



Poudre Valley REA community solar project broadens access

Sometimes an idea is so good, you just want to be a part of it in some small way. That is how we at WAPA's Energy Services felt when we learned that Poudre Valley Rural Electric Association (PVREA), one of our customers, was building a community solar array with GRID Alternatives Colorado to serve its low-income and nonprofit customers.

Solar for all

The Coyote Ridge Solar Farm will cover nine acres near the Larimer County Landfill with more than 6,000 320-watt solar panels on a tracking system that follows the sun across the sky. PVREA will make 700 kilowatts (kW) of the 1,962-kW array available to

low-to-moderate income subscribers and 500 kW for nonprofit organizations in the utility's service territory. It will be the nation's largest community solar project of its kind, and demonstrate complex financial modeling and unique siting. PVREA has partnered

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with the nonprofit solar installer GRID Alternatives Colorado and the Colorado Energy Office to develop the project.

In August of 2015, the Colorado Energy Office made a \$1.2 million grant to GRID Alternatives Colorado for the express purpose of partnering with utilities to implement low-income community solar projects. That focus fit right in with a specific concern of the PVREA board of directors, noted the utility's Alternative Energy Administrator Milton Geiger. "They were looking for a project that would bring the benefits of solar power to a greater number of our members," he said. "Our board believes that equitable access to solar power is a cooperative principle."

Learning by doing

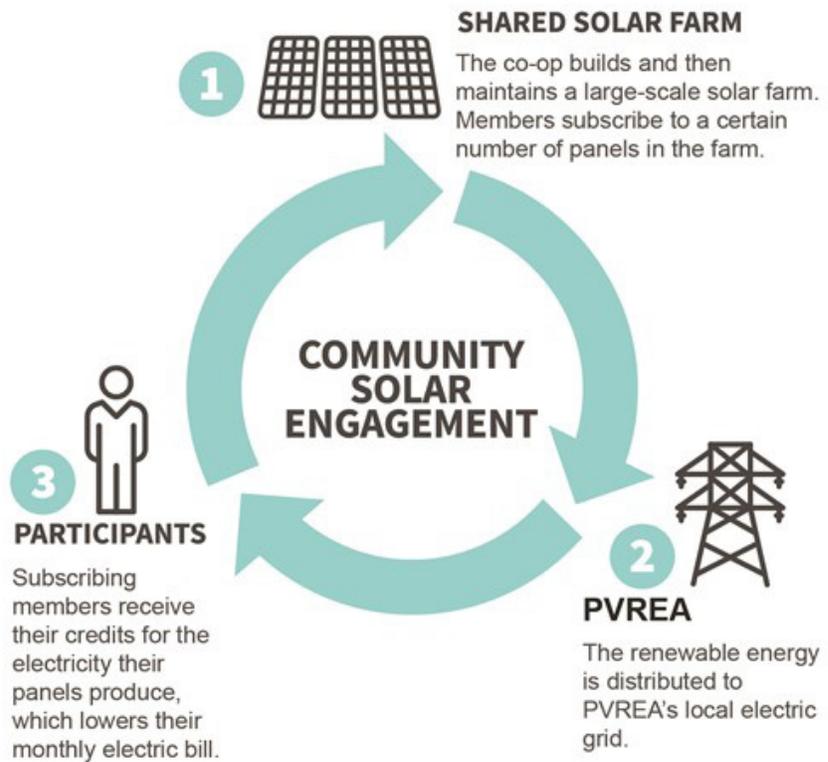
Coyote Ridge is the seventh project to receive funding from the grant. Originally, the plan was to develop at least five different low-income solar projects with the grant, but GRID Alternatives knows how to stretch a funding dollar and build in community participation at the same time.

Like Habitat for Humanity, an organization to which it is frequently compared, GRID Alternatives invites individuals and community groups to participate in both residential and commercial-scale solar installations. Although designing a solar array is a complex task, assembling the racking and setting modules turn out to be mostly measuring, lifting, lining up and tightening screws. Low-income homeowners and church and community service groups can participate in building the facilities that will lower their energy costs and reduce their carbon footprint. More importantly, for those interested in long-term careers in the field, GRID Alternatives provides hours of hands-on training.

WAPA gets involved

The project came up during discussions at a community solar

HOW COMMUNITY SOLAR WORKS



workshop WAPA hosted in early June. At first glance, it had everything we love to cover in *Energy Services Bulletin* stories: a WAPA customer developing renewable energy for the benefit of members who need it most. More than a third of the electricity produced will be offered at a reduced rate to PVREA households with income levels at or below 80 percent of their county's median. When Geiger later explained GRID Alternatives' involvement, and the volunteer opportunity, the story became irresistible.

So on a cold, rainy September morning, Energy Services Director Ron Horstman, Electronics Engineer Kevin Hogg and Energy Services Marketing Coordinator Kevon Storie (me) showed up at the site near the Larimer County Landfill, ready to build some solar. For a little background, our personal experience with solar construction runs the

gamut. Horstman installed a 3.2-kW solar array on his own home in 2009, while it was Hogg's first time working on an installation. I have—well—I've seen a lot of pictures of photovoltaic systems.

Satisfaction guaranteed

The crew was 53 strong that day, including several individuals, a group from a Unitarian church and engineering students from the Colorado School of Mines, Colorado State University and Denver University.

When we arrived, the rack for the lower half of the array was partially assembled, but many hands made light work. The crew first learned to install the vertical "arms" that hold up the solar modules, and then moved on to mounting the modules themselves.

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Designing a community solar array is a complex task, but assembling the parts calls mostly for elbow grease.



“We’re from the government and we’re here to help!” WAPA Volunteers from left to right: Kevin Hogg, Ron Horstman and Kevon Storie.

Shortly after lunch, the array was completely assembled and ready to be wired by professional electricians in the coming week. The crew put up a total of 999 solar panels and continued working on the racking on the second section of the solar farm.

The work was hard and the weather was dreary, but the experience was enlightening. Hogg, who lives in Loveland, Colorado, was gratified to see community engagement in action, and is now interested in adding a solar array to his home. Horstman enjoyed talking to the students about their studies and about WAPA. (Note to utilities and related industries: Volunteering for GRID Alternatives is a great way to meet intern candidates.)

For my part, I increased my minimal understanding of solar construction and was delighted to see so much progress in the space of a single day.

Size, site matter

PVREA joins other WAPA customers in working with GRID Alternatives and the CEO. Empire Electric Association, Delta Montrose Electric Association, Holy Cross Energy, Yampa Valley Electric Association, Fort Collins Utilities, San Miguel Power Association, and Grand Valley Power have all been partners in developing community solar farms that offer solar credits to low-income subscribers. Once constructed, the facilities become utility-owned assets.

Each installation demonstrates a unique characteristic that makes it work for the utility. In the case of PVREA, Coyote Ridge is sited on a large tract of unused land next to the Larimer County landfill that will have minimal environmental impact. The size of the farm is another key aspect of the project. “It drives the economy of scale and makes it replicable for other utilities,” said Geiger.

Replicability is central to the Low-Income Community Solar Demonstration Project. GRID Alternatives, the Colorado Energy Office and utility partners are demonstrating that the benefits of renewable energy are for everyone, one solar installation at a time. ■

Report, tools seek to boost building efficiency

Utilities have a vested interest in working with homeowners and businesses to accurately estimate and control energy costs. It is not only good for load management goals, it is also good for the local economy. A new report from Rocky Mountain Institute (RMI) and tools being developed by the National Renewable Energy Laboratory (NREL) can help utilities and cities move toward a more efficient building stock.

Changing real estate conversation

According to the online real estate platform Redfin, energy bills can add as much as 40 percent to annual housing costs in some parts of the country. An MPG for Homes: Driving Visible Value for Home Energy Performance in Real Estate, the RMI report, makes the argument for incorporating energy use data into the total cost of homeownership calculations.

The authors emphasize, however, that making home energy use data more accessible is part of a greater vision. True market transformation will require a change in both homebuyer behavior and policies and approaches across several interconnected industries. The real estate, finance, home improvement and—yes—utility industry would all play a part and could all benefit in the long run from improving home performance metrics and making the data more transparent and accessible to homeowners.

RMI notes that the “green real estate” movement is already starting to catch on with online real estate portals featuring home energy scores on property listings. Partnerships between the Zillow Group and UtilityScore, Estately and Clearly Energy and Redfin

and Tendril are aiming to make home energy scores a bigger consideration in buying decisions.

Recent home purchases drove 26 percent of home renovations in 2015, and preparation for resale led to 13 percent of renovations, according to Houzz and Home: Overview of Renovation. Moreover, 67 percent of study respondents cited improving energy efficiency as an important reason for making a renovation. Clearly, renovation projects offer utilities an opportunity to promote energy-efficiency measures and programs to a receptive audience. Establishing relationships with housing professionals in the community could pay off for utility program managers in a big way.

Tools analyze home, infrastructure projects

Once you connect with customers who are interested in making energy-efficiency improvements, the next challenge is determining what upgrades will save them the most money and energy. The ResStock analysis tool from NREL provides detailed information on the technical and economic potential of residential energy-efficiency improvements and packages for 48 U.S. states.



By combining large data sources and statistical sampling with detailed building simulations, the program achieves unprecedented accuracy in modeling the diversity of the single-family housing stock. The ResStock software leverages DOE’s open-source building energy modeling platforms OpenStudio® and EnergyPlus™ so you won’t need a supercomputer to run the program. Contact NREL to find out more.

On a larger scale, NREL’s Energy Systems Integration Facility is working on a demonstration project that is developing a buildings and district energy modeling tool, URBANopt. The demonstration integrates URBANopt with grid modeling software, OpenDSS, to analyze the projected dynamic energy consumption of a planned 382-acre mixed-use development. The Denver, Colorado, site includes corporate office space, retail space, multifamily dwellings, a hotel and parking and street lighting. This project will result in several tools that others can use to replicate this project across the country, including an enhanced version of URBANopt and a developer’s handbook. ■

New solar learning videos target local code officials, other building professionals

The United States is on track to install 4 million residential solar photovoltaic (PV) arrays by 2020. Ensuring that these installations meet current codes and standards is the job of building and electrical inspectors. To help code officials, architects, builders and solar installers keep up with the latest solar codes and safety requirements, Interstate Renewable Energy Council (IREC) has added new informational videos to its suite of training resources.

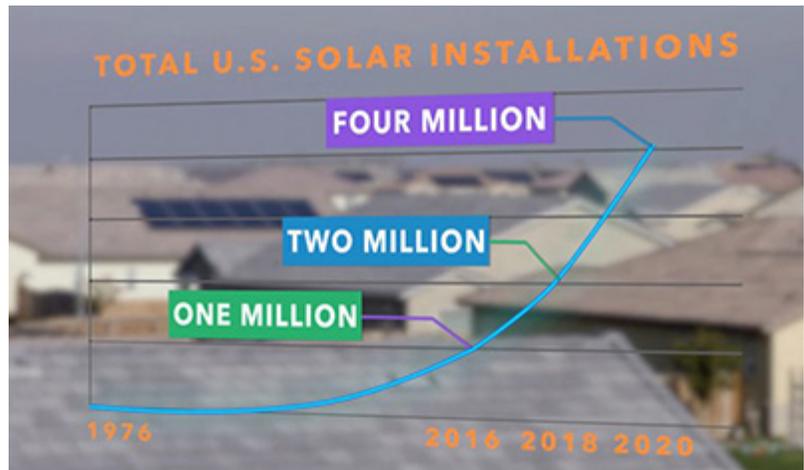
IREC partnered with the International Association of Electrical Inspectors (IAEI) and the International Code Council (ICC) to develop resources for code officials to learn the key aspects of solar technology related to their trade. The educational videos target a broad audience by highlighting the inspection process. Code officials who have experience inspecting solar installations will be reminded of important details of the process. Inspectors who are new to solar PV will be introduced to essential aspects of the inspection and referred to more detailed training.

"Officials involved in the planning, inspection and permitting of residential solar installations now have access to solar training and education in their office, at home and in the field," says IREC Director of Workforce Development Laure-Jeanne Davignon. "The wide variety of tools allows code officials new to solar and experienced

professionals to learn in the format they choose: in-person, online, printable documents or videos."

IAEI CEO David Clements called the videos a "must-see" and an excellent resource to educate code officials and inspectors working in the field on residential solar installations. "Training from the NEC® (National Electrical Code), along with other codes and standards, has become a critical combination to ensure a safe installation," he stated in a press release. "Knowledge and knowing how to apply it will ensure a code compliant installation."

ICC and IAEI regional chapters have begun hosting one-day trainings where code officials can learn the steps of accurate, consistent solar permit plan review. The trainings focus on the pre-inspection work of reviewing and approving the plan. To complement what they learn in the class, or as an introduction beforehand, participants can watch two new brief videos on



In just a few short years, the number of residential solar installs in the US has increased exponentially. (Artwork by Interstate Renewable Energy Council)

the details of residential solar inspection. *Residential Solar Inspection Best Practices Part 1: Rooftop*, and *Residential Solar Inspection Best Practices Part 2: Ground Level* both run a little over four minutes. Professionals can take a deeper dive into field inspection practices in a self-paced online training. All classes and resources are free to participants as part of the Department of Energy SunShot Solar Training and Education for Professionals (STEP) program.

More than 5,000 professionals have engaged in the PV Online Training since it became available in 2012. The new in-person plan review course is being very well received, too, with more than 2,500 participants to date. Evaluations from participants have applauded the hands-on approach to the material and the way it connects the different aspects of inspection to each other and to real-life scenarios.

For more information on these training opportunities, contact IREC at 518-621-7379. ■

Webinar explores rent control, other barriers to solar for apartment buildings

Nov. 8

11 a.m. MT

Residential solar installations on single family homes have soared over the last 10 years, yet most multifamily dwellers are still unable to access energy powered by the sun.

California implemented virtual net metering (VNM) tariffs that allow solar to be installed on multifamily building rooftops and allocate the benefits between tenants and common area accounts via electricity bill credits. Other states have similar enabling policies, either through their own versions of VNM or broader community or shared solar programs. In jurisdictions with rent control, however, limitations on how much a landlord may increase tenants' rents can present a barrier to multifamily solar uptake. (Rent control is a policy implemented by local governments that prevents rents from being charged above a certain level or predetermined percentage.)

The Interstate Renewable Energy Council is presenting a free webinar on Wednesday, Nov. 8, to discuss the benefits of solar on apartment buildings for tenants and property owners and the challenges presented by rent control policies.

Speakers will explore ways in which local jurisdictions could (and have) sought to overcome these challenges while still preserving the important role that rent control plays in keeping rents stable and affordable. IREC's webinar will do a deep dive into California's experience and provide insights for other jurisdictions with rent control.

The Virtual Net Metering Market Development Project, funded by the Department of Energy SunShot Initiative Solar Market Pathways, identified rent-controlled apartment buildings as one of several barriers to the success of California's VNM program. The project team—Center for Sustainable Energy, IREC and the California Solar Energy Industries Association—seeks to help advance solar deployment in the multifamily building sector and provide access



to tenants in California and across the U.S.

The three-year project is rooted in expanding the awareness, effectiveness and use of VNM. The main objective is to identify obstacles and opportunities associated with the currently underutilized VNM tariff to overcome the challenges of expanding solar PV adoption beyond traditional commercial and single-family rooftop systems.

Erica S. McConnell, special counsel with Shute Mihaly & Weinberger, LLP, is presenting the webinar. Co-presenter Edward Schexnayder is an associate attorney with Shute, Mihaly & Weinberger, LLP.

As IREC's representative on renewable energy regulatory matters, McConnell leads the council's shared renewable energy policy engagement. She was also a major contributor to IREC's *Model Rules for Shared Renewable Energy Programs and Shared Renewable Energy for Low-to-Moderate-Income Consumers: Policy Guidelines and Model Provisions*.

Schexnayder's practice includes multiple aspects of municipal law, as well as adjudicatory proceedings before the California Public Utilities Commission and California Energy Commission. He has advised municipal clients regarding rent stabilization ordinances and has successfully defended rent ordinances from legal challenges in court. ■

Check out presentations from 11th RMUEE

If you did not make it to Aspen this year to network with more than 150 utility professionals and trade allies, you can still find out what everyone was talking about (some of it, anyway). Download the presentations from the Rocky Mountain Utility Efficiency Exchange (RMUEE), Sept. 27-29, to get a taste of this year's hot topics.

Evergreen issues like customer engagement, quality assurance and program evaluation appeared alongside newer issues like electric vehicles, energy storage and smart buildings. If a theme ran through the event it was that utilities must look forward and plan for what is coming next. The industry must grapple with changing demographics, technologies that are altering the customer-utility dynamic and maturing strategies and policies that make energy and cost savings goals harder to reach.

If these issues ring a bell, browse the RMUEE presentations to learn more about how your colleagues are preparing for the future. Then you can save the date of Sept. 19-21, 2018, to join them in person at the 12th annual Rocky Mountain Utility Efficiency Exchange.

Sign up to receive notices of upcoming events, including the Call for Presenters for the 12th RMUEE in January 2018. ■



This year's RMUEE was one of the best-attended in the event's 11-year history. More than 150 utility program managers and trade allies from around the Rocky Mountain region came to Aspen to learn and brainstorm. (Photo by UtilityExchange.org)



Energy Auditor Eileen Wysocki of Holy Cross Energy shares her experience with her colleagues during a presentation. "Share, not stare," is the guiding philosophy of the RMUEE. (Photo by UtilityExchange.org)



And did we mention, Aspen, Colorado, in September? (Photo by UtilityExchange.org)

APPA webinar series offers strategies to modernize customer relations

Oct. 31 and Nov. 16
12-1:30 pm MT

As more and more businesses offer instant, effective and personalized communication, customers are naturally going to expect their power providers to do the same—and that is in addition to all the other challenges facing the utility industry.

Web-based customer engagement programs and activities offer public power utilities a way to build ongoing interactive connections with consumers. The American Public Power Association (APPA) is inviting utilities to learn about these opportunities with *Customer Engagement: New Tools and Strategies for Modernizing Customer Relations*, a two-part webinar series beginning Oct. 31.

The material is designed to showcase the potential of online solutions for a broad range of utility professionals, from senior executives to renewable and energy service program managers to customer service representatives. Public communications professionals and information and operations technology personnel will also benefit from the webinars.

Oct. 31 – *Boosting Community Solar Program Success Through Customer Engagement* explores the often misunderstood and undervalued process of strategic, long-term customer engagement and management.

The success of a utility community solar project depends on keeping subscribers happy and committed to the program. Utilities with active community solar programs or those considering implementing one will not want to miss this webinar. Presentations will examine some engagement strategies and tools needed to improve the customer experience while saving valuable internal team resources and bandwidth. Attendees will gain a greater understanding of how to best prepare their teams to transition smoothly to the evolving world at the grid edge.

Nov. 16 – *Using Online Customer Engagement Strategies to Improve Satisfaction and Program Participation* looks at best practices and lessons learned from implementing digital communications strategies such as personal energy forecasting and customer service representative applications.

Public power officials will use case studies to present proven strategies for using a variety of digital platforms to build customer relationships and drive up energy program participation. Speakers will also address how to create a web presence and digital strategy that will appeal to customers under 35.

The registration for each webinar is \$99 for APPA members and \$199 for non-members. A discount is available for registering for both webinars, however you can register for the individual events. APPA will be recording the webinars and making them available for playback later in case enrollees miss the live event. ■

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