

Community Solar: California's Shared Renewables at a Crossroads

Community Solar Value Project
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About the Community Solar Value Project

The Community Solar Value Project (<http://www.communitysolarvalueproject.com>) aims to increase the scale, reach, and value of utility-based community solar programs by using strategic solar technologies, siting, and design, and by integrating suitable companion measures, such as demand-response (DR) and storage into broad program designs. Such measures can address grid impacts of rising solar penetration and increase solar net value. Market development for this model also is being addressed. The project is led by Extensible Energy, LLC, with support from Cliburn and Associates, Olivine, Inc., and Navigant Consulting. Utility participants include the Sacramento (California) Municipal Utility District (SMUD), Public Service of New Mexico, and other utilities nationwide. The project is powered by SunShot, under the Solar Market Pathways program of the U.S. Department of Energy.

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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 all specific situations, to ensure applicability of the findings in all cases. Further, reports on case-study programs are likely to require updates, beyond the scope of this work.

Introduction

California, once considered a leader in community solar, has struggled to implement Senate Bill 43 (SB-43), the promising enabling legislation passed in 2013. This bill mandated the creation of the Green Tariff Shared Renewables (GTSR) Program. As envisioned by SB-43, the California investor-owned utilities (IOU) GTSR Program includes both a Green Tariff (GT) option component and an Enhanced Community Renewables (ECR) component. It provides an opportunity for the three California IOUs combined to procure up to the 600 MW total program cap of new renewable energy under the two program components.ⁱ

Despite a significant price premium, the GT portion of this bill has attracted some customer interest. However, under the ECR program as of August 2017, no new community solar projects have been built or approved. The ECR program is unsuccessful due to its complex and uncertain bill credits, lack of sufficient financial return for solar developers, and burdensome program administrative requirements. A dramatically different financial model than net energy metering (NEM), the GTSR compensation structure is based on wholesale rates net program fees/charges instead of retail rates. Thus, the program currently does not provide a comparable economic return to NEM.

As customers across California look for green electricity alternatives through the installation of NEM systems and enrollment in GT or community choice aggregator (CCA) programs, it is in the IOUs' best interest to work with the California Public Utilities Commission (CPUC), the California State Legislature, and stakeholders to design a competitive utility shared renewables program that continues to move the dial toward more affordable clean energy in California. With ongoing discussions about a NEM successor tariff in California, the economies of scale that shared renewables offer provide an opportunity to continue to incentivize the construction of clean energy at a lower rate than full NEM retail rates.

In this whitepaper the Community Solar Value Project (CSVP) authors seek to capture the key lessons learned from the development of the California shared renewables market and ongoing discussions around reworking the GTSR Program. The CSVP team encourages CPUC and the California State Legislature to revisit their interpretation of SB-43 to set the foundation for a successful shared renewables market in California.

Early Days in California

Almost a decade ago, the market expected California to emerge as a leader in community solar. While a handful of small municipal utilities and cooperatives in other states built community solar projects prior to 2007 (e.g., Ashland, Oregon Solar Pioneer Programⁱⁱ; Ellensburg, Washingtonⁱⁱⁱ), these earliest experiments were quite small (typically 100 kW or less) and developed as one-time projects. That situation changed in 2008, when the Sacramento Municipal Utility District (SMUD) rolled out a 1 MW program called Solar Shares; within months, customers fully subscribed the program.

The success of Solar Shares at SMUD led other California communities to begin investigating programs of their own, but it soon became obvious that programs in the service territories of California's IOUs would require enabling legislation. It took nearly 4 years to organize a legislative initiative that would include community solar.

Benefits of Community Solar

- Provides a solar option for renters, customers with shaded roofs, or constrained property sites that cannot meet energy needs with onsite renewables. Also provides a solar option to customers who choose not to install a system on their roof for financial or other reasons.
- Offers economies of scale relative to rooftop solar.
- Enables utilities to retain customers by providing them with a 100% solar alternative to net energy metering (GT program).
- Enables utilities to locate solar on the grid where it provides the more value.
- Provides a new solar market with new business needs, business models, economics, and target customers.

California Legislation: SB-43

In 2012, with the backing of mayors from cities in IOU service territories, Senator Lois Wolk (Democrat, 3rd Senate District) introduced a bill in the California legislature that would encourage the development of community solar projects. The bill received widespread backing from community development and environmental advocates, but died in committee.

In 2013, with a broader coalition including unions and additional city governments, Senator Wolk introduced a new bill: SB-43. The intention of the bill was clear, as stated in Section (g):

It is the intent of the Legislature that a green tariff shared renewables program be implemented in such a manner that facilitates a large, sustainable market for offsite electrical generation from facilities that are eligible renewable energy resources, while fairly compensating electrical corporations for the services they provide, without affecting nonparticipating ratepayers.

In addition, the bill explicitly provides instructions to serve “low-income and minority communities and customers,” which have been largely unaddressed to this point.^{iv}

On September 11, 2013, after months of contention in committees, various amendments, and considerable debate, the bill passed exclusively with Democratic support on a straight party-line vote.^v

High Hopes

The passage of SB-43 prompted forecasts of rapid growth in the community solar market in the United States, led by California’s 600 MW commitment.^{vi} This optimism was based in part on the apparent simplicity of the bill (under 3,000 words in total) and the fact that the bill included a straightforward set of instructions with a timeline for California’s IOUs and CPUC:

(a) On or before March 1, 2014, a participating utility shall file with the commission an application requesting approval of a green tariff shared renewables (GTSR) program to implement a program that the utility determines is consistent with the legislative findings and statements of intent of Section 2831 ...

(b) On or before July 1, 2014, the commission shall issue a decision on the participating utility’s application for a green tariff shared renewables (GTSR) program, determining whether to approve or disapprove it, with or without modifications.

SB-43 set California on course to have CPUC rulings by July 1, 2014 on both shared renewables programs, followed by rollout of the program to customers.

CPUC Rulemaking

While other states (e.g., Colorado, Massachusetts, Minnesota, etc.) pressed forward in turning enabling legislation into workable community solar programs, California’s IOU process was burdened by regulatory delays. The GT and ECR programs are described as follows:

- **Green Tariff (GT):** Customers purchase energy from a portfolio of sources with a greater share of renewables compared to the local IOU standard mix. The IOUs procure this new renewable energy using CPUC-approved tools like those required by the California Renewables Portfolio Standard Program. The customer pays the difference between their current generation charge and a charge that reflects the cost of procuring 50%-100% solar generation for their electric needs. For example, for Pacific Gas and Electric (PG&E), the GT premium for 2017 ranges from 1.49 to 3.34 cents per kWh, depending on customer rate class.^{vii}

- **Enhanced Community Renewables (ECR):** A customer agrees to purchase a share of a local solar project directly from a solar developer in exchange for a credit from their utility for the customer’s avoided generation procurement and their share of the benefit of the solar development. ECR projects are limited in size to between 500 kW and 20 MW. No price premium specifics are available for the ECR program, as projects have not been completed.

Table 1 outlines the program capacity allocation for both program components across the IOUs and the program-specific reservation carveouts.

Table 1: Allocation of Capacity (MW) Green Tariff Shared Renewables^{viii}

Utility	Percentage of Total IOU Bundled Sales	Total (MW)	Environmental Justice*	Davis (MW)**	Unreserved (MW)
PG&E	45.25%	272	45	20	207
San Diego Gas & Electric (SDG&E)	9.87%	59	10	N/A	49
Southern California Edison (SCE)	44.88%	269	45	N/A	224
Total GTSR	100%	600	100	20	480

***Environmental Justice Reservation:** SB-43 requires that 100 MW of the GTSR Program be reserved for facilities that are no larger than 1 MW and are located in “the most impacted and disadvantaged communities,” as identified by the California Environmental Protection Agency (CalEPA).

****City of Davis Reservation:** Section 2833(d)(3) reserves 20 MW “for the City of Davis.” Decision 15-01-051 discusses the significance of this reservation.

Source: California Public Utilities Commission

SB-43’s mandates for community solar attributes required significant interpretation. The bill specifies programs must preserve “nonparticipating ratepayer indifference,” a sound principle of utility ratemaking. Simultaneously, the legislature also declares without quantifying the financial value that, “Building operational generating facilities that utilize sources of renewable energy within California, to supply the state’s demand for electricity, provides significant financial, health, environmental, and workforce benefits to the State of California.”^{ix} However, CPUC does not take these externalities or social benefits into consideration, as no standard set of accounting for these externalities exists. Other bills that have moved through the legislature have had the same issues and are also not quantifying these qualitative benefits. Thus, CPUC proceedings quickly became focused on “nonparticipating ratepayer indifference” without identifying, quantifying, or valuing the specific externalities or social benefits of shared renewables.

As illustrated in Figure 1, rather than adhering to the deadlines required by SB-43, the filings, hearings, and rulings stretched on for years. In January 2015, CPUC issued Ruling D.15-01-051, describing an implementation of SB-43 in three phases:

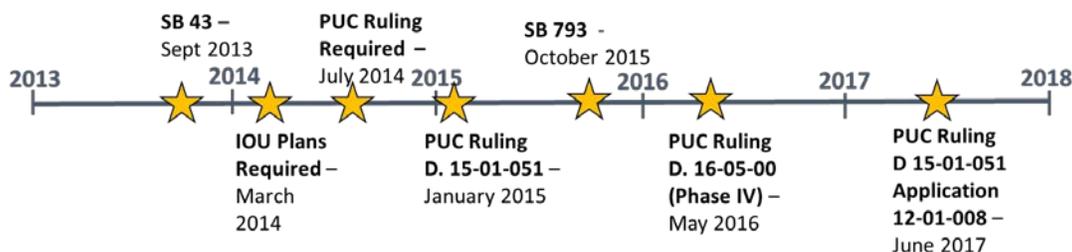
- Phase I: SDG&E and PG&E Green Tariffs
- Phase II: SCE Green Tariff
- Phase III: Enhanced Community Renewables

This ruling, which minimized the value of shared renewables, incorporated multi-part complex tariffs that resulted in a premium of more than 3 cents per kWh for residential customers on the GT portion of the utility programs; an exact premium on ECR cannot be calculated until project bids are accepted—which has still not occurred as of August 2017. In October 2015, the passage of SB-793 further clarified the bill credits and charges issue:

This bill would require the commission to additionally require that a participating utility’s green tariff shared renewables program permit a participating customer to subscribe to the program and be provided with a nonbinding estimate of reasonably anticipated bill credits and bill charges, as determined by the commission, for a period of up to 20 years.^x

With additional changes and clarifications clearly required, the parties began a series of Phase IV hearings to iron out final details. CPUC issued Ruling D.16-05-006 in May 2016—some 32 months after passage of SB-43—with numerous clarifications but no change in the basic structure of the complex tariffs or program requirements. The decision did increase the ECR project size from 3 MW to 20 MW. This substantive change may be the only real win from the decision in an effort to make the program more economically viable.^{xi}

Figure 1: Shared Renewables Implementation Timeline



Source: Navigant Consulting, Inc.

Yet, the resulting programs reflected a conservative interpretation of “nonparticipating ratepayer indifference,” with a renewables value credit lower than in many other jurisdictions. From the utilities’ perspective, this interpretation is understandable, particularly considering the ongoing NEM payments to rooftop solar customers, upcoming NEM policy changes, and the need to maintain consistency with prices paid by CCAs. From the perspective of communities and developers, this interpretation left little incentive to create a “large, sustainable market” for shared renewable projects. Shared renewables can play a huge role in California as NEM policy changes. However, with the current rate structure and GTSR Program designs, it is highly unlikely that this will be the case.

Developer Experience with ECR Program

The first request for offer (RFO) for the ECR program launched in August 2016, with awards planned for March 2017. However, no power purchase agreements (PPAs) were awarded in the first RFO under the ECR community solar program. Of the 15 bids submitted, all bids failed to meet the program eligibility criteria, with 11 bids being eliminated due to failure to submit a Phase 2 interconnection study and documentation demonstrating project site control. The other main barriers identified are discussed in the following section. The second RFO is currently underway, with the market anticipating similar results in the fall of 2017.

Table 2: ECR RFO Round 1 Results^{xii}

Utility	Number of Bids Received	Number of Bids Shortlisted	Number of PPAs Awarded
PG&E	8	3	0
SDG&E	2	1	0
SCE	5	0	0
Total	15	4	0

Source: “California Community Solar Forum Points to Needs for Reform, Renewable + Law,” with numbers revised based on conversations with the IOUs.

ECR Program Design Components: Barriers to Participation

Based on conversations with leading solar developers in the market,^{xiii} the following barriers have emerged as the largest roadblocks to the early success of the ECR program:

- **Low and uncertain bill credit:** Unlike many successful community solar programs, the California rules only credit customers for the wholesale generation value of the power, which is about one-third of the customer's electric bill, and utilities add in layers of program fees. When compared to community solar bill credits in other states and NEM rates in California, the current bill credit cannot compete. All developers described this as the largest barrier to program success. Further, the power charge indifference adjustment (PCIA) and wholesale generation credit value will vary depending on when customers sign long-term contracts throughout the life of the project, adding additional uncertainty and risk for the developer.^{xiv}
- **Demonstration of community interest:** The developer must provide documentation within 60 days of being notified of a contract award that: (1) customers have either submitted "expressions of interest" sufficient to cover 51% of the project's capacity or "committed to enroll" in 30% of the project's capacity; and (2) a minimum number of customers have subscribed to the project depending on the project size (e.g., minimum of 3 subscribers for 3 MW projects and 20 subscribers for a 20 MW project). Additionally, at least 50% and one-sixth of project load should come from residential customers.^{xv} From the CSV team's conversations with developers, this requirement requires them to develop the project out of order and frontload huge customer acquisition costs prior to being notified of contract award. It can take months for a developer to obtain enough customer commitments and expressions of interest to meet the thresholds required.
- **AmLaw 100^{xvi} securities opinion:** The developer must include a securities opinion from an AmLaw 100 law firm stating that the arrangement complies with securities law and that the IOU and its ratepayers are not at risk for securities claims associated with the project. Developers have expressed concern over the costs associated with this requirement. An AmLaw100 firm interviewed indicated that determining whether a project complies with securities laws can and should be handled by working with a law firm, but providing an official opinion to the utility is a costly and time-consuming requirement that should not be necessary. After much debate regarding the necessity of the AmLaw 100 securities opinion, CPUC recently revised the requirement in June 2017; while a securities opinion is still required, it can now be from a qualified California lawyer.^{xvii} Although a victory for the program, some developers view this as a subtle change indicating the difficulty of modifying other requirements currently viewed as more significant barriers.

Potential market participants identified these same barriers shortly after the release of D. 15-01-051 in January 2015.^{xviii} While some improvements have been made around the edges of these programs (e.g., through the Phase IV process^{xix}), the securities opinion and requiring the demonstration of community interest after issuance of a PPA instead of before a project could enter the queue are the only major barriers that have been modified after more than 2 years of negotiations and hearings. From recent conversations with the IOUs and the market participants, the CSV team does not expect any other fundamental changes to be put in place in 2017. Major changes to the underlying program economics will not likely take place until 2018, if they occur at all. Additionally, SB-793 removed the January 2019 GTSR Program sunset date, making the program even more complicated to improve in the short term.

Other Community Solar Activity in California

While no developer has built a solar project under the ECR program at any of the California IOUs, successful models for community-scale distribution sited solar have emerged in California. Such models make it clear that concerns regarding the GTSR Program are related to the structure and enforcement of the program and are not due to the IOU implementation of the flawed program. CCAs, including those in Marin,^{xx} Sonoma,^{xxi} San Francisco,^{xxii} and Lancaster,^{xxiii} are developing community-scale solar projects and providing their customers with the option of going 100% renewable.

Similarly, SMUD, the Los Angeles Department of Water and Power (LADWP), the City of Palo Alto Utilities (CPAU), and other municipals have announced new community solar programs with multi-megawatt targets, although their program tariffs are still not set. While the Solar Shares program held steady at 1 MW for several years, SMUD expanded the program to include nearly 11 MW of additional local shared solar capacity for commercial customers.^{xxiv} It has announced additional solar resource procurement to support further expansion of the program in early 2018.^{xxv} LADWP announced its own community solar program, beginning with a 2 MW Phase I, with additional development likely following.^{xxvi} While each municipal utility and CCA program has its own positives and negatives and the possibility of delays exists in any new program expansion, these examples illustrate that nothing specific to California prevents a successful community solar program.

Call to Action – What Is Next?

The intent of SB-43 was to establish a viable GTSR Program in the IOU territories and to procure 600 MW of new renewable energy under the two (GT and ECR) program components. Due to project economies of scale and potential locational benefits, shared renewables can play a large role in filling the gap as NEM policy changes in California. The key challenge in California is to develop a viable regulatory framework for promoting clean energy through a shared renewables business model, while at the same time balancing the objective of maintaining nonparticipating ratepayer indifference.

CPUC and the California State Legislature, in partnership with the IOUs and the industry stakeholders, should work together to realize the original intention of SB-43:

- (1) Balance key policy objectives.
 - a. Achieve 600 MW of new clean energy through the GTSR Program.
 - b. Test new shared renewables business models to promote clean energy.
 - c. Maintain nonparticipating ratepayer indifference.
- (2) Revisit the GT and ECR rate structure, streamlining the complexities of the credit structure to reduce the variability and provide adequate stimuli to move the market to achieve the 600 MW policy goal.
- (3) Streamline other programmatic requirements and approval mechanisms (e.g., demonstration of community interest, marketing requirements, etc.).
- (4) Design programs to address the low income and environmental justice market segments.

The gap in pricing between NEM and the current California shared renewables programs is so wide that small changes acceptable to all parties could, without abandoning the principle of nonparticipating ratepayer indifference, result in a lower price premium or higher credit that would stimulate the market. Similar analysis such as the best practice work of the CSVP and others indicates that there is reason for optimism.^{xxvii} By addressing these challenges, California's vision for shared renewables as articulated in SB-43 could be achieved.

Endnotes

- ⁱ Decision 15-01-051, “Decision Approving Green Tariff Shared Renewables Program for San Diego Gas & Electric Company, Pacific Gas & Electric Company, and Southern California Edison Company Pursuant to Senate Bill 43,” January 29, 2015, docs.cpuc.ca.gov/PublishedDocs/Published/G000/M146/K250/146250314.PDF.
- ⁱⁱ Ashland Solar Pioneer Program, www.ashland.or.us/Page.asp?NavID=14016.
- ⁱⁱⁱ City of Ellensburg Renewable Energy Park, <https://ci.ellensburg.wa.us/671/Renewable-Energy-Park>.
- ^{iv} To conduct this research, the Community Solar Value Project (CSVP) team conducted interviews with multiple players in the state that have different perspectives on what is working and what is not, including utilities, state legislature, and multiple members of the solar development community.
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- ^x Senate Bill 793, October 2015, https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB793.
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- ^{xiii} Interviewed eight developers from May to July 2017 for this white paper.
- ^{xiv} Decision 16-05-006, “Decision Addressing Participation of Enhanced Community Renewables Projects in the Renewable Auction Mechanism and other Refinements to the Green Tariff Shared Renewables Program,” May 2016, docs.cpuc.ca.gov/PublishedDocs/Published/G000/M162/K142/162142830.PDF.
- ^{xv} Decision 16-05-006, “Decision Addressing Participation of Enhanced Community Renewables Projects in the Renewable Auction Mechanism and other Refinements to the Green Tariff Shared Renewables Program,” May 2016, docs.cpuc.ca.gov/PublishedDocs/Published/G000/M162/K142/162142830.PDF.
- ^{xvi} The AmLaw 100 law firms are the top 100 firms in terms of total revenue.
- ^{xvii} Proposed Decision of ALJ Cooke, June 6, 2017, docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M189/K818/189818366.PDF.
- ^{xviii} Herman K. Trabish, “Inside California’s Plans to Jump-Start Community Solar Development,” *Utility Dive*, March 5, 2015, www.utilitydive.com/news/inside-californias-plans-to-jump-start-community-solar-development/370218.
- ^{xix} Decision 16-05-006, “Decision Addressing Participation of Enhanced Community Renewables Projects in the Renewable Auction Mechanism and other Refinements to the Green Tariff Shared Renewables Program,” May 2016, docs.cpuc.ca.gov/PublishedDocs/Published/G000/M162/K142/162142830.PDF.
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xxvii J. Cliburn, J. Bourg, and J. Powers, "Utilities Solve for Solar: Practical Analytics for Local Community Solar Planning," Solar Power International, 2017.