



# On-Site Solar Development-From Ideation to Implementation

March 31, 2023

# Agenda

- 1. Housekeeping and Introductions**
- 2. Why Solar & Solar Myths, Solar 101, and Going Solar-the Process**
- 3. State Incentives and Project Development**
  - Illinois Shines**
  - Illinois Solar for All**
- 4. Q&A**

# IPA Power Hour Webinars

- **Introduction and Scope**
- **Power Hour is a series of educational and informative presentations on a wide range of clean energy topics and emerging issues**
- **Today's Power Hour:**
  - During the webinar, the speakers will discuss what on-site solar project development looks like in Illinois, from planning to implementation. The speakers will take a deep dive into the project development framework of residential solar development and highlight how state incentives support the development of new solar generation in Illinois.
- **Future IPA Power Hour Webinars will cover other topics related to the clean energy economy in Illinois**

# IPA Power Hour Webinars

## Upcoming Webinar

**IPA Power Hour 3: Agrivoltaics-How Can Solar Energy and Agriculture Work With Each Other?**

Date: April 28, 2023

Time: 12-1pm CST

**[REGISTER HERE](#)**

# The Illinois Power Agency

- **Independent State Agency created in 2007**
- **Agency duties include**
  - **Development and implementation of procurement plans for electricity supply for utility customers**
  - **Development and implementation of solar incentive programs**
  - **Implementation of the Renewable Portfolio Standard**
    - Development of Long-Term Renewable Resources Procurement Plan
    - Conduct competitive procurements for utility-scale projects
    - Manage programs for community solar and solar for homes and businesses



# Why Solar & Solar Myths, Solar 101, and Going Solar-the Process



# IPA Power Hour

## Powering Your Home **With The Sun**

Introduction to Residential Solar – March 31, 2023

**Lisa Albrecht**  
ISEA Board of Directors  
Owner, All Bright Solar



[www.illinoisolar.org](http://www.illinoisolar.org)

**ISEA's mission is to educate and advocate for the widespread application of solar and other forms of renewable energy to the people of Illinois**



- Established in 1975
- 501(c)3 charitable organization
- 250+ individual members
- Provides public education, such as the Solar Tour, webinars, and newsletters

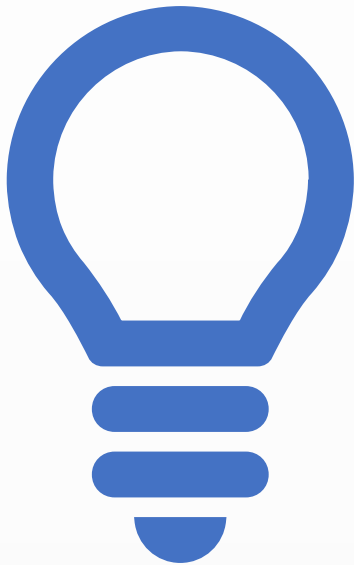


- Established in 2020
- 501(c)6 trade association
- ~150 business members
- Conducts policy work, job fairs, and networking events





# Agenda



- Why Solar & Solar Myths
- Solar 101
- Going Solar – the Process



# Why Go Solar?



**Reduces carbon emissions  
and environmental concerns**



**Improves  
public health**



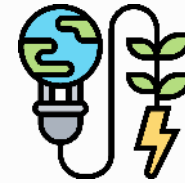
**Creates jobs**



**Saves money on  
electric bill**



**Increases  
home value**



**Inexhaustible  
energy supply**



## Common Myths

**You have to have a South exposure on your roof.**

**Solar panels will cause my roof to leak, deteriorate or collapse.**

**Installing solar will increase my property taxes!**

**It will be harder to sell my house.**



**It's too cold here; solar panels can't withstand snow, hail, winds, & sleet.**

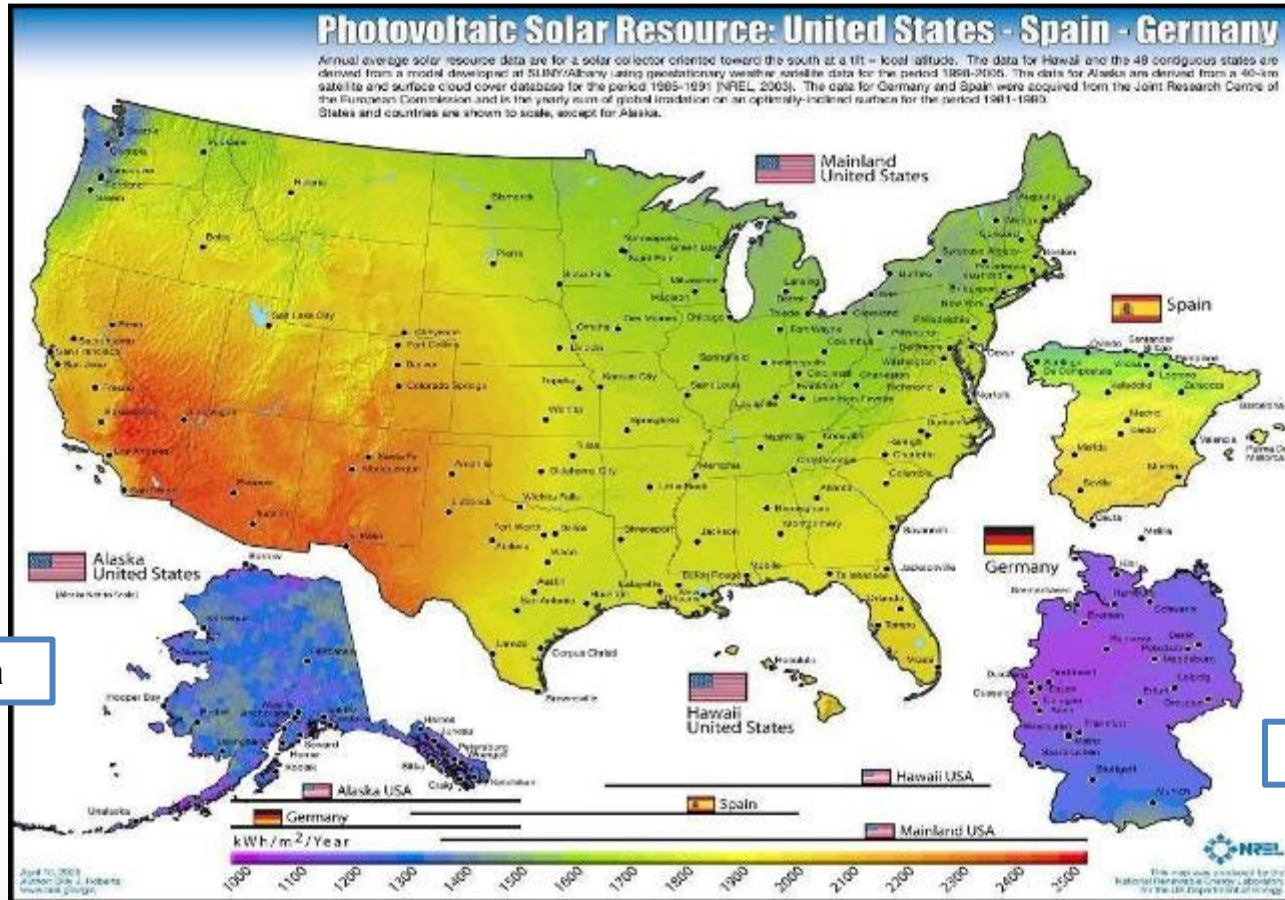
**It's too expensive!**

**The utility will pay you for the extra power you produce**

**We don't get enough sun.**

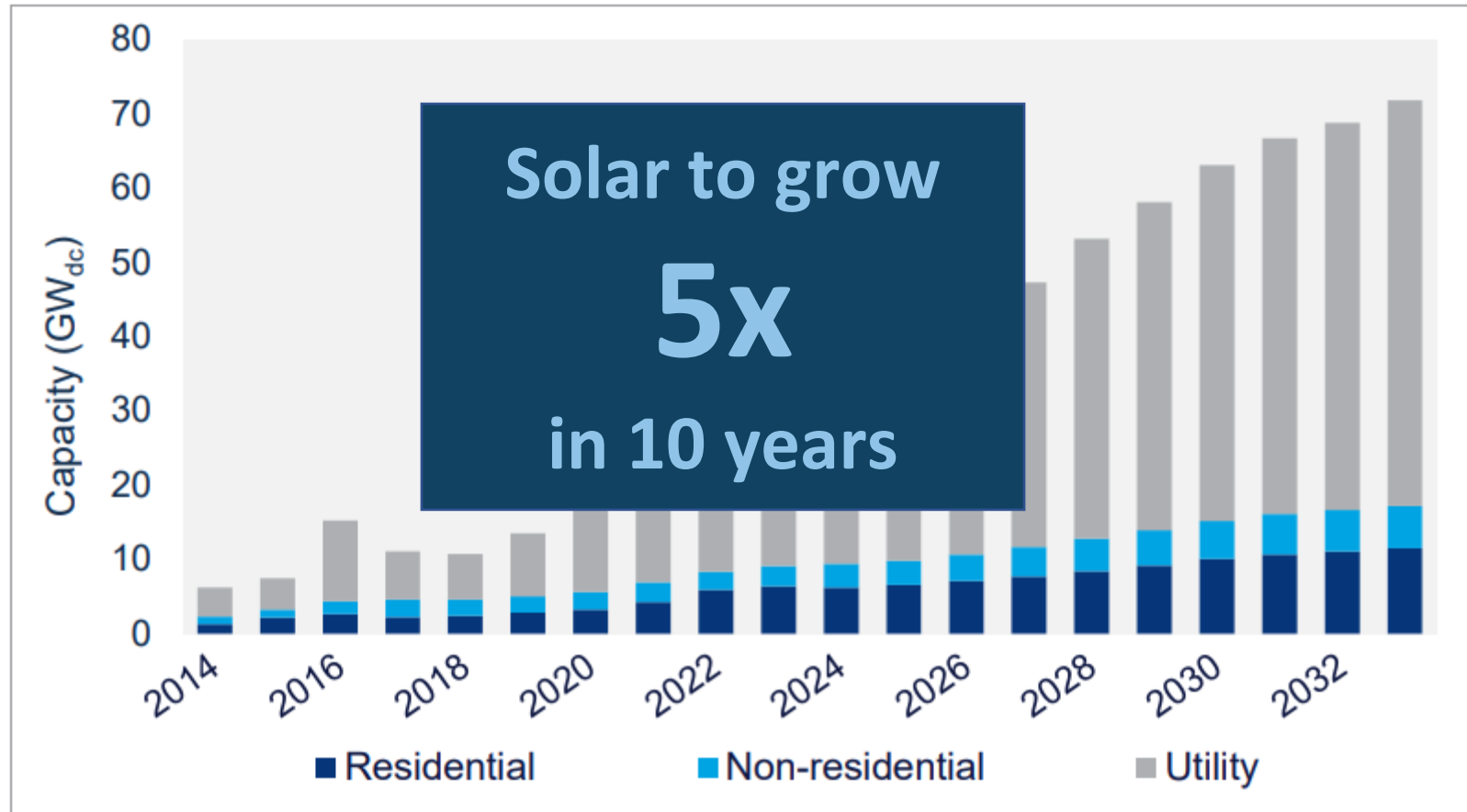


# Not enough sun?

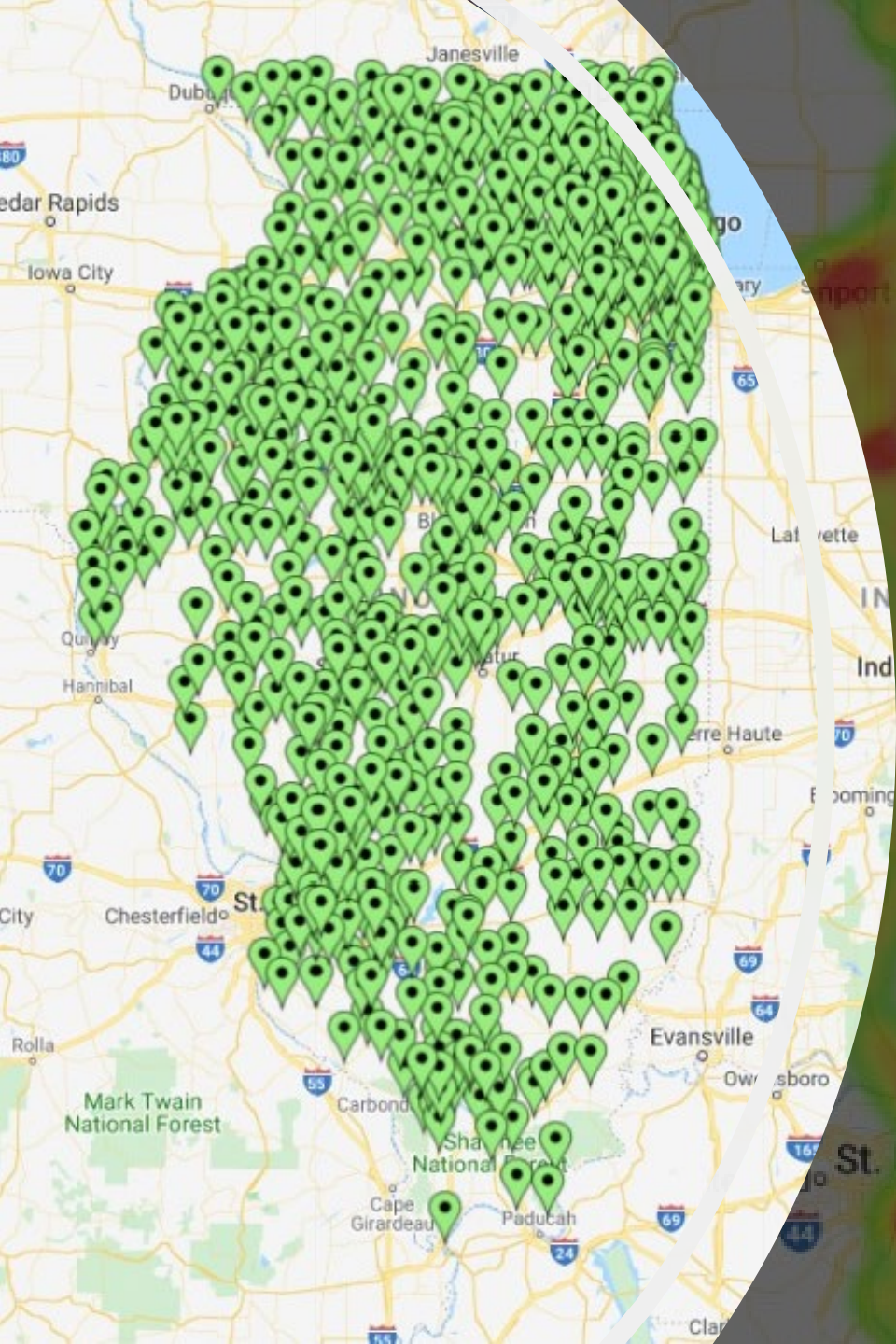


# Not Scalable?

## US PV installation historical data and forecast, 2014-2033

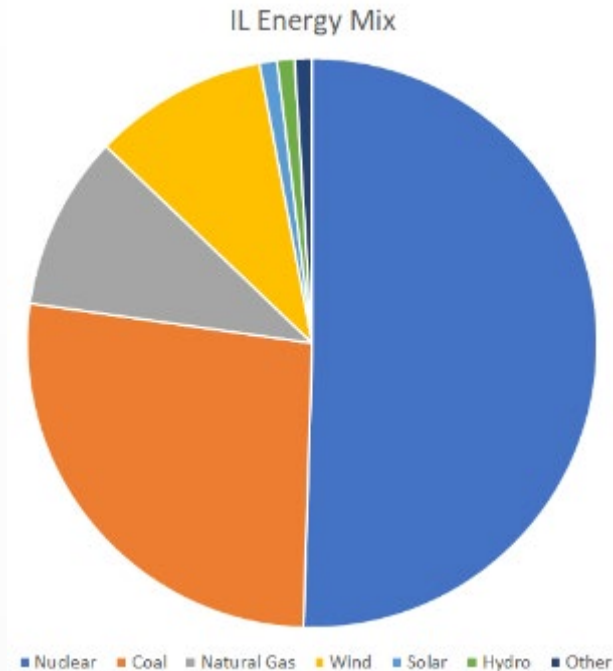






25,668  
Distributed  
Generation  
Projects

# Illinois Electricity Generation



- As of Q4 2022, there is 2036 MW of solar installed in Illinois— approx 1.48% of the energy mix
- New state law requires 40% of electricity used in the state to come from renewables by 2030

Source Data: U.S. Energy Information Administration; SEIA



# Illinois Electricity Generation

Illinois Annual Solar Installations



**IL Solar is expected to grow over 1000% in 5 years!**

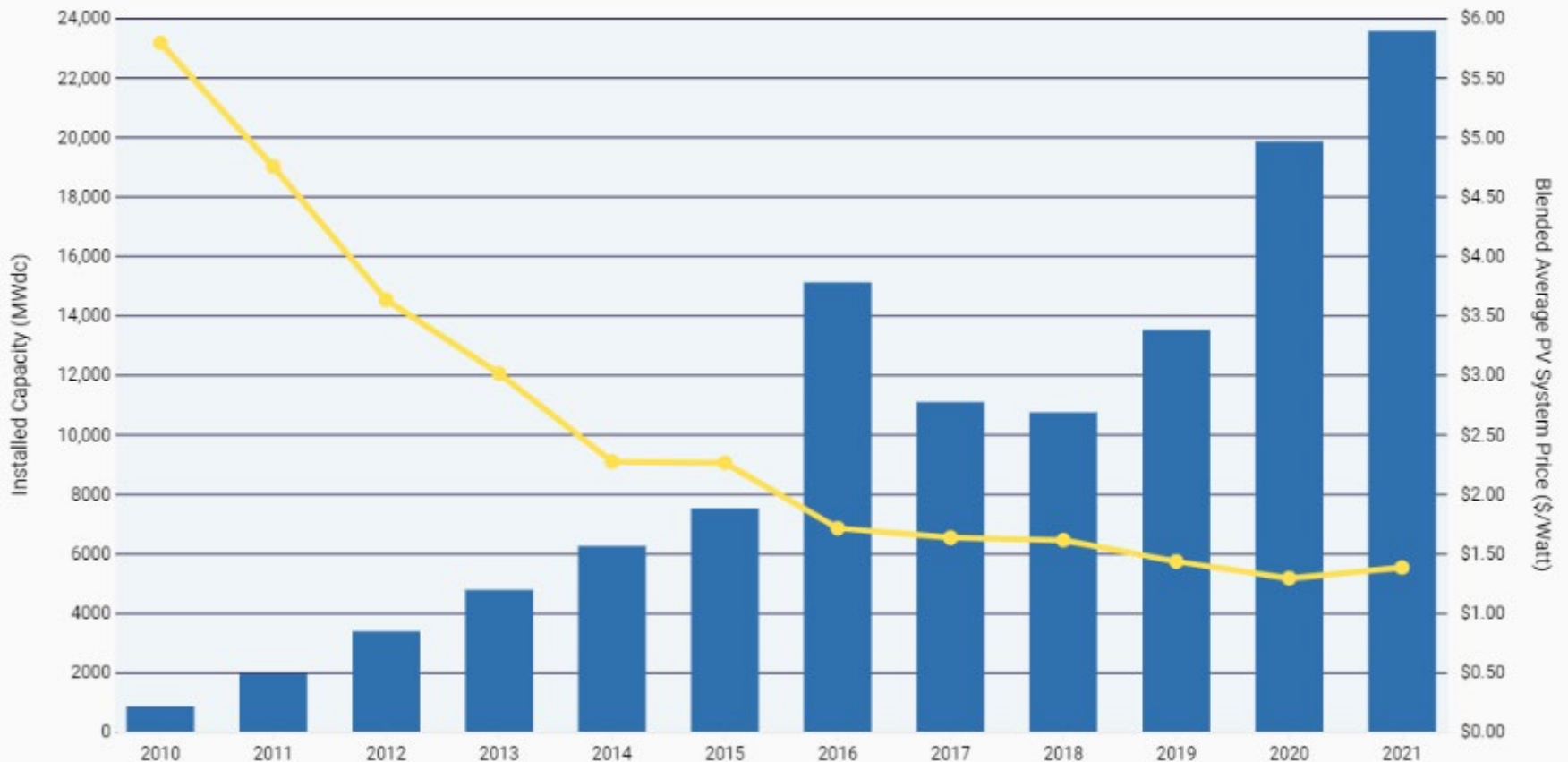
Source Data: [www.seia.org/state-solar-policy/illinois-solar](http://www.seia.org/state-solar-policy/illinois-solar)





# Too Expensive?

## U.S. Solar PV Pricing Trends & Deployment Growth



Source: [SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight 2021 Year in Review](#)

# Too Expensive?

## State Incentives

- 20-30% based on SREC\$
- 1 SREC = 1 MWh solar
- RECs monetize environmental benefits of solar generation
- Must secure a contract to sell SRECs to Illinois Power Agency through Approved Vendor



## Federal Incentives

- Investment Tax Credit (ITC)
  - 2022 Through 2032: 30%
  - 2033: 26%
  - 2034: 22%
  - Starting 2035:
    - 0% (residential systems)
    - 10% (commercial/utility-scale)



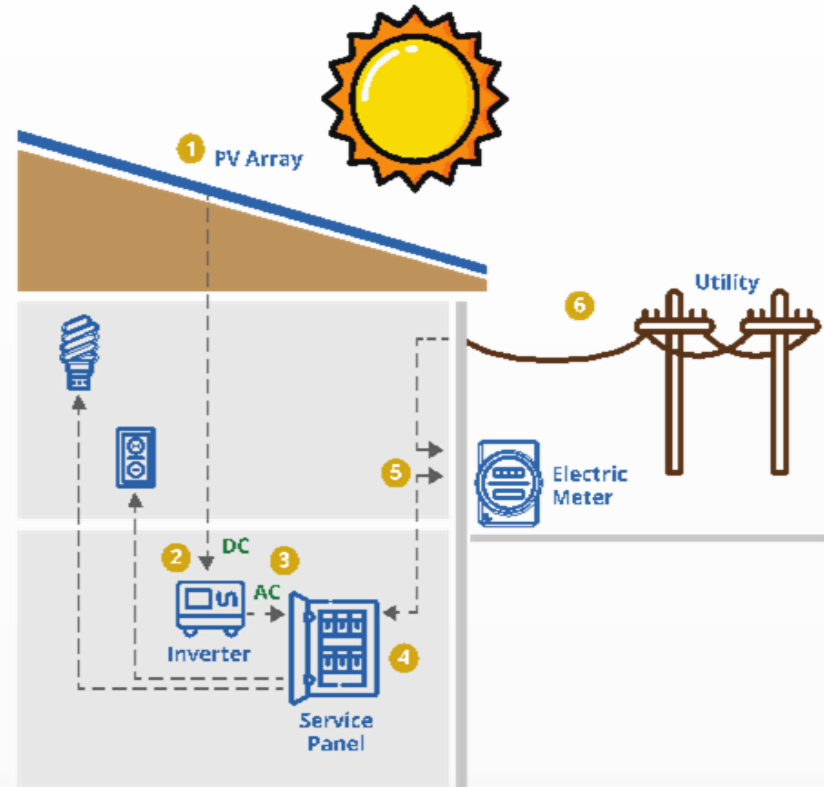


# Too Hard?

## Residential Solar System

### Primary Components

- 1 PV Collectors
- 2 Inverter/Micro-Inverter
- 3 Service Panel
- 4 Household Load
- 5 Electric Meter
- 6 Grid & Net Metering



# Process to Go Solar

- Do Your Homework
- Choose a Contractor
- Schedule a Site Evaluation
- Decide Financing Options
- Apply for Approvals
- Materials & Installation
- Finalize Incentives



Total Duration: 3-6 months



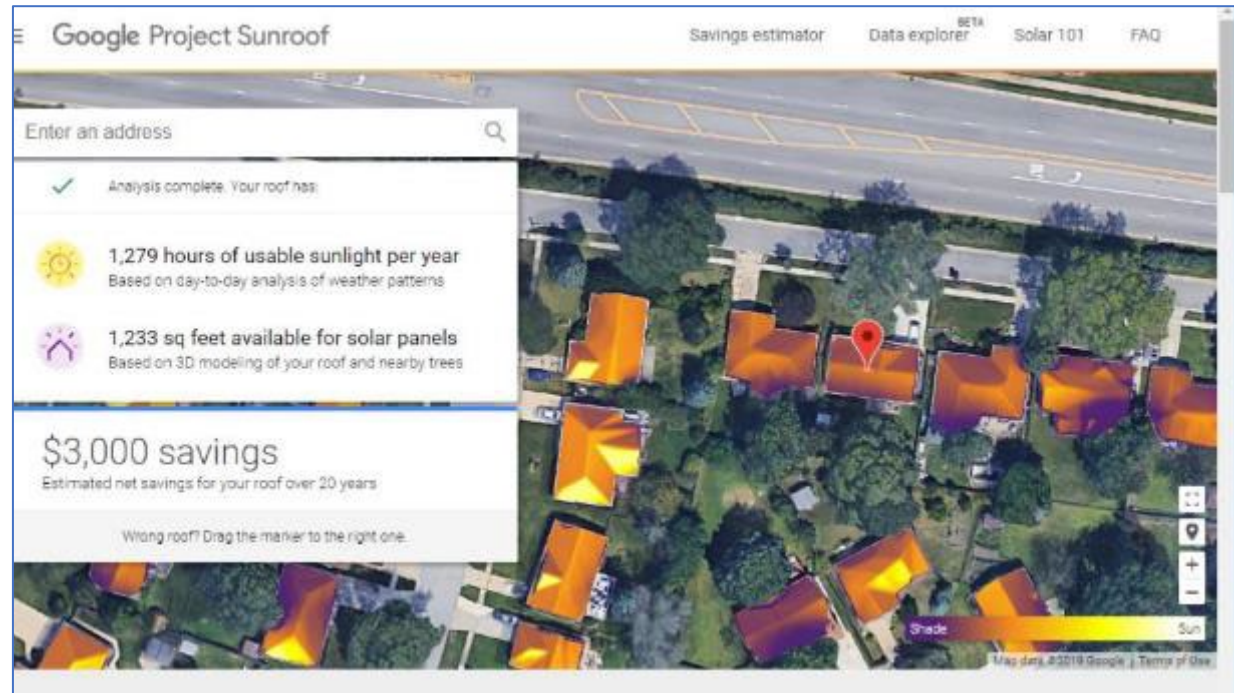
# Do Your Homework: Solar Access

## Many Online Tools!

- Google Project SunRoof
- Zillow
- Sun Number
- ComEd Solar

## Goal is to avoid:

- Drains & Ventilation
- Safety Setbacks
- Dormers
- Heavy Tree Shade
- HVAC Equipment
- Elevator Shafts/shadows

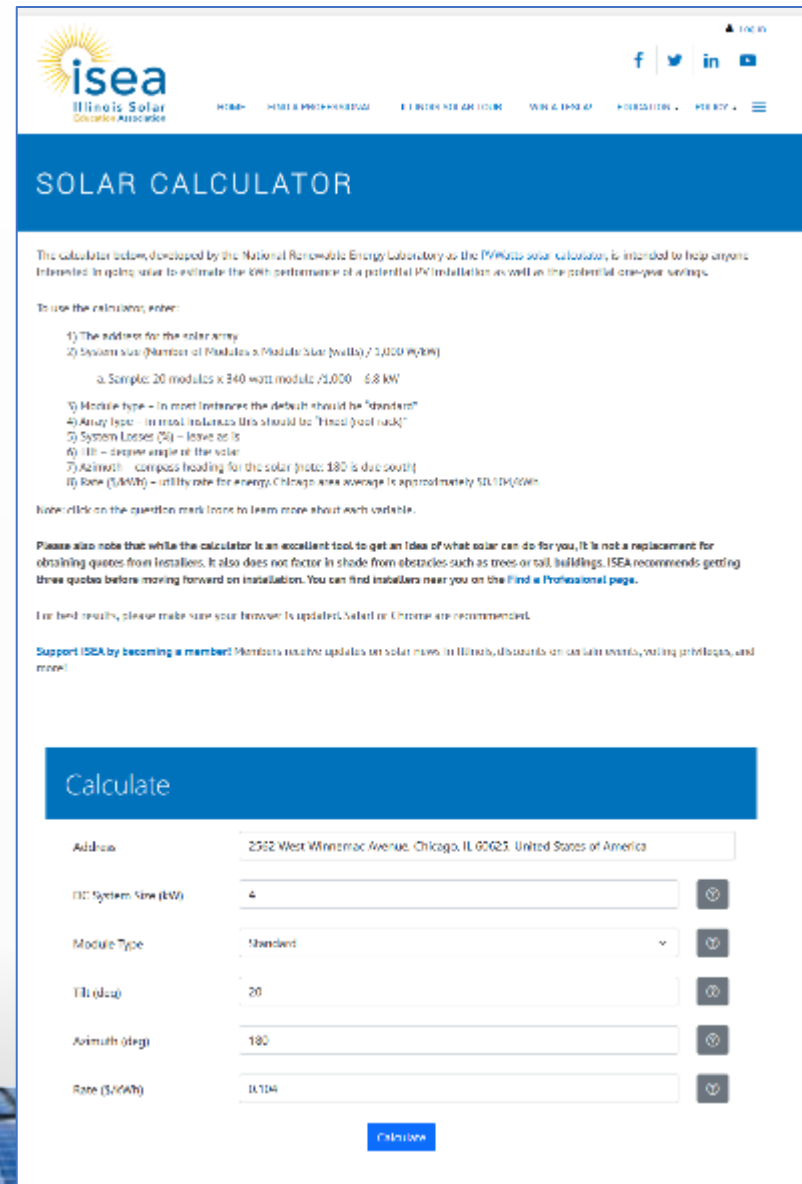


# Do Your Homework: ISEA Resources

ISEA Solar Calculator  
[www.illinoisolar.org/solar-calculator](http://www.illinoisolar.org/solar-calculator)

Find a Professional Tool  
[www.illinoisolar.org/FindAProfessional](http://www.illinoisolar.org/FindAProfessional)

FAQs for Homeowners  
[www.illinoisolar.org/Homeowner-Resources](http://www.illinoisolar.org/Homeowner-Resources)



The screenshot shows the ISEA Solar Calculator website. At the top is the ISEA logo (Illinois Solar Education Association) and navigation links. The main heading is "SOLAR CALCULATOR". Below this, there is an introductory paragraph about the calculator's purpose. A list of variables to be entered is provided, including address, system size, module type, array type, system losses, tilt, azimuth, and rate. A "Calculate" button is visible at the bottom of the form area. Below the form, there is a "Calculate" button and a table of input fields with their current values.

**Calculate**

Address	2502 West Winnemac Avenue, Chicago, IL 60623, United States of America
DC System Size (kW)	4
Module Type	Standard
Tilt (deg)	20
Azimuth (deg)	180
Rate (\$/kWh)	0.104

**Calculate**




# Do Your Homework: Electric Usage

**ComEd**  
An Exelon Company

[www.comed.com](http://www.comed.com)

**Customer Service / Power Outage**  
English  
1-877-4COMED1 (1-877-426-6331)  
Español  
1-800-95-LUCES (1-800-955-8237)  
Hearing/Speech Impaired  
1-800-572-5789 (TTY)

**Your Usage Profile**  
13-Month Usage (Total kWh)



**Electric Usage**

Month	kWh
Apr-10	487
May-10	415
Jun-10	220
Jul-10	146
Aug-10	99
Sep-10	125
Oct-10	214
Nov-10	100
Dec-10	337
Jan-11	575
Feb-11	613
Mar-11	362
Apr-11	321

**Average Daily**

Month Billed	kWh	Temp
Last Year	17.4	48
Last Month	13.2	31
Current Month	11.1	40

**Electric Usage**

Month	kWh
Apr-10	487
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# Do Your Homework: Rough Budget

- PV: about \$17,000 - \$25,000 (5kW – 8kW array)
- Permitting & Engineering
- Possible Additional Costs
  - Roofing?
  - Structural Alterations?
  - Electrical Upgrade



# Financing Options: Ownership

## Options where you own the solar array:

- Ranges from \$0 to large upfront cost
- Overall better financial return vs 3rd Party

## Pay Cash

## Traditional Loan

- Bank Loan
- Home Equity Loan

## Solar Loan

- Customized for a solar array
- Secured by the equipment (not your home)
- Can get the loan in 2 parts
  - 12 to 18-month loan to cover solar tax credit
  - 12 to 20-year loan for up to 74% of eligible project cost



ISEA Members are eligible for the Clean Energy Credit Union, which focuses exclusively on providing loans for clean energy and energy saving projects



# Financing Options: Ownership

## **Options where you do not own the solar array (it's owned by a 3rd party):**

- Little to no upfront cost
- Understanding the contract is key
- Lower financial return compared with ownership

### **PPA – Power Purchase Agreement**

Homeowner pays an agreed-upon price for electricity that is lower than the typical price from your electric company

### **Solar Lease**

Homeowner pays a leasing fee that is lower than your typical electric bill



# Direct vs. 3<sup>rd</sup> Party Ownership

	Direct Ownership	Third Party Ownership
<b>Who buys the system?</b>	Homeowner	Third-party
<b>Who owns the system?</b>	Homeowner	Third-party
<b>Are there any up-front costs for the homeowner?</b>	Yes	No or Minimal
<b>Who takes advantage of federal and state incentives available for solar?</b>	Homeowner	Third-party
<b>Who is responsible for Operations and Maintenance?</b>	Homeowner	Third-party
<b>Who is responsible for Insurance?</b>	Homeowner	Third-party
<b>What happens if the homeowner sells the home where the solar system is located?</b>	With loan: homeowner is responsible for loan payments after the transfer unless negotiated with the buyer	Depends on the contract

# Process to Go Solar



- Do Your Homework

- Choose a Contractor

- Schedule a Site Evaluation

- Decide Financing Options

- Apply for Approvals

- Materials & Installation

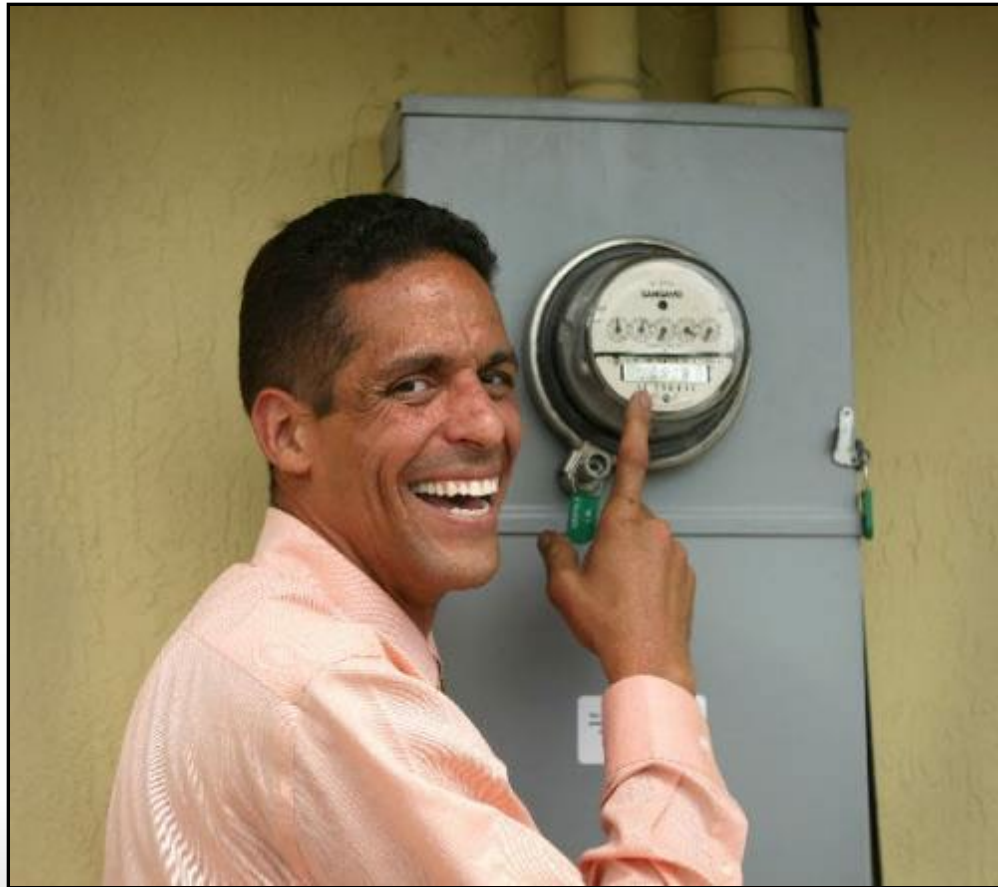


- Install is typically 1 – 4 days depending on complexity
- Municipality will inspect
- ComEd final approval





Turn it on!



# Process to Go Solar



- Do Your Homework

- Choose a Contractor

- Schedule a Site Evaluation

- Decide Financing Options

- Apply for Approvals

- Materials & Installation

- Finalize Incentives

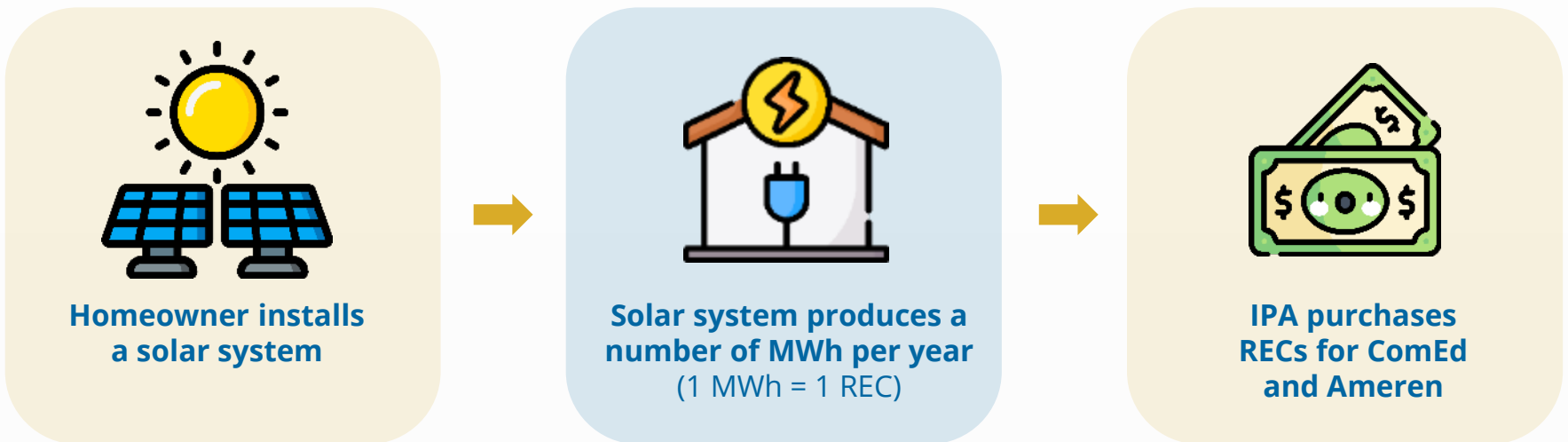


- Federal Tax Credit
- Renewable Energy Credit
- Net Metering



# Renewable Energy Credits (RECs)

RECs quantify and monetize the environmental benefit of adding solar to the grid



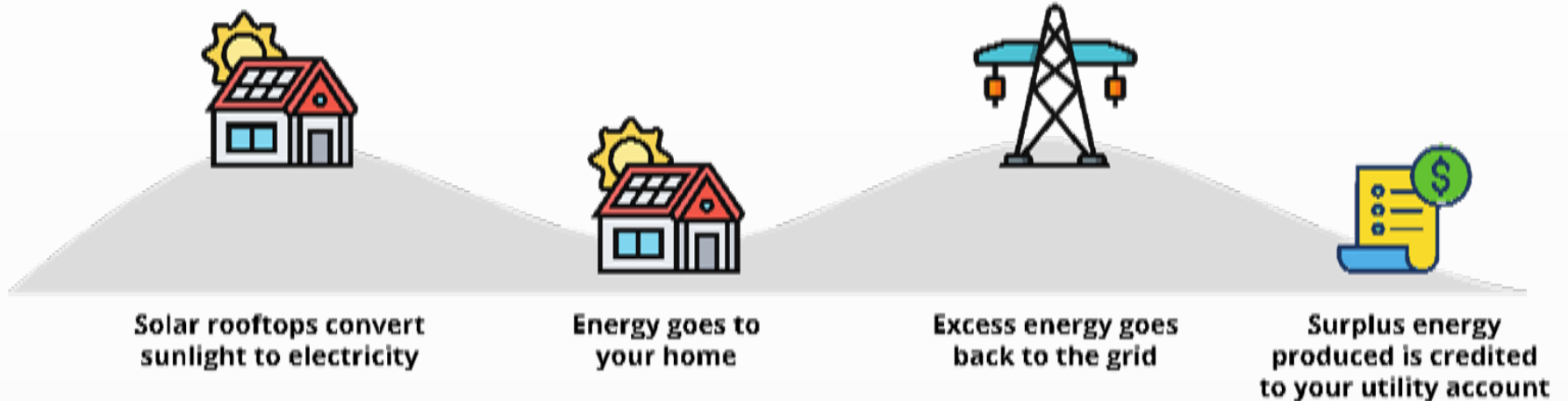
**Systems <25kW AC receive 15-year incentive upfront!**

This is in addition to the saving on their bill (net metering)



# Net Metering

## How does net metering work?





# Earning Credit on Your Bill

Page 2 of 3 Issued 12/14/21 Account # [REDACTED]

**For Questions, Support, and Outages visit ComEd.com**

English 1.800.EDISON1 (1.800.334.7661)  
 Español 1.800.95.LUCES (1.800.955.8237)  
 Hearing/Speech Impaired 1.800.572.5789 (TTY)  
 Federal Video Relay Services (VRS) Fedvrs.us/session/new

**Total Amount Due by 1/5/22 \$14.38**

**METER INFORMATION**

Read Dates	Meter Number	Load Type	Reading Type	Previous	Present	Difference	Multiplier	Usage
11/11-12/14	[REDACTED]	I/O w/ Flow Thru	kWh From Grid	Actual	Actual			534
11/11-12/14	[REDACTED]	I/O w/ Flow Thru	kWh To Grid	Actual	Actual			190

**CHARGE DETAILS**

Residential - Single 11/11/21 - 12/14/21 (33 days)

Category	Description	Amount
<b>SUPPLY</b>	<b>Electricity Supply Charge</b>	<b>\$0.00</b>
	534 kWh X 0.06424	\$34.30
	534 kWh X 0.01353	\$7.23
	Purchased Electricity Adjustment	-\$2.67
	Net Metering Credit - Supply	-\$38.86
<b>DELIVERY - ComEd</b>	<b>Customer Charge</b>	<b>\$14.18</b>
	Standard Metering Charge	\$3.70
	Distribution Facilities Charge	\$19.42
	IL Electricity Distribution Charge	\$0.66
	Net Metering Credit - Delivery	-\$20.68
<b>TAXES &amp; FEES</b>	<b>Environmental Cost Recovery Adj</b>	<b>\$0.20</b>
	Renewable Portfolio Standard	\$1.01
	Zero Emission Standard	\$1.04
	Energy Efficiency Programs	\$1.00
	Franchise Cost	\$0.20
	Net Metering Credit - Other	-\$3.17
	<b>Service Period Total</b>	<b>\$14.38</b>

**MISCELLANEOUS \$0.00**

Net Metering Excess Gen - Rollover 1,819 kWh

Thank you for your payment of \$14.37 on December 3, 2021

**Total Amount Due \$14.38**

**UPDATES**

ComEd

- PRICE TO COMPARE:** The ComEd electric supply price to compare is 7.777 cents per kWh. This price does not include a monthly purchased electricity adjustment factor that may range between +\$0.005 and -\$0.005 per kWh. For more information and supplier offers visit <https://www.pluginillinois.org/fixedrate.aspx>. For more information on ComEd bill line items go to [ComEd.com/UnderstandBill](https://www.comed.com/UnderstandBill).
- WAYS TO PAY:** Looking for ways to pay your bill? Additional fees are no longer assessed on payments made by credit and debit card, or electronic check. And you can now use PayPal, it's safe, convenient and free! Visit [ComEd.com/Pay](https://www.comed.com/Pay)
- STOP ENERGY SCAMS:** Scammers may threaten to disconnect service in exchange for immediate payment or personal information. We will never demand payment using prepaid cash cards, third-party banking apps, or cryptocurrency such as Bitcoin. Learn more: [ComEd.com/ScamAlert](https://www.comed.com/ScamAlert).
- MORE SAVINGS & CONVENIENCE:** To offer you more convenience, eligible residential customers can have their deposits and late payment charges waived for a year. To find out if you qualify, please visit [ComEd.com/Eligibility](https://www.comed.com/Eligibility).

12/14/21 01:18:13 0005 00040 03

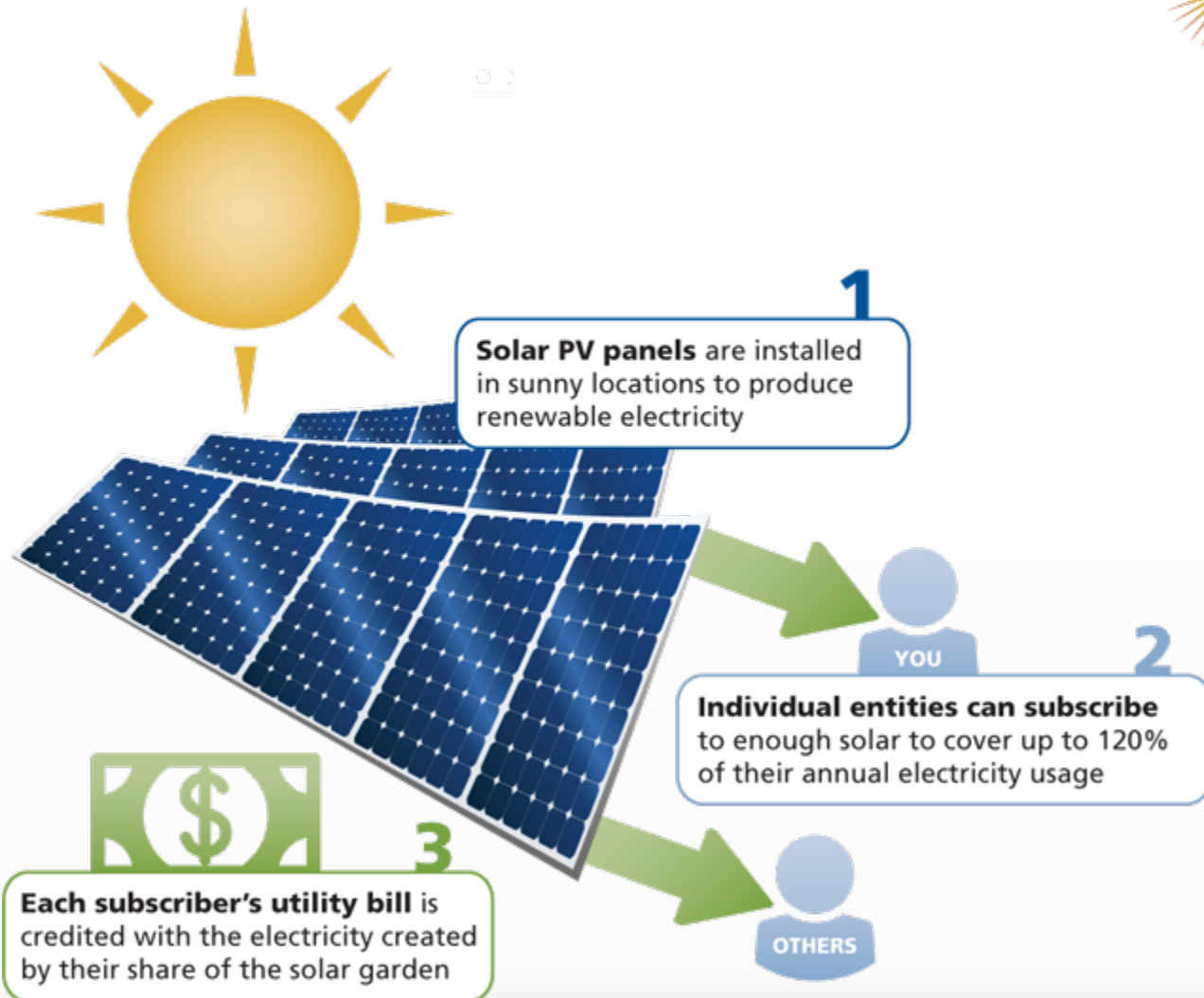
Your bill will change, showing: **In Flow (from grid)** and **Out Flow (to grid)** readings

ComEd Bill - December 2021





# Community Solar





# Questions & Contact Info



✓ Website:  
[www.allbright.solar](http://www.allbright.solar)

✓ Email:  
[lisa@allbright.solar](mailto:lisa@allbright.solar)

✓ Phone:  
773-887-6446





# State Incentives & Project Development

## Illinois Shines

*This state-administered solar incentive program opened for applications on January 31, 2019 and was significantly expanded through the enactment of the Climate and Equitable Jobs Act (Public Act 102-0662). The Program was developed, and is managed by, the Illinois Power Agency.*

## Illinois Solar for All

*Illinois Solar for All is a state-administered solar incentive program that provides greater access to the clean energy economy for low-income communities through incentives that help make solar installations more affordable and result in measurable savings for participants.*

# What is an Incentive Program?

- **Economic tool to give renewable development a leg-up**
  - Goal is to produce more renewable energy through incentivization of solar development
- **Incentive programs are an economic tool to guide our economy in a certain preferred direction.**
- **Incentive programs for renewable energy can be seen as a sort of jump start for the renewable energy economy to get more people on board and break down the barriers to entry.**
- **Incentive programs can be offered at any level of government, the incentive programs the IPA offers are offered at the state level as the IPA is a state-level government agency.**



# How Do Incentive Programs Support Project Development?



- **Provides a lower overall price point for Illinoisans seeking to install solar on their home or business**
  - **Reduces long-term energy costs for those that install solar**
- **Provides capital to large project developers that could use support for financing larger solar projects**
  - **Large solar projects mean large amounts of renewable energy can be produced**

# Ways to Finance Solar

- **Lease**
  - Customer pays a monthly fee for their solar project
- **PPA**
  - Similar to a lease, but instead of a flat monthly fee, fees are based on a cents-per-kilowatt fee structure for their solar project
- **Purchase**
  - Customer purchases project outright and owns it



Then come the incentives!

# Payout of Incentives in Illinois Shines\*



Project Type	Payment Schedule
Small Distributed Generation	<b>100%</b> payment of incentives upon approval of Part II application by Illinois Shines program
Large Distributed Generation	<b>15%</b> payment of incentives upon approval of Part II application by Illinois Shines program and remainder of incentives paid over <b>6 years</b>
Community Driven Community Solar	<b>15%</b> payment of incentives upon approval of Part II application by Illinois Shines program and remainder of incentives paid over <b>6 years</b>
Traditional Community Solar	Incentives are paid out as project produces power
Public Schools	Incentives are paid out as project produces power

*\*This payment schedule is based on projects submitted to the Program from June 1, 2022 and later. Previously submitted projects may follow slightly different payment schedules*

## 1. Part I application

*Vendors submit project applications to Illinois Shines program, usually prior to project construction*

## 2. Initial approval from Program

*Program approves the Part I application and the project moves along in the application process*

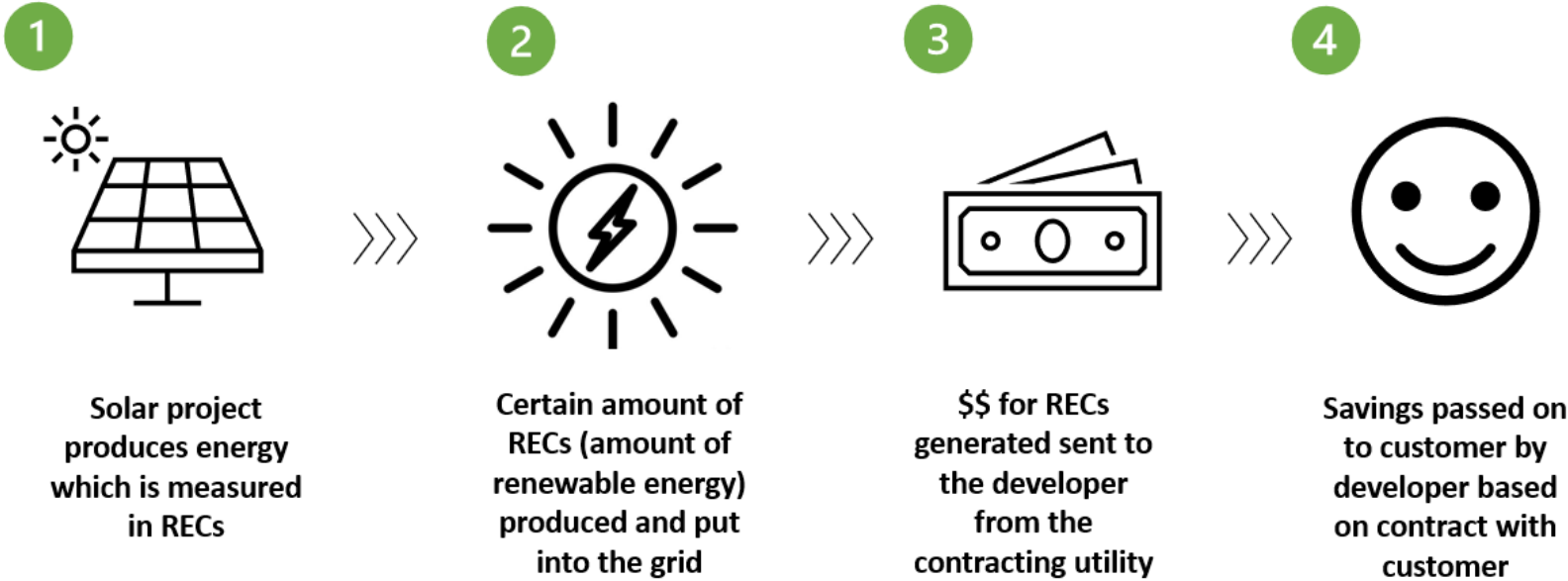
## 3. Project construction

*Usually, after Part I approval and approval of incentives the project will be constructed by the vendor*

## 4. Part II application

*After project is built, final specifications are sent to the program and the project is approved for incentives to be paid out*

# How Does the Incentive Money Get to the Customer?





# ILSFA Overview



## Small Residential (1-4 unit)

- \$11,637,500 (+Rollover) PY5 budget
- Costs and fees won't exceed 50% of value of electricity produced
- No upfront cost to participants



## Large Residential (5+ unit)

- \$11,637,500 (+Rollover) PY5 budget
- At least 50% of households must be income-eligible
- Upfront costs allowed



## Non-Profit/ Public Facilities

- \$16,625,000 (+Rollover) PY5 budget
- Non-profit or public sector facilities serving and located in income-eligible or EJ communities
- Costs and fees won't exceed 50% of value of electricity produced
- Upfront costs allowed



## Community Solar

- \$26,600,000 PY5 budget
- Income-eligible residents can subscribe
- Costs and fees won't exceed 50% of value of electricity produced
- No upfront cost to subscribers, with exception for energy sovereignty

# ILSFA Projects



Sub-Program	Approved Projects	Total Capacity	Approved Incentives
Residential (1-4 unit)	251	1.547 MW	\$4,388,453
Residential (5+ unit)	12	2.746 MW	\$5,384,853
Non-profit/Public Facilities	120	19.946 MW	\$43,953,733
Community Solar	17	19.976 MW	\$55,360,129



# Q&A

# Contact Us!



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