Inside community solar, America's star performer

Finance and regulation | Community solar is the fastest growing segment in the US. Ben Willis looks at some of the legal and financing drivers helping propel the sector forward, and the ongoing challenges it faces in fulfilling its potential

Community solar is rapidly becoming a serious player in the United States. Until comparatively recently, community or 'shared' solar, which allows residential and business customers unable to install solar on-site to access its benefits, was little more than a bit player – a nice idea that had yet to fully catch fire. According to the latest figures from the Smart Electric Power Association (SEPA), the spark now appears to have been well and truly ignited, with community solar reckoned to be the fastest growing solar segment in 2017, outstripping the overall growth rate of the US solar market nearly twofold at 112%. Estimates put the total installed capacity of community solar in the US now at a little over 1GW.

Many factors feed into community solar's recent advances, but at a fundamental level, the key driver is simply a growing market demand for the benefits solar offer among groups previously unable to access them.

"Clean generation, no-carbon electricity – that's the number one driver," says Dan Chwastyk, SEPA's community solar programme manager. "People are concerned about the environment, concerned about future generations and want to do the most they can to reduce the carbon emissions in their area.

"Secondly, solar because the sun doesn't cost anything: it offers the potential for there to be some kind of long-term financial savings, and so for people who want to potentially hedge against the chance that traditional energy generation [prices] will increase, solar provides an interesting opportunity for them to lock in a price right away and not worry about fluctuations in gas or oil markets."

Many shapes and sizes

Against this backdrop of growing public appetite for solar and its many advantages, state legislators appear to be increasingly willing to respond by implementing legislation that provides the regulatory framework for community solar to flourish. Not all community solar projects in the US are happening in the context of state-level community solar policies, but the fact that some of the most of the most active community solar states also have shared solar policies (currently 19 states plus Washington DC) is a good indication that this is proving to be an important stimulus for the sector.

Credit: William Byers/USDOE

Community solar is currently the fastest growing segment in the US

According to Jeff Cramer, executive director of the Coalition for Community Solar Access (CCSA), the legislation being passed to help community solar flourish varies widely.

"Sometimes these pieces of legislation are highly prescriptive, sometimes they're very basic and sometimes they're in between," Cramer explains. "So for example the Minnesota programme legislation, I think the bill is one page and it just basically says any customer should be able to buy community solar, anyone should be able to develop community solar and there shouldn't' be a cap on the amount of community solar that should be built. And then it puts it up to the commission to figure out how that actually works. And then in other states you have highly prescriptive programmes – such as Maryland, where the legislation was very specific on a number of features. So it really varies state by state."

Another area where community solar is proving highly variable is in the nature of individual programmes, their design and the particular business models they follow. According to Cramer, a key differentiator is geography, with the rules and market conditions in one area likely to be very different to another.

"Developing a community solar project in somewhere like Nevada versus somewhere like Connecticut is going to be very different, and the rules are going

Credit: William Byers/USDOE

State-level policy is proving to be an important stimulus behind the growth of community solar

to have to be different," he explains. "In a place like Connecticut you're going to have smaller parcels of land and in a place like Nevada you're going to have larger parcels of land. So perhaps in Nevada they may put geographical constraints on how far the project may be located from the customer – a little further away, but make the projects a little bit bigger – and vice versa in Connecticut. And Connecticut may allow for co-location of projects because there is a benefit to one tie-in to the distribution grid versus multiple."

SEPA's Chwastyk concurs with this analysis and highlights how important this variability of design is to the success of individual programmes. From his research, Chwastyk says a standout finding has been the very high subscription rates among customers.

"That suggests two things," he says: "One is that community solar is just an interesting product to customers. And two, because different designs are working in different areas, there needs to be recognition that there's not a one-size-fits-all programme; you really have to be able to design a programme for your local customers, and what folks in Florida may be interested in is probably going to be very different from the Minnesota market. So, local designs resulting in different programmes, but still high subscription rates, is evidence of that."

CCSA and SEPA publish respectively a 'community solar policy decision matrix' [1] and a 'community solar decision tree' [2]. These documents are both intended to help guide policy makers and utilities or developers in designing either state-level community solar programmes or individual projects. By posing certain questions and providing various options and recommendations in response to those questions, the two pieces of guidance aim to streamline the process of arriving at the most appropriate solution for a specific area.

Finance and investment

But despite the many positive steps forward taken by community solar in recent years, an area that continues to cause headaches for the sector is finance and investment. Jared Leader, the author of a SEPA report 'Financing Community-Based Solar Projects' published earlier this year, says that the finance community is "lagging" where community solar is concerned, with funding opportunities for projects still limited.

This is partly a consequence of the unfamiliarity of community solar to many in financial institutions, even those that in principle seem well suited to be geared to supporting endeavours such as community solar projects (see box, next page). Another factor preventing the flow of capital into the solar sector, says Leader, is simply that the scale of most projects on the table puts them below the radar of most investors.

"A 1MW project with a US$2 per watt installation is US$2 million and for some investors that is a very small investment," Leader says. "And to get the institutional money behind something that is still a small investment, relative to a tax equity investor that would be able to take advantage of the ITC as it lasts, it's a barrier to entry, for sure."

Keith Martin, a project finance lawyer with international law firm Norton Rose Fulbright, which has advised on a number of community solar financing deals, adds to this a long list of other reasons why investors still regard community solar as a risky proposition.

"One is that most of these [community

solar] developers are small, they don't have a track record of showing they have staying power or the ability to be around long enough to service these customers for the term of the debt or tax equity. A second big risk is customer attrition; the residential customers could walk away at any moment. The third one is the early community solar projects that were financed had geographic diversity; the portfolios might be a mix of projects in multiple states. And that's not the easiest to finance, the market has decided; the transactions costs are too high, the rules vary by state and so financiers are trending towards wanting to do a single state at a time.

"Another risk is the net metering debate: utilities have been pushing back on legal obligations to buy electricity from solar panels because particularly at retail rates they say they can buy the same electricity in the wholesale market for less. So as state policies change on NEM that creates risk for community solar, it goes directly to the viability of the model. And I think the last risk is just if you're losing customers because residential customers walk away the customer acquisition costs are high, they remain in the order of 15-20% of the cost of a project and so that has to come down."

This may all sound like a lot for the community solar sector to put right, but the upside, according to Martin, is that there is a "wall of money" looking for projects. "There are 70-90 project finance banks chasing projects," Martin says. "In such a market people find a way to cut through the issues and get the deal done."

For example, one approach being taken by developers to appear more attractive to financers is to bundle up projects in a way that both offers the sort of scale investors are looking for and helps to diversify the risk associated with investing in just a single project. "In Massachusetts, where many of the recent financings have been, developers have portfolios of projects, so there's risk diversification – you're dealing with 15 to 20 projects at a time," Martin explains.

Developers are also developing solutions to the 'easy-come, easy-go' nature of residential community solar projects, where customers can walk away from subscriptions as they choose without fear of any financial penalty.

"Many of the investors want to see 100% subscription by the time the first funding occurs, or 95%," Martin says. "Sometimes the developers are over-subscribing – they start with a waiting list to try to address the concern that residential customers might disappear during the financing. And there are termination payments for non-residential customers; if you're relying on a commercial customer for a large share of the revenue those contracts might have a termination payment to ensure that financing can be paid down if that customer stops buying."

Beyond these practical steps, Leader says there is a task for community solar advocates generally to be more effective at educating investors about exactly what community solar is. "Some think of it as just a small-scale solar project, but there's much more than goes into a community solar project than just the size," he says. "And where the risk falls is all determined based on how the community solar programme is designed, how the PPA is structured, the contract between the developer and the utility and the customer, is all the basis of a contractual agreement based on the community solar design itself. Educating the finance community and potential investors is number one."

The community solar vision

Despite what may seem like a long list of challenges the community solar sector must overcome in order to cement its place more firmly as a safe bet for investors, optimism nonetheless seems to be high for the sector. A report in late July prepared for campaign group Vote Solar by GTM Research outlined various scenarios for the future growth of community, the highest of which predicted up to 84GW of operational community solar assets by 2030.

Such a scenario would require many more states than have currently done so to "open their doors" to community solar and put in place active policies to encourage community solar programmes and projects, the report said. Indeed, for Cramer, aside from the ongoing challenges with the investment community, "regulatory atrophy" whereby the current momentum behind community solar generated by the emergence of state-level enabling legislation abates, remains the single biggest risk to the sector's future growth.

"That's really it," Cramer adds. "All the other pieces are there: the businesses are ready to innovate, the financiers are ready to sponsor and customers are ready to buy. So the question is: are policy makers willing to enable the development of these programmes?" ■

The winding path to financing community solar

When the city of Fremont in Nebraska decided to pursue a 1.55MW community solar farm as part of a plan to hedge against future increases in fossil-fuel generation costs, it found its financing options to be highly limited. After first being knocked back by various financial institutions supposedly geared towards funding community-based projects, the municipality then approached local lending banks but found the cost of loans on offer from them to be less than favourable.

With these options exhausted Fremont looked to itself, in the end opting to self-finance the US$2 million project from its own internal reserves. The project sold out in just seven weeks, and city officials are looking at launching a second project and exploring new options for financing it.

The unwillingness of the various agencies and banks approached by the municipality to put any money up for the project highlights the general lack of familiarity within the finance world around community solar and thus the need for the sector to do more to educate would-be lenders or investors about what community solar actually is.

SEPA's Jared Leader says: "If I were a developer and I wanted to build a park in my community with tennis courts and so forth I could go to specific financial institutions and apply for specific community-style loans and grants. In Nebraska, Fremont, before they came up with this innovative programme design to deal with how they would finance the project they first looked to one of these financial institutions that generally give grants for community-style projects.

"And thinking that community solar had an element of community for sure, they applied to get certain favourable loans based on the status of community solar. The Nebraska Investment Finance authority declined; they were not able to give that kind of loan to Fremont. And that I think is education as the starting point; you can educate not only the investor on not only what CS is so they can feel good about it, you can also educate these financial institutions that would perhaps consider community solar along with the likes of a community basketball court or tennis court."

References

[1] Coalition for Community Solar Access, 2017, "Community Solar Poliy Decision Matrix", http://www.communitysolaraccess.org/community-solar-policy-decision-matrix-2017/

[2] SEPA, 2018, "Community Solar Program Design Models", https://sepapower.org/resource/value-stacking-in-minster-a-rural-village-leverages-solar-storage-and-4-revenue-streams/