

Draft
Cook County
Solar Market Pathways
Economic and Policy Barriers Resolution Work Plan
May 10, 2016

The Cook County Solar Market Pathways project is one of 15 projects across the nation supported by the U.S. Department of Energy SunShot III Initiative to advance solar deployment across the United States. These projects take a variety of approaches to develop actionable strategic plans to expand solar electricity use for residential, community, and commercial properties. Project partners include the Cook County Department of Environmental Control, the City of Chicago, Elevate Energy, the Environmental Law and Policy Center, and West Monroe Partners. The Project's steering committee includes the project partners along with Commonwealth Edison (ComEd).

The Cook County project was developed to establish models for community solar and to identify and consider possible approaches to eliminating barriers to implementation. A key goal of this project is to study the feasibility of five to seven potential community solar demonstration sites within Cook County. In support of this goal, the project includes research efforts to identify economic and policy barriers to community solar, and identify opportunities for eliminating those barriers. The development of case studies for pilot projects will help create models and lessons learned that can assist future community solar projects in the region to succeed.

In order to support project deliverables, team members established three working groups in early 2015, including a Policy Working Group. A wide variety of stakeholders participated in this working group, including participants from the NGO community, the solar industry, and government. A list of members will be appended. This paper does not necessarily represent the opinion(s) of any individual participant and therefore should not be attributed to any such participant. The project is extremely grateful for their time and expertise.

The Policy Working Group held four meetings from June to September 2015 to identify economic and policy barriers, as well as potential resolutions, to help make community solar thrive in Illinois. The Policy Working Group identified the following as the most important existing or potential barriers to advancing a strong community solar marketplace in Illinois:

- Challenges with designing and implementing Bill Crediting
- Lack of Transparent and Predictable Incentive Structure
- Lack of Defined Subscriber/System Characteristics

- Lack of Definition around Transferability and Portability of Community Solar Shares for Participants
- Lack of Defined Consumer Protections
- Complexity around Tax Incentives, SEC Regulations and Legal Structures

The project team took the feedback from the Policy Working Group meetings and produced an outline of barriers and possible resolutions that was presented for feedback and discussion at the final Policy Working Group meeting. A brief summary was also presented at the October 28, 2015 meeting of the project’s larger Stakeholder Advisory Group. The team then gathered all of the feedback received through this collaborative public process and produced the current document to help identify and address a number of policy and economic barriers to community solar in Illinois.

The project team acknowledges that the policy environment in Illinois is very fluid, and information in this document may become out of date pending the outcome of various legislative and regulatory debates related to energy policy in Illinois. Nonetheless, this document presents relevant facts, analysis and options that should prove helpful regardless of the policy path ultimately chosen to further community solar in Illinois.

This document addresses each one of the barriers identified by the Policy Working Group, presents background information on the issue, analyzes the potential options available to address the issue and discusses potential next steps for stakeholders to achieve these resolutions. Stakeholders include: community solar developers, community solar advocates, project owners, subscribers, utilities, policy makers, and regulators.

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Barrier 1: Designing a Bill Credit

Community solar projects typically deliver value to participants through a direct credit on the participants' utility bills that represents the customer's "share" of the project. The Policy Working Group identified bill crediting, both the value of the credit and the mechanics of implementing the credit, as critical barriers to the development of a community solar market in Cook County. This section will discuss options for designing and valuing customer bill credits and the next section with some practical challenges associated with implementing bill credits on customer bills.

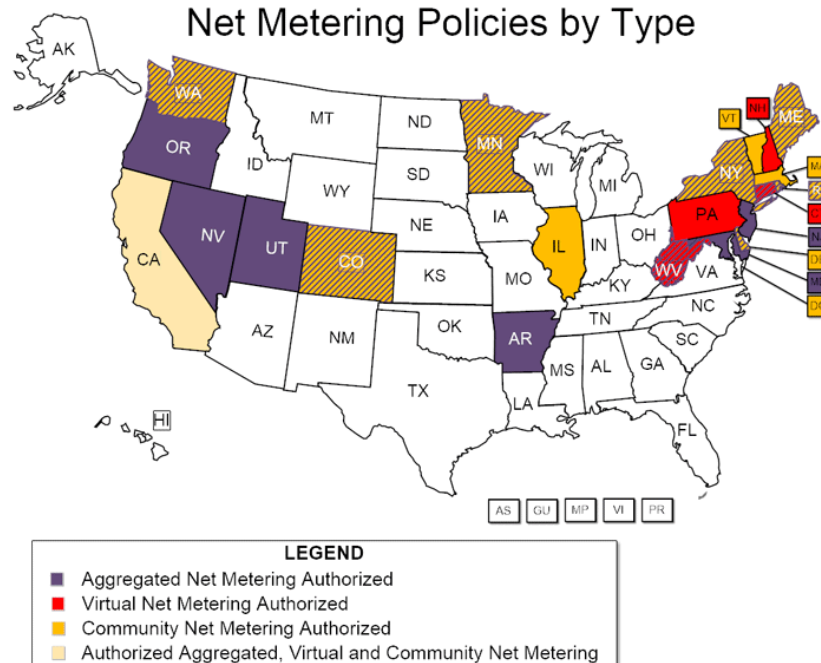
Background:

While there are any number of methodologies for assigning value to customer bill credits for community solar projects, two more common mechanisms that community solar programs use to calculate the value of bill credits applied to customer bills are: 1) a retail rate credit provided through "virtual net metering"; and 2) credit based on a value-based formula, often referred to as a "value of solar" calculation. Some utilities are also experimenting with bill credit formulas that are based on the development costs of the solar array or some other method.

Virtual Net Metering

Generally speaking, net metering is an accounting measure that allows owners and operators of small renewable energy generators with installations located behind the customer's own meter to receive credit for the excess energy those systems put back on the grid. Owners receive a kilowatt-hour credit for each kilowatt-hour delivered to the grid, and can draw upon accrued credits when drawing power from the grid. In most states customers cannot "cash out" their credits and credits often expire after a certain term, generally around one year, although details vary from state to state.

A mechanism known as virtual net metering or meter aggregation allows customers to install renewable electric generation facilities that do not flow directly to any of those participants' meters, as the facilities are not on their property or behind their meter. Participants typically continue to use the electric delivery service system or grid for their own individual electricity consumption. In a "virtual net metering" approach, multiple customers that enroll or subscribe to the program would be able to receive a bill credit for their portion of the shared renewable energy facility as if the facility was located on their own property. (This is why some call this type of program "virtual" net metering.) Not all states allow virtual net metering, and some states limit the type of customer (i.e. municipal customers) or technology (i.e. only solar), that can participate. In some cases, community solar participants are allowed to virtually net meter. The following map from the National Conference of State Legislators illustrates some of the different kinds of net metering programs allowed by states.



Source: National Conference of State Legislators.¹

Current Illinois Law and “Meter Aggregation”

In Illinois, net metering has been in place since 2007 and residential customers are credited for their excess generation at the retail rate.² Despite the availability of net metering since 2007, few customers have been able to take advantage of it and the net metering load served by electricity providers in Illinois remains significantly below one percent of their total peak demand supplied. This slow uptake of net metering is due to many factors, but one is the ambiguity around the availability of virtual net metering.

In 2007, the Illinois legislature directed electricity providers to “consider” allowing “meter aggregation” (essentially a form of virtual net metering) for community solar and other shared renewable energy projects, but to date there has not been a clear process to evaluate and approve these types of projects.³

Value of Solar

Rather than explicitly providing a retail-rate bill credit like net metering, “value of solar” methodologies attempt to consider and determine a value for the various grid and societal benefits of distributed solar, including factors like fuel savings, grid resiliency, carbon reduction benefits, line loss savings, and local economic impacts. Each of these factors and more can adjust the implied value per kilowatt hour of solar resources. Thus, depending on the factors and

¹ National Conference of State legislatures graphic. Available at: <http://www.ncsl.org/research/energy/net-metering-policy-overview-and-state-legislative-updates.aspx>

² P.A. 95-420; 220 ILCS 5/16-107.5.

³ See 220 ILCS 5/16-107.5(l).

methodology selected, a “value-based” bill credit could be above or below the retail rate of electricity. In recent years, studies have determined that the value distributed solar provides to the grid is at or above the retail rate of electricity⁴, although there are opposing views to these conclusions.

Several states and utilities have considered bill crediting formulas based on the value that community solar participants provide to the grid and/or society more broadly. Minnesota is the most prominent example of a statewide program that contemplates a value-based bill credit for community solar participants. To date, Xcel energy has credited community solar subscribers at an “applicable retail rate,” established by the Minnesota Public Utilities Commission (MPUC). This rate is essentially the full retail rate (including energy, distribution and transmission charges) plus the value of Solar Renewable Energy Credits (SRECs). The Commission is now considering whether to adjust the bill credit formula to set bill credits based on the state’s approved value of solar methodology.⁵ Other utilities, such as Consumers Energy in Michigan, have implemented “value-based” bill credits for participants, although there is a wide range of opinion on what factors should be included in a value of solar analysis and how those factors should be valued.

Other Options for Bill Crediting

Some states and utilities are experimenting with other methodologies for assigning value to customer bill credits for community solar projects. For example, the bill credit for Xcel Energy’s Wisconsin community solar customers is based on the fixed and variable production costs embedded in Xcel Energy’s current rates. The bill credit established in 2016 is considered the “floor” and if Xcel’s generation fleet becomes more expensive over time, the bill credit will increase accordingly.⁶ Madison Gas & Electric’s pilot community solar program offers customers the opportunity to purchase a pro-rata share of the output of a community solar project at a locked-in per-kWh electricity service charge for the 25-year life of the project. The output of the community solar project allocated to each participant will displace an equal amount of electricity use on the participant’s monthly bill.⁷

The Smart Electric Power Association (SEPA) notes that new community solar programs are emerging all the time and that there is “currently little standardization across the utility industry” with respect to program design and bill crediting.⁸ The Center for Sustainable Energy,

⁴ A summary of these studies is available in the Environment America report *Shining Rewards: The Value of Rooftop Solar Power for Consumers and Society*. Available at <http://www.environmentamerica.org/reports/amc/shining-rewards>

⁵ MPUC Docket E002/M-13-867.

⁶ Xcel Energy, Solar[®]Connect Community Fact Sheet (Wisconsin), available at <https://www.xcelenergy.com/staticfiles/xe-responsive/Admin/Managed%20Documents%20&%20PDFs/SCC-FAQ.pdf>.

⁷ Public Service Commission of Wisconsin, Application of Madison Gas and Electric Company to Implement a Community Solar Pilot Project (Docket 3270-TE-101).

⁸ SEPA website, <https://www.solarelectricpower.org/examine-issues/business-models/community-solar.aspx>.

California Solar Energy Industries Association, and the Interstate Renewable Energy Council recently completed a report for DOE’s Solar Market Pathways project that provides an overview of current virtual net metering and shared solar policies across the United States.⁹

Options:

The Policy Working Group did not identify one “best” option for customer bill crediting. Rather, as discussed above, there are several options available for further stakeholder consideration in Illinois. However, the group did identify as a guiding principle that “participants in a community solar program should receive tangible economic benefits on their utility bills that provide a clear, intuitive way to save money.”¹⁰ The Interstate Renewable Energy Council’s “Guiding Principles for Shared Renewable Energy Programs” notes that net metering has been very successful in motivating energy consumers to invest in renewable energy because it is a straightforward and simple concept.¹¹ As described above, current Illinois law and ICC rules related to “meter aggregation” may provide a short-term path forward for community solar pilot projects in Illinois. A stronger, statewide community solar market will likely require additional legislation.

Current Illinois Legislative Proposals

Over the longer term, the Policy Working Group identified a need for additional legislation to develop a stronger, statewide community solar market in Illinois. There are at least two legislative proposals that were introduced in Illinois in 2015 that address bill crediting for community solar projects.

While the bill credits would be calculated differently under the two legislative approaches, both the Clean Jobs Bill and the Future Energy Plan legislative proposals would help overcome some of the current barriers to integrating a bill credit for community solar into customer bills. Further analysis is required to determine whether the value of the bill credit proposed under each legislative option would be sufficient to support a strong community solar market in Illinois.

Challenges Associated with Retail Competition

Because the Illinois electricity market is restructured, the mechanics of bill crediting through a meter aggregation program will pose some challenges. For example:

⁹ Center for Sustainable Energy, California Solar Energy Industries Association, and the Interstate Renewable Energy Council, *Virtual Net Metering Policy Background and Tariff Summary Report* (June 30, 2015) (available at [https://energycenter.org/sites/default/files/docs/nav/programs/solar-pathways/\(6902\) Virtual Net Metering Policy Background and Tariff Summary Report.pdf](https://energycenter.org/sites/default/files/docs/nav/programs/solar-pathways/(6902) Virtual Net Metering Policy Background and Tariff Summary Report.pdf)).

¹⁰ See IREC, *Model Rules for Shared Renewable Energy Programs*, at 3 (Guiding Principles), available at <http://www.irecusa.org/publications/model-rules-for-shared-renewable-energy-programs/>.

¹¹ *Id.*

1. **RES Supply Contract Lengths Do Not Match Community Solar PPA Lengths:** The typical length of an alternative retail electric supplier (RES) supply contract is 1-3 years. The short-term nature of typical competitive supply contracts poses challenges for ARES interested in offering community solar projects, which typically require longer-term offtake arrangements or power purchase agreements (PPAs) to provide certainty for project financing.
2. **Unique Customer Characteristics May Impact RES Pricing:** Community solar projects may also introduce some pricing complexity for ARES. Specifically, the output of the community solar share may not match the load shape of the customer, which might make it difficult for an ARES to provide a fixed-price contract for additional supply. ARES may need to explore seasonal, time-of-day, or other variable pricing programs to manage this complexity.
3. **Barriers to Portability:** Customer switching also poses a challenge for community solar programs in restructured competitive markets. If community solar and commodity electricity are sold in separate contracts, even with the same entity, it could be difficult for customers to switch suppliers.
4. **Multiple Stakeholders Impact Risk and Transaction Costs:** Three parties are typically involved in a net metering conversation for a community solar project – the utility, the developer, and the energy supplier – and each of these parties face different risks and requirements that often conflict. RESs, for example, may choose not to enter into community solar agreements because of price risk and high transaction costs that drive customers away. Similarly, community solar customers may find it difficult to switch RESs over time. Community solar is also relatively new, which can also contribute to relatively high transaction costs.

Clearly, there is complexity and risk that will have to be accounted for in contracts between customers, ARES, and community solar providers and there are few examples of community solar in deregulated competitive markets to draw from. Massachusetts is one example of a state that is deregulated and has retail competition, as well as virtual net metering. In Massachusetts, customers generally sign a 20 year PPA for their share of the community solar project, and receive credits on their bill from their electricity supplier, whether it's the utility or a competitive supplier. Massachusetts differs from Illinois in that it has higher electricity rates, thereby making solar more cost competitive, and the utilities are required to offer virtual net metering as well. So a customer can switch between a competitive supplier and the utility and back throughout their 20 year PPA term with ease and a community solar provider does not have to take on the additional transaction costs and risks associated with finding a willing counterparty that can provide customers with commodity electricity. Passage of new community solar legislation in Illinois may be necessary to overcome these challenges.

Next Steps:

The Policy Working Group identified a short-term and long-term path forward to provide tangible economic benefits on the utility bills of community solar program participants.

Because of the current ambiguity around the availability of virtual net metering, over the long-term, new legislation will be necessary to establish a transparent and fair bill credit for project subscribers. This could be based on virtual net metering, on a value-of-solar approach or on some other approach that is designed to provide sufficient value to program participants and others. A best practice is to set up a process that is independent, transparent, and that allows for stakeholder participation.

In the short-term, the Policy Working Group recommended working with Illinois' existing net metering rules, which require "consideration" of meter aggregation for shared renewable energy projects. Under this approach, stakeholders will need to work together to overcome the barriers and complexities described above, especially those related to the restructured electricity market in Illinois.

1. In the short-term, stakeholders will work with electric utilities and ARES to offer virtual net metering to customers using the authority under the current net metering statute and rule. This will require creativity and flexibility on the part of all stakeholders to overcome some of the structural and logistical barriers to community solar bill crediting that currently exist.
2. Statutory changes are likely necessary to facilitate a large, sustainable community solar market in Illinois. Stakeholders will continue to evaluate the options and develop a preferred solution.

Barrier 2: Implementing a Bill Credit on Customer Bills

Background:

Utilities generally have large, complicated software systems to bill customers in an accurate and timely manner. Integrating changes into the billing structure can take time, and has associated costs. This presents a potential barrier for implementing a new community solar program, which typically requires a more sophisticated billing approach than is possible under some older utility billing systems.

ComEd has, to date, hand-billed each net metering customer instead of making systemic changes to their billing system that would automate or semi-automate the process. This manual approach to billing has made sense economically when balancing the small number of net metering customers with the potential costs to update or retrofit its billing system. In the long term, a system upgrade will be undertaken that may automate or semi-automate the bill crediting processes for net metering and community solar customers. But, this upgrade will not happen

any sooner than 2019. In the interim, ComEd is finalizing a semi-automated billing process for these customers that integrates with their current billing system and will greatly reduce the costs of manual bill crediting until the full system upgrade is realized.

This interim solution of semi-automating the billing process may help to overcome this current barrier. However, as the market grows, balancing the needs and costs may require different interim solutions. Also, it is not certain that when the full system upgrade is completed that the processes for billing net metering and virtual net metering customers will be completely automated. It's also not clear how legislation may impact the requirements or processes for bill crediting. For these reasons, we've explored additional options for potential short term or long term solutions.

Options:

In the short-term, there some potential interim steps that utilities may enable to accommodate pilot projects more cost effectively than the current manual or semi-manual billing model, depending on the complexity of the billing needs and scope of the pilots. For example, the utility could contract with a third-party to develop an on-bill crediting solution that is integrated with the utility IT system. These solutions offer the flexibility for the billing process to be managed by the system owner, a third-party or the utility itself.

There are several third-party developed systems available on the market today that are open-architecture platforms that can integrate with most utility billing systems. Clean Energy Collective, a community solar provider, developed their Community Solar Platform (CSP) so that utilities could load it directly into their system. Poudre Valley REA and Kit Carson Cooperative, among others, are currently using the system to manage community solar projects. The program includes the bill crediting mechanism as well as ecommerce and customer engagement tools, and a remote function to operate and maintain the community solar facility. Similarly, SunShare, another community solar provider, has developed a platform that can plug into utility billing systems. Their system is just coming to market. Other providers include Tendril and ProjectEconomics. These programs typically include mechanisms for tracking the production from the community solar system, a mechanism to calculate bill credits for subscribers, and a mechanism to make adjustments to customer bills. Additional features may include a portal for customers to view performance of the community solar system, automated monthly customer notification of system performance, and ways for customers not-yet enrolled in a community solar project and/or developers to find or manage subscriptions.

ComEd and other project team members, led by West Monroe Partners, evaluated various potential pathways forward for implementing a bill credit on customer bills and their associated potential costs. These results are discussed in a separate project deliverable: Utility Billing Impacts of Community Solar. However, the analysis revealed that the challenges associated with integrating bill crediting into the current utility billing system are likely a short-term problem.

Next Steps:

Over the next few years, ComEd will implement comprehensive billing system improvements with upgrades that can better accommodate the bill crediting needs of participants in community solar projects. Among the interim solutions being considered, third-party solutions may help relieve the burden of manual or semi-automated billing while waiting for full automation. In the long term, it is still unclear whether the system upgrade will allow an efficient and cost-effective approach. So, further solutions may require investigation, including third-party technologies. The exact costs and timing are difficult to quantify, specifically, because they need to be customized to the existing or upgraded systems and because they offer varying options and levels of service.

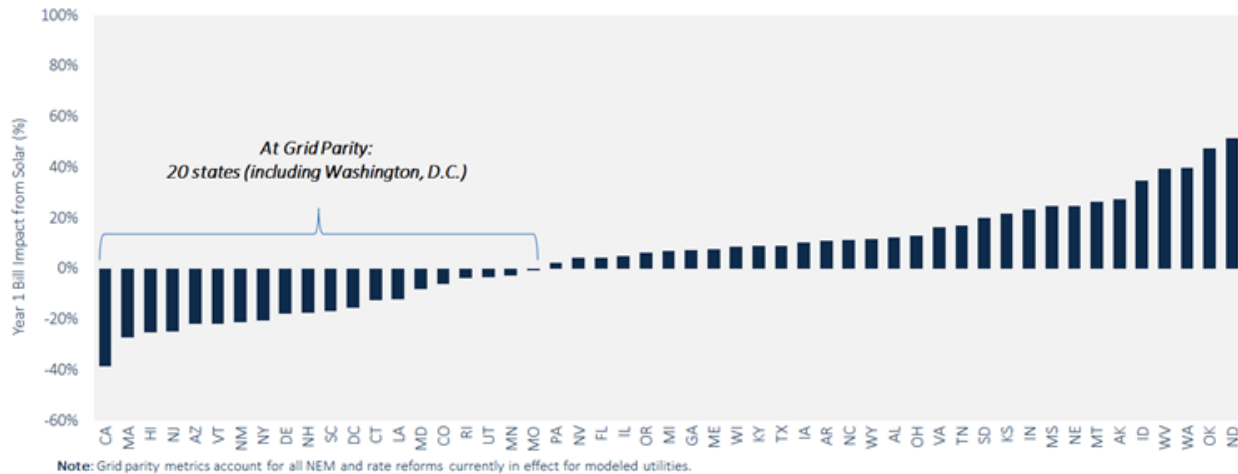
Stakeholders should evaluate the options available and discuss the most cost-effective and timely product to use during this interim period based on the anticipated number of pilots and subscribers. Stakeholders should also work with ComEd to consider various potential interim options, such as leveraging well-suited, third-party developed platforms for use to better accommodate community solar bill crediting in the interim or permanently.

Barrier 3: Lack of Transparent and Predictable Incentive Structure

Background:

Despite the sharp decline in price for photovoltaic systems, the cost of solar still presents a barrier in Illinois, which has relatively low electricity prices. Policy Working Group participants thus concluded that net metering alone may not provide the return on investment many customers will likely require to participate in community solar projects. State, utility and local incentives like rebates, grants, tax credits, feed-in-tariffs, value of solar tariffs, and payments for Solar Renewable Energy Credits (SRECs) are used in some jurisdictions to further incent customer participation in solar.

There is a long history of providing incentives to foster the growth of new technology markets, including markets within the electricity sector such as solar energy. The availability of these incentives can often make solar more attractive to a larger constituency, and depends on electricity power prices, solar installation costs, and solar penetration levels. GTM Research recently released a report showing that the cost of solar is now at grid parity in 20 states, but still remains above parity in Illinois.



Source: GTM Research¹²

Illinois does not have a consistent SREC market, rebate program, or other incentive structure. The state does have a Renewable Portfolio Standard (RPS) that requires electricity providers to purchase an increasing amount of their electricity from renewable resources. Providers do so by purchasing RECs from wind and solar projects. Within the RPS there is a requirement that the investor-owned utilities, through the Illinois Power Agency, purchase some SRECs from distributed generation resources, including solar. However, these resources are defined as solar systems that are behind the customer’s meter, and therefore there is no clear pathway for community solar projects to participate in the Illinois Power Agency’s SREC market. Illinois has also had a long-standing rebate program administered by the Department of Commerce and Economic Opportunity. Each year, DCEO awards about \$1-\$2 million to owners of wind and solar projects. It is unclear whether community solar projects would qualify for the rebate, and moreover the funds are limited and susceptible to being swept by the legislature to cover other state expenses. More reliable and consistent incentive structure for community solar would be valuable.

Options:

There are multiple ways different states have undertaken to incent the development of solar systems including community solar systems. Some states have chosen to provide incentives in the form of rebates, grants and tax credits, which provide incentives regardless of how much power the system produces. Other states have chosen to provide incentives based on the amount of power produced, through feed-in-tariffs, value of solar tariffs, or the purchasing of SRECs. Unlike rebates and tax credits, when utilities or states purchase SRECs they are purchasing an actual commodity. One SREC represents the environmental attributes associated with one hour of power produced by a qualifying solar system. By purchasing the SREC, the state or utility (or

¹² GTM Research, *U.S. Residential Solar Economic Outlook*. Available at <http://www.greentechmedia.com/articles/read/GTM-Research-20-US-States-at-Grid-Parity-for-Residential-Solar>

other entity) can claim that environmental attribute. For the seller of the SREC it is a way to monetize the value of that environmental attribute and further reduce the cost of installing the system. In these instances, the customer is only paid when the system produces. Below are several examples of SREC markets and tariff structures that seek to encourage community solar:

- In Minnesota, subscribers to Xcel’s Community Solar Garden program are currently compensated at an “applicable retail rate” which includes the value of SRECs.
- In Massachusetts, community solar providers can sell their SRECs to the utilities, who then retire them in order to comply with the state RPS. Delaware and Maryland similarly allow community solar projects to participate in their SREC markets.
- In New York, community solar projects can participate in the NY Sun initiative, which uses a declining block format to provide an incentive to solar projects. Projects are paid per kW of installed capacity, either upfront or on an expedited timeframe, depending on size, in exchange for a future stream of SRECs. The benefit of the declining block format is that it is transparent and has less volatility than an SREC market.

The legislative proposals mentioned earlier each have attempts to provide a more stable and reliable renewable energy market in Illinois. The Clean Jobs Bill (HB2607/SB1485) One requires the Illinois Power Agency to develop a long-term renewable resource plan to reach a goal of 35% renewable energy by 2035. Within that plan, there is a set-aside for solar and for community solar. At least 7% must come from solar energy and 75% of that must be rooftop or community solar. The IPA would purchase SRECs from rooftop and community solar project through a declining block program that would provide a per-kW payment spread out over the first 5 years of operation. In the Future Energy Plan (HB3328/SB1879) the Illinois Power Agency would purchase SRECs from low income community solar projects using half of money remaining in the Renewable Energy Resources Fund as of June 2018. This fund contains alternative compliance payments remitted to the State Treasury by alternative retail energy suppliers pursuant to the existing Illinois RPS.

Next Steps:

In order to reach deep market penetration of solar, Illinois needs to further explore development of a consistent and predictable incentive structure. Consistency and predictability protects from boom and bust cycles, which leads to cost savings to participants and customers and provides a platform for growth.

Additionally, the incentive structure should be flexible enough to allow for different contract models to meet different consumers’ preferences. Finally, the incentive model should address additional barriers that certain market segments may present (non-profit, low-income, government). This can come in the form of specific carve-outs within a larger incentive program or separate and distinct incentives. For instance, Massachusetts assigns a higher value to SRECs from projects that serve low-income customers, while California has a distinct low-income solar program.

A transparent and predictable incentive structure can help lower the cost of going solar for customers and build a strong local solar marketplace that further drives down costs. In Illinois this likely will require statutory improvements to the existing incentive structures, possibly through amendments to the Illinois RPS.

1. Use the value proposition tool being developed by this project to test for affordability and market impact of various proposed incentives
2. Long term, develop of incentive policies that address the economic barriers currently limiting community solar implementation

Barrier 4: Lack of Defined Subscriber/System Characteristics

Background:

Illinois does not have a defined statewide community solar program. Under the current virtual net metering framework, the only express requirement is that the project must otherwise qualify for net metering (i.e. be under 2 MW and located behind a customer's meter). Other project details, such as who can subscribe, how big a subscription is, how many subscribers there are, and where a project is located are left up to the provider and developer of the project. This could cause confusion and complexity for project sponsors and participants. Recent experiences in other states suggest that failing to define system/subscriber characteristics can lead to confusion in the market, causing delays and even forcing projects to be derailed.¹³

Options:

Other states have clearer guidelines for defining what qualifies as a community solar project and who can subscribe. There are a number of categories of characteristics that Illinois can consider defining in order to facilitate the development of community solar projects, including:

- i. Customer class
- ii. Customer type
- iii. Segment
- iv. Number of participants
- v. Location of subscribers relative to system
- vi. System size
- vii. Co-location of systems

Here are some examples of how utilities have defined system/subscriber characteristics within their programs in other states:

¹³ For example, uncertainty around Minnesota's program in 2015 and subsequent changes are often cited as the cause of significant delays to projects. See <http://cleantechnica.com/2015/06/22/xcel-minnesota-community-solar-garden-program-full-of-weeds/>

- *Orlando Utilities Commission Community Solar Farm, Orlando, FL* – The OUC community solar project is 400kW in size and was fully subscribed within one week. It is open to residential and small commercial customers within the OUC’s Orlando electric service territory, and offers a minimum buy-in of 1kW and a maximum of 15kW.
- *Xcel Energy, Colorado* – Xcel Energy, in conjunction with existing Public Utility Commission regulations, offers specific community solar characteristic guidelines for all projects in its territory under its Solar*Rewards Community program.¹⁴ Requirements include: total system capacity of 2MW or less; 5% of the garden’s total kW must be allocated to low-income customers; there must be a minimum of 10 subscribers; a single subscriber cannot account for more than 40% of the total garden; customers may subscribe for no more than 120% of their total electricity consumption over the previous year; the minimum buy-in is 1kW (except for low-income customers); and subscribers must be Xcel customers located in the same county as the garden (except for those with populations of less than 20,000 people). Regarding co-location, multiple gardens can be located on a single site as long as they are separately metered and owned by separate entities. If a single owner owns multiple gardens on a site, they cannot exceed the cap of 2MW.¹⁵ Xcel Energy offers the Solar*Rewards Community program in Minnesota with similar requirements.
- *Tipmont REMC Community Solar Farm, Linden, IN* – Tipmont REMC is the first community solar project in the state of Indiana. It is 100kW in size. Subscribers must be members of Tipmont REMC with active electric accounts to participate. Subscribers may purchase a maximum of 10 panels or 50% of their annual electric usage. There are two minimum buy-in options: (1) \$5 per month or (2) purchase the output of one 410W panel for a 25 year period. The project came online in October, 2014 and is currently still accepting subscribers.

There are a number of outcomes that can be achieved through the process of developing system and subscriber characteristics for community solar projects. Attracting a broad range of subscribers can be achieved by not limiting subscribers by customer class, type or segment. Additionally, this may mean encouraging participation from certain segments of the population such as low-moderate income, non-profit, and other groups that are often considered underserved by traditional solar opportunities. Analysis has indicated that the economics of the project tend to be more favorable when a diverse group of subscribers are allowed to participate.

The size of the community solar system will inherently limit the number of participants, but, the goals of a specific project should also be kept in mind when determining a minimum

¹⁴ <http://www.xcelenergy.com/staticfiles/xe/Marketing/Managed%20Documents/co-sr-communities-faqs.pdf>

¹⁵ The 2MW cap applies to the Large Program (RFP); under the Standard Offer Program the cap is 500kW for the medium category and 50kW for the small. The definition of a “site” is set forth in statute under the Colorado Public Utilities Commission.

buy-in threshold.¹⁶ If, for example, a goal is to encourage participation from low-income customers then the minimum buy-in should be set at an amount that is obtainable for those customers, which will in turn increase the number of potential subscribers.

As for the location of the subscriber relative to the system, there is no one “best practice”, as it often depends on the business model or ownership structure of a given project. For instance, if the project is utility-owned then subscribers are often required to be located within that utility’s service territory. Projects developed in Minnesota and Colorado under Xcel Energy’s guidelines further require that the subscriber be located within the same county as the community solar project. At a minimum, a solution may need to have clear guidelines regarding geographic restrictions from the start.¹⁷

As with the other barriers discussed, the two proposed pieces of energy legislation also include definitions applicable to community solar projects.

Next Steps:

The Policy Working Group recommended that stakeholders work to better define and/or establish criteria subscriber/system characteristics. In doing so, the potential for conflict and hesitancy to initiate a community solar program will be greatly reduced as all stakeholders will be working from consistent and agreed upon framework.

There are several actions that can be undertaken by community solar stakeholders in order to implement the proposed solution:

1. Work with electric utilities, RES, and community solar providers to begin developing some standard definitions that will alleviate confusion.
2. Develop certain, practical, best practices for implementation of community solar program that is authorized through legislation or regulation. Stakeholders can build on work in #1 above and refine these definitions and characteristics to meet the needs of additional interested parties. This can be accomplished by working with the community solar industry, utilities, low income advocates, and consumer advocates, to outline suggested characteristics for a community solar program in Illinois.

¹⁶ IREC *Model Rules for Shared Renewable Energy Programs*. Available at <http://www.irecusa.org/publications/model-rules-for-shared-renewable-energy-programs/>

¹⁷ Recommendation from working group.

Barrier 5: Lack of Definition around Transferability and Portability of Community Solar Shares for Participants

Background:

Transferability refers to the ability for shares to be transferred from one participant to another participant. Portability refers to the ability of a participant to “bring their share with them” when they make other changes to their electricity provider. Both are important policies in successful community solar programs; however it is unclear how or whether either would be included in Community Solar participant contracts.

While transferability is important in all markets in the event a participant needs to move, it is particularly relevant in the Chicago metro area due to the especially transient nature of the community. Furthermore it is critically important in the context of extending accessibility to lower-income and renter households that are less likely to stay in one place for long periods of time than higher-income or owner households. Transferability grows the market of potential participants to include those with uncertainty about their future living situation while portability makes it easier for satisfied customers to remain participants for longer.

Neither statute nor regulation currently provides guidance to community solar providers, ARES and electric utilities, or community solar participants on transferability and portability. Under the current virtual net metering framework it may be difficult to enable transferability/portability depending on how community solar contracts are bundled with commodity electricity contracts, and given that not all electricity providers in Illinois are required to offer virtual net metering. Working Group participants indicated that, in this situation, individual ARES, IOUs and community solar providers will develop their own rules around transferability and portability, which could create confusion and complexity, as well as increase transaction costs associated with the project.

Options:

In its *Model Rules for Shared Renewable Energy Programs*, the Interstate Renewable Energy Council (IREC) recommends “as much flexibility as possible” with regard to enabling both transferability and portability, acknowledging that in some cases transferability or portability may have to be limited due to the administrative burden they can create. According to IREC, “Given that only half of Americans stay in a residence for longer than 10 years, and that renters, younger and more urban households are likely to move even more frequently, **it is essential to consider and specify how these situations will be treated** with respect to program participation, regardless of the ultimate approach taken” [*emphasis added*].

IREC’s model rules enable both transferability and portability. Most states have dealt with the transferability and portability by specifically allowing it within either the statutory authority enabling community solar or virtual net metering, or in the program rules. Two

examples of this are in Minnesota and Colorado. Massachusetts provides an example of how individual community solar programs can be structured to enable transfers and portability.

- *IREC's* model rules explicitly allow transfers to any eligible participants and explicitly allow participants to port their share so long as they remain eligible to participate in the program. The rules also allow participants whose eligibility status changes to transfer their shares back to the project organizer, although it does not require the organizer to compensate the participant for unpaid bill credits.
- In *Minnesota* the operators of Community Solar Gardens must allow subscriptions to be transferred or sold to other eligible subscribers or to the operator for resale. Operators must also allow eligible subscribers to change the subscription's premise/account number (i.e. portability). These requirements are part of the contract language between the operator and the utility (Xcel Energy) and were required by the state's Public Utility Commission through the regulatory proceeding that developed the rules for the Community Solar Garden program.¹⁸
- In *Colorado* the enabling legislation for community solar gardens addresses both transferability and portability in the text of the statute. The Colorado Community Solar Gardens Act states that the development and deployment of community solar gardens is in the public interest in order to "allow interests in solar generation to be portable and transferable." The statute asserts in the definition of "subscription" that community solar garden subscriptions may be transferred to qualified subscribers. It also mandates portability for customers that relocate within the same service territory, utility, and community solar garden geographic area.¹⁹ Colorado Public Utility Commission rules further require (1) that community solar garden subscribers are able to transfer their subscription back to the subscriber organization and (2) that subscriber organizations maintain customer waiting lists and facilitate subscription transfers between customers wanting to exit and enter the program.²⁰
- In *Massachusetts* transferability and portability varies somewhat by community solar provider but is generally enabled by allowing participants to bring community solar with them if they move within the same load zone/transmission area. Otherwise participants can transfer community solar to friends, family members, or neighbors. Some providers also allow participants moving out of the load zone/transmission area to terminate their agreement without incurring early termination fees with sufficient notice.

Next Steps:

As mentioned above, current Illinois law does not provide guidance regarding transferability and portability of community solar shares. The Policy Working Group

¹⁸ See Minnesota PUC Docket 13-867, Document ID 20144-98041-01.

¹⁹ See C.R.S. 40-2-127, commonly referred to as the Colorado Community Solar Gardens Act.

²⁰ See CO PUC Proceeding No. 10R-674E, which amends Solar Gardens Rules.

recommended consideration of statutory or regulatory authority for participants to transfer and port their shares to provide clarity and certainty. Any future statute or rule should ensure that:

- (1) Program participants could transfer their community solar to any other eligible community members and/or back to the provider.
- (2) Participants that transfer their community solar due to a change in their eligibility to participate in the program (e.g. due to a move) are able to do so without incurring a financial penalty either due to fees or uncompensated loss of pre-paid value. Given the long-term nature of most community solar contracts, this protection is essential for participants to feel confident that they will not be hit with hidden charges and fees if their situation changes and they are no longer able to participate in the program.
- (3) Participants are able to port their community solar share anywhere within the same transmission zone or clearly defined program eligibility area.

Given the long lead time required for statutory and regulatory change, it is prudent to address these concerns within the current virtual net metering framework. Stakeholders, including electric utilities, ARES, and community solar providers, should discuss how concepts of portability and transferability may be incorporated into any future meter aggregation project proposals. Stakeholders should identify and implement agreed provisions around transferability and portability between ARES and utilities that are willing to facilitate community solar projects using meter aggregation. This will require creativity and flexibility to create a pilot framework or best practices among willing participants. Quick resolution of these issues would allow community solar projects using this model to move forward with limited risk.

Transferability and portability should be included in statute or regulation around community solar or virtual net metering. This will provide the most clarity and certainty for participants and providers.

Barrier 6: Lack of Defined Consumer Protections

Background:

The Policy Working Group identified a need for consumer protections to be included in the structure of a community solar program. The Working Group was particularly concerned that subscribers to community solar products be given fair information to evaluate the costs and benefits, as well as clear contract terms.

Illinois does not have a defined community solar program, and therefore there are no regulations to specifically govern community solar projects. The rules governing net metering do not include specifics around contract terms or disclosure requirements, leaving a gap for potential participants. However, any ARES that is offering community solar would have to follow the rules promulgated for ARES commodity products. The Illinois Commerce

Commission is currently updating these rules and has included some additional requirements.²¹ These requirements do not specifically address community solar, but would theoretically apply to an ARES-offered meter aggregation/community solar product:

- Adherence to the Uniform Disclosure Statement, which includes requirements for disclosure of price, other charges, length of contract, auto-renewal conditions, early termination fees, and the window to cancel without penalty.
- A written statement of savings if the RES is claiming savings, and the conditions or circumstances that must occur for the savings to be realized.
- Explanation of any variable charges and how they are determined, any fixed monthly charges, any termination fees, whether there is a deposit required or prepayment, refund terms, and switching fees.

Options:

The rules discussed above would only apply under the current virtual net metering framework, so the Working Group found it prudent to think through consumer protections that could be useful in a statewide community solar program. The Working Group identified the following consumer protections for consideration:

- A requirement for solar providers to clearly review the terms of the agreement and show that those terms are included in the official signed contract.
- Clear and standard explanation of assumptions and estimates versus guarantees when it comes to electricity usage and prices over time for participants.
- Official review of qualifications of providers in order to offer community solar within the state.
- Clear documentation for participants of terms of maintenance or outage issues at a solar facility and what that means for their bill or contract if generation is impacted.
- Clear point of contact for the customer for the Provider.
- Appropriate steps, fees, or implications for the customer to end their contract early.
- Protections against hidden fees (late payment, contract termination, etc.) or unreasonable fee or rate escalators.

There are several examples of how states have handled consumer protections for community solar participants, with the most prominent example being Minnesota. The statute authorizing the Community Solar Garden program required the Minnesota Public Utility Commission (MPUC) to “identify the information that must be provided to potential subscribers to ensure fair disclosure of future costs and benefits of the subscriptions”, “identify all proposed

²¹ See ICC Docket 15-0512 which amends Ill. Adm. Code part 412 and Part 453.

rules, fees, and charges”, and “be consistent with the public interest.”²² As a result, the MPUC determined that the contract between the community solar provider and Xcel energy include the following disclosures:

- Future costs and benefits of the subscription, as more fully detailed below in the ordering paragraphs;
- A copy of the contract between the solar-garden operator and Xcel;
- Proof of insurance;
- Proof of a long-term maintenance plan;
- A statement that Xcel makes no representations concerning the taxable consequences to the subscriber of bill credits or other tax issues related to participating in the solar garden.

Furthermore, community solar providers are required to set aside funds for operation and maintenance, and obtain opinion letters on the legal and tax benefits of participation in the community solar project and to provide these opinions to subscribers. The MPUC also directed the utility and stakeholders to discuss uniform subscriber disclosure forms, limitations on promotional activities and materials, and uniform standards for solar-garden production estimates, but did not order any specific terms for implementation. The Interstate Renewable Energy Council (IREC) has recently developed a suite of new consumer protection resources for renewable energy projects that include a Clean Energy Consumer Bill of Rights and a Solar Smart Consumer Checklist.²³

There is one current legislative proposal in Illinois that includes consumer protection provisions in a community solar program. The Clean Jobs Bill (HB2607/SB1485) includes consumer protections within a proposed low-income solar program, but does not delineate specific provisions. Furthermore it does not require consumer protections for community solar outside of those projects that fall within the low income solar program.

Next Steps:

The Policy Working Group determined that stakeholders need to develop an agreed upon set of consumer protections that can be implemented once a community solar program is operational.

1. Stakeholders will work with interested utilities, ARES, and community solar providers to determine if there are standard consumer protections that can be used for projects using the current virtual net metering framework.
2. Stakeholders will expand the content around best practices for consumer protection and refine these items in order to make them workable in Illinois. Stakeholders should work with the Illinois Attorney General and other consumer advocates to identify additional preferred protections. Ideally all interested parties can come together to develop a model

²² Minn. Stat. § 216B.1641€ (4), (5), (7).

²³ See www.irecusa.org/consumer-protection/

of proposed consumer protection provisions for an Illinois based program. This will take some time and may not be available at the outset of a community solar program implemented through the current virtual net metering framework in Illinois.

Barrier 7: Complexity around Tax Incentives, SEC Regulations and Legal Structures

Background:

The nature of community solar is such that there are multiple players involved in each project: subscribers, owners, financiers, hosts, investors, etc. These relationships inevitably require complex legal structures, and those structures can be further complicated by the need to qualify for tax incentives and avoid complex SEC regulations.

Policy Working Group participants identified two aspects of community solar deals that, due to the complexities they introduce, can provide substantive barriers to project completion. These aspects are 1) the need to have a party with tax liability to qualify for the Federal Solar Investment Tax Credit and 2) the risk of being classified as a security and thereby incurring an insurmountable regulatory burden.

The Federal Solar Investment Tax Credit provides an income tax credit for investments in solar (including community solar) at rate equivalent to 30% of the total solar investment through the end of 2019 and at a lower rate thereafter. If community solar project participants do not have a large tax liability, as is often the case with renters and sometimes the case with small business or residential customers, it may be necessary to involve another party with a tax credit appetite. While adding another party is legally possible in Illinois' deregulated market, it adds further complexity to an already-complex structure.

Certain community solar models may run the risk of being classified as securities if the garden involves financial investment with an expectation of some sort of return on that investment. These projects could be regulated by the SEC and state blue sky laws (state laws pertaining to securities). The cost of compliance with these regulations can be prohibitive for community solar. As such, structuring community solar projects so as to avoid the appearance of securitization is important and adds another layer of complexity to these projects.

Community solar projects that do request an investment or confer ownership can seek one of several exemptions to SEC regulations. These include private placements, small offerings, intrastate offerings, and crowdfunding. These exemptions impose various requirements on offers. Depending on which exemption is being used, these requirements may include limits on the number of investors, requirements for investor sophistication, prohibition of offering solicitation, limitations on offering size, requirements that all parties reside within a single state, the prohibition of online solicitation, and/or the requirement that an offering is made through a registered broker-dealer. Furthermore some of these exemptions still require offerings to comply

with state blue sky laws, which can be just as burdensome as federal regulations if similar exemptions are not in place.²⁴

Options:

Changing the regulatory landscape around federal tax credit incentives for solar projects and securities is outside of the scope of this project. Instead, it will be important to focus on promoting community solar project structures that facilitate efficient utilization of tax credit incentives and avoid unnecessarily requiring regulation as a security. Additionally, future policy initiatives at the state level to add community solar exemptions to Illinois' blue sky laws could help to partially address the securities issue. Some states have worked to change blue sky laws to facilitate exemptions to state-level securities regulation by: (1) ensuring state exemptions match federal exemptions, and (2) creating exemptions specifically for community solar projects. For instance, Oregon offers securities exemptions for renewable energy cooperatives and Vermont for certain community solar projects.²⁵ Similar measures could be taken in Illinois if state blue sky laws prove a significant barrier, over and beyond federal securities law, to community solar development.

Next Steps:

Future policy initiatives at the state level to add community solar exemptions to Illinois' blue sky laws could help to partially address the securities issue. Measures similar to those in Oregon and Vermont could be taken in Illinois if state blue sky laws prove a significant barrier, over and beyond federal securities law, to community solar development.

1. Make parties interested in community solar aware of the complexities around structuring community solar projects and steer potential projects towards less complicated community solar models.
2. If state blue sky laws prove especially burdensome, solar developers and other stakeholders can work with policy-makers to explore options for creating exemptions to Illinois blue sky laws for community solar projects.

²⁴ Samantha Booth. "Here Comes the Sun: How Securities Regulations Cast a Shadow on the Growth of Community Solar in the United States." *UCLA L. Rev.* 760 (2014).

²⁵ Green Energy Institute. "Part 5: Can Securities Exemptions Eliminate Community Solar Obstacles?" Lewis & Clark Law School. 6 Oct 2014. <http://law.lclark.edu/live/news/28143>.