ENERGY SERVICES Bulletin
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WESTERN AREA POWER ADMINISTRATION

Flathead Electric, youth agency team up on solar storage demonstration

A solar installer mounts panels on the roof of the Flathead Youth Home. The 7.2-kW array will include a storage battery and is expected to save the facility about $44 per month on electric bills. (Photo by Flathead Electric Cooperative)

A solar electricity storage project in Kalispell, Montana, combines three things at which electric cooperatives excel: testing new technology to see if it is a good fit for members, helping members lower their electric bills and forming partnerships in the community.

Flathead Electric Cooperative (FEC) recently selected the Flathead Youth Home to test rooftop solar panels and a Tesla Powerwall battery storage system. The 7.2-kilowatt, net-metered solar array and backup system will save on average about $44 per month on the home's electric bills while the co-op collects and evaluates performance data on it.

Laying groundwork

The battery backup sets this solar installation apart from FEC's Solar Utility Network (SUN) community solar project and the 38 residential arrays on its system. Energy Services Representative David Bopp is expecting the youth home project to provide deeper insights into the technology.

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"There is a large potential market for batteries in the future, so we hope to get ahead of it by testing it in its infancy," he said. "We want to gather data now before people start putting them in and coming to us asking, 'What can I get?'"

A committee of utility employees came together to guide the pilot project and provide input on future projects from different perspectives. "The transformative technology committee includes representatives from business technology, member services, GIS, regulatory affairs, public relations and rate design, so they all have a different perspective to offer," said Bopp. "It formed around the solar project, but we would like to keep it together to evaluate other technologies as they come up."

Choosing partner

The committee initially considered an employee's house when it began discussing the project, because the goal was to see how the system worked in a residential setting. But when the time came to site the project, they decided to choose a local charity with a similar electricity-use profile, noting that they could gather data for their purposes and benefit a nonprofit at the same time.

Finding the right charity—and in a hurry—posed something of a challenge to FEC. "It was late in the development process, so we didn't have time to put it in our newsletter," Bopp recalled. "We used social media to ask our customers for recommendations, called a nonprofit development group and United Way and brainstormed internally."

One consideration was that many residential charities have confidentiality and safety concerns, and FEC wanted a partner that could participate in marketing and public outreach efforts. The charity would have to be comfortable with allowing FEC personnel access to the system and with the data being publicized at conferences.

The Flathead Youth Home, which provides short- and long-term services to youth, is well established in Kalispell and promotes its work to the public, so it was a good candidate. "Luckily, the home happens to be in a part of town where people can see it, too," Bopp added.

Workmen install a Tesla Powerwall storage battery. The demonstration project will help FEC to determine if solar power coupled with battery storage can benefit both the utility and its customers. (Photo by Flathead Electric Cooperative)

Installing system

From a technical standpoint, the 10-bedroom facility and administrative office had the right electricity profile. "We needed a minimum use so that the system would not be putting too much electricity back onto the grid," said Bopp.

Built in 2009, the home had good southern exposure and was relatively new so it didn't need structural or efficiency upgrades. If the building owners were going to make any energy efficiency improvements in the near future, that would have to be factored into the electricity use data. "We wanted a steady load," Bopp explained. "The home could qualify for a lighting upgrade rebate but that isn't going to be a big enough change to affect the data."

The system was installed in December, but winter put a hold on completing the wiring for the solar interconnection. The battery's capability is being tested while final connections wait for winter's end. Bopp expects to fire up the system fully and start collecting data this spring. The Flathead Youth Home will own the system after 10 years and until then the director will give tours on behalf of the co-op.

Diversifying technologies, energy supply

One of the central goals of the pilot is to discover if solar coupled with battery storage has ancillary benefits for both customers and FEC. The technology committee suspects that system might be useful in helping to manage peak load. The project will test that assumption and help the utility answer questions about rates, incentives and control going forward. "By testing batteries in their infancy, we can figure out how to use them while making sure we are fair to all our members," said Bopp.

The utility battery storage pilot project is the first in Montana, just as FEC's SUN program was the state's first community solar project. Electricity rates are so low in the region that renewable generators often have a discouragingly long payback period. However, renewable energy is still attractive to customers who have environmental concerns, are interested in energy independence or have remote loads to power.

FEC supports these customers with a net-metering policy, and by acquiring diversified resources. In addition to the residential solar arrays, there are four small wind turbines on its system. The utility owns a 1.5-megawatt landfill gas-to-energy facility and has purchase power agreements for electricity from a small hydropower generator and a biomass facility. ■

SRP customers enjoy a temporary rate decrease

There is nothing like passing the fruits of good management on to customers to build a strong relationship, and Salt River Project (SRP) is doing just that by reducing electricity prices by an average of 1.6 percent for the next 10 months.

Starting with the January 2017 billing cycle, typical residential customers will see a reduction of just under a dollar per month during the winter billing season. The savings will increase to $2.50 to $3.50 per month when the summer billing season begins in May. Prices will return to original winter season prices approved in 2015 with the November 2017 billing cycle.

This is the second time in less than a year that the SRP board has lowered electricity prices for the utility's 1-million-plus customers. SRP previously instituted a temporary reduction of 3.7 percent for the 2016 July and August billing cycles.

The temporary decreases reflect SRP's success in identifying market opportunities and cutting costs, said SRP General Manager and Chief Executive Officer Mark Bonsall. "Utility customers are generally more used to seeing price increases than decreases, so we are very happy to be able to lower our prices," he stated.

Controlling costs

SRP has been able to temporarily lower rates because of reduced expenses in two components of its electric prices: the Environmental Programs Cost Adjustment Factor (EPCAF) and the Fuel and Purchased Power Adjustment Mechanism (FPPAM).

EPCAF tracks costs and revenues related to the renewable energy and energy-efficiency programs SRP adopted to comply with its sustainable portfolio standard. The temporary reduction reflects SRP's ability to meet its sustainable goals at a lower cost to customers.

FPPAM allows SRP to recover fuel costs incurred to generate electricity

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Arizona Falls generates up to 750 kilowatts of clean, renewable electricity, which can power up to 150 homes. This clean resource helps the utility meet its sustainability goals, while keeping rates affordable. (Photo by SRP)

Tribal Energy Webinar Series returns with focus on partnerships

WAPA is pleased to once again sponsor the Tribal Energy Webinar Series with the Department of Energy Office of Indian Energy Policy and Programs (IE). The series begins Feb. 22 at 11 a.m. MT with Indian Energy: Looking Back and Moving Forward.

"Expanding Tribal Energy Development through Partnerships" is the theme for the 2017 series of 11 webinars. Tribal leaders and staff, as well as anyone interested in working in Indian Country, can participate in the free events. The series supports fiscally responsible energy business and economic development decision-making and promotes information exchange with the 565 federally recognized American Indian and Alaska Native sovereign nations, bands, villages and communities.

As national concerns about energy sufficiency and security have risen, American Indians and Alaska Natives have recognized the potential economic and self-determination benefits of energy resource development on their lands. Tribal lands consist of more than 56 million acres, or 2.3 percent of all land throughout the U.S. An estimated 17.1 million acres hold existing and potential fossil energy and mineral resources and about 5 percent of the country's technically feasible renewable energy resource potential. Tribes with minimal fossil energy, mineral resources or renewable energy potential could benefit from other energy options, such as energy efficiency, demand-side technologies and collaborative supply arrangements.

Comprehensive agenda

Now in its fifth year, the Tribal Energy Webinar Series continues to meet critically important educational needs for tribal communities. Attendees will discover tools and resources for developing and implementing tribal energy plans, programs and projects. Webinars will provide case histories and business strategies tribes can use to expand their energy options and develop sustainable local economies.

The webinars are scheduled February through December on the last Wednesday of the month at 11 a.m. MT. Topics include:

- **Feb. 22 – Indian Energy: Looking Back and Moving Forward**
  The first webinar in the series provides an overview of Indian energy in the U.S. and the mission of the IE office. Speakers will cover past successes, future plans and how to add value and streamline government procedures for tribes interested in energy development and self-determination.
- **March 29 – Federal and State Policy Impacts to Tribal Energy Partnerships**
  Developing energy resources through partnerships is complex and can affect both tribal and non-tribal communities. Learn about state and federal requirements that could impact energy projects on tribal lands depending on the type of project, location, size and other considerations.
- **April 26 – Spending Energy Dollars Wisely**
  Presentations will explore strategies, tools and technical assistance opportunities to develop a deliberate approach to maximizing energy dollars. Tribal guest speakers will share their successes and lessons learned in pursuing, developing and implementing strategic approaches to wise energy investments.
- **May 31 – What Energy Project is Right for my Tribe?**
  Learn how to identify appropriate energy projects, from a small renewable generator for a single residence or building to a utility-scale project requiring transmission interconnection and a purchase power agreement. The pros and cons of ownership and leasing, differences among various renewable and conventional technologies and potential project barriers will be covered.
- **June 28 – Tribal Project Partnerships**
  Hear about successful partnerships and how the successes can be replicated throughout the U.S. This webinar will be of particular interest to tribal nations and energy industry professionals interested in expanding their energy resource options and increasing economic development and self-determination.
- **July 26 – Powering Your Community with Tribal Energy**
  Speakers will address the steps to developing a 1- to 2-megawatt energy project on tribally owned or controlled property to serve the energy needs of the tribal community.

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Tribal Energy Webinar Series *from Page 4*

- **Aug. 30 – University Resources for Tribal Partnerships**
  Explore how relationships between universities and tribal nations can foster greater economic development, self-determination and energy independence for the tribes. Speakers will talk about successful university programs and initiatives on energy and the environment that are valuable resources to tribes.
- **Sept. 27 – Fundamentals of Organized Energy Markets for Tribes**
  Find out how the expansion of establishments such as the Southwest Power Pool and the California Independent System Operator is will create opportunities for those looking for more energy resource options or to buy and sell energy resources, especially on tribal lands.
- **Oct. 25 – Tribes Working Together**
  Generation and transmission and joint-action agencies offer business models for jointly owning, procuring and building new transmission and power generation projects Learn about these and other partnership opportunities that can support tribal energy independence and self-determination on tribal lands.
- **Nov. 29 – Partnerships for Utilities and Tribes Initiative**
  This webinar introduces a new initiative to facilitate stronger and improved relationships between tribes and the utilities or energy companies that serve them. Another possible benefit of this effort is improved employment of tribal members in utility and energy sector jobs.
- **Dec. 13 – Economic Market Potential on Tribal Lands and Interactive Tools for Assessments**
  Learn about the significant untapped economic potential from developing conventional and renewable energy resources on tribal lands, and the tools available for economic and energy supply assessments.

Register today

Be a part of expanding energy self-determination among our country's American Indians and Alaska Natives by registering for any or all webinars. There is no charge to attend, but registration is required. Attendees must have internet access, computer compatibility with GoToWebinar software (free download) and a phone line. Recordings of the 2016 webinar series and archived recordings from past years are available to download. ■

SRP customers enjoy a temporary rate decrease *from Page 3*

and supplemental power purchases to serve customer needs. Savings in this area are primarily because natural gas costs have been lower than anticipated in the utility's budget.

SRP passes the costs of these two components directly to customers without any markup. The latest temporary reduction will decrease EPCAF and FPPAM revenue collection by about $40 million.

Succeeding at sustainability

SRP has set a goal to meet 20 percent of its retail electricity requirements through sustainable resources by the year 2020. Solar, wind and geothermal energy, hydropower and energy-efficiency programs currently provide 746 megawatts (MW) of capacity. This diverse mix of clean resources represents more than 14 percent of retail energy needs, putting SRP ahead of schedule to achieve its goal.

Bonsall attributes that success to constantly monitoring the market to find the most reliable, affordable and environmentally responsible resource mix. For example, the 45-MW Sandstone solar power plant puts electricity onto the SRP grid that is both clean and affordable. The cost SRP pays per kilowatt-hour (kWh) from the facility is very close to the utility's average on-peak market price for electricity.

Energy efficiency programs also play an important role in meeting SRP's sustainability goals. Last year alone, SRP's business and residential efficiency programs saved customers 526 million kWh, and they continue to have the most potential of all resources for cost-effective growth.

Communicating is critical

As a not-for-profit public power provider, SRP puts the needs of its consumers first, and that means keeping them up to date on utility activities. Customers learned about the temporary rate decrease through a variety of channels, including customer newsletters, social media, traditional media outlets and through customer service representatives. And customers are giving feedback: "We are hearing from them that they are pleased about the recent announcement," said SRP Spokesperson Patty Garcia-Likens.

Keeping the lines of communication open, offering customers energy- and money saving programs and providing affordable, reliable electricity has paid off for the utility in customer satisfaction. SRP has ranked highest for residential electric service in the western United States among large electric utilities for the last 15 years, according to annual studies conducted by J.D. Power. ■

New program to develop energy-efficiency ratings for window coverings

Fact sheet, website present initial data

The Department of Energy (DOE) and the Window Covering Manufacturers Association are launching a program to help consumers make informed decisions about products with significant energy-saving potential: window coverings.

The nonprofit Attachments Energy Rating Council (AERC) is leading the effort to develop an energy certification and rating program for storm windows, awnings, drapes, shutters, shades, blinds and screens.

AERC has been compiling data for the past 18 months and recently unveiled a website where visitors can learn more about its mission, find resources for evaluating building efficiency and read reports from partnering organizations. One report, *Window Attachments: Call to Action*, targets utilities. It outlines the energy-saving benefits of window attachments, the market size for the product category and the potential effects of an energy certification program.

Why window coverings?

Properly chosen and installed, window attachments can upgrade the performance of existing windows and save up to 13 percent of a household's annual energy use. Energy savings are not the only benefits window coverings offer homeowners. Far from being purely decorative, window attachments:

- Enhance daylighting
- Reduce draftiness
- Minimize glare
- Increase thermal comfort
- Provide privacy
- Muffle outdoor noise

According to the DOE, 80 percent of all households have window coverings, while complete window replacement—a more expensive option—occurs in 2 percent of U.S. homes annually. This creates an opportunity to save consumers energy and money by making the attachments more energy efficient. The AERC rating will help consumers identify products that save energy and increase comfort, and open a space for new utility programs.

Another advantage of window coverings is that homeowners would not

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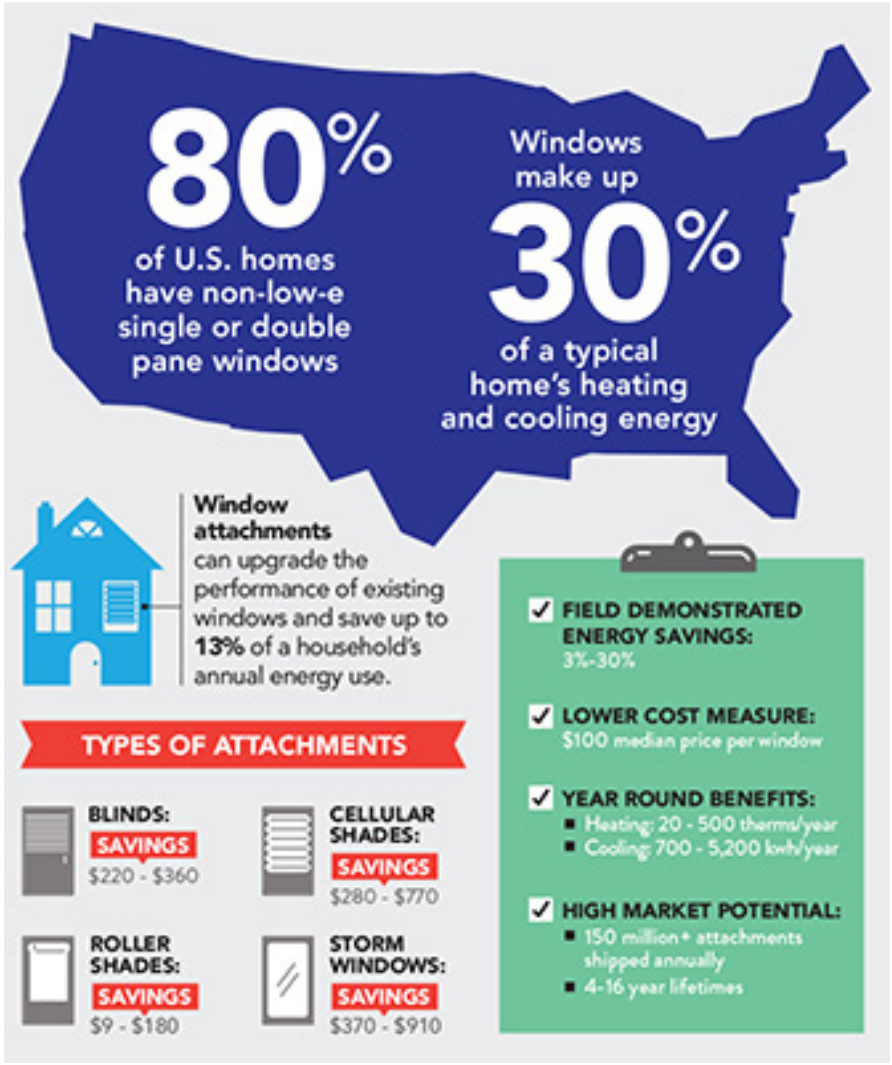

(Artwork by Attachments Energy Rating Council)

Consumer surveys explore interest in targeted payment, program options

Energy consulting firm DEFG has released two new consumer survey reports that could be useful to power providers looking for ways to improve service and satisfaction among different customer groups.

The Best Service for Utility Customers with the Least explores the need for more payment options and programs serving low-income households. These consumers continue to have trouble paying electric and heating bills and struggle to reduce their energy consumption. Respondents expressed concern about paying fees and penalties on their electric bills, and also showed interest in community solar programs. The survey indicates that there are opportunities for utilities to offer this customer group more and better ways to help them manage their energy budgets.

Prepayment appeals to a more segmented audience than low-income programs, but Prepay Energy: Past the Tipping Point and Scaling Up for Success finds that certain customers would welcome this option. Consumers who have adopted prepayment, such as gift cards and reloadable debit cards, and mobile bill payment would like to see their utilities offer them the same convenience. The reasons respondents gave included wanting more control over their energy costs and eliminating surprises by paying for energy as they use it.

An emerging theme across both reports is that consumers across income spectrums are open to utility programs that could help them gain more control over their energy bills. Both reports can be downloaded with a simple email registration. ■

energy-efficiency ratings for window coverings *from Page 6*

have to change their behavior to get the benefits from window coverings. As utility program managers know, it can be difficult to maintain energy savings from measures that require customers to learn new behaviors. However, a study by Lawrence Berkeley National Laboratory found that people already use window coverings in a way that optimizes energy efficiency. For example, people in southern climates tend to keep their window coverings closed in the summer. In terms of persistence, once homeowners invest in storm windows, they generally keep them installed and in good condition.

This thermal image shows how windows are a major source of heat loss on buildings. (Photo by Attachments Energy Rating Council)

Ratings rollout

AERC has begun to rate, certify and label attachment products, starting with interior and exterior storm windows, cellular and pleated shades, blinds, solar screens and interior and exterior roller shades. Look for the first AERC-certified window coverings in retail stores by June or July, with additional product categories appearing in late 2017 and early 2018.

If you think efficient window coverings might provide the basis for a new customer efficiency program, bookmark the AERC website so you can follow the publication of the ratings.

In the meantime, learn more about window coverings by downloading the fact sheet from Energy Services Publications and visiting Window Coverings and Attachments, an online guide to choosing the right treatment for each window. ■

Webinar offers guidance on marketing community solar projects

March 1
11 am-12 pm MT

According to a GTM Research report cited in Public Power Daily, the community solar market is poised for significant growth in the coming year. However, interest in community solar among utility customers varies widely based on demographic, regional and lifestyle factors. Utilities might be wondering how to design and implement a community solar program that appeals to customers across market segments.

Angela Crooks, from the U.S. Department of Energy SunShot program, attended a CSVP Utility Forum meeting, with Carmine Tilghman of Tucson Electric Power and John Powers, from the CSVP team, including this visit to a solar carport at the Sacramento Municipal Utility District. (Photo by Community Solar Value Project)

Five Steps to Tailored Market Research, sponsored by the Community Solar Value Project (CSVP), will move quickly from general guidance to five specific steps that utilities can take to achieve results. The webinar features Jennifer Mitchell-Jackson, a partner in Grounded Research and Consulting and lead author of a new CSVP market research and market segmentation guide.

Market Research and Market Segmentation for Community Solar Program Success shows how to get a better understanding of different customers' motivations before you offer a community solar program. This guide describes a five-step process, beginning with assessing research needs and tapping outside sources of community-solar market intelligence, through leveraging available utility data, and carefully designing or obtaining new customer research to address specific needs. It can be downloaded for free from the CSVP website.

The webinar is free but registration is required. If you can't participate in the webinar, CSVP will record and archive it for on-demand use.

The Community Solar Value Project represents leading energy thinkers and do-ers, ready to "make community solar better," from both the sponsoring-utility and customer perspective. Members are working to develop a decision framework for community-solar program design, focusing first on optimal siting and project design, procurement, target marketing and matching with companion measures that attack solar-integration challenges. ■

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