Cook County Community Solar: Best Practices Analysis

August 2015

About the SunShot Initiative

The U.S. Department of Energy SunShot Initiative is a collaborative national effort that aggressively drives innovation to make solar energy fully cost-competitive with traditional energy sources before the end of the decade. Through SunShot, the Department of Energy supports efforts by private companies, universities, and national laboratories to drive down the cost of solar electricity to $0.06 per kilowatt-hour. Learn more at energy.gov/eere/sunshot.

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“Cook County should be a world-class model of sustainability. We are working not only to boost sustainability practices throughout County government, but also to join forces with local governments, nonprofits and business, to accomplish more than we could separately in making each of Cook County’s communities sustainable.”

– Toni Preckwinkle, President, Cook County Board of Commissioners

This project to advance community solar in Cook County is undertaken cooperatively by Cook County, the City of Chicago, ComEd, Elevate Energy, Environmental Law and Policy Center, and West Monroe Partners; and it is funded by the U.S. Department of Energy.

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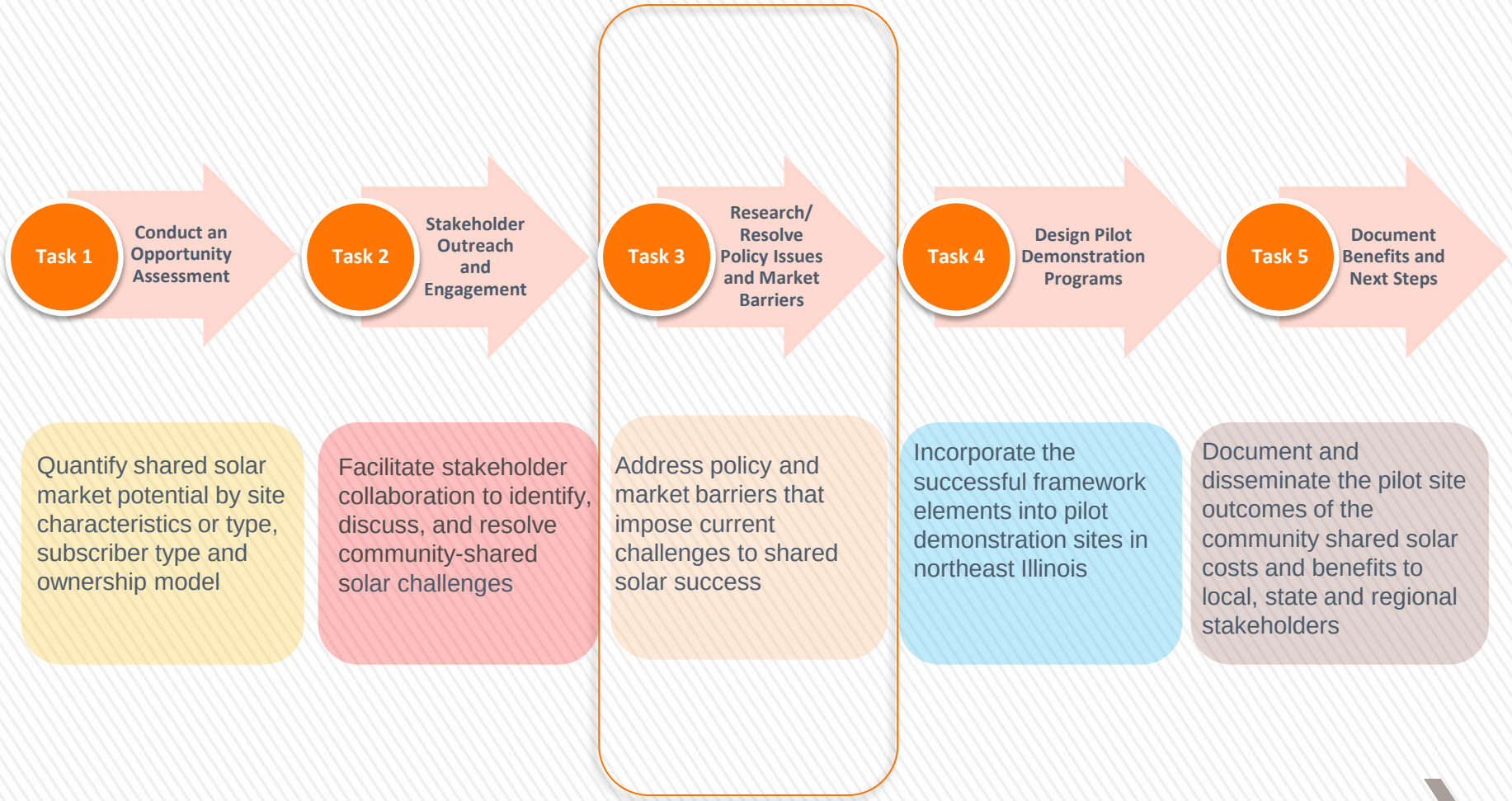
Project Tasks



Overview

- Goals of Best Practices Analysis
- Exploring Best Practices
  - Guiding Principles for Community Solar Development
  - Business Models
  - Program Mechanics
  - Policy
- Conclusions: Building a Framework for Cook County
- Appendix: Case Studies

Goals of Best Practices Analysis

Goals for Best Practices Analysis

Objective: Identify model programs and best practices in community solar

- Research national community solar material from leading authorities
- This analysis will:
  - Provide a framework and clear pathway for establishing policy positions to incentivize/accelerate community solar in Cook County
  - Inform the team's selection of pilot project structures and characteristics
- Examine case studies from successful community solar programs
- Develop a local Cook County best practices summary based on national best practices and case studies to help inform stakeholder engagement process

Definition of Community Solar

<u>Community (shared) solar</u> is a photovoltaic electric system that provides power and/or financial benefit to multiple community members

- Many different definitions exist, but the scalability and sustainability of most models hinge on providing a benefit in return for subscription to the system (e.g., utility bill credit or financial return)
- Subscribers could include any member of the community with a utility bill: residential households, businesses, nonprofits, etc.

Our Approach to Analysis

A number of approaches serve to inform our understanding of the current state of community solar business model development and policy

- **Literature review**: A review of reports by the National Renewable Energy Laboratory, Lawrence Berkeley National Laboratory, Interstate Renewable Energy Council, Solar Energy Power Association, Solar Energy Industries Association, and other industry stakeholders provided detailed data, analysis, current trends, and projections; see details in the bibliography
- **Case studies review**: A number existing community solar projects nationally were reviewed and analyzed; some of these are summarized in the appendix of this report
- **SunShot stakeholder engagement**: Cook County SunShot project engaged stakeholders beginning with a meeting in March 2015, with working groups forming in May. Regular meetings and working sessions have since occurred on a regular basis, offering unprecedented opportunities to explore these issues in more detail and specifically in the context of Cook County

Exploring Best Practices

Interstate Renewable Energy Council's (IREC) Guiding Principles for Solar Development

- IREC developed initial shared renewables program principles and published summary report in 2010; shared solar-specific principles were published in 2013
- These are general principles for developing community solar programs that have been vetted by a wide range of stakeholders
- IREC guiding principles are widely recognized across the country as best practices for community shared solar development
- Cook County Community Solar Project is using these to guide the development of pilot site demonstration programs

Source: http://www.irecusa.org/regulatory-reform/shared-renewables/

IREC's Guiding Principles for Shared Solar Development

- #1: Shared renewable energy programs should expand renewable energy access to a broader group of energy consumers, including those who cannot install renewable energy on their own properties
- #2: Participants in a shared renewable energy program should receive tangible economic benefits on their utility bills
- #3: Shared renewable energy programs should be flexible enough to account for energy consumer preferences
- #4: Shared renewable energy programs should be additive to and supportive of existing renewable energy programs, and not undermine them

Source: http://www.irecusa.org/regulatory-reform/shared-renewables/

Important Community Solar Best Practices

- Review of existing literature, case studies, and interviews with community solar program staff and developers highlight a short-list of business models, program characteristics, and related policies essential to sustainable development of community solar programs
- The following list of best practices will be used to guide the development of Cook County's community solar pilot site demonstration programs
- The sources for these best practices are listed at the end of the presentation

Exploring Best Practices: Business Models

Business Models

- Many community solar business models and variations have emerged
- Business models are created to maximize incentives through complex legal structures or to work around policy limitations
- The best business models achieve profitability for investors and maximize benefits to participants
- Four have been identified as the most common and most feasible
  - Feasibility will depend on a state's current policy environment

Business Models

- Existing literature on community solar outlines a variety of different business models used for community solar programs across the country:
  - Utility-Sponsored
  - Third-Party
  - Special Purpose Entity
  - Flip Structure
- A number of different variations exist within each business model category

Utility-Sponsored Business Model

- Utility sponsors and finances the project
- The utility leases or sells panel output to participants
- System may be owned by utility or third-party

Participant Profile:	• Electric ratepayers
Participant Motive:	• Offset electricity usage • Support renewables
Benefit Structure:	• Virtual net metering • Bill credits
Strategy of Sponsor:	• Return on investment • Meet Renewable Portfolio Standards (RPS) • Manage peak demand • Meet customer demand
Business Model Benefits:	• Economies-of-scale • Ease of financing • Access to resources
Barriers:	• Utility power generation rules • Virtual net metering • Ownership outside community • Barriers to tax incentives

Utility-Sponsored Business Model

- The Utility-Sponsored Business Model maximizes economies-of-scale and benefits to the investor
- It achieves many of the potential benefits to participants
- It faces some obstacles in policy; i.e., rules against utility-owned electricity generation, as well as potential inability to take advantage of tax benefits

Benefits to Participants:

- ✓ Offset electricity usage
- ✓ Transferability
- ✓ Hedge electricity costs
- ✓ Return on investment

Benefits to Sponsors:

- ✓ Supports RPS
- ✓ Manage peak demand
- ✓ Meet customer demand
- ✓ Return on investment
- X Local ownership

Business model benefits:

- ✓ Simple legal structure
- ✓ Economies-of-scale
- ✓ Ease of financing
- X Maximizes incentives
- ✓ Short lead time

Third-Party Business Model

- Developer sponsors, finances, and owns the project
- Developer leases or sells panel output to participants

Participant Profile:	• Electric ratepayers
Participant Motive:	• Offset electricity usage • Support renewables
Benefit Structure:	• Virtual net metering • Bill credits • Cash payments
Strategy of Sponsor:	• Profit • Support renewables / mission-driven
Business Model Benefits:	• Economies-of-scale • Ease of financing • Maximized incentives • Access to resources • Work around net metering
Barriers:	• Potential SEC requirements • Virtual net metering • Ownership outside community • Policy environment

Third-Party Business Model

- The Third-Party Business Model maximizes economies-of-scale and benefits to the investor
- It achieves many of the potential benefits to participants
- It faces some obstacles in policy; i.e. virtual net metering

Benefits to Participants:

- ✓ Offset electricity usage
- ✓ Transferability
- ✓ Hedge electricity costs
- ✓ Return on investment

Benefits to Sponsors:

- ✓ Supports RPS
- ✓ Manage peak demand
- ✓ Meet customer demand
- ✓ Return on investment
- X Local ownership

Business model benefits:

- ✓ Simple legal structure
- ✓ Economies-of-scale
- ✓ Ease of financing
- ✓ Maximized incentives
- ✓ Fast lead time

Special Purpose Entity Business Model

- A participant-owned legal entity is created specifically for the development of the system
- Financed by members, grants, and incentives

Participant Profile:	• Community investors
Participant Motive:	• Profit • Community development • Support renewables • Offset electricity usage
Benefit Structure:	• Virtual net metering • Bill credits • Cash payments
Strategy of Sponsor:	• Offset electricity use • Support renewables / Mission driven • Energy Security • Profit
Business Model Benefits:	• Local ownership • Community development • Energy security • Profit
Barriers:	• Complex legal structure • Potential SEC requirements • May not qualify for incentives • Difficult to finance • Longer lead time

Special Purpose Entity Business Model

- The Special Purpose Entity Business Model may not achieve economies-of-scale, but promises significant benefits to the participants/investors
- While benefits are very good, the model faces difficulty of implementation, difficulty with financing and incentives as well as long development times

Benefits to Participants:

- ✓ Offset electricity usage
- X Transferability
- ✓ Hedge electricity costs
- ✓ Return on investment

Benefits to Sponsors:

- ✓ Supports RPS
- ✓ Manage peak demand
- ✓ Meet customer demand
- X Return on investment
- ✓ Local ownership

Business model benefits:

- X Simple legal structure
- X Economies-of-scale
- X Ease of financing
- X Maximized incentives
- X Fast lead time

Third-Party Flip-Structure Business Model

- Developer sponsors, finances, and owns the project
- Developer leases or sells panel output to participants
- Transfers ownership after payback period

Participant Profile:	• Anyone	
Participant Motive:	• Offset electricity usage • Support renewables	
Benefit Structure:	• Virtual net metering • Bill credits • System ownership	
Strategy of Sponsor:	Developer: • Profit • Incentives	Co-Sponsor: • Ownership • Energy security
Business Model Benefits:	• Economies-of-scale • Ease of financing • Maximized incentives • Access to resources • Energy security	
Barriers:	• Complex legal structure • Potential SEC requirements • Virtual net metering	

Third-Party Flip-Structure Business Model

- The Third-Party Flip-Structure Business Model maximizes economies-of-scale and benefits to the investor
- It maximizes benefits to participants
- The most significant obstacle is securing the transfer relationship with the developer

Benefits to Participants:

- ✓ Offset electricity usage
- ✓ Transferability
- ✓ Hedge electricity costs
- ✓ Return on Investment

Benefits to Sponsors:

- ✓ Supports RPS
- ✓ Manage peak demand
- ✓ Meet customer demand
- ✓ Return on investment
- ✓ Local ownership

Business model benefits:

- ✓ Simple legal structure
- ✓ Economies-of-scale
- ✓ Ease of financing
- ✓ Maximized incentives
- ✓ Fast lead time

Exploring Best Practices: System Characteristics and Program Mechanics

Important Community Solar Program Characteristics

- The following community solar program characteristics are divided into **Physical System Characteristics** and **Program Mechanics**
- There are a number of complex variations and structures in each community solar business model, but these characteristics are consistently identified as the most common and important for all community solar models
- Characteristics will be used to help design pilot site demonstration programs in Cook County

Physical System Characteristics

Maximum Size (kW)	*Maximum capacity of a single solar PV installation that is connected to a community solar program*

- Trade-off between economies-of-scale and marketing/ administrative costs
- Larger system sizes generally mean lower cost of installation
- Systems that are too large may not be able to fill up capacity

Site Host	*Community solar installations can be hosted by a variety of land/building owners, including public, private, and commercial entities*

- Installing solar energy systems at sites owned or hosted by some types of entities can complicate the installation process
- There is no best practice for type of host

Geographic Restrictions	*Geographic restrictions may be included and tied to utility territory, general community, the length of the feeder line, or distance from installation*

- Have the potential to limit the number of subscribers
- Can reflect valuable and important electric grid information that makes sense for the utility

Physical System Characteristics

Co-location	*Co-location allows developers of community solar projects to locate more than one solar installation on a single piece of land. This is closely related to maximum system size in the previous slide.*
• Co-location improves the economics for developers of community solar projects • Due to electrical grid infrastructure, there may need to be limits on how many systems are co-located on a single piece of land.	

Rooftop/Ground-mount	*Whether PV system is installed on the roof or ground*
• Most community solar installations are ground-mount due to ease of installation and the likelihood of lower costs. • There may be more rooftop opportunities in Cook County because it is a major metropolitan area.	

Program Mechanics

Benefit Structure	*The way in which program participants are benefitted by investing in the program.*

- This is one of the most important characteristics of any community solar program
- The most common benefit mechanism is a bill credit that is proportional to the amount invested in the program
- The most simple benefit that allows for the highest return on investment will yield the most program participants

Minimum Buy-in	*The minimum cost or capacity that is required for customers to participate in the program. This may be expressed by dollar amount, kW capacity, or by number of solar panels.*

- The lower the minimum buy-in, the lower the cost to participate, which allows more individuals to benefit from community solar
- Lower buy-in costs may also increase administrative costs for the program because there will be more participants to manage

Program Mechanics

Participation Mechanism	*Details and/or structure of customer agreement and contract that is tied closely to the benefit mechanism*

- Simple contract terms are preferred
- Contract length is very important to consider

Number of Participants	*Number of participants allowed to invest in community solar*

- Very few programs put a cap on the number of participants, but such a cap has been proposed
- A cap is usually put in place for system size or number of community solar installations, not the number of participants
  - System size and minimum buy-in will, effectively, dictate the limit on number of participants

Subscriber Profile	*Type of community solar subscriber usually defined by residential, commercial, industrial, etc.*

- Restricting the type of customers able to invest in community solar may significantly limit the impact and size of the program. Very few programs limit which utility customers are able to participate.
- The economics are better and developers are more likely to build projects if a diverse group of customers are allowed to participate.

Exploring Best Practices: Policy

Community Solar Is Primed for Significant Growth

A recent study by The National Renewable Energy Laboratory estimated that "shared solar could represent 32% to 49% of the distributed solar photovoltaic market In 2020"*

- Colorado – first state to pass community solar legislation in 2012
- Minnesota – passed community solar legislation in 2013
- 40+ states, municipalities, and utilities developing community solar legislation and programs
- Municipal utilities are developing community solar projects in Illinois, Wisconsin, Michigan, Indiana, and other Midwestern states
- While community solar is growing rapidly in the country, challenges and opportunities vary greatly by region

*Source: National Renewable Energy Laboratory "Shared Solar: Current Landscape, Market Potential, and the Impact of Federal Securities Regulation." April 2015. Available at: http://www.nrel.gov/docs/fy15osti/63892.pdf.

Important Community Solar Policies

- Existing literature, case studies, interviews with community solar program staff and developers highlight a shortlist of policies essential to sustainable development of community solar programs
- Virtual Net Metering / bill crediting and the Federal Investment Tax Credit (ITC) are consistently identified as the two most important policies
- In the following pages we will review these policies in more detail

Existing Incentives

Federal Investment Tax Credit (ITC)	*Dollar-for-dollar reduction in the income taxes that a person/company claiming the credit would otherwise pay. The ITC is based on the amount of investment in solar property.*

- Will drop from 30% to 10% of eligible project costs after 2016
- Since its passage in 2006, $66 billion has been invested in solar installations*

Modified Accelerated Cost Recovery System (MACRS)	*Method of depreciation in which a business' investments in certain tangible property are recovered, for tax purposes, over a specified time period through annual deductions.*

- Qualifying solar equipment is eligible for a 5-year cost recovery period
- Provides market certainty which has been identified as a major driver of private investments for the solar industry

Tax Exemption	*Refers to a monetary exemption which reduces taxable income. Tax exemptions can provide complete relief from taxes (i.e. sales or property), reduced rates, or tax on only a portion of items.*

- Saves on additional costs which may otherwise impact the decision on where to purchase and/or locate solar installations

*Source: SEIA, "The Case for the Solar Investment Tax Credit (ITC)." Available at: http://www.seia.org/research-resources/case-solar-investment-tax-credit-itc

Valuation of Generation

(Virtual) Net Metering	*Billing mechanism that credits solar energy system owners for the electricity they add to the grid. "Virtual" refers to the ability to credit customers who are not physically connected to the PV system generating the electricity for which they are receiving credit*

- The "virtual" aspect of net metering greatly facilitates the ease with which community solar participants can be credited for their generation
- One key issue is whether participants should be credited at the full retail rate of electricity, which includes charges for transmission, distribution, and reliability

Value of Solar Tariff (VOST)	*Rate design policy that gives customers credit for the electricity generated by their PV system based on a pre-determined value of solar which incorporates its benefit to stakeholders net its costs.*

- Under the current implementation of VOST (MN and Austin, TX), customers continue to purchase all of their energy at the utility's retail rate, but are compensated for solar PV generation at a separate VOST rate in dollars per kilowatt hour ($/kWh)
- May better account for the full spectrum of costs and benefits of incorporating solar into the grid; could be higher or lower than the retail rate

Renewable Portfolio Standards (RPS)

A Renewable Portfolio Standard is regulation that requires the increased production of energy from renewable sources, such as wind and solar

- Currently 29 states plus Washington DC have mandates for renewable energy procurement by utilities
  - This creates a tradable commodity known as a Renewable Energy Certificate (REC)
- 21 states + Washington DC have specific carve-outs for solar or distributed generation within their RPS program
  - This may create a commodity know as a Solar Renewable Energy Certificate (SREC)
  - SREC pricing varies, but can be as high as $600/MWh
- Illinois has both

Source: DSIRE, www.dsireusa.org, June 2015.

Solar Renewable Energy Credits (SRECs)

- SRECs represent the environmental attributes from solar electric facility
- 1 SREC = 1,000 kWh
- The Illinois Power Agency (IPA) is in the process of a one-time SREC procurement occurring in three stages in 2015/2016
  - > $30 million in SRECs will be procured by the IPA
- Additional legislation would need to be passed for additional SREC procurements to occur in Illinois

Source: National Renewable Energy Laboratory. "Solar Renewable Energy Certificate (SREC) Markets: Status and Trends." Available at: http://apps3.eere.energy.gov/greenpower/pdfs/52868.pdf

Summary of Best Practices

Summary of Community Solar Best Practices

Community solar subscribers may derive value in a number of ways:

- Offset electricity usage
- Transferability
- Return on Investment
- Hedge against rising electricity costs
- Environmental benefits
- Community development

National/federal/local policies are critical to the viability of community solar projects. These policies include:

- Incentives (tax incentives and utility incentives)
- Net Metering and Virtual Net Energy Metering
- Renewable Portfolio Standards

Best business models provide the greatest value to subscribers and take advantage of the greatest number of incentives

Conclusions: Building a Framework for Cook County

Current State of Policy

- Net metering exists, but utilities are not required to offer it virtually
  - ICC Docket 15-0156 concerning a Community Solar Pilot has been dismissed
  - ICC Docket 15-0273 requiring written case-by-case consideration of meter aggregation applications is underway
- State clean energy legislation is on hold until budget issues are resolved
- The Illinois Power Authority is conducting a one-time solar procurement to acquire SRECs from new solar photovoltaic systems

Requiring Virtual Net Metering and creating a reasonable Value of Solar Feed-In Tariff may be helpful and feasible policies for Cook County to foster community solar

Appendix: Case Studies

Overview of Existing Community Solar Projects and Programs

- There are more than 40 active community solar projects and many more in development across the country
- The following selection of pilot projects were chosen to illustrate the diversity of business models, ownership structures, geographic locations, size, and participant mechanisms that exist in the community solar market in the United States
- Each pilot program is described in detail and the most salient characteristics of each program are listed
- Not all program information and system characteristics were available for each case study

Overview of Existing Community Solar Projects and Programs

To date no community solar projects have been successfully installed in Cook County

- Successful community solar projects have been built in other cities throughout the U.S., with a variety of business models, program mechanics, system characteristics, and policies

Definitions of Case Study Characteristics

Characteristic	Definition
Size	Electrical capacity in kilowatts (kW) of solar PV installation
Owner	Owner of the solar PV installation
Rooftop/ Ground-mount	PV installation on rooftop or ground-mount
Site Host	Owner of site where solar PV installation is located
Participation Mechanism	Details of customer agreement
Benefit Structure	Method of compensating participating customers
Subscriber Profile	Type of customers allowed to participate (residential, commercial, etc.)
Minimum Buy-in	Minimum capacity that needs to be purchased by customers to participate
Policy	State or program-level policies that support community solar

Sacramento Municipal Utility District SolarShares Program

- **Location:** Wilton, CA
- **Size:** 1,000 kW
- **Deal Structure:** SMUD has 20-year Power Purchase Agreement with a third-party to build, run, and maintain the solar farm; SMUD purchases the output from this third-party and resells it to SolarShares customers for a fixed monthly fee based on customer electricity usage and the size of the block they choose to purchase

Source: Sacramento Municipal Utility District. https://www.smud.org/en/about-smud/environment/renewable-energy/solar.htm

- **Customer Participation:** Fixed monthly fee for 10-50% of energy from solar; over 600 subscribers
- **Other Details:** Project sited on a private turkey farm. SMUD guarantees that the price for all participants will not increase (and may fall) for the duration of the contract. In exchange for purchasing the shares, customers will receive a bill credit at the retail rate for their share of output. This results in a small net premium per kWh sold to its customers.

SMUD has one of the longest running utility-sponsored community solar program

Sacramento Municipal Utility District SolarShares Program

Component	Details
Size	1,000 kW
Owner	Third-party
Rooftop/ Ground-mount	Ground-mount
Site Host	Private
Participation Mechanism	Purchase blocks representing fixed price power for at least a 12-month term
Benefit Structure	Bill credits
Subscriber Profile	Residential
Minimum Buy-in	0.5kWh
Policy	RPS, Virtual Net Metering, SMUD rebate, California Solar Initiative incentives, property tax exemption, PACE

Arizona Public Service Community Power Project Pilot

- **Location:** Flagstaff, AZ
- **Size:** 1,500 kW
- **Deal Structure:** This pilot project includes generation from 125 residential rooftops, an installation at an elementary school, and from a neighborhood-scale power plant. Participating customers receive a Community Power Rate for the portion of their bill equivalent to the panels' generation.

Source: Arizona Public Service.
https://www.aps.com/en/residential/Pages/home.aspx

Utility-owned community solar program

Arizona Public Service Community Power Project Pilot

Component	Details
Size	1,500 kW
Owner	Utility
Rooftop/ Ground-mount	Rooftop and Ground-mount
Site Host	Residential and Municipal Rooftops, Ground-mount array
Participation Mechanism	Receive payments for leasing roof space
Benefit Structure	Bill credits
Subscriber Profile	All
Minimum Buy-in	N/A
Policy	RPS w/solar carve-out, property & sales tax exemption, PTC, Net Metering (125% of consumption*)

*cap on individual system size

Orlando Utilities Commission Community Solar Farm

- **Location:** Orlando, FL
- **Size:** 400 kW
- **Deal Structure:** OUC has a 25-year power purchase agreement with project developer SpearPoint Energy/ESA Renewables at a rate of $0.18/kWh
- **Customer Participation:** Customers can subscribe in 1-15 kW blocks and pay $0.13/kWh (locks in rate for 25-year period just above current rates). Project was fully subscribed within a week.

Source: Orlando Utilities Commission. http://www.ouc.com/environment-community/solar/community-solar

- **Other Details:** Due to the popularity of the community solar program, OUC is planning a second installation in the coming year, which has already amassed a waiting list. Project covers approximately 2.5 acres of the parking area of OUC's Gardenia Campus.

Third-party developed, utility-subsidized program

Orlando Utilities Commission Community Solar Farm

Component	Details
Size	400 kW
Owner	Third-Party
Rooftop/ Ground-mount	Rooftop
Site Host	Utility Rooftop
Participation Mechanism	Receive payments based on number of blocks purchased
Benefit Structure	Bill credits
Subscriber Profile	All
Minimum Buy-in	1kW
Policy	Net Metering (2 MW*), property & sales tax exemption, PTC, OUC incentives, OUC solar loan program

*cap on individual system size

Garfield County Airport Solar Array

- **Location:** Rifle, CO
- **Size:** 858 kW
- **Deal Structure:** Holy Cross Energy contracted with the Clean Energy Collective to provide a turnkey project for them. Holy Cross provided a $1.50/Watt rebate to participants.
- **Customer Participation:** Went online in June 2011 and sold out in 2014.
- **Other Details:** Due to the popularity of the community solar program, Holy Cross Energy is working on a third project.

Source: Clean Energy Collective, http://www.easycleanenergy.com/Shownews.aspx?ID=5a4aec1f-eeda-4c42-b4a4-c8d6590a9938

Third-party developed, utility-subsidized program

Garfield County Airport Solar Array

Component	Details
Size	858 kW
Owner	Third-Party
Rooftop/ Ground-mount	Ground-Mount
Site Host	Municipal land
Participation Mechanism	Purchase panels and receive a pro-rate share of generation benefit
Benefit Structure	Bill credits
Subscriber Profile	All
Minimum Buy-in	One 240W solar panel
Policy	RPS w/ solar carve-out, Virtual Net Metering (120% of consumption*), property & sales tax exemption, Community Solar Gardens, Revolving Loan Program

*cap on individual system size

Jo-Carroll Energy South View Solar Farm

- **Location:** Elizabeth, IL; ¾-acre
- **Owner:** Jo-Carroll Energy (Energy Cooperative)
- **Size:** 126.5 kW (456 solar panels)
- **Details:** Co-op members can purchase capacity credits for 20 years at $890/ panel, with an estimated annual return of $48-50/year; as of end late March 2015, there were 25 subscribers. Was the first community solar project in Illinois in which individual subscribers are able to lease panels and receive a capacity credit on their utility bills. This utility constructed the project and program voluntarily due to customer demand. Cooperative utilities, such as Jo-Carroll Energy, are not restricted by the same regulatory framework as ComEd, an Invested-Owned Utility.

Source: Jo-Carroll Energy. https://www.jocarroll.com/content/south-view-solar-farm

Northwestern Illinois Community Solar Project

Jo-Carroll Energy South View Solar Farm

Component	Details
Size	126.5 kW
Owner	Electric Co-operative
Rooftop/ Ground-mount	Ground-Mount
Site Host	Municipal land
Participation Mechanism	Purchase capacity credits and receive a monthly bill credit for their panel's output
Benefit Structure	Bill credits
Subscriber Profile	All
Minimum Buy-in	One 275W panel
Policy	RPS w/ solar carve-out, Net Metering (2 MW/5% peak demand*), DCEO rebates**, IFA bond program

*cap on individual system size/aggregate capacity

** Available only to IOU customers

Vernon Electric Cooperative Community Solar Farm

- **Location:** Westby, WI (2 acres)
- **Owner:** Vernon Electric Cooperative
- **Size:** 305 kW (1,001 panels)
- **Details:** Any co-op member can purchase panels. One-time up-front cost. Credit is provided directly on monthly utility bills (projected at $35/panel per year). Cost of the panels was $600/panel. Completed in 2014.

Source: http://www.renewwisconsin-blog.org/2014/06/vernon-electric-cooperative-unveils.html

First community solar project in Wisconsin. Cost per panel for subscribers is lower than many other community solar projects at cooperative utilities. Vernon Electric Cooperative partnered with Clean Energy Collective, one of the largest developers of community solar in the country.

Early Midwestern Community Solar Project; Located in Wisconsin

Vernon Electric Cooperative Community Solar Farm

Component	Details
Size	305 kW
Owner	Electric Co-operative
Rooftop/ Ground-mount	Ground-Mount
Site Host	Municipal land
Participation Mechanism	Purchase panels and receive a pro-rate share of generation benefit
Benefit Structure	Bill credits
Subscriber Profile	All
Minimum Buy-in	One 305W panel
Policy	RPS, Net Metering (20 kW*), focus on energy rebates, sales tax exemption

*cap on individual system size

Tipmont REMC Community Solar Farm

- **Location:** Linden, IN (Tipmont REMC Headquarters)
- **Owner:** Tipmont REMC
- **Size:** 100 kW (240 panels)
- **Details:** Customers may purchase panels at $1,250/panel and get credit for the energy generated for 25 years.

Source: http://wbaa.org/post/tipmont-solar-cells-illustrate-renewable-energy-divide-political-and-power-circles

- The first community solar project in Indiana and, similarly to the South View Solar Farm in Illinois owned by Jo-Carroll Energy and the Vernon Electric Cooperative Solar Farm in Wisconsin, is owned by an electrical cooperative.

Community Solar Project Located in Indiana

Tipmont REMC Community Solar Farm

Component	Details
Size	100 kW
Owner	Electric Co-operative
Rooftop/ Ground-mount	Ground-Mount
Site Host	Electric cooperative land
Participation Mechanism	Purchase capacity credits and receive bill credit for electricity generated
Benefit Structure	Bill credits
Subscriber Profile	All
Minimum Buy-in	One 410W panel
Policy	Clean Energy Portfolio Goal, Net Metering (1 MW/1% peak summer load*), property tax exemption , Feed-in Tariff**

*cap on individual system size/aggregate capacity

** NIPSCO customers only

Bibliography

- **Lawrence Berkeley National laboratory**: *An Historical Summary of the Installed Price of Photovoltaics in the United States from 1998 to 2013*; 2014.
- **National Renewable Energy Laboratory**: *A Guide to Community Shared Solar*; 2013.
- **National Renewable Energy Laboratory**: *Shared Solar: Current Landscape, Market Potential, and the Impact of Federal Securities Regulation*; 2015.
- **Solar Electric Power Association**: *Community Solar Database*; 2015.
- **Solar Electric Power Association**: *Utility Community Solar Handbook*; 2013.
- **SunShot and SolarOPs**: *Bringing Down the Cost of Solar through Community Shared Solar*, 2015

For Further Information

See: http://www.cookcountyil.gov/environmental-control-2/solar-energy/

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