship program, "Get Involved Palo Alto." Interns will generate ideas to help other students, staff and family members examine their home energy use more closely and try to reduce consumption. One idea they have already discussed is developing a mobile app for residents to input their electric kilowatt-hour and gas therm use after reading their meters on a daily

How Success is Measured



or weekly basis. Students could track energy consumption over time and measure savings after making changes at home, such as insulating doors and windows, or reducing phantom load energy drawn by electronic devices. Real-time tracking has been shown to help consumers understand fluctuations in energy use.

Managing today's use

CPAU is rolling out new programs like the Home Efficiency Genie audit and a new residential online utility portal to make it easier for residents to better understand their current energy use at home and take steps to improve efficiency.

Both the audit program and utility portal can help users identify inefficiencies and opportunities to manage electricity and gas consumption. Residents can call the Home Efficiency Genie experts for free utility bill analyses and subsidized energy audits of their homes. Participants will reap the benefits of a more comfortable home, reduced utility bill costs and the satisfaction of lowering their carbon footprint by reducing greenhouse

gas emissions associated with energy use—and helping their city in the competition.

Tough competition

Palo Alto is not the only Western municipal customer competing for the Georgetown University Energy Prize. The Colorado cities of Aspen and Fort Collins are also participating, and all three are in the top 20 for energy savings.

Millions of homeowners, more than 60 local governments and over 100 utilities are represented by the 50 communities competing in the Georgetown University Energy Prize. As of September 2015, participants have avoided more than 300 million kilograms of carbon dioxide emissions and saved more than 9 billion kilo-British thermal units based on electricity and natural gas consumption. All that efficiency and conservation has saved participants more than \$59 million.

Western wishes every competitor luck (but especially our customers), and we look forward to learning about the strategies the communities developed. ■

Western customers play role in latest green power rankings

The latest Green Power Partnership update on renewable energy use by businesses, government facilities and educational institutions shows the importance of partners in meeting clean power goals. Western customers—and Western itself—figure prominently on the quarterly list released April 25.

There are now 764 Green Power Partners using renewable energy to meet 100 percent of their U.S. organizationwide electricity use. That is a lot of green kilowatt-hours (kWh)—16 billion annually—to keep the lights on and the equipment humming. The list of power providers needed to supply all that clean electricity is a long one and there are several familiar names on it.

Large, small partnerships

Apple alone purchases renewable energy from more than 30 providers, including Salt River Project, Sacramento Municipal Utility District, Silicon Valley Power, City of Palo Alto Utilities (CPAU) and Omaha Public Power District (OPPD). Alpine Bank relies on Holy Cross Energy, San Miguel Power Association, Yampa Valley Electric Association, Delta-Montrose Electric Association and La Plata Electric Association (LPEA) among others to power its 38 branches across Colorado. Fort Collins Utilities is among several providers that supply green power to outdoor equipment retailer REI.

On the other end of the spectrum, Silicon Valley Power meets all the electricity needs of industrial goods manufacturer Roos Instruments. Tri-State Generation and Transmission Association is the sole green power provider to Wolf Creek Ski Area.

DIY spreading

As equipment and installation costs drop, many organizations are adding renewable energy systems on their own facilities. Omaha, Nebraska-based Morrissey Engineering supplements its green power purchase from OPPD with on-site generation. The city of Durango, Colorado, has partnered with LPEA on community solar gardens.

The National Renewable Energy Laboratory generates 20 percent of its electricity on-site with solar panels. The remaining 80 percent comes from Western and private renewable energy companies.

Other notable achievements

Western customers appeared in the ranking not just as providers but as partners. The University of Utah came in at number 86 in the overall Top 100 Green Power Partners, and was number 14 in the Top 30 colleges and universities.

Los Angeles World Airports, served by the Los Angeles Department of Water and Power, ranked 23rd among local government green power users. Sustainability pioneer CPAU was number 28 on that list.

Long-term power contracts, for five years or longer, play an important role in growing the renewable energy market. BD, a global medical technology company, signed a 20-year purchase power agreement with Nebraska Public Power District for more than 120,000,000 kWh of wind power.

Western customers go above and beyond to provide their consumers with the products and services they need, including cleaner, greener electricity. We look forward to seeing their names become a growing presence on future Green Power Partnership lists. ■



Lincoln County PD lighting fact sheet makes LEDs an easy choice



Just a few short years ago, compact fluorescent lamps (CFLs) were the “hottest” efficient technology and utilities were building entire programs around encouraging customers to swap out their old incandescent lights. Then the price of the even more efficient LED, or light-emitting diode, lamps started to drop and customers had another option. They also had a case of technology whiplash that left many feeling more than a little skeptical about manufacturer claims. If you would like some help in persuading your customers about the benefits of state-of-the-art lighting technology, check out this lighting fact sheet from Lincoln County Power District No. 1. blubs

The fact sheet promotes LCPD’s lighting program that offers each residential customer one 10-watt LED lamp to try out at home for a year. The 10-watt LED gives off light that is equivalent to a 60-watt incandescent bulb or a 14-watt CFL. Installing an LED in the most used light fixture in the house could save consumers nearly 55 kilowatt-hours annually.

Some of the information on the fact sheet is specific to LCPD customers, of course, but much of it is general or can easily be adapted to your utility. For example, if you simply change the price of electricity on the cost comparison table, it will show your customers how much money LEDs can save them in their own homes.

The fact sheet explains how to use LEDs (hint: just like incandescents and CFLs) and gives tips on getting the most benefits from the efficient lighting technology. You don’t need to be offering a program similar to LCPD’s lighting program to find this fact sheet useful, but your customers may ask for one when they learn about the advantages of LEDs.

Visit Energy Services Publications to find more fact sheets on technologies and programs to improve load management and customer relations. ■

New report looks at utility business models for energy storage

Navigant Research and Sunverge Energy, Inc. have teamed up to produce a white paper highlighting opportunities to embrace energy storage in ways that benefit both public utilities and their customers.

The National Renewable Energy Laboratory estimates that the technical potential of rooftop solar photovoltaics (PV) in the United States represents the equivalent of 39 percent of current U.S. electricity sales. The capacity from solar panels, advanced batteries and other forms of distributed energy resources (DER) is likely to keep growing. Some in the industry see this trend as the beginning of the “utility death spiral.” There are optimists, however, who see the chance for utilities—especially publically owned

utilities—to reinvent themselves and their customer relationships.

According to the report, *Making Sense of New Public Power DER Business Models*, advanced energy storage can optimize DER to provide value on either side of the meter. In three featured case studies, public utilities, including Sacramento Municipal Utility District, leveraged the diverse services energy storage can offer if coupled with state-of-the-art controls software. Smart storage applications proved to be the key to delivering win-win results such as improved reliability, more resilience and greater customer satisfaction.

Public power providers are uniquely positioned to explore new energy service delivery models that can turn the challenge of integrating DER into customer partnerships. You can learn more about innovative business models and up-and-coming technologies by downloading a free copy of *Making Sense of New Public Power DER Business Models*. ■



DOE announces \$25M to accelerate integration of solar into grid

Utilities, solar companies and software developers working on solar energy grid integration solutions will welcome a May 2 funding opportunity announcement (FOA) from the Department of Energy. The DOE program called Enabling Extreme Real-Time Grid Integration of Solar Energy, or ENERGISE, announced that it is making \$25 million available for research to modernize the national grid.

The amount of solar power installed in the U.S. has increased 23-fold in the last seven years, from 1.2 gigawatts in 2008 to an estimated 27.4 gigawatts in 2015, with one million systems now in operation. A key challenge to furthering solar deployment is the ability to integrate distributed generation sources like rooftop solar panels into the grid while balancing that generation with traditional utility generation.

This FOA aims to support companies working to meet that challenge while keeping reliable and cost-effective power flowing.

ENERGISE specifically seeks to develop software and hardware platforms for utility distribution system planning and operations that integrate sensing, communication and data analytics. These hardware and software solutions will help utilities manage solar and other

distributed energy resources on the grid and will be data-driven, easily scaled-up from prototypes and capable of real-time monitoring and control.

Funds are being offered for projects addressing two topic areas:

- Topic Area 1 covers near-term projects to develop commercially ready, scalable distribution system planning and real-time grid operation solutions compatible with existing grid infrastructure to enable the addition of solar at 50 percent of the peak distribution load by 2020. A one-year field demonstration with utility partners is required.
- Topic Area 2 covers projects that tackle the long-term challenge of developing transformative and highly

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LES, APPA create Clean Power Plan modeling tool

The 2015 Clean Power Plan, the Environmental Protection Agency (EPA) rule that seeks to reduce the United States' carbon dioxide (CO₂) emissions by 32 percent in 2030, presents state regulators and the electricity sector with new challenges as well as opportunities. Utilities and states will need to work closely to find cost-effective means of reducing CO₂ emissions from existing power plants and, in some cases, to demonstrate performance for EPA requirements. Many states may find it necessary to implement a CO₂ emissions trading program.

While utilities have a history of using complex modeling and forecasting tools, state regulators are less familiar with these processes. The Clean Power Plan Modeling Tool, developed by American Public Power Association in cooperation with Lincoln Electric

System, may help power providers to bridge that communication gap. This model is utility-focused, making it unique among various tools available for assessing a state's potential compliance under the final rule. Users are able to assess the potential

compliance position of a specific utility, providing for much deeper insight into the potential ramifications for your company and the customers it serves.

The tool is designed to:

- Provide a useful, quantitative look at potential compliance options based on planned and/or forecasted generation capacity additions and retirements
- Allow public power utilities to evaluate their potential compliance position
- Provide deep insight into the potential ramifications for utilities and their customers

Utilities may also find the model useful for integrated resource planning.

The Clean Power Plan Modeling Tool is free to APPA members. Upon ordering, the user will receive an email with instructions on accessing the tool. ■

scalable technologies compatible with advanced grid infrastructure to enable solar at 100 percent of the peak distribution load by 2030. DOE will require a large-scale simulation to demonstrate performance and scalability.

DOE's SunShot Initiative will oversee the projects funded by this opportunity. The program expects to make 10 to 15 awards altogether. Awards for Topic Area 1 will likely range between \$500,000 and \$4,000,000 each. For Topic Area 2, DOE anticipates making awards of between \$500,000 and \$2,000,000 each.

The Solar Energy Technologies Office is hosting an informational webinar on May 19, 12 to 2 p.m. Mountain Time. All applicants must submit a brief concept paper by June 17. Full applications are due by Aug. 26, 2016. ■



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