



SOLAR SUCCESS FOR NONPROFIT UTILITIES
GRAND VALLEY POWER'S LOW-INCOME
COMMUNITY SOLAR PROGRAM



Produced as a [publication resource](#) under the Solar Outreach Partnership (SolarOPs), this case study is part of a series aimed at documenting how nonprofit utilities—both municipal and cooperative power providers—have overcome the financial challenges to solar deployment. These case studies will spotlight success stories of small utilities effectively and creatively leveraging local opportunities for solar financing and stakeholder engagement.

Grand Valley Power's Low-Income Community Solar Program

STATS

YEAR ESTABLISHED: 1936
HEADQUARTER: GRAND JUNCTION, COLORADO
CUSTOMERS: 17,000
MILES OF LINE: 1,600

Grand Valley Power (GVP), tucked in the high desert of Colorado, west of the Rocky Mountains, is an electric cooperative with around 17,000 customers in the rural areas outside of Grand Junction. Colorado is known for its progressive state solar policy support, starting with a voter-approved renewable energy standard (RES), passed by referendum in 2004. Colorado also jump-started the community solar market with a statewide community solar policy in 2010. Known locally as “solar gardens,” the initiative opened access for non-utilities to develop new community solar projects directly with consumers in investor-owned utility service territories (See [DSIREUSA.org](#)). It’s against this solar backdrop that Grand Valley Power voluntarily began its first community solar program in 2011, and now plans to broaden its scope with a new low-income community solar program in 2015.

GRAND VALLEY POWER PLANS A NEW LOW-INCOME COMMUNITY SOLAR PROGRAM IN 2015 (SHOWN ON PAGE 1).

For utilities, solar and low-income energy assistance programs are an uncommon pair. Typically, bill assistance and energy efficiency programs have been the higher-priority and cost-effective options respectively. However, Grand Valley Power (GVP), an electric cooperative in western Colorado, is set to



launch an innovative low-income community solar program in the summer of 2015, the first of its kind in the country. Rather than putting solar photovoltaic systems (PV) directly on low-income homes, the program will utilize the community solar model to provide eligible participants with lower electricity bills for four-year participation blocks. After four years, the program capacity will roll over to help another household. This unique model provides a short-term “hand-up” to those in need, while also allowing the flexibility to distribute the program benefits to more people at lower program costs over the twenty-year program. For GVP, which has operated a small community solar program since 2011 (not focused on the low-income segment), their program history offers a rich

solar story for other utilities looking to start community solar programs—try, try, and try again. Their perseverance and a fresh approach to the low-income consumer segment looks promising for this underserved part of the solar market.

GRAND VALLEY POWER SERVICE OVERVIEW	
WHOLESALE PROVIDER	Xcel Energy
RATES	Around 14 cents/kWh (all but 3.1 cents/kWh is pass-through wholesale provider)
SALES	Around 234,000 MWh/yr
AVERAGE RESIDENTIAL USAGE	Around 10,000 kWh/yr
APPROXIMATE PV CAPACITY FACTOR (AC) IN AREA	Up to 22%
# SOLAR SYSTEMS	148 (2014)
SOLAR CAPACITY	722 kW-ac (870 kW-dc)

**GVP'S COMMUNITY
SOLAR INSTALLATION
GROUNDBREAKING**

“For construction, we utilize a ‘barn-raising model’ with a combination of Grid Alternatives licensed construction staff, and an assorted recruitment of job trainees, community college students, corporate partner staff, and even low-income participants to build the PV systems,” said Kristen Sickles, Development Director with Grid Alternatives.





New Low-Income Community Solar Program

Grand Valley Power is now embarking on a new, innovative low-income community solar program, one that appears to be the first of its kind in the country. Classically, low-income energy assistance programs operate through bill payment assistance and energy efficiency options. With limited funds and urgent needs, non-solar options are more cost-effective.

Still, GVP is partnering with Grid Alternatives Colorado (GRID) to build a 24 kilowatt (kW-ac) photovoltaic (PV) system dedicated specifically to low-income customers in GVP's service territory. GRID is a non-profit that focuses on developing PV projects for low-income households in nine states and Indian tribes in three states, as well as an international program in Nicaragua. To date, the most common build model involves utilizing equipment donations from solar manufacturers, financial contributions from a variety of sources, and labor from job training programs and volunteers to build solar on individual low-income homes at a fraction of the typical cost. GVP and GRID are combining this low-income build model with the community solar program model to create an innovative new way to provide low-income energy assistance.

Starting with a ground-breaking in March 2015, GRID will operate and manage the PV system on GVP property, where an existing community solar program system is already built (more information on the original program is below). Corporate project development partners include SunEdison (solar panels), Enphase (inverters), and Iron Ridge Racking. In turn, GVP will provide the land and electrical infrastructure on the utility-side of the meter, and manage the program for participants.

"For construction, we utilize a 'barn-raising model' with a combination of Grid Alternatives licensed construction staff, and an assorted recruitment of job trainees, community college students, corporate partner staff, and even low-income participants to build the PV systems," said Kristen Sickles, Development Director with Grid Alternatives. "Low-income

participants in our rooftop projects typically need to put in 15 hours of sweat-equity through a variety of flexible options—on the PV installation site, doing a home energy efficiency assessment walk-through, or even helping with energy efficiency improvements in their home."

On the program side, eligible participants are vetted by Housing Resources of Western Colorado, a Colorado

non-profit that already provides energy efficiency services to low-income households, such as energy audits, insulation, windows, lighting, and updated furnaces. Participants must be at 80% or less of the area median income to qualify, or \$48,550 for a family of four in Mesa County in 2015. (Community solar participants may still be eligible for the energy efficiency services as well if they also separately qualify.)

Once qualified and approved, participating community solar customers receive net metering bill credit, similar to a typical community solar program, for four years. Although there is no upfront cost to participants, there is a 2 cent/kWh participant fee to "pay it forward," which is split between GVP and GRID to defray management costs. Systems are sized to around 90% of annual electricity consumption and the participation is portable within GVP's territory for the same household (but is not transferable to anyone else).

After four years, the block of panels is assigned to another qualifying household for four more years, which continues through the twenty year program life. Initial participation will be seven families, with each family being assigned about 16 solar panels each, or 3.5 kW-ac. This will save each household about \$600 in electricity costs each year for the four years. Over the

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**GRAND VALLEY
POWER'S SOLAR
INSTALLATION
RIBBON-CUTTING
CEREMONY**

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twenty year agreement between GVP and GRID, around 35 households will be supported by the program.

The community solar program provides an interesting contrast to installing the same amount of solar directly on seven low-income homes. It can be installed at lower cost (one ground installation versus seven roof installations) and it serves more participants (thirty-five versus seven) with the added benefit of participation portability if a household moves locally. In contrast, PV built on a single-family home stays with the home,

whether the original participants move or find better economic circumstances.

The program is designed as “a hand-up, not a hand-out” according to Derek Elders, Member Services Manager at Grand Valley Power. “However, we do anticipate being oversubscribed with a waiting list. We will start this pilot program and evaluate any next steps after it is up and running.” For GRID, the partnership is the first project in a three-year strategic plan to develop 1 megawatt of low-income community solar in Colorado through utility partnerships.

Program Origins

For Grand Valley Power, the low-income program actually has its origins in their existing community solar program, started in 2011. This original experience in designing, managing, and adapting the original community solar program, has provided a foundation for the low-income concept.

One of the drivers of the original program was to make solar participation more broadly available to members—those with the wrong rooftop orientation, shading from nearby trees or buildings, lower credit quality, and to create a smaller price point to participate in solar than a typical large PV system. The low-income program is a natural extension targeted at an underserved consumer segment, at least by historical solar program standards.

“For the original program, we wanted to partner with our local solar installation community to design it to fill a new solar market niche,” said Derek Elder, Member Services Manager at Grand Valley Power. “We met with local installers in the program design and utilized a local solar company, who won the bid to construct the first solar installation.”

This first utility-owned solar installation was sized at around 17 kW-ac (21 kW-dc; 88 panels at 235 watts-dc each), and installed on GVP property at a substation in Grand Junction. The total cost was around \$77,500 (\$3.75/watt), paid for in full by GVP, without

federal or state incentives. At the time, installed costs ranged from \$5-7/watt nationally, making GVP’s program competitively priced, even without the federal tax credit for participants. If future phases are constructed, they would be built with the funds collected from the initial participants.

GVP designed their original community solar program as a capacity-based leasing program. Participants paid \$900 to lease a full solar panel (no partial panels) and would receive

1:1 kilowatt-hour credit on their electric bills for 25 years until 2036. Each panel produces about \$50/yr in electricity credit for the customer (around 450 kWh/yr/panel offset), though it may vary year-to-year. The system also reduces the utility’s wholesale purchases from Xcel Energy. Participation is portable within GVP’s service territory if a customer moves and is transferrable to any other customer, such as a relative or non-profit organization, if they leave the area.

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THE LOW-INCOME PROGRAM IS A NATURAL EXTENSION TARGETED AT AN UNDERSERVED CONSUMER SEGMENT, AT LEAST BY HISTORICAL SOLAR PROGRAM STANDARDS.

GVP'S COMMUNITY SOLAR PV INSTALLATION PHASE 1

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ORIGINAL COMMUNITY SOLAR PV SYSTEM	LOW-INCOME COMMUNITY SOLAR PV SYSTEM
17 kW-ac	24 kW-ac
88 panels at 235 watts-dc each	112 panels at 260 watts-dc each
Two 10 kW-ac string inverters	112 micro inverters
Online August 2011	Online June 2015
Utility owned and managed	Grid Alternatives Colorado owned and managed





The first year of the program had great momentum. The utility marketed through radio advertisements, on their website, in the monthly newsletter, and in the headquarters' lobby, with special

seasonal attention around tax refund season, when members might have additional funds to invest. The program was quickly 20% subscribed and then it began to taper off.

Program Modifications

GVP met internally in 2012 to discuss how to increase participation with a revised goal of 40% participation by August 2014 (the third year of the program). The first modification was to lower the upfront cost by \$50/year, while also lowering the lease term by one year—the lease contract would still end in 2036 for all participants. The current offer is \$800/panel for a 22 year lease, or \$3.40/watt, with a future price floor of \$700/panel in 2016 (\$2.98/watt).

Later that same program year, the utility also began a zero interest, 5-year, on-bill financing program with no qualification requirements for any utility member, that cost \$15/month. The financing option proved to be the more enticing change for customers, as participation increased more than with the price reduction.

Participation has now increased to about half of the 88 panels across 17 participants. Time will tell if each annual price reduction entices additional participation. The current prices of a panel (\$3.40/watt) are above local solar market prices for a residential rooftop system when the federal tax credit or a solar leasing contract are considered. However, the utility is still able to provide unique market value to customers with the program—the ability to lease 1 panel, the no-cost financing and program portability for example.

ORIGINAL COMMUNITY SOLAR PROGRAM	LOW-INCOME COMMUNITY SOLAR PROGRAM
Utility managed	Utility managed with non-profit partners
	Twenty year partnership between Grand Valley Power and Grid Alternatives Colorado
Participants lease whole panels at \$800/panel (\$3.40/watt)	No upfront costs
Financing option of \$0 down 5-yr financing for \$15/month—no credit check; all members qualify	
Price decreases \$50/panel each August with a floor of \$700 (same financing terms)	
Monthly bill credit of about \$50 annually/panel	Monthly bill credit of around \$50/month minus around \$9/month program cost (2 cents/kWh)
Program ends in 2036 regardless of subscription year	Program starts summer 2015
Utility owns RECs	Utility owns RECs
Participation: <ul style="list-style-type: none"> • 100% residential • 17 participants • 41 of 88 panels leased (47% subscribed) • Average subscriber: 567 watts or 2.4 panels. 	Participation: <ul style="list-style-type: none"> • Estimating seven participants every four years for 20 years • Average participant will utilize 16 panels or 3.5 kW-ac • Participants each have 4 year term • Income eligibility is 80% of area median income, qualified through local non-profit

GRID SOLAR INSTALLATION

GRID owns, installs and manages solar PV systems for GVP's low-income community solar program

Participation has now increased to about half of the 88 panels across 17 participants.



Fronius IG Plus



Advice for Other Utilities

“For our original program, we haven’t discovered the perfect formula for participation, but the modifications certainly helped,” cited Derek Elder at GVP. “The annual price reduction refreshes the program each year, providing a marketing boost.”

“Flexibility and reactivity are most important,” says Derek. “Each member is unique and seeks options that best fit their situation. We have also considered an additional short-term lease (6 months or less) option for those who don’t have all the cash but would like to do a layaway style financing program, but we are still assessing. This original program is a test-bed to see how the market reacts to this and future services we might offer to customers.”

“We are excited about the new low-income program. It expands our mission to serve more of our customers and the experience we gained in the original program was critical to developing comfort with this new, innovative adaptation.”

Based on national community solar market experience, SEPA also has these takeaways:

- The solar market is very dynamic and prices can change quickly. The utility that owns or is contractually obligated for the solar supply, manages the risk if program and market prices diverge.

- Customers place a high value on solar physically located at their home—homeowners of similar demographics with unsuitable homes didn’t participate broadly in GVPs program, even when the price was competitive with the local market.
- The ‘first-movers’ are the easiest to sign-up, but the ‘fence-sitters’ are the harder segment to attract. Utilities should work to understand the size of the full community solar market interest to align supply and demand closely through consumer surveys and/or pre-construction downpayments to mitigate risk.
- No-cost, on-bill financing appears to be an important program adaptation that helps make the program more cost-competitive with the local solar market.
- The new low-income program is an exciting innovation for a solar-underserved consumer market—the community solar model offers flexibility and portability in a way an rooftop onsite build cannot.

“WE ARE EXCITED ABOUT THE NEW LOW-INCOME PROGRAM. IT EXPANDS OUR MISSION TO SERVE MORE OF OUR CUSTOMERS...”

About the SolarOPS Program

The Solar OPS program can offer technical assistance to small cooperatives and municipal utilities interested in exploring options for developing their own solar programs. For information, contact Daisy Chung, research analyst at the Solar Electric Power Association, at dchung@solarelectricpower.org.



This case study was funded by The Solar Outreach Partnership, The U.S. Department of Energy and the Solar Electric Power Association (SEPA).

This material is based upon work supported by the U.S. Department of Energy under Award Number DE-EE0003525. This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

RESOURCES

Grand Valley Power Community Solar Program webpage
Grand Valley Power Community Solar Program Customer Agreement (PDF)Grid
Alternatives Colorado webpage

SOURCES

SEPA April 2014 electronic survey
2/12/15 phone interview with Derek Elder, Grand Valley Power
3/6/15 phone interview with Kristina Sickles and Tom Figel, Grid Alternatives Colorado
Other sources, as cited

ABOUT THE AUTHOR

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