



State Commission Staff Surge Call: Community-Based Solar

February 25, 2019

Community solar is expanding rapidly in dozens of states, nearing 1 GW of installed capacity. Through 2017, 19 states plus the District of Columbia have implemented enabling policies for community solar (see slide 4). Plus, there are an additional 23 states where one or more utility-sponsored programs is active. Surveys by the Smart Electric Power Alliance identified 171 active utility programs at the end of 2016 and 228 at the end of 2017. [GTM Research](#) shows community solar growing rapidly, and estimates the community solar market potential is as large as 60 to 80 gigawatts by 2030, with cumulative capitalization in the range of \$100 billion. Plus, there is growing interest about how to extend the benefits of community solar to also apply to community storage or even more generally to any kinds of community clean energy. During this reprise of an engaging panel from the 2019 NARUC winter policy summit in Washington, DC, speakers shared lessons learned and visions of what is on the horizon.

Medha Surampudy, Director of Community Solar Research, Smart Electric Power Alliance (SEPA)

SEPA found a number of factors driving community solar growth for customers, utilities, and developers. SEPA still considers community solar an emerging market, making up just 4% of installed solar capacity in 2017. However, SEPA expects community solar to make up an increasing share of the growing solar market in the future as states enact enabling policies and driving factors for customers, utilities, and developers (see figure below) make it more attractive.

What's Driving Community Solar?



Customer Benefits

- Access to solar
- Hedge costs
- Catalyzes green energy
- Transferable
- Economies of scale
- Low O&M concerns
- Stand-alone pricing

Utility Benefits

- Engage customers
- Support local industry
- Understand your solar resource
- T&D deferral

Developer Benefits

- Secure multiple off-takers
- Diversify portfolio
- Customer acquisition
- Development in new markets

Community solar programs can be led by utilities or developers. SEPA counted 228 community solar programs in 36 states, with 70% of those (160) coming at cooperative utilities. Utility-led programs operate in 33 states. Fourteen states have developer-led community solar programs, with 90% of capacity located in Colorado, Minnesota, and Massachusetts. Seventeen states have enacted

enabling policies for community solar. While developer-led programs are almost entirely located in states with enabling policies, just under half of utility-led programs are, demonstrating that enabling policies can be effective in incentivizing developers to initiate or expand community solar.

Community solar program design can be split into four categories (right) that program designers and utilities need to consider: program administration, economics, target participation, and terms and conditions.

Brandon Smithwood, Policy Director, Coalition for Community Solar Access (CCSA)

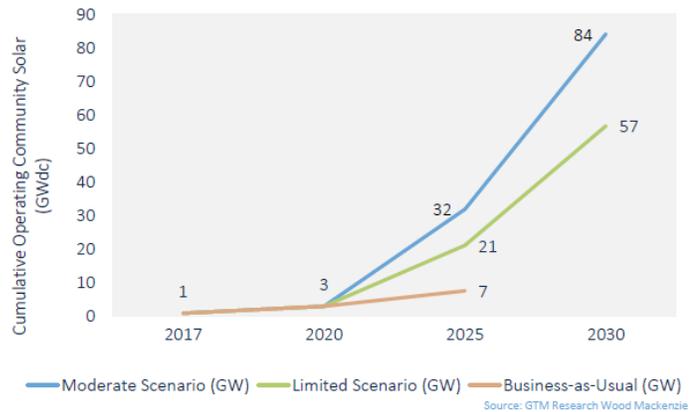
CCSA, Vote Solar, and Grid Alternatives commissioned a GTM Research [study](#) envisioning a roadmap for U.S. community solar to 2030. The study estimated that by 2030, the U.S. would see 57 – 84 GW of total community solar capacity generating 72 – 107 TWh (between 1.6% and 2.6% of electricity



consumption). This capacity would serve 6.4 to 8.8 million customers, with approximately half of these being low- or moderate-income (LMI) customers.

Community solar companies are still figuring out a business model, and available products may change significantly in the future. Utility interconnection costs and billing processes are not always conducive to community solar, with many customers seeing bill credits only after lengthy delays. Ultimately, CCSA hopes that community solar becomes a default option for customers, with robust programs for LMI customers integrated with other LMI programs such as the Weatherization Assistance Program (WAP) or Low Income Home Energy Assistance Program (LIHEAP). The study also envisions moving towards non-retail rate bill credits for community solar that are more reflective of solar's value to the grid.

U.S. Community Solar through 2030: Market Potential



LMI customers face high transaction costs to enroll in community solar, making it important for program administrators to make a clear and compelling case as to how they can benefit. CCSA believes that the finance community will come to a better understanding of LMI customers by 2030, unlocking new opportunities for LMI community solar programs.

Hanna Terwilliger, Minnesota Public Utilities Commission (PUC)

In 2013, Minnesota passed legislation requiring Xcel Energy, the state's largest regulated utility, to implement a community solar program for projects up to 1 MW in size. Minnesota has over 30 additional community solar programs: 19 cooperative and 14 municipal utilities offer community solar programs that vary in structure and size. The state law also required the PUC to study the value of solar (VOS).

Xcel's program began in 2014 and has been modified a number of times. The program initially used the applicable retail rate for bill credits, calculated similarly to net metering, with a mandatory switch to VOS for all projects filed after December 31, 2016. Xcel does not have a MW limit on the program. Bill credit cost recovery runs through the utility fuel clause. In 2018, the PUC approved an Xcel request for an LMI community solar pilot program.

As of February 1, 2019, there are 513 MW of community solar at 175 different sites, with 386 MW waiting to interconnect. Historically, the dropout rate of community solar in the interconnection queue has been about 50%. Just one project was submitted prior to the switch to VOS, with all others using the applicable retail rate. 95% of program subscribers are residential or small general service, but they make up just 12% of program capacity (80 MW). Large C&I customers account for the remainder of program capacity. At the end of 2017, 30% of total capacity was going to public customers like schools and municipal customers. Monthly program updates are filed in the PUC's docket system.



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Disputed areas of the program include co-location of multiple 1 MW gardens, with developers siting 1 MW projects next to each other. Annual VOS is calculated each year, and it has declined year-over-year. Parties have disputed the inputs into the VOS, such as the use of a rural versus metropolitan cost of damage from pollution. Individual interconnection disputes have also impacted the program. The PUC added a 1.5 cent per kW residential adder to encourage more residential sign-ups.

Several pieces of pending legislation could impact community solar. Changes to interconnection standards could also influence the program. Locational specific avoided cost values will also be factored into VOS in the future. The Minnesota Department of Commerce is working on incorporating locational data. Any changes to VOS could influence where projects are located and how they are sized.

For states that do not yet have a program, PUC staff encourages commissions to consider what types of customers to target, program goals, program ownership and operation, commission regulation, land use, updates to interconnection standards to handle an increased volume of applications, updates to utility business practices, compensation, and treatment of renewable energy credits.

Sean Gallagher, Vice President for State Affairs, Solar Energy Industries Association

Sean discussed the community solar program in Illinois. The program just opened for applications after a 2016 state law kicked off the design process. Sean drew a number of key questions out of the Illinois program for other states to consider as they implement community solar programs:

- What technologies will be able to participate?
- How will you define the community nature of the project?
- Will there be geographic limits on where subscribers can be located?
- Are there limitations on project sizes?
- What are the eligibility criteria for subscribers?
- How will subscribers be compensated?

In Illinois, customers subscribe to a portion of solar generation, with bill credits prorated to subscription share. The state has an incentive program offering rebates to help get the program off the ground. Rebates can go to the consumer, but typically go to the developer, who can use the certainty of the rebates to finance a project and ultimately reduce the subscription price to the customer. Illinois calculates the incentives based on an expectation of what total program costs will be, setting a pricing level low enough to attract an adequate but not excessive number of developers. Incentives increase for smaller projects or for projects subscribed to by small residential or LMI customers. The incentive program will step down over time. The first block of funding for 150 MW of community solar attracted almost 1,000 MW of proposed projects, showing a high level of interest in Illinois's incentive approach.

Q&A

How long does it take for program design to be completed and for community solar programs to formally kick off after state legislation is passed or a commission issues an order?

Typically, at least one or two years are needed for program design and pre-launch work to formally begin a community solar program. CCSA believes New Jersey is the fastest, getting a program started less than a year after a state law passed. Interconnection and local permitting are major ingredients in the



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bottleneck between program conception and implementation. According to SEIA, projects can happen simultaneously with program design, but most often occur another year or more after program kick-off.

What lessons can these speakers offer for other states that are at earlier stages in the community solar process?

Minnesota found interconnection standards to be a major barrier to program success. Updating interconnection procedures for all distributed generation was helpful in shortening the wait time for projects. The commission is still working on technical updates related to the IEEE 1547-2018 interconnection standard. CCSA's community solar resources draw heavily from Minnesota and other states that have successful community solar programs.

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