Opening Doors to Community Solar: Insights from Cook County, IL & Other Local Governments

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Tips for Webinar Success

• Use the red arrow to open and close your control panel
• Choose “Use Telephone” or “Use Mic & Speakers” under Audio
• Type your questions in the “Question” window and hit “Send”
• Q&A will occur after each of the last two presentations
• Please use the “Chat” window for technical issues only
• Yes! We will provide a link to these slides after the webinar
Contact mari@irecusa.org if you need assistance finding these resources.
Agenda

• Cook County Community Solar Project & Timeline for New Rules in IL
  Deborah Stone, Cook County, IL

• Community Solar RFP Overview
  Brian Millberg, City of Minneapolis, MN

• Building the Case for Community Solar
  Samantha Bluemer, Will County, IL
Cook County Community Solar Project

Deborah Stone
Chief Sustainability Officer
Cook County, IL
Cook County Community Solar Project

- Identify **models** for community solar in Cook County by analyzing pilots.
- Address **barriers** to implementing community solar in Cook County and provide options for resolution.
- Conduct analysis on the **opportunity, best practices, policies and impact** of community solar.
- Engage a diverse group of **stakeholders** to inform the analysis and deliverables.

[https://www.cookcountyil.gov/CommunitySolar](https://www.cookcountyil.gov/CommunitySolar)
Opportunity Analysis / Solar Capacity Mapping

www.illinoiscommunitysolar.org

7.2 GW of capacity
Business Case Tool

A flexible financial model that projects costs and benefits to system developer and subscriber. Incorporates administrative, transaction and customer acquisition costs for community solar projects.

http://www.elevateenergy.org/community-solar/communitysolarbusinesscasetool/

Used to model pilot site case studies.
### Proposed Business Cases

<table>
<thead>
<tr>
<th>Site</th>
<th>Location</th>
<th>Capacity</th>
<th>Site Ownership</th>
<th>System Ownership</th>
<th>Installation Type</th>
<th>Subscription Type</th>
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<td>Prairie State College</td>
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<td>Public</td>
<td>Developer</td>
<td>Ground + Carports</td>
<td>Panel Lease</td>
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<td>Our Lady of Perpetual Help</td>
<td>Glenview</td>
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<td>Lease - Donor</td>
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[https://www.cookcountyil.gov/communitysolar/CaseStudies](https://www.cookcountyil.gov/communitysolar/CaseStudies)
Case Study Components

- **Host Site Assessment**
  - A physical description, as well as a narrative of the owning entity, the community and its constituency.

- **Structural & Civil Engineering**
  - A formal engineering report including structural and Civil assessment, site preparation and cost details.

- **Interconnection Pre-Screen**
  - An interconnection pre-screen report, including estimated network upgrade and component requirements.

- **Solar Design**
  - System design, component selection, panel placement, shading analysis, costs and design optimization.

- **Financial Modelling**
  - Detailed financial assessments, including key financial metrics for the Developer, Subscriber and Host Site.

- **Customer Acquisition Strategy**
  - Customer Acquisition, marketing & outreach, subscriber and billing management planning and costs.

- **Proposed Business Structure**
  - Recommendations for the business case, including ownership, subscriber model, rates and projected outcomes.

Detailed Assumptions:
Example: Prairie State College

**HOST SITE**

Publicly Owned

Prairie State College, in Chicago's south suburbs, has a large campus with ample opportunity for solar. This proposed system would include installation on undeveloped land, as well as on portions of existing parking lots.

**OWNERSHIP**

Developer Owned

In this model, the solar developer would finance, build, own and maintain the array over the life of the system. The developer gets SRECs, ITC, MACRs and Capacity Rebate, passing on benefits to subscribers and the host site.

**SUBSCRIPTION**

Panel Lease

Subscribers lease panels for $1.67 per month. The college subscribes to 40 percent of the system, with the remaining 60 percent going to the community. All subscribers would save at least 10 percent off the cost of their electricity.

**INSTALLATION**

Mixed Installation

2,844 panels would be installed on unused land and 3,270 panels would be installed on carports. The ground mount system proposal includes natural pollinator habitat restoration to better manage storm water.

**SYSTEM**

1,987 kW

6,114 Panels

An 882 kW ground mount system would be installed using single-axis tracking. A 1,105 kW carport system would be installed. The total output would be more than 2.6 MWhs per year, enough to power nearly 350 homes.
# Financial Metrics

## Assumed Benchmarks
- Minimum 10% Internal Rate of Return (IRR)
- Minimum of a positive Net Present Value (NPV)
- Simple Payback within six years

### Developer-owned System Metrics

<table>
<thead>
<tr>
<th></th>
<th>System Owner</th>
<th>Subscriber - Not Subsidized</th>
<th>Subscriber - Subsidized</th>
<th>Host Site</th>
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<td>25-Year Costs:</td>
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<td>($10,020)</td>
<td>($10,020)</td>
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<td>25-Year Revenues:</td>
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<td>25-Year Net Benefits:</td>
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<td>25-Year Net Present Value (NPV):</td>
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### Host Site-owned System Metrics

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Timeline: Long Term Renewable Resources Procurement Plan

The Illinois Power Agency (IPA) released its draft Long Term Renewable Resources Procurement Plan, along with draft Renewable Energy Credit (REC) pricing models and other appendices at the end of September. The draft Plan outlines how the IPA proposes to implement all the programs and procurements required in the updated Illinois Renewable Portfolio Standard, including for Community Solar Program.

• Comments on the Plan by November 13\(^{\text{th}}\). For more see the Cover Letter.
• IPA will submit final draft to the Illinois Commerce Commission (ICC) within 21 days (December 4\(^{\text{th}}\)).
• A contested hearing process will continue until late March/early April 2018, when the ICC must approve or modify the Plan.
• Only then will the IPA be able to move forward with actually implementing procurements and programs, including the Community Solar Program.
• Proposed REC prices will definitely not be finalized and the Community Solar Program to purchase RECs will likely not be open, until mid-2018.
We are building a “How do I…” page of resources on our website. The following six slides contain links to the type of resource we are planning to list. Please explore these on your own.

WE WOULD LOVE YOUR FEEDBACK ON HOW USEFUL THESE RESOURCES ARE, AND WHETHER YOU HAVE RECOMMENDED ADDITIONS.

deborah.stone@cookcountyil.gov
Request for Proposal Resources

Issuing a Request for Proposal (RFP) allows site owners to outline the photovoltaic requirements, contract terms and bidding process based on the outcome of pre-development research. This will commonly include the characteristics and solar potential of the site, the ownership and business structure and the contract terms for design and build or energy purchase.

While these resources specifically focus on public agencies, the information, resources and guidance on solar procurement are helpful for any medium to large solar project entering the procurement process:

**Solar Requests for Proposals for State, Local & Tribal Governments**
- *National renewable Energy Laboratory*
  - This NREL site includes best practices for developing RFPs for State, Local & Tribal Governments. It includes guidance on the procurement process, RFP development and data collection requirements, along with other resources.
  
  https://www.nrel.gov/technical-assistance/basics-solar-rfps.html

**Steps to a Successful RFP**
- *The Solar Foundation*
  - This Solar Foundation site also has a focus on solar procurement for public agencies. It provides detail on the processes, including RFP development, stakeholder engagement, site assessment and provider selection. The site also include case studies and considerations for designing ownership and business structures.
  
  https://www.thesolarfoundation.org/steps-to-a-successful-solar-request-for-proposal/
RFP’s cont.

Solar Power Purchase Agreements: a Toolkit for Local Governments

• Interstate Renewable Energy Council

• This resource is a comprehensive, step-by-step guide for designing and procuring Power Purchase Agreements. The toolkit includes 10 case studies, templates and detailed description of required documentation.


IL Solar Energy Association: Presentation on CS Proposal Development

https://www.illinoissolar.org/Community-Solar-Project-Proposal-Development-Presentation
Site Assessment for Solar

These resources provide some guidance on consideration such as the suitability of roof or land for solar, ownership structures and system designs, financial structures, etc. and will help site owners better understand how solar will work for them.

Landowner Considerations for Solar Land Leases

• *New York State Energy Research and Development Authority*

• This report provides a high-level checklist of considerations for solar deployment, including siting, land value, tax considerations and local zoning and ordinance issues. While the focus is on converting agricultural land to solar plant deployment, the considerations are relevant for any site owner.

[https://www.nyserda.ny.gov/-/media/NYSun/files/Land-lease-Considerations.pdf](https://www.nyserda.ny.gov/-/media/NYSun/files/Land-lease-Considerations.pdf)
Site Assessment, cont.

• **On-Site Commercial Solar PV Decision Guide**
• *U.S. Department of Energy’s Better Buildings Alliance*

This guide was developed to help building owners with the design and installation of solar photovoltaics (PV) on commercial buildings. This comprehensive guide includes resources on financing a PV system, procurement processes, project execution, operations and maintenance and assessing the benefits of solar for site owners.

Consumer Protection

Residential Consumer Guide to Community Solar

• Solar Energy Industries Association (SEIA)

• Entering into a community solar agreement is a significant decision, similar to signing up for a cell phone, and consumers should understand the basics of solar energy, where community solar is available, key terms in agreements, and the right questions to ask solar professionals.

For Local Governments

Making your community solar-ready through building and zoning codes, training, etc.

*The Solar Foundation SolSmart Program/US Dept. of Energy*

https://www.thesolarfoundation.org/policy-research/solsmart/
http://www.gosparc.org/
Community Solar Garden RFP Overview

Presented by: Brian Millberg
Energy Manager,
City of Minneapolis

Email: brian.millberg@minneapolismn.gov
Office: 612-673-3024
Agenda:

• Quick primer on how Solar Gardens operate
• General scope items for an RFP
• RFP scoring algorithms
• How to determine financial impact of subscription price
Energy Flows

Xcel Energy

Solar Garden Operator
(1 MW DC)

City of Minneapolis
(e.g. Account at Water Treatment)

100,000 kWh each Month at no charge

228,500 kWh each Month at $.082/kWh charge
Xcel Energy

Solar Garden Operator (1 MW DC)

100,000 kWh each Month at no charge

228,500 kWh @ $.082/kWh = $18,737 each month

40% of Garden output at $0.10/kWh = 40,000 x 0.1 = $4,000 Per month

City of Minneapolis (e.g. Account at Water Treatment)

Subscription kWh x $0.11914/kWh: 40,000 x $0.11914 = $4,765.60 CREDIT ON BILL

$ Flows
Xcel Invoice without Solar Garden Subscription: $18,737.00

Xcel Invoice with Solar Garden Subscription: $13,971.40

Payment to Solar Garden Operator $4,000.00

Total Monthly Payment with Subscription $17,971.40

SAVINGS each month $765.60 = 4% reduction in cost
Scope Items for RFP

• Executive Summary
• Special Requests
• Team Information and Qualifications
• Relevant Experience and Capabilities
• Project Management Approach
• General Site Information
• System Technical Description
• Price Proposal
Executive Summary

• Should cover these five items:

  • Garden location
  • Garden $W_{AC}$ generation capacity
  • First year total garden kWh production
  • Size of subscription offered in kW or kWh and % of total garden output
  • Full pricing information:
    • Initial price in $/kWh
    • Price escalator %
Special Requests

• Prevailing Wage during construction
• Davis-Bacon rules
• Made in the U.S.
• Women and Minority owned business participation
• Local labor participation
• Workforce training
• Low Income subscriber participation
Team Information and Qualifications

Relevant Experience and Capabilities

• Developer should have at least 2 solar installation projects over 200kW each in experience.

• Make sure electrical subcontractor is local and well known.
Project Management Approach

• Make sure proposal states exactly **who** will be managing the project so that you know who to contact with questions.

• A project timeline should be included in the proposal. If it is **less** than 18 months, clarify with developer.
General Site Information
System Technical Description

• Site should be described and illustrated in the proposal. Be leery of proposals without a defined site. Land acquisition can take a long time.

• Garden technical details should include:
  • Panel model expected to be used
  • Number and size of inverters
  • $kW_{DC}$ nameplate of system and expected $kW_{AC}$ output.
  • Total annual kWh output expected from system.
Subscription Pricing

• In Minnesota, 3 types of pricing are common:
  • **No Risk**: Fixed discount from bill credit, e.g. $0.005/kWh less than bill credit or 90% of bill credit. Doesn’t matter what happens to retail electricity rates.
  • **Medium Risk**: Single fixed price for the length of the 25 year contract. Assume savings will accelerate over time as retail rate of electricity increases.
  • **Higher Risk**: Initial price with an annual fixed escalation percentage of 1% - 2.5%. Could lose money if retail electricity rates increase more slowly than that escalator.
Subscription Pricing (cont’d)

• You must get a 25 year schedule of penalties for stopping a subscription. These can equal up to the entire net present value of payment for the length remaining on the contract.

• Ask for cost to change subscriptions from one account to another. Some developers asking for up to $750 to re-assign a subscription.
RFP Scoring

• Recommend that subscription pricing not be more than 50% of scoring template. We always use 25 year net present value of the entire contract as the “pricing”.

• Quality, thoroughness, and clarity of proposal is an indicator of experience with solar gardens

• If RFP includes goals for women / minority / local labor goals, you will need full cost of the project included in the proposal.
Financial Impact of Subscription Pricing

• You will be signing a 20-25 year contract, so net present value (NPV) calculations are necessary.
  • Need to choose an annual discount rate. Minneapolis calculates the NPV of the contract with a range of 0.5% - 2.0% for the discount rate.
  • Need to choose an expected annual increase in utility rates. Minneapolis calculates the NVP of the contract with a range of 1.0% - 3.0% for utility rate increase.
<table>
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<tr>
<th>Year</th>
<th>Projected kWh - Entire Garden</th>
<th>Subscriber's kWh</th>
<th>Payment to Garden Operator ($/kWh)</th>
<th>Bill Credit Rate with REC</th>
<th>Bill Credit with REC</th>
<th>Subscriber's Payment to Garden Operator</th>
<th>Subscriber Bill Credit from Xcel</th>
<th>Subscriber's Savings</th>
<th>NPV of Subscriber's Savings</th>
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- **SolarStone 25 Yr. $ NPV savings**
- **Community Solar 25 Yr. $ NPV savings**
- **DG Minnesota CSG5 25 Yr. $ NPV savings**
- **US Solar 25 Yr. $ NPV savings**
- **TOTAL 25 Year $ NPV SAVINGS**

Cumulative Total Saving in $NPV

(2.65% Annual Bill Credit Increase)
### Cumulative Total Saving in $NPV

(1.00% Annual Bill Credit Increase)

<table>
<thead>
<tr>
<th>Year</th>
<th>SolarStone 25 Yr. $ NPV savings</th>
<th>Community Solar 25 Yr. $ NPV savings</th>
<th>DG Minnesota CSG5 25 Yr. $ NPV savings</th>
<th>US Solar 25 Yr. $ NPV savings</th>
<th>TOTAL 25 YEAR $ NPV SAVINGS</th>
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The diagram shows the cumulative total saving in $NPV from 2015 to 2040 for different solar energy systems, including SolarStone, Community Solar, DG Minnesota CSG5, and US Solar, with the totals for each year also indicated.
LESSONS LEARNED IN IL SOLAR DEPLOYMENT

Building the Case for Community Solar
BACKGROUND: EARLY 2016

- 24 townships
- 37 municipalities
- 687,263 residents
- ~3 solar installations (residential)
- 56% zoned agricultural
- Some internal interest in solar applications
BACKGROUND: LATE 2016/EARLY 2017

- Dozens of solar land lease offers (FEJA)
- Community & press engaged around solar
- Will County defines its solar role
LESSON 1: MAKE FRIENDS... STRATEGICALLY

- Know your...
  + Farm Bureau
  + Developers
  + The Solar Foundation (National Orgs.)
  + Development Review Team/Land Use Department
  + Local collaboration opportunities
  + Peers from other organizations
  + Soil & Water Conservation District
  + Assessor
LESSON 2: KNOW YOUR ZONING ORDINANCE

- What does it...
  - Include
  - Exclude
  - Not explain

- How do I know what it should...
  - Include
  - Exclude
  - Not explain
LESSON 3: DON’T REINVENT THE WHEEL

- Zoning Ordinance review (NREL)
- Zoning Ordinance update
LESSON 4: ASK QUESTIONS

- In order to define...
  - What will be an accessory use?
  - What is considered utility scale? Community solar?
  - What financial sureties, if any, are required?
  - Buffer zones? Distance from R-zoned Districts?
  - Decommissioning plan?
  - How is stormwater run-off calculated?
LESSON 5: PROJECT REVIEW

- What will be required for development review?
  + Site plans
  + Electrical diagrams
  + Redacted lease
  + Natural Resource Inventory (NRI)

- What will offer additional review support?
  + Thoughtful community engagement

- What is the process for review?
  + Planning & Zoning Commission
  + Land Use Committee
  + Executive Committee
  + County Board
**DEAL-BREAKERS**

- Cost-prohibitive assessment values
- Cost-prohibitive zoning implications
  - How much financial surety are you asking for and for what length of time?
  - How much landscape buffering will you require?
- Lengthy zoning processes

**DEAL-MAKERS**

- Easy-to-understand zoning ordinance
- List of what is required
- Timeline for review
- Encouraging the use of native specie plantings/land enrichment
- Engaging the community beyond what may be explicitly required
LESSON 7: TRUST THE EXPERTS

- Is this developer the real deal?

ISEA Business Members

ISEA Business Membership supports the organization's ability to collaboratively expand the development of renewable energy in Illinois. As a non-profit organization, ISEA does not endorse any for-profit business. These directories are provided as a resource only and consist of businesses that are members of ISEA.

- Residential Installers
- Commercial & Industrial Developers
- Community Solar Developers
- Utility Scale Developers
- Distributors & Manufacturers
- Support Services

View Directory
Welcome to Solar Source: Will County's Solar Energy Hub

Will County is committed to the development of solar energy that reduces utility costs and supports the environment. In an effort to showcase Will County's commitment to residential solar development, County Executive Luke R. Marchese unveiled a solar statement in 2016 supporting the rapid deployment of solar power in the county. The statement called for the development of a comprehensive solar energy policy to guide the growth of the solar industry and promote the use of solar energy in Will County.

To learn more about solar energy in Will County, visit the Solar Source website at willcountyiiilinois.com. There, you will find information about solar energy programs, incentives, and resources. You can also find the contact information for Sam Bluemer, Energy & Conservation Specialist for Will County, who can answer any questions you may have about solar energy in the county.

Sam Bluemer
Energy & Conservation Specialist
Resource, Recovery, and Energy Division
Will County Land Use Dept.
58 E. Clinton St., Suite 100
Joliet, IL 60432
sbluemer@willcountyiiilinois.com
Office: 815-774-7893
Fax: 815-722-3410

Solar Happenings

Do you have Solar Happenings that you'd like to see featured on this page? Email news to sbluemer@willcountyiiilinois.com.
LESSON 9: NUANCES

- The use of individual LLCs
  - Risk mitigation
  - Tax incentive
- “Do we have to abide by setbacks?”
- It’s a waiting game
- From 25 projects... to 3
- Legislation is key: FEJA & LTRRPP
LESSON 10: EDUCATE
LESSONS TO BE LEARNED...

- Cost-return analysis for Special Use Permits (SUP)
- What funding is warranted for maintenance of these detailed SUPs?
- Project installed: Start to Finish
- Stormwater calculation for solar farms
- Are there certifications we should require? (NABCEP)
- How will decommissioning requirements be addressed across various solar developments?
Samantha Bluemer
Energy & Conservation Specialist
Will County Land Use Department
sbluemer@willcountygreen.com
815-774-7893

QUESTIONS?