

Community Solar Policy Decision Matrix
Guidance for Designing Community Solar Programs
November 2016





About Us

The Coalition for Community Solar Access (CCSA) is a business-led trade organization that works to expand access to clean, local affordable energy nationwide through community solar. Our mission is to empower energy consumers large and small by increasing their access to affordable, reliable clean energy, maximize existing opportunities and support opening new markets for community solar. By creating opportunities for all Americans to access solar, whether or not they put it on their own roof, CCSA will work to make solar available to the vast majority of consumers who do not have that option today.

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About this Policy Matrix

Solar energy continues to grow in popularity across the nation, with individuals, businesses, governments, schools, and other organizations demanding more choice, cleaner energy options, and greater control over their energy bills. Although more than one million solar energy systems have been installed in the U.S.,¹ not everyone has access to the many benefits of solar energy or the ability to install their own system onsite. For example, a property owner may have unsuitable roof space, an old roof needing replacement in the near future, or too much shading, and millions of tenants or renters lack the permission to install a solar system at their home or business.

Community solar provides a key opportunity to expanding access to solar energy to anyone and everyone wanting solar. By participating in community solar, someone unable to install solar onsite can still take advantage of its benefits. Community solar works by

¹ Solar Energy Industries Association, see: <http://www.seia.org/million-solar-strong>

allowing multiple individuals, groups, or businesses to own a portion or subscribe to the output of a single solar facility located off-site.

Fifteen states and Washington, D.C.² have enacted key policies to enable community solar arrangements between community solar subscribing organizations and participating subscribers, and utilities across the country are implementing their own community solar programs. Community solar has grown exponentially in the last six years, going from just a handful of projects installed before 2010 to more than 111 projects across 26 states and 77 utility service territories at the start of 2016.³ Community solar installations are expected to grow – by the end of 2016, GTM Research estimates 314 MWs,⁴ and by 2020 GTM Research predicts over 1.8 GWs of community solar will be installed across the U.S.⁵ While Massachusetts and Colorado were early pioneers in community solar adoption, states including Minnesota, Maryland and New York are all poised for growth over the next several years.

Importantly, no two community solar models are the same. For example, recently enacted pilot community solar rules in Maryland authorize approximately 280 MW-DC of community solar within the next three years and require electric utilities to provide community solar subscribers with bill credits valued at the retail rate for their share of electricity generated from a community solar facility. The rules specifically reserve a portion of the total available capacity for both small community solar projects and projects serving primarily low and moderate-income subscribers. In Minnesota, there is no upper limit on the number of community solar projects, although each facility must be sized under 1 MW, and subscribers are compensated at a “value of solar” rate.

The members of the Coalition for Community Solar Access (CCSA) have experience working in different states under different policy models. This experience has provided the organization with a wealth of experience in understanding how different policy options spur the community solar market in different ways and how certain

policy provisions may have unintended consequences. Community solar subscriber organizations have adapted to unique state policies by creating a number of innovative business models to meet diverse customer interests and specific program design requirements.



Based on the experiences of CCSA’s members, we have created this policy decision matrix to aid policymakers in designing community solar programs. This matrix is intended to lead policymakers through important questions, grouped into five categories, which should be addressed when designing programs. To answer these questions, we provide a menu of options, focusing on those that will spur market development while providing choices to customize programs to meet a state’s needs and goals. The decision matrix provides CCSA’s recommendations for what works best, based on our experiences working in different states. It also provides our rationale for these recommendations, example language to aid in drafting policies and other important issues to consider.

² States include California, Colorado, Connecticut, Delaware, Hawaii, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New York, Oregon, Rhode Island, Vermont and Washington. See: <http://sharedrenewables.org/shared/community-energy-projects/>

³ Deloitte Center for Energy Solutions. “Unlocking the Value of Community Solar.” 2016.

Accessed at <http://www2.deloitte.com/us/en/pages/energy-and-resources/articles/community-solar-market-renewable-energy-trends.html>

⁴ GTM U.S. Community Solar Market Outlook, “Market Drivers and Competitive Landscape Trends Shaping U.S. Community Solar,” Slide 7, Cory Honeyman, October 2016. See: https://www.dropbox.com/s/biu4sxdyob2l2v/Community%20Solar_GTM%20Research_Honeyman.pdf?dl=0

⁵ GTM Report, “US Community Solar Market to Grow Fivefold in 2015, Top 500 MW in 2020”, Mike Musell, June 23, 2015.

See: <https://www.greentechmedia.com/articles/read/us-community-solar-market-to-grow-fivefold-in-2015-top-500-mw-in-2020>

1. Program Structure

Key Questions to Ask	Options to Consider	CCSA Recommendations	Rationale	Example Language	Notes
What types of entities should be permitted to own and/or manage projects?	Community solar providers	Open, competitive markets with as many ownership options as possible.	Competition and innovation are necessary to drive the market forward, ultimately resulting in lower costs and more options for consumers.	A Subscriber Organization shall be any for-profit or not-for-profit entity permitted by [State] law that (A) owns or operates one or more community solar facility(ies) for the benefit of subscribers, or (B) contracts with a third-party entity to build, own or operate one or more community solar facilities.	In a program where multiple entity types are participating as project owners/managers, specific attention needs to be given to ensure a level playing field and ensure competitive markets. Considerations include equal access to data, financing, among other issues.
	Utility				
	Other (e.g. Customer, retail supplier)				
Who should fill the role of program administrator? (i.e. who should determine project/ Subscriber Organization eligibility and, if a program is capped, determine which projects are allocated space in the program?)	State agency (such as the public utilities commission)	A state agency, utility, or contracted third-party administrator may fill this role, but the entity must have adequate systems and staffing in place to ensure a smooth process.	Program administration should be designed to run transparently and efficiently. ⁷	[State agency] shall administer the community solar program.	If a utility oversees program administration and that utility is also participating as a Subscriber Organization in the program, additional oversight will be necessary to ensure conflicts of interest are avoided.
	Utility			An Electric Company shall administer the community solar program based on regulations set forth by [state agency].	
	Third-party administrator				
What entity should administer bill credits?	Utility	Utility (or customer's primary billing entity for electric service), though it may be appropriate to contract with a third-party to provide administrative support.	The primary billing entity should administer bill credits to customers to simplify and enhance the customer experience.	An Electric Company shall apply bill credits to the accounts of participating subscribers based on their proportional subscriptions to the community solar facility.	Communication between community solar providers and utilities for the purposes of calculating, assigning, and applying bill credits must be handled via efficient electronic systems that result in timely, accurate bill crediting, with the capability to update subscriber lists monthly.
	Other (e.g. retail supplier)				

⁷ Massachusetts' MassACA is an example of a third-party administered application system that is streamlined and transparent. It provides significant value to market participants in the state. The application system is not community solar-specific, but manages applications for projects seeking assurance of net metering more broadly.

1. Program Structure (Continued)

Key Questions to Ask	Options to Consider	CCSA Recommendations	Rationale	Example Language	Notes
Should there be a preset size for the program?	Target program size to meet state policy goals	Either option can be effective; the key is stability, so that market participants can make investment decisions based on accurate predictions of available program capacity.	Given that the majority of customers cannot host onsite renewable energy, community solar programs should be sized appropriately to accommodate the significant potential market size.		Especially for programs without a target size, an effective interconnection queue management process and strict project maturity requirements must also be implemented in parallel to ensure smooth program rollout.
	No predetermined size limit				
How should projects be selected or approved for participation?	Tariff/First-come, first-served	Tariff/First-come, first-served	A tariff-based or other open program is easier to administer, creates a more level playing field for a diversity of projects, and is more efficient from the project development perspective. An RFP process may lead to a situation where projects selected initially get delayed and essentially stuck, delaying the overall program. The uncertainty associated with RFP processes can also significantly increase project costs.	Applications will be accepted and processed on a first-come, first-served basis. [Massachusetts Department of Public Utilities Order 11-11-A⁸ and Xcel's Electric Rate Book Section 9-64 (Sheet No. 9-67)⁹ in Minnesota both offer approaches for managing the application process under the first-come/first-served approach.]	If projects are admitted to the program on a first-come-first-served basis, it is important to set project maturity requirements and require that admitted projects meet ongoing development milestones. These requirements must be balanced to ensure that only viable, active projects are counted toward program capacity, without requiring an unreasonable level of at-risk investment by developers. If the program application is integrated with the interconnection process, this may require a broader interconnection queue management process.
	RFP process of selection by program administrator				

⁸Massachusetts D.P.U. Order 11-11-A, May 7, 2012.

See: <http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=11-11%2f5712dpuord.pdf>

⁹ Northern States Power Company (Minnesota) Electric Rate Book. Schedule of Rates, Charges, Rules, and Regulations for Electric Service in the State of Minnesota. Section 9-64, "Solar Rewards Community Program."

See: https://www.xcelenergy.com/staticfiles/xn/Regulatory%20&%20Resource%20Planning/Minnesota/Me_Section_9.pdf

2. Compensation

Key Questions to Ask	Options to Consider	CCSA Recommendations	Rationale	Example Language	Notes
How should credit compensation be valued?	Resource valuation approach	As long as credits are transparent and predictable over the project life cycle, and provide subscribers with an economic benefit that is equitable, the resource valuation and retail-rate based approaches can both be effective.	Bill credits should provide subscribers with an economic benefit that is equitable based on the long-term, clean, locally-sited energy produced by community solar facilities.	An electric company shall credit a subscriber's electric bill for the amount of electricity generated by a community solar project for the subscriber in a manner that reflects the resource value of solar energy, as determined by the [state regulatory agency].	If the resource valuation approach is chosen, a transparent, data-driven process with broad stakeholder participation must be used to determine the valuation. ¹⁰ If the retail-rate approach is chosen, special attention should be paid to determining which retail rate to use, as this is a state-specific issue. For example, in restructured states, the credit rate should be based on standard offer service rates as opposed to competitive supplier rates.
	Retail-rate based approach	The auction approach is not recommended because the inherent uncertainty of this approach leads to unstable project development and subscriptions. It can also lead to underbidding instead of proper, market-based price-setting.		An electric company shall credit a subscriber's electric bill for the amount of electricity generated by a community solar project for the subscriber based on the applicable retail rate, adjusted for any additional costs accrued and benefits conferred by the community solar facility, as determined by the [state regulatory agency].	
	Auction approach				

¹⁰ See: Rocky Mountain Institute, [A Review of Solar PV Benefit and Cost Studies](http://www.rmi.org/elab_empower), September 2013, for a review of 15 distributed PV (DPV) benefit/cost studies that assessed what is known and unknown about the categorization, methodological best practices, and gaps around the benefits and costs of DPV. The review also began to establish a clear foundation from which additional work on benefit/cost assessments and pricing structure design could be built. http://www.rmi.org/elab_empower

2. Compensation (Continued)

Key Questions to Ask	Options to Consider	CCSA Recommendations	Rationale	Example Language	Notes
By what mechanism should credits be applied?	kWh Credit	Either a volumetric (kWh) credit or monetary credit can work, as long as the credit is transparent to subscribers (for example, as a separate and clearly labeled line item on the customer's utility bill).	Flexibility, transparency and long term-certainty are important to encouraging market growth.		If volumetric crediting is used, it is important to ensure that the application of credits to subscribers' bills does not change the underlying calculation of kWh delivered to the subscriber's location (for example, in areas with competitive retail supply). It is important to consider which portions of the bill the credit can offset and whether or not that results in a different value proposition across customer classes.
	Monetary Credit				
How should unsubscribed energy be compensated?	Utility must purchase	Subscriber Organizations should be allowed to sell unsubscribed energy to the utility at the utility's avoided cost. In addition, Subscriber Organizations could have the option to hold credits for unsubscribed energy as long as they are then allocated to subscribers within a set time period (e.g. one year).	A backstop of purchase at avoided cost is important for community solar providers in securing lower cost project financing. The ability to reallocate credits may be able to provide more value and flexibility to subscribers and Subscriber Organizations, which can bring down overall project costs.	Utilities must purchase unsubscribed energy at a rate equivalent to the electric company's avoided cost as determined by the [state regulatory agency].	
	Subscriber organization can reallocate unsubscribed energy			Credits that are not allocated during a billing period are held at the host meter. These credits are then available, along with new credits, in the next distribution period. New subscribers may be allocated credits that were accrued prior to their subscription start date.	
How should Renewable Energy Credits (RECs) be addressed?	Subscriber Organizations monetize RECs	We recommend a structure that contributes to a positive value proposition for customers given the existing renewable energy policy environment in which the program is developed. This may take different forms in different markets. For example, in complex REC markets, it is most efficient for Subscriber Organizations to monetize RECs, but if all RECs under the program will go to the same utility, it may be most efficient for the REC value to be added and included in subscribers' bill credits.	There are 29 states (plus D.C.) with renewable portfolio standards with different standards, rules and REC markets. In states with open REC markets, Subscriber Organizations monetize RECs to make the value proposition more attractive to subscribers. In addition, Subscriber Organizations are usually better equipped to manage RECs given related transaction costs.		It is extremely important that the community solar program clearly address REC ownership directly.
	Customers allowed the option of retaining RECs				

3. Consumer Participation

Key Questions to Ask	Options to Consider	CCSA Recommendations	Rationale	Example Language	Notes
Should there be a minimum number of subscribers?	More than one	More than one	One owner does not entail a “community” and “more than one” allows for small-scale participation. Requiring a minimum of 10 may preclude onsite multi-family, urban installations.	A community solar facility must have a minimum of two subscribers.	
	At least 10				
What minimum or maximum should be placed on individual subscription sizes?	Designed to minimize excess bill credits at the end of a year	The limitations on subscription sizes should be considered in conjunction with the credit methodology. In general, subscriptions should be sized so that customers may fully offset their expected usage without accruing significant excess credits at the end of a year. In the event that there are excess credits at the end of a 12-month cycle, they can be rolled over, or alternatively, be paid out at the utility's avoided cost rate.	To ensure equity and effectively spur the market, subscribers should be able to receive a value proposition similar to those participating in onsite generation.	Subscriptions may be sized to offset up to 100% of the customer's historical average electric bill over the course of a year. If no historical data is available, an estimate may be used.	For new customers who don't have historical usage, a proxy estimation based on expected usage will be required.
	Individual subscribers may offset a certain percentage of their average energy use over the course of a year			Subscriptions may be sized to offset up to 120% of the customer's historical average annual electricity consumption.	Note that if excess credits are compensated at a lower rate, this will provide a natural disincentive against oversizing subscriptions.
	No minimum subscription size specified.				Customers with onsite solar may also subscribe to community solar as long as the customer does not exceed any aggregate limits required by the program or otherwise as required by law (e.g. total expected output of the on-site solar and community solar subscription may not exceed 120% of annual onsite load).
Should there be carve-outs or limits for different customer classes? If so, how should those be determined?	A percentage of community solar generation capacity may be reserved for residential and small commercial customers.	It may be appropriate to limit individual subscriptions and have a carve-out for certain customer classes, in order to ensure diverse participation by a broad set of customers, as well as to address specific policy goals.	Carve-outs can help ensure customer diversity. Being overly prescriptive, however, can limit the reach of the program.	At least XX percent of the total generating capacity of each community solar project must be made available to residential and small commercial customers.	
	A single subscriber may be limited to receiving a certain percentage of a community solar facility's generation.			No subscriber may receive more than XX% of a community solar facility's output.	

3. Consumer Participation (Continued)

Key Questions to Ask	Options to Consider	CCSA Recommendations	Rationale	Example Language	Notes
What consumer protection and/or disclosure requirements should be followed?	Must comply with existing federal and state consumer protection laws	Consumer protection requirements should be based on existing consumer protections in state law. A standard disclosure checklist could also be implemented to ensure all customers receive plain language information on key contract terms.	Existing consumer protection laws already apply to community solar projects. It could create confusion and unnecessary administrative burdens and costs to create and apply additional rules.	Subscriber Organizations must comply with all applicable state and federal consumer protection laws.	The SEIA/CCSA Residential Consumer Guide to Community Solar includes specific recommendations for consumers to help them understand the basics of solar energy, where community solar is available, key terms in agreements and the right questions to ask solar professionals.
	Develop standard disclosure checklist to include in all customer-facing contracts			The [state regulatory agency] shall develop, in consultation with stakeholders, a standard disclosure checklist to inform all customer-facing contracts.	
When subscribers move, can they take their subscription with them or transfer it to another utility customer?	Individual subscribers may transfer their subscription with them if they move within a utility service territory ("contract portability").	Both should apply. Subscriber Organizations should be able to update subscriber information on at least a monthly basis to enable timely and accurate bill crediting in the case of a customer moving within the utility territory, or transferring the subscription to a new customer.	Rules should remain flexible to allow Subscriber Organizations to meet the needs of customers and quickly adjust allocations if subscribers move outside the service area or cancel their subscriptions.	Subscribers may retain their subscriptions if they move within a utility service territory.	A Subscriber Organization shall provide at least monthly subscriber list updates to the electric company.
	Individual subscribers may be removed and new individual subscribers added to the project as needed.			Electric Companies shall remove subscribers that are canceling participation and add new subscribers to the project following receipt of the subscriber list updates.	
What geographic boundaries should be placed on subscribers' proximity to a community solar facility.	Subscribers must be located in the same utility service territory as the community solar facility.	Subscribers must be located in the same utility service territory as the community solar facility.	This approach seems to be the most administratively feasible, least restrictive option that has been applied to existing community solar programs.	Subscribers must be located in the same utility service territory as the community solar facility.	Geographic boundaries that are smaller than the utility service territory may increase costs and/or limit project availability for subscribers. Also, if the geographic boundary is too small, there may not be enough customers to fully subscribe a project and be assured that departing customers could be replaced.
	Subscribers must be located in the same utility load zone as the community solar facility.			Subscribers must be located in the same utility service territory and load zone as the community solar facility.	
How does participation in a community solar facility affect a participant's electric rate options?	Subscribers remain on their existing rate schedule.	Customers may be given the option to move to a different rate schedule but should not be required to do so, as the community solar project does not directly alter their on-site electricity usage. It is particularly important that subscribers are not subjected to new charges or other changes in rates that are not fully vetted or justifiable per standard ratemaking procedures.	Allowing customers to remain on their current rate schedule reduces complexity for the customer and expedites the rollout of the program.	Subscribers may remain on their previously applicable rate schedule.	To the extent that metering capabilities exist, coupling the program with a TOU rate, for example, may provide more value for participants, utilities and developers. However, this does add complexity to the calculation of bill credits.
	Subscribers may move to a different rate schedule.				

4. Project Characteristics

Key Questions to Ask	Options to Consider	CCSA Recommendation(s)	Rationale	Example policy language	Notes
Should facility size be limited and if so, how should the limit be determined?	5 MW	20 MW	The project size limit should be set high enough to allow projects to achieve economies of scale, but low enough to still be considered a distribution-scale project. Depending on a number of technical considerations such as the location of the facility and other projects on the same line, 20 MW is among the higher limits that can be considered a distribution-level project.	Individual community solar projects shall be limited to 20 MW.	
	20 MW				
	Based on state interconnection rules				
Should multiple systems be able to co-locate on a single or connected parcels of land?	No co-location on the same parcel of land	Co-location of multiple projects on the same parcel of land generally should not be permitted. Community solar facilities should be allowed to co-locate on adjacent parcels of land.	Where co-location on a single parcel is allowed (e.g., five projects capped at 1 MW each), this effectively results in a larger project with unnecessary costs (a 5 MW project with five separate interconnections, meters, etc.). If the intention is to allow a larger total project size per parcel, it would be more efficient to simply increase the project size limit rather than permit co-location of multiple smaller projects.	Community solar projects shall be limited to XX MW per parcel of land. A single project may span multiple parcels of land.	If limits are defined per parcel of land, there may need to be a limit on subdivision of parcels for the purpose of community solar program eligibility. ¹¹ In addition, there may need to be a process established for considering exceptions on a case-by-case basis.
	Multiple projects permitted on adjacent parcels of land	Community solar projects should be allowed to co-locate with other solar projects (not community solar) on the same parcel.			
What licenses and requirements should be placed on contractors?	The licenses and contractor requirements in place for other solar projects in the state should likewise apply to community solar projects.	The licenses and contractor requirements in place for other solar projects in the state should likewise apply to community solar projects.	Community solar projects should not be subject to any additional contracting and licensing requirements not faced by other solar projects.	The solar contractor licenses and requirements specified in [applicable state code] shall apply to community solar projects.	

¹¹ Massachusetts D.P.U. Order 11-11-C, August 24, 2012. <http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=11-11%2f82412dpuord.pdf>

5. Low-to-Moderate Income (LMI) Considerations

Key Questions to Ask	Options to Consider	CCSA Recommendation(s)	Rationale	Notes	Notes
How can community solar programs be designed to benefit LMI communities?	Provide differential LMI incentives, structured to enable immediate savings for LMI participants, integrated to the extent possible with existing LMI offerings and services.	A combination of these options will be required.	Community solar programs should address both accessibility and affordability for LMI customers to participate. ¹² An incentive provided in isolation would not solve the challenges of serving LMI customers and additional considerations are required. There are also a number of ways for community solar to benefit LMI communities apart from direct customer participation, such as siting and workforce development.	Community solar programs can also encourage innovative partnerships, especially between utilities, developers, state agencies, municipalities, non-profits, affordable housing authorities and other community-based organizations to support LMI community involvement. Such partnerships can be beneficial to multiple aspects of the program, from siting to outreach to project development.	Additional information is available via IREC's Shared Renewable Energy for Low- to Moderate-Income Consumers: Policy Guidelines and Model Provisions .
	Through alternate financing considerations such as back-up guarantees, credit enhancements, low-cost public financing, on-bill financing, among others.				
	Community solar programs should be integrated into existing, well-established outreach efforts to LMI communities so that the information is coming from a trusted source. In addition, programs can offer incentives for siting in LMI communities, and offering additional co-benefits such as workforce development for LMI communities.				

¹² GRID Alternatives, Vote Solar and the Center for Social Inclusion. Low-Income Solar Policy Guide, 2016, See: <http://www.lowincomesolar.org/guiding-principles/>

CCSA Core Principles

We promote policies, programs, and practices that:

1. Allow all consumers the opportunity to participate in and directly economically benefit from the construction and operation of new clean energy assets.
2. Provide equal access for developers to build and operate community shared renewable energy systems and interconnect those systems to the serving utility's grid.
3. Incorporate a fair bill credit mechanism that provides subscribers with an economic benefit commensurate with the value of the long-term, clean, locally-sited energy produced by community shared renewable energy projects.
4. Support the participation of diverse customer types in renewable energy markets, and encourage customer choice with providers, product features, and attributes to catalyze innovation and best serve customers.
5. Provide assurance of on-going program operations and maintenance to ensure overall quality, that the facility lasts for decades, and that customer participation is protected. Safeguard the continuity of program benefits to protect customers and developers' investment.
6. Ensure full and accurate disclosure of customer benefits and risks in a standard, comparable manner that presents customers with performance and cost transparency.
7. Comply with applicable securities, tax, and consumer protection laws to reduce customer risk and protect the customer.
8. Encourage transparent, non-discriminatory utility rules on siting, and interconnecting projects, and collaboration with utilities to facilitate efficient siting and interconnection.
9. Maintain a 360-degree view of community shared renewable energy market and ensure a beneficial role for all parties in the partnerships forged between subscriber, developer, and utility.

