

Twelve Community-Solar Pricing Strategies From Utilities in the U.S.

A Summary Table

Community Solar Value Project

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Community
Solar Value
Project



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Summary

Twelve Community-Solar Pricing Strategies for U.S. Utilities is an illustrative round-up of strategies from utilities in Arizona, California, Colorado, Massachusetts, Iowa, Minnesota and Texas. In each case, the summaries are written from the utility perspective, even though in several cases, state policies have dictated a relatively narrow role for the utility. CSVP embarked on this effort in order to show the range of program and pricing options currently in the marketplace. While each of the utilities featured have incorporated some best-practice elements into their plans, we do not attempt to rank or evaluate them. Community solar program design must be suited to each utility, in consideration for state policy, utility energy-supply relationships, internal utility-team strengths and limitations and customer preferences. Yet a careful study of the strategies described here can suggest directions for utilities to travel—or to avoid.

The challenges in creating a document of this type are considerable. Programs are constantly changing, as are their points of contact. Further, the summaries assume certain background knowledge about community solar and utility pricing and tariff conventions. We refer readers to additional program-design information and resources on the program website, www.communitysolarvalueproject.com.

Key words: community solar, utility solar, solar rate, solar tariff, solar program design, case study

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About the Community Solar Value Project

The Community Solar Value Project (<http://www.communitysolarvalueproject.com>) is aimed at developing best practices for community-solar programs at electric utilities, including guidelines on how to achieve greater reach and net value in four areas: strategic solar project siting and design, project financing and procurement, target marketing, and integration with solar-plus companion measures, such as demand-response and storage.

The project is led by Extensible Energy, with support from Cliburn and Associates, LLC, Olivine, Inc., and Navigant Consulting. Utility participants include the Sacramento (California) Municipal Utility District (SMUD), and other utilities nationwide. The project is powered by SunShot, under the Solar Market Pathways program of the U.S. Department of Energy.

Principal Investigator: Jill Cliburn, jkcliburn@cliburnenergy.com

Project Officer: John Powers, john@extensibleenergy.com

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Disclaimers

This work contains findings that are general in nature. Readers are reminded to perform due diligence in applying these findings to their specific needs, as it is not possible for CSVP to anticipate specific situations or market changes, or to ensure the currency or applicability of the findings to new situations. Also, reports on case-study experience often rely on self-reporting from sources. This information is reasonably vetted, but responsibilities rest with the sources cited.

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Community Solar Program Pricing Models: 12 Utility Examples

Utility Program Name	Pricing Model	Rate or Billing Structure	Competitive Impact: Customer Monthly Bill	Comments/Lessons Learned	Project Contact and Website
AZ Salt River Project, EarthWise Community Solar Project (program closed to new subscribers)	<p>Block charge: \$/kWh based on the generation per 1-kW capacity blocks</p> <p>Customers could subscribe for 1-kW block for each 5,000 kWh of annual energy usage, up to 50% of their total annual usage.</p> <p>Subscribers' past 12 months of usage determines the number of blocks allowed.</p>	<p>Term: 5 years. The agreement could be transferred to new location within SRP territory.</p> <p>Subscribers could cancel anytime but could not re-enroll for 12 months after cancelling. They could add or drop kW blocks once every 12 months.</p> <p>Residential customers pay \$0.099/kWh and commercial and school customers pay \$0.089/kWh for solar electricity generated from their share.</p> <p>RECs: SRP owns the RECs.</p>	<p>Program has offered savings for customers on Basic and EZ3 price plans. Time-of-Use price plan customers paid a slight premium.</p> <p>The average SRP customer uses 15,000 kWh annually, so is eligible for a 3 1-kW blocks. Sample customer savings/loss per rate: Basic: \$5.03/yr. savings EZ3: \$30.10/yr. savings TOU: \$42.15/yr. premium</p>	<p>Since March 2015, the program has been closed to new enrollment.</p> <p>A new program is being deployed (see below).</p> <p>Reportedly, customer uptake was slow due to the minimal savings on the Basic rate and the premium that resulted for customers on the TOU rate. The determination was that a simpler program, albeit with a premium charge, would be more popular.</p>	<p>Melissa Burger Melissa.Burger@srpnet.com</p> <p>http://www.srpnet.com/environment/SolarforNonprofits/projects.aspx</p>
AZ SRP EarthWise Energy #2	<p>Rate: \$.01/kWh premium, similar to Green Tariff</p> <p>Customers choose to green 50% or 100% of their electricity use, with RECs that the utility procures from renewable energy wind, solar, biomass and/or geothermal.</p>	<p>Term: Begins with the next available billing cycle and may be canceled anytime.</p> <p>SRP EarthWise Energy works with all residential rate plans except M-Power and most business plans.</p> <p>RECs: Retired for subscribers, who receive an annual statement for RECs acquired on their behalf.</p>	<p>Competitive Offer: If a subscriber uses 1,000 kWh in a given month, they would pay an additional \$10.00 to green up 100% of their energy use; \$5.00 based on 50% of their usage that month.</p> <p>If SRP acquires RECs for less than \$0.01/kWh, all remaining revenue will help fund SRP's renewable energy and energy-efficiency programs. This benefits all customers by helping to advance these sustainable options.</p>	<p>Sustainable resources now provide 14.5% of SRP customers' energy needs, ahead of schedule to meet the utility's target of 20% by 2020.</p> <p>The utility plan puts emphasis on a diversity of utility-scale renewable energy resources.</p>	<p>Melissa Burger Melissa.Burger@srpnet.com</p> <p>https://myaccount.srpnet.com/myaccount/earthwiseenergy</p>

<p>AZ</p> <p>Tucson Electric Power, Bright Tucson Community Solar Program</p>	<p>Block charge: \$3/Month for 150 kWh</p>	<p>Term: 20-years from opting into the program. Customers may cancel their participation at any time, but would lose potential benefits.</p> <p>Structure includes locking in the base energy charge for the share, and exempting fuel- and renewable energy surcharges.</p> <p>RECs: TEP owns RECs.</p>	<p>Program premium of \$0.02 per kWh allows customers to engage with solar with no-hassle and opportunities for long-term benefits.</p> <p>Solar fields located on the distribution grid. Revenue from the premium is put back into utility's RPS program.</p>	<p>The current retail rates is about \$0.12/kWh, so asking customers to pay an extra 15% or \$0.14kWh was considered a reasonable premium for this market. Participation remains strong, with about 30 MW dedicated; however the hybrid program (below) was proposed as an improved option.</p>	<p>Ted Burhans tburhans@tep.com</p> <p>https://www.tep.com/news/community-solar/</p>
<p>AZ</p> <p>Tucson Electric Power, Hybrid Residential Community Solar Program</p>	<p>Flat Rate: based on \$/Month for energy production of each 1-kW capacity block; multiple blocks may cover 100% of customer usage</p>	<p>Term: 10 years, for an agreement that will effectively green 100% of the bill.</p> <p>\$17.50/Month per kW block; applied to customer's total energy usage.</p> <p>Structure: Based on fixing the energy charge and exempting fuel- and renewable energy surcharges. Contract required; customers pay a penalty if they leave early.</p> <p>RECs: TEP owns RECs</p>	<p>A flat-bill, remains the same if use is 15% above or below contracted rate. Competitive based on budget-certainty, long-term set cost, no-hassle solar option.</p> <p>Community-scale systems would be located on distribution grid, and at a location easy to view.</p>	<p>Although the utility may not recover all costs, it aims for greater customer retention.</p> <p>Program is still be considered as part of general rate case. Final plan anticipated in late 2017.</p>	<p>Ted Burhans tburhans@tep.com</p> <p>https://www.tep.com/residential-solar/</p>
<p>CA</p> <p>Pacific Gas & Electric, Green Tariff Shared Renewables Program (GTSR)</p>	<p>Rate: \$/kWh applied to a % of the total bill (GT)</p> <p>The new Green Tariff (GT) for the Solar Choice program and Enhanced Community Renewables (ECR) Regional Renewable Choice program rate schedules are available in Public Utilities Commission Advice</p>	<p>Term: Customers can disenroll and change participation levels at any time. However, they cannot re-enroll or make other participation level changes for 12 months after disenrolling.</p> <p>PG&E's GT is called Solar Choice (available now): Subscribe 50% or 100% of usage from a pool of small</p>	<p>Competitive Profile: GT rate is based on portfolio of projects, and has a 2-3 cent per kWh premium at the current time. ECR rate is based on the customer's agreement with the developer.</p> <p>Advantage: Opportunity for those who cannot support solar through other means to green their energy use. No hassle approach.</p>	<p>As PG&E's overall generation costs increase and solar costs decline, it is possible that the premium will diminish.</p>	<p>Molly Hoyt M2HX@pge.com</p> <p>https://www.pge.com/en_US/residential/solar-and-vehicles/options/solar/solar-choice/which-program-is-best-for-you.page</p> <p>https://www.pge.com/en_US/for-our-business-</p>

	Letter 4639-E-A	<p>and mid-sized solar projects created for this program in PG&E's service territory.</p> <p>PG&E's ECR is called Regional Renewable Choice (opening late 2018): Requires a separate agreement with a solar developer to buy subscription rights for a selected portion of a local solar project's output.</p> <p>RECs: PG&E retires RECs on the customer's behalf.</p>	<p>Program is in response to California legislation, SB 43. Utility must recover all costs from customers participating in the GT program. Projects from which solar is generated may not be specifically known to customers; considered a green-power premium program by most observers.</p>		<p>partners/floating-pages/community-solar-choice/community-solar-choice.page</p>
<p>CA</p> <p>Sacramento Municipal Utility District, Residential Solar Shares Program</p>	<p>Block charge: \$/500-kWh block</p> <p>Actual rate is pending a utility-wide revision of the rate structure, to incorporate time-of-use (TOU). Rate based on pass-through cost of the community solar resource portfolio (PPAs).</p> <p>Total Price = Energy Cost Component + Delivery Service Cost Component</p>	<p>Term: Annual basis</p> <p>An existing SolarShare program is continuing, with generation from a 1-MW PV project; it is closed to new subscribers.</p> <p>RECs: SMUD retires them on customer's behalf.</p>	<p>If the SolarShare allocation exceeds the customer's usage for a specific TOU period, the excess will appear on the bill as a credit based on the calculation of the energy-only portion of the customer's standard rate during that period. If this credit exceeds the customer's energy charges for the month the credit occurs, the remaining unused portion will be carried over to the succeeding month's energy charges until the credit is fully utilized.</p> <p>If the SolarShares allocation over a 12-month period exceeds the customer's usage, SMUD will buy the unused portion back at the price the customer paid for the energy-only portion of the SolarShares and will adjust customer's allowed share for the next 12-month period.</p>	<p>To be determined once the \$/kWh rate is set.</p> <p>Utility calculates the capacity of solar needed based on seasonal generation patterns of PV systems in the service territory</p> <p>The Delivery Service Cost Component is based on delivery costs normally included in the customer's standard rates. These include: Generation Capacity, Ancillary Services, Delivery Services (T&D), Public Goods, Fixed Distribution Facilities Recovered in Energy, Power Factor Adjustments, and Program Administration.</p> <p>The Energy Cost Component is equal to the average cost of energy from all SolarShares installations. The Energy Cost Component could decrease over</p>	<p>Patrick McCoy Patrick.McCoy@smud.org</p> <p>https://www.smud.org/en/residential/environment/solarshares.htm</p> <p>See also case study on http://www.communitysolarvalueproject.com</p>

				time as more solar projects are added to the program. TBD: Whether early adopters will receive this adjustment.	
<p>CO</p> <p>Xcel Energy</p> <p>Solar Rewards Community (third-party implementation)</p> <p>also Renewable Connect (in-state solar green tariff run directly by Xcel)</p>	<p>Solar Rewards Rate: Depends on the third-party offer. Some projects require capacity purchases (\$/kW or \$/panel upfront), while other projects are energy-based (\$/kWh).</p> <p><i>Renewable Connect Rate: Xcel solar green power tariff, to be finalized for 2018 program.</i></p> <p><i>In addition, the utility offers Windsorce, a wind-based green power tariff, for a \$0.015/kWh premium.</i></p>	<p>Solar Rewards Term: 25 years.</p> <p>Ability to exit/transfer the program depends on the third-party provider. Each “Garden Operator” can make changes in its offer, and file that information.</p> <p>Retail net metering is in effect for solar energy generation for Solar Rewards.</p> <p>RECs: Xcel purchases RECs from the third-party developer/project owner.</p>	<p>Competitive offer: Community solar was introduced in Colorado through legislation, and the offer in each state relies upon NEM benefits (credits) paid back to subscribers for the solar kWh produced.</p> <p>Under a 2017 settlement agreement, projects 100 kW to 2 MW are accepted into the program on competitive bid; Xcel will buy up to 105 MW 2017-19, plus 4 MW/yr from projects on this scale serving low-income customers. For projects under 100 kW, the standard offer (by which Xcel buys the generation) is \$20/MWH.</p> <p>Projects <100 kW serving low-income customers get a \$10/MWH adder (\$30/MWH total) standard offer; 500 kW total/yr.</p> <p>The utility participates in billing for third-party providers.</p> <p>Customer economics for SolarRewards are not known to the utility, as they vary by third-party provider and by project.</p>	<p>In CO, projects must have at least 10 subscribers and no subscriber can own more than 40% of the project. Each customer's share cannot produce more than 120% of a customer's historical usage (true-up will be provided).</p> <p><i>Renewable Connect is anticipated to offer a subscription for solar power from large, in-state solar projects, using a simple tariff. The utility plans to offer a program that would not directly compete with the Solar Rewards third-party offer. Total capacity is anticipated at 225 MW through 2019.</i></p>	<p>Jonathan Bach jonathan.r.bach@xcelenergy.com https://www.xcelenergy.com/company/media_room/news_releases/parties_reach_settlement_on_key_colorado_energy_issues</p> <p>Colorado Bill Credits are available on the Xcel Energy website: https://www.xcelenergy.com</p>
<p>MA</p> <p>Community Solar for National Grid customers –CEC example</p>	<p>Non-Utility Model</p> <p>Rate: \$/kWh</p> <p>Subscription, for energy from provider-financed solar projects</p> <p>Shares based on % of</p>	<p>Term: Savings agreement for 20 years.</p> <p>For this program, CEC offers 15% savings on the energy that is provided by solar under a CEC</p>	<p>Competitive offer is based on the availability of net-metering and the SREC-market credits; also CEC has a \$0 –down sign-up offer.</p> <p>Different MA utility service areas have different arrangements with third-party</p>	<p>State-mandated utility participation in Community Solar; the program, including solar development, is run by third parties, such as CEC.</p> <p>Other MA utilities have different arrangements, e.g., Eversource pays</p>	<p>Dan Mcilroy Dan.Mcilroy@Easycleanenergy.com http://www.easycleanenergy.com/</p>

	<p>customer's energy needs; e.g., 100% of usage</p> <p>CEC is one of several third-party providers, each having a branded program offer.</p>	<p>subscriber agreement.</p> <p>RECs: CEC owns RECs and sells them on the market as Class A SRECs so receive 100% of the SREC value.</p>	<p>providers.</p> <p>For National Grid customers, the utility provides all solar bill credits to the customer. Customers pay CEC for their subscription, and net a 15% savings monthly.</p>	<p>the credits (10 to 15% savings) to CEC, and CEC sends subscribers a payment for their share of credits.</p> <p>This model depends on mandated NEM. It is only replicable in states with a similar regulatory framework and assurance for the term (e.g., 20 years) of the typical offer.</p>	<p>See also:</p> <p>http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar/community-shared-solar.html</p>
<p>IA</p> <p>Cedar Falls Utilities</p> <p>Simple Solar</p>	<p>Capacity purchase: Unit/share purchase, with \$/kWh credits paid for solar generation</p> <p>Solar project completed by third party, but other aspects of procurement, sales, administration and billing provided by Cedar Falls Utilities. Rough average retail rate for standard customer is \$0.08 per kWh.</p>	<p>Term: 20 years.</p> <p>Share cost: \$270 for 170W panel; utility provides on-bill financing.</p> <p>Monthly credits for the kWh generated per share is calculated based on the value of solar (avoided wholesale energy, generation capacity, and transmission capacity costs). Calculated on the total production of the system, not on individual panel production.</p> <p>EXAMPLE: Participant is billed for the amount of power they consume each month (\$0.08 - \$0.10 per kWh current average rate). Then participant receives a credit for each kWh produced by the Simple Solar share. Credit is currently \$0.057/kWh</p>	<p>Competitive offer: Currently bill credits range between \$1-\$3 per unit/share per month, based on the amount of solar power generated each month. Net savings are likely to be realized over time. Credit will be updated annually, based on wholesale power cost and calculated value.</p> <p>This rate is roughly competitive with the offer for customers that have rooftop solar, and there is an on-bill financing option for community solar.</p> <p>A popular, live dashboard shows community solar project production</p> <p>Customer response was relatively fast and strong. At 1.5 MW, the solar array is currently the largest community solar project in Iowa.</p>	<p>This program is 1.5 MW with about 1,250 participants. Open to all customer classes, including retail, wholesale, residential, and non-residential. Cedar Falls Utilities acts as an aggregator and agent for customers. Program is revenue neutral.</p> <p>This credit amount will change over time, because CFU annually changes the rate at which customers are paid.</p> <p>This program generates less than 1% of the utility's load but delivers power at peak load times.</p>	<p>Erin Buchanan erin.buchanan@cfunet.net</p> <p>https://www.cfu.net/save-energy/simple-solar/</p>

<p>MN</p> <p>Steele Waseca Electric Co-op, Sunna Project</p>	<p>Capacity purchase with companion-measure benefits: Cost: \$170/ 410W panel; utility pays credits for solar generation.</p> <p>SWCE's 16-Hour Water Heater Program provides willing members with a 105-gallon electric water heater at no additional cost. Water heater is used for load shifting by the utility.</p> <p>Additional panels are \$1,225</p>	<p>Term: 20 years.</p> <p>Subscription moves with customers within the SWCE territory; if customer moves out of territory, they can transfer it to another member or sell it back to SWCE.</p> <p>Maximum of 20 panels/household, capped so generation matches average annual energy usage.</p> <p>Monthly electric bill kWh credit for kWh produced by panels. If credit exceeds monthly kWh usage, the unused credit rolls over to the next month.</p> <p>RECs: Owned by utility.</p>	<p>Competitive benefits: With solar-plus participation, the cost of solar energy is \$0.12 or less for the 20-year term.</p> <p>The \$170 panel has an installed-solar cost equivalent to \$0.41/Watt; the full-priced panel has an installed cost of \$2.99/Watt. Annual water-heater control benefits are the same as those for the utility's system-wide water heater program; the technology assures little or no customer inconvenience, and it allows the utility to more fully utilize wind power resources.</p>	<p>No cross-subsidization; an attractive alternative to NEM-based solar programs.</p> <p>The solar-plus approach is widely supported by sustainability groups in MN</p> <p>Great River Energy, the G&T power supplier is also working on EV charging strategies for future solar-plus programs</p>	<p>Syd Briggs sbriggs@swce.coop</p> <p>http://swce.coop/swce-field-services/renewables/</p>
<p>TX</p> <p>Austin Energy Community Solar Program</p>	<p>Rate: \$.01/kWh premium; green tariff relies on local solar resources.</p> <p>Subscribers pay a Community Solar Adjustment (CSA) instead of a Power Supply Adjustment (PSA) on their bill.</p>	<p>Term: Fixed rate for 15 years.</p> <p>Subscribers may disenroll at any time but must wait 12-months to re-enroll.</p> <p>Austin Energy's PSA is replaced by The CSA, which is currently \$0.015 higher; thus the program currently has a \$0.015/kWh premium. Savings possible if the PSA increases, over 15-year term.</p> <p>The CSA is fixed year-round; customers who pay the PSA now pay \$0.02829/kWh in summer and \$0.02727/kWh in winter.</p>	<p>Competitive offer: Subscribers pay for the cost of the solar minus a credit for the positive attributes of local solar, which benefit all utility customers.</p> <p>Subscribers with an average electric usage of 660 kWh per month in the Winter and 1350 kWh per month in the Summer may expect a bill increase of about \$10-\$19 per month.</p> <p>Provides access to solar energy for customers unable to install solar panels on their own homes.</p> <p>Program was introduced with discounts for early-enrollment and low-income residents who lived near one of the solar plants.</p>	<p>Program is administered internally; administration costs are negligible. This program supports Austin's Climate Protection Plan, and the local solar goal of 200 MW by 2025. It is based on a pass-through of costs and is considered unsubsidized.</p> <p>The Kingsbury Community Solar Project (2-MW), one of the projects that supplies this program, is also the site of a utility-side energy storage (solar-plus) project.</p> <p>Currently fully subscribed, pending</p>	<p>Karen Poff karen.poff@austinenergy.com</p> <p>City of Austin Electric Tariff: https://austinenergy.com/wps/portal/ae/rates/approved-rates-schedules/approved-rates-schedules-for-city-of-austin</p> <p>http://www.austinenergy.com/wps/portal/ae/green-power/solar-solutions/</p>

				commissioning of a new solar plant.	
TX CPS San Antonio Roofless Solar Program	<p>Capacity purchase: Customers buy panels 107-W panels from third-party (CEC); utility pays credits \$/kWh for solar generated.</p> <p>Participants receive a utility bill credit for kWh generated by their panel/s</p> <p>Each array has its own escrow account, to assure that long-term costs are covered (under CEC agreement).</p>	<p>Term: 25 years</p> <p>Participants receive \$0.141 credit from CPS for 85% of production from their share. The credit for the other 15% of generation goes into the escrow account, which assures that O&M and long-term costs will be covered (managed by CEC).</p> <p>Additional costs incurred are covered by a slight increase in the Fuel Adjustment Charge for all CPS customers. Reportedly negligible, due to scale.</p>	<p>Competitive offer: Customers anticipated to break even after 10 years, with savings continuing for the term.</p> <p>Participants are exempt from the standard Fuel Adjustment Charge.</p> <p>CEC provided upfront financing for the overall project; with CPS entering into a backstop PPA.</p> <p>Also competitive with standard rooftop solar option, which gets net metering. Under that program, the utility would buy back the power at the retail rate, but that would be subject to change. Roofless (community solar) is fixed at \$.014 for 25 years.</p> <p>Currently sold out. Additional solar capacity is anticipated, but no determination has been made about the solar developer selection process.</p>	<p>Program expense (slight subsidy) is equivalent to CPS rooftop solar rebate model.</p> <p>The developer (CEC) co-brands with CPS Energy and manages marketing and administration.</p> <p>Utility is paying 3 or 4 cents more for the power they buy now but this should adjust over the next 25 years.</p> <p>CEC was selected to provide this pilot program, including a 1-MW local project.</p> <p>Supports CPS goal of reducing demand by 770 MW by 2020, through early retirement of coal facilities. This will drive customer satisfaction and avoid customer defection.</p>	<p>Rick Luna rmluna@cpsenergy.com</p> <p>Shannon Wagner SMWagner@cpsenergy.com</p> <p>https://www.cpsenergy.com/en/my-home/savenow/simple-solar.html</p>