CUB'S GUIDE TO SOLAR

How solar power can secure clean, affordable energy for Illinois consumers

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Illinois is today a clean energy leader, thanks to a series of policy developments that date back to the 1990s. Whether you own or rent, live in an apartment or a single-family home, you now have multiple options when it comes to tapping into the benefits of solar power. None of this happened by accident, however. Here's a short history:

Following years of spiraling electricity prices, Illinois law restructured the state's electricity market in 1997 and froze power rates for a decade to allow a competitive market to develop. But when that didn't happen, the state created the Illinois Power Agency (IPA) to manage electricity procurement for the major utilities: ComEd, Ameren and MidAmerican Energy. The IPA Act of 2007 also created Illinois' first Renewable Portfolio Standard (RPS)—requiring the IPA to secure a certain percentage of power from renewable sources like wind and solar.

In 2011, state legislators OK'd significant investments in electric system upgrades, setting the stage for a power grid that is more resilient and better able to absorb the output of smaller, renewable generators.

Five years later the Future Energy Jobs Act (FEJA) freed up more money to support the RPS, sparking a short-lived solar boom. FEJA launched Illinois' first community solar program; created Solar for

All to help lower-income customers enjoy the benefits of solar; and it made rooftop solar an even better deal, creating state-funded solar Renewable Energy Credits, or SRECS, an incentive that paid residents for their solar power.

But the boom fell off a cliff in 2020, when the state ran out of money to adequately support solar, creating an urgency for the 2021 Climate and Equitable Jobs Act, or CEJA. To reach a carbon-free power grid by 2045, CEJA invests $580 million a year to help increase renewable energy in Illinois—including more community solar and rooftop solar projects. In addition to bolstering existing solar programs, CEJA created three new ones involving solar power at schools, in communities, and giving opportunity to equity-eligible contractors. It also increased the budget for programs to give lower-income families access to solar power fivefold, from $10 million to $50 million.

There's a lot more work to do, but the efforts of consumer and environmental advocates over the last three decades means there has never been a better time to invest in solar power in Illinois.

What Are the Different Types of Solar?

When most people think about residential solar energy, they probably imagine panels on the roof of a home. Yet there are other types of solar systems that feed into our electric grid. In this section we explain three of these.

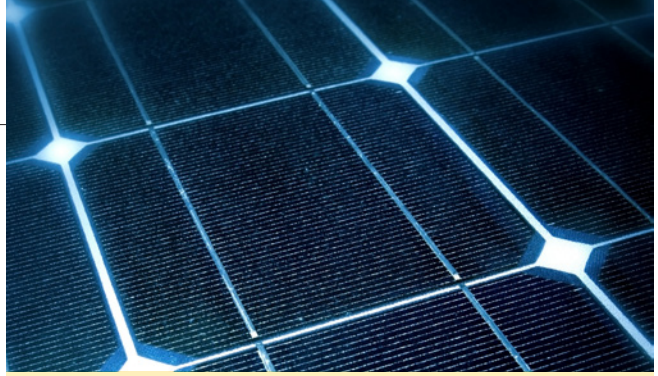
Utility-scale solar has been operating in Illinois for more than a decade and serves as a way to generate reliable, clean electricity on a large scale. The 2021 Climate and Equitable Jobs Act (CEJA) defines wind or solar projects of over 5 MW as utility-scale. The electricity from these projects is sold to wholesale utility buyers, not end-use consumers. Utility-scale solar projects can also be paired with energy storage to provide power when the sun is not shining, which increases grid reliability and resilience.

Rooftop solar or distributed generation (DG) solar projects are what most people think of when envisioning solar power. In these types of projects, electricity is generated by solar panels located near the point of use (like a rooftop) instead of the traditional model where a large amount of power is generated at a centralized location and transmitted over long distances to users.

Rooftop solar projects are typically sized according to the consumer's historical electricity usage. The majority of these projects are also grid-tied, which means they are eligible for net metering, in which you get credits on your power bill for the excess electricity your solar system generates and sends back to the grid. Distributed generation can help support delivery of clean, reliable power to more areas and reduce electricity losses along transmission and distribution lines. Battery storage is still expensive and rarely tied to residential solar systems, but costs are coming down and in time we'll see more of it and more utility programs incentivizing households to provide power to the grid at times when demand is high and/or the sun is not shining.

Community solar was first brought to Illinois by the 2016 Future Energy Jobs Act (FEJA). It's ideal for people who can't put solar on their own homes—maybe they live in an apartment, or their home has too much shade. Community solar allows consumers to save money on their electric bills from energy produced by large, off-site solar projects, similar to how you would save on your electric bill if you installed panels on your own property. We'll describe in detail how community solar works in later sections.

How Solar Works



What are solar panels made of?

The main component of solar panels is silicon. Silicon is essentially condensed sand, which is then cut into very thin strips and placed in rows to create one panel. Multiple panels are then strung together to create a solar array. Silicon is used because it is a semiconductor, meaning electrons are able to flow through it. The movement of electrons through the panel creates an electrical current.

How does solar energy work?

It starts with photons: tiny particles of light. In any solar panel, there are free electrons in the silicon, waiting to build up enough energy to move. When a photon-filled ray of sun hits the solar panels, the energy from the photons knock electrons free of their silicon atoms and those excited electrons start to flow through wires, creating an electric current. This direct current (DC) power then flows through an inverter where it is converted into alternating current (AC) power. This electricity is now ready to power your home. Solar panels are able to convert the energy from the sun into electricity that can power a home, which is why they are often referred to as photovoltaic, or PV, cells.

What is the difference between AC and DC energy?

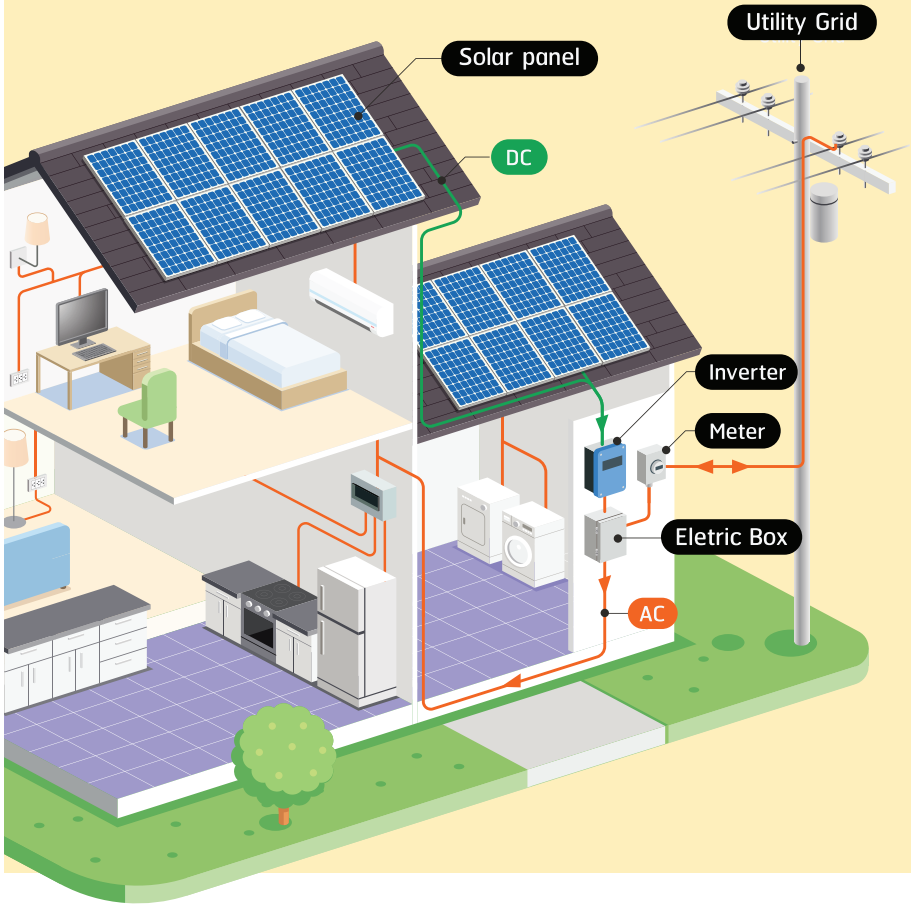
"AC" stands for alternating current, whereas "DC" stands for direct current. Solar panels produce DC electricity, but the appliances and lights in a typical home run on AC. This is why an inverter is a necessary part of a PV system. The inverter converts the DC electricity produced by your solar panels into AC electricity that can be used in your home and/or sent back to the grid.

Inverters

There are three main types of inverters: string inverters, micro inverters, and power optimizers. String inverters are most commonly seen on commercial projects. In a string inverter system, all panels are tied to a single inverter, so if one panel is underproducing (maybe due to shade), it brings down the efficiency of the entire array. A string inverter is the most affordable option, but it is best for systems that experience close to zero shade. In a system with micro inverters, on the other hand, each separate panel has its own small inverter attached to it. Now, if a single panel is under-producing, it would not affect the overall performance of the array because of the module-level microinverters. While more expensive, microinverters are a popular choice thanks to their ability to maximize efficiency. Power optimizers contain characteristics of both string and microinverters. With this option, panels would be tied to one main inverter where the electric current is converted from DC to AC, but each panel would have its own power optimizer. The power optimizers maximize efficiency similarly to microinverters, but they are a bit more affordable.

What are the components of a solar system?

A typical rooftop system consists of solar panels and the mounting structure, an inverter, a load center (aka, your house or "load" that utilizes the electricity generated) and utility meter, lightning protection and a disconnection switch. You will need additional components if you have a stand-alone system (one that never connects to the utility's electric distribution system) or a multimode system (one that can connect or disconnect to the distribution system): Battery, charge controller and transfer switch. If your roof does not have good solar exposure, but you have some unshaded land, you can opt for a ground-mounted system. These systems are often more expensive due to the cost of trenching and running electrical conduit back to the home. Ground-mounted systems have the same components as a rooftop system.



How many panels do I need?

The size and cost of your system largely depends on how much electricity you want it to generate and how much sun your property gets. Remember, you don't need a system to offset 100 percent of your usage—most people purchase smaller systems.

Comparing offers from different solar installers can help you avoid paying inflated prices for your system. CUB recommends getting at least three quotes. Most solar companies will offer a free off-site quote, in which they request your annual electricity usage and look up your property's solar exposure to give you an estimate without a physical site visit. You can also check out **Project Sunroof** or **PV Watts** to learn more about your home's potential for solar.

Important Note: If you use less energy, you'll need fewer solar panels to account for your electric load. Before you install panels, we recommend investing in energy-saving equipment and weatherizing your home. Check with your utility company to see what efficiency programs they offer. You may already pay for such programs on your bill, so you should take advantage of them.

Off-Grid or Not? Batteries and Storage

There are three photovoltaic system types:

- **A grid-tied system** is still connected to your utility's grid. This means excess electricity produced by your panels can be sent back to the grid, and you can use electricity from the grid when your panels aren't producing. This type of system is the most affordable, and requires the least amount of maintenance. The only downside is that if your utility's grid is down, your system shuts down as well (this is to ensure the safety of utility line workers who may be performing repairs).
- **A multi-mode system** is connected to the grid, but it also has a backup battery.
- **A stand-alone system** is not connected to the grid at all, and relies solely on battery storage to power the home when the panels aren't generating electricity.

Multi-mode and stand-alone systems offer more independence from your utility, but they can be quite expensive and, depending on the type of battery, may require regular maintenance and replacement.

Many dream of installing a stand-alone system and going off the grid, but in reality batteries can be expensive, high maintenance, and may not supply your home with full power for very long. Until battery technology becomes more affordable and efficient, using solar panels to completely disconnect from the utility's distribution grid won't be practical for most households.

Also, if you choose to keep your solar system entirely "off-grid"—meaning it's not connected to the power grid—you wouldn't be eligible for state solar incentives or net metering.

Paying for Solar

Once you've chosen your installer, consider how you'll pay for your system. You have two options: 1) Leasing/Power Purchase Agreement (PPA) or 2) Purchasing.

Leasing/Power Purchase Agreement

Many solar companies advertise leases or Power Purchase Agreements (PPAs) at no upfront cost. But under such agreements, you should know that the leasing/PPA company...

- Owns the solar panels on your property and, therefore, pockets any federal and state incentives that are offered.
- Will sign you up for a long-term contract (usually 15 or 20 years).
- May include in the contract an escalation clause that increases your monthly payment each year to account for increases in electricity rates or other factors, such as inflation. Such clauses typically increase payments at an annual rate between 1-3 percent. Calculate or ask for a table of what each year's payment rate will be.

With a lease, the customer is charged a predetermined, fixed amount (usually monthly) by the installer. With a PPA, the customer is charged for the energy that the panels on their property send to the grid each month at a per-kilowatt-hour (kWh) rate.

Both arrangements typically allow the customer to buy the system at some point, but it depends on the contract, and that's after the solar company has exhausted the federal and/or state incentives. At the end of a solar lease or PPA term, customers will usually have a few options, including renewing the contract and continuing monthly payments; purchasing the system at a designated price or the fair market value of the system; or having the installer arrange for the system to be removed.

While usually requiring no upfront cost, leases and PPAs can end up costing more over the long-term than purchasing the system. **For this reason, CUB recommends never signing a lease/PPA without first exploring ownership options.**

Purchasing

If you want to own your solar panels, you have options to pay for them. Solar loan financing is one popular example. Such loans enable you to spread the system's cost over time but retain ownership of the panels from the start (unlike leases and PPAs). Many different institutions offer solar loans (see below). Most solar installers partner with financial institutions to offer different options. You can also secure financing through a traditional bank or credit union of your choosing.

Make sure any solar loans you consider account for the available incentives. For example, you can use the money you save through the federal tax credit (see below) to pay down your solar loan—just make sure your lender won't penalize you for making a large payment all at once.

Solar financing: Two common types of loans are bridge loans and solar loans. Bridge loans cover the period between installing a system and receiving your federal and state incentives. Solar loans finance the cost of your solar system after the federal and state incentives are deducted. They are typically offered by banks, credit unions and solar panel manufacturers. You can usually categorize most

solar loans into two different groups: secured and unsecured loans.

- Secured loans require an asset to serve as collateral. In most cases, that asset would be your home and the financing provider would put a lien on your property.
- Unsecured loans do not require any collateral besides the solar system itself.

Solar loans come in many different packages, with varying structures, terms and conditions. It's best to compare options from a few different financing providers. Check out **A Homeowner's Guide to Solar Financing** from the Clean Energy States Alliance and **Solar Financing FAQs** from EnergySage.

State and federal incentives: When shopping for ownership, lease or PPA options, consider the different state and federal incentives available to you if you go solar. The federal and state incentives are only directly available to the homeowner seeking a purchasing option, not a lease or PPA.

Federal Investment Tax Credit: This tax credit deducts a percentage of your solar project costs from your federal income taxes. This may include the cost of solar panels, labor costs, solar equipment (inverters, wiring, mounting hardware), battery and sales tax on eligible expenses. The tax credit was set to expire by 2024, but thanks to passage of the Inflation Reduction Act (IRA) in 2022, the credit has been increased to 30 percent and will stay in place for a decade, or once annual greenhouse gas emissions fall by at least 75 percent from 2022 levels. (Also, the tax credit now includes battery system costs, thanks to the IRA.) You must own your panels to receive this tax credit, and you must pay federal taxes to benefit. If the credit amounts to more than you paid in federal taxes in a single year, it can roll over for as long as the tax credit is in effect. Learn more about the residential energy credit (Form 5695) on the **IRS website** or on the **Solar Energy Industries Association** website.

State of Illinois SREC Payments: The state of Illinois will buy the "Solar Renewable Energy Credits," or SRECs, your system produces. Individuals receive this state incentive through their participation in **Illinois Shines** (the brand name for the Adjustable Block Program, the state's solar-incentive program). For residential solar, this incentive is an upfront payment determined by how much energy your system is expected to produce over 15 years. It can cover 30-40 percent of the installation cost. Ask your solar installer how much this incentive will cover and how you'll receive the credit. Ideally, the credit would simply be deducted from your installation bill, but it is possible that the payment may be passed on through a check, separate from the bill. If received through a check, this may come from an SREC aggregator, who is directly responsible for distributing the SREC payment, among other roles. SREC aggregators will typically keep around 10 percent of the incentive as a processing fee, so be sure to check your contract. One more thing to note—SRECs are considered taxable income.

In addition to federal incentives, Illinois energy policy provides residential customers with an SREC payment that can cover up to 40 percent of the solar installation cost.

15 YEARS | ENERGY GENERATED | $ PER WATT OF GREEN ENERGY | SREC PAYMENT YOU RECEIVE

Making Solar Affordable for Everyone – Illinois Solar for All

The 2016 Future Energy Jobs Act (FEJA) created the **Illinois Solar for All** program (ILSFA), which aims to help lower-income households and residents of environmental justice communities take advantage of clean energy.

The program incentives make solar installations more affordable for qualifying **homeowners**, **nonprofits/public facilities**, and **community solar projects** serving customers with lower incomes. A quarter of the ILSFA funds are reserved for projects located in environmental justice communities that suffer higher levels of pollution than the rest of the state.

ILSFA features strong consumer protections to ensure that participants save money by going solar. The program guarantees that participants won't have to pay any upfront costs, and ongoing costs and fees can't exceed 50 percent of the value of the energy generated from that solar system.

If you qualify for ILSFA, it's the most cost-effective way to go solar. Individuals must be at or below 80 percent of Area Median Income (AMI) to be eligible. This amount varies based on the number of people in your household and where you live in the state. You do not need to live in an environmental justice community to be eligible for ILSFA—you just need to qualify based on income. Check out **this tool** to see if you qualify.

If you meet the income requirements, you can **get started here**.

HOW MUCH WILL ILLINOIS SOLAR FOR ALL SAVE ME?

WITHOUT SOLAR

Electric Bill
Supply..... $60
600 kWh X 0.10..... $60

Delivery..... $30
Taxes and Fees $10

Total $100

Total Owed: $100

WITH SOLAR

Electric Bill
Supply..... $0
600 kWh X 0.10..... $60

Solar Credits
600 kWh X 0.10..... -$60

Delivery..... $30
Taxes and Fees $10

Total $40

Solar Provider Bill
Solar Credits..... $60
50% Discount..... -$30

Total $30

Total Owed: $70 / Total Saved $30*

*Note that this is an example and savings will vary.

What is Net Metering?

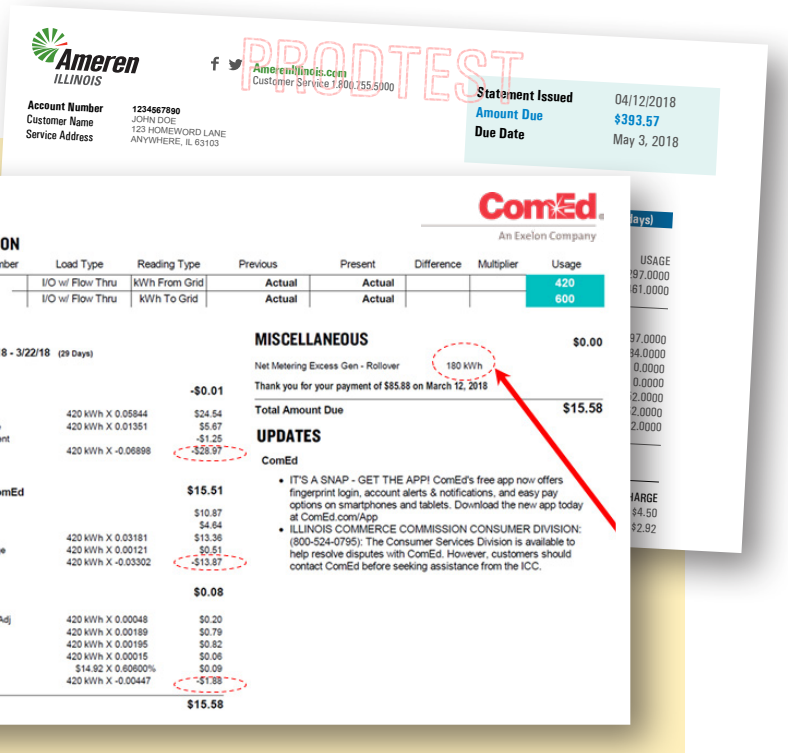
Residential and commercial customers of ComEd, Ameren and MidAmerican can participate in "net metering." If your solar panels are connected to the power grid, and you produce more electricity than you need, that excess power is sent back to your utility's grid, and you get credits on your bill. This system is called net metering. Your utility will only charge you for the net amount of electricity you consume, plus any fixed delivery charges.

How much can I expect to save?

Illinois net metering law requires investor-owned utilities (ComEd, Ameren, and MidAmerican) to offer one-to-one net metering for renewable energy generation that is sized to offset the household's energy usage. One-to-one net metering means that you will be credited for the electricity you send back to the grid at the same rate that you are charged for electricity—one kilowatt-hour sent to the grid offsets one kilowatt-hour used from the grid. This is the best type of net metering policy for consumers because it will lead to the highest level of savings.

In a given month, if you produce more electricity than you use, those excess net metering credits will rollover to the next month and can help offset future electricity usage. Any remaining credits will expire once per year, either in April or October, depending on which option you select. An April expiration date is best for solar installations as it gives you the most time to use built-up credits from the previous summer.

Utilities do not require you to size your renewable generation systems to match your usage. But remember, unused net metering credits will expire



Your bill will not be zero

Owning solar panels will help you save money on your electricity bill via net metering. But please note that your bill will not be zero if you are on basic electric service. **You will always pay a customer charge and a standard metering charge.** There is one exception. It is possible for your bill to zero out, or mostly zero out, if you are on special pricing plans that charge a rate that can change hourly: ComEd's Hourly Pricing and Ameren's Power Smart Pricing programs. *(Read more in "Can I Participate in real-time pricing and net metering?" on page 11.)*

at the end of your annual period, so it is still economical to have your renewable energy system match the electricity demand of your household.

What if I'm with an alternative supplier?

Alternative suppliers are required to offer net metering, and to provide those credits at the same rate they are charging you for electricity. These suppliers are also required to provide contact information specifically for net metering concerns. However, they do not always meet these requirements.

It's often simpler to cancel with an alternative supplier and participate in net metering with your utility company, which tends to have more staff members to answer your questions. A few details on the net metering policies of major Illinois utilities:

- **Ameren:** Any banked net metering credits (that have rolled over from a previous month) are only recognized by your current electricity supplier. If you switch suppliers you will lose any banked net metering credits with your current supplier. This is true whether your electricity is currently supplied by your utility company or by a third-party supplier.
- **ComEd:** Net metering customers will no longer lose banked credits (that have rolled over from a previous month) when switching suppliers, thanks to ComEd's updated net metering policy.

Can I participate in real-time pricing and net metering?

ComEd and Ameren customers with rooftop solar installations can still participate in their utility's real-time pricing program ("Hourly Pricing" for ComEd, "Power Smart Pricing" for Ameren), which charges participants a market rate that can change hourly. If you pay such a rate, your net metering credits will reflect that rate.

Solar customers may benefit from real-time pricing by pulling electricity from their panels and avoiding peak power prices on hot summer afternoons. However, savings aren't guaranteed. Before joining a real-time pricing program, talk to a program specialist to get guidance on whether it is right for you. If you sign up, check your real-time pricing results (emailed to you each month) to make sure you're saving through the program. *Note: In addition to solar panels, if you also have an electric vehicle, adding real-time pricing could offer even more significant benefits. Charge your vehicle at night, when prices are typically lower, and your net metering credits will cover more of your car-charging expenses. Real-time pricing programs are also good for people who use electricity to heat their homes—they could pay a lower rate for electricity in the winters, when power demand is typically lower.*

What if I'm with a co-op or municipal utility?

Cooperative electric utilities and municipal utilities are not regulated the same way as investor-owned utilities (like ComEd, Ameren or MidAmerican), so their net metering policies may be different. While investor-owned utilities must guarantee one-to-one net metering, co-ops and municipal utilities are not under the same regulation. So, if you are a co-op or municipal utility customer, make sure to check the net metering policy before deciding if rooftop solar is for you. The Climate and Equitable Jobs Act (CEJA) requires municipal utilities and co-ops to publish their net metering policies.

Your Rooftop Solar Checklist

System Size

To know how big your solar system should be, first analyze your electric load, which is how much energy your home typically uses each month. This can be done by looking at the kilowatt-hours (kWh) listed on your electricity bills over the past several years. The size of your home, number of appliances, and number of people living or working in the house will also factor into your system size.

Home Efficiency

Before installing solar panels, it's a good idea to work on your home efficiency to see what cost-effective measures can be taken to reduce electrical waste. Visit **CUB's Clean Energy page** and visit the **Energy Star website** for more tips.

Roof Condition and Shading

Before you install solar panels, you should get a site evaluation by a professional installer. They will review your property to answer a number of questions, including:

- ✓ **How much of your roof is shaded?** Check out an aerial view of your home on Google Maps. If you can't see the majority of your roof, you may not get enough sunlight to justify the costs of installing your own system. A south-facing roof is ideal. A roof that faces east or west can work too, but it would have to be 20 percent bigger to produce the same amount of energy as a south-facing roof.
- ✓ **How old is your roof?** Replacing your roof after installing a solar panel system creates additional costs, and most solar panels are warrantied for 25 years, so if your roof is asphalt shingled and over 10 years old, consider roof replacement prior to installing solar panels.
- ✓ **Can the size, shape and slope of your roof support solar panels?** South-facing roofs that sit at a 15 to 40 degree angle tend to work the best, but east- and west-facing roofs can work too with a slightly larger system.
- ✓ **What type of material is your roof?** Asphalt, tile and metal roofs tend to be an easier surface for installing solar panels. Slate and wood roofs make for more expensive installations.
- ✓ **Can you install panels somewhere other than your roof?** If you have open land that gets a lot of sun, a ground mount system could be a good alternative to installing a system on your house.

Check out online resources to determine whether solar is right for you, such as: **Google Project Sunroof** and **ComEd's Solar Calculator**.

Choosing an Installer

Contact several certified professional solar installers in your area to get quotes for your project. For your contract, you'll want to consider:

- ✓ Permits and fees
- ✓ Warranties on craftsmanship and equipment
- ✓ Managing the Solar Renewable Energy Credits process
- ✓ The installation material type and quality
- ✓ Payment schedule
- ✓ Insurance

Visit **Illinois Solar Energy & Storage Association** for a list of certified installers in your area. Also, check out the **Illinois Shines consumer complaints database**, which provides a catalog of past and active complaints through the state incentive program. Here you can see if your potential installer has a history of complaints.

Financing

There are several federal and state incentives available to help make solar panels more affordable. The most common financing options are buying a system, leasing the system or signing a Power Purchase Agreement ("PPA"), which is covered on page 7. Whatever you decide, before signing a contract, consider the terms of your agreement and what it would take to exit your contract if you unexpectedly need to move.

Illinois Solar for All (ILFSA) Eligibility

Income-qualified customers can get rooftop solar panels at no upfront cost and a guaranteed discount through a state program called Illinois Solar for All. Most vendors through Illinois Solar for All require customers to sign up for PPAs, but with the guarantee that they will only ever have to pay for half of what their panels produce. Participants must meet **income-eligibility requirements** on the Illinois Solar for All website.

If you are with an alternative supplier

Not all alternative retail electric suppliers (ARES) offer net metering, even though it is required by law. Check your supplier before investing in a solar energy system. If you have the default utility supply, you are guaranteed the full net metering rate—that could be a strong reason to drop your alternative supplier and go back to your utility.

What is Community Solar and How Does It Work?

Community solar is a program for people who want to offset their electricity usage with solar, without actually purchasing solar panels. This is a great program for renters or people with shaded roofs, and it allows consumers to save money on their electric bills from energy produced by large, offsite solar projects, similar to how you would save on your electric bill if you installed panels on your own property.

The owner of the offsite solar project or "community solar garden" pays the upfront costs to build, maintain and connect the garden to the utility's power grid. When you sign up for community solar, you are subscribing to a portion of the project's monthly output.

Your community solar provider will analyze your household's energy demand to determine your subscription size. Each month, you'll pay your community solar provider for the amount of electricity generated by your subscription. The provider then reports the output of your subscription to the utility, and the utility company adds credits to your electric bill equal to that output.

To participate in this program, you must be an electric customer in the utility territory where the community solar project is built. Unfortunately, most municipal utility or co-op customers cannot sign up for community solar, because there are no community projects being built in their electric provider's territory.

How do I choose the right company for me?
Follow the checklist below, visit our special resource, **SolarInTheCommunity.com** and contact CUB if you have questions.

YOUR COMMUNITY SOLAR OFFER CHECKLIST

The Illinois Commerce Commission and the Illinois Power Agency have to sign off on community solar contracts, so there are some consumer protections. But some offers might be better for you than others. Be sure to ask these questions when deciding between offers.

- ☐ **How long is the term of the potential contract with the community solar provider?**
- ☐ **Does the company charge a fee if you exit the contract early?**
- ☐ **How do you pay for your community solar subscription? If it is per kilowatt-hour, what is the rate? Can that rate increase over the time of the contract?**
- ☐ **Do they require a credit check?**
- ☐ **How will the company bill you? Electronically? A paper bill? How do they accept your payments? Can you choose? Do they require automatic payments?**
- ☐ **How much will I save? So far, people participating in community solar are expected to save about 10-20 percent off the supply price they would have paid with the utility.**

Solar Glossary

Adjustable Block Program: Also called "Illinois Shines," this is the incentive program to support the development of new solar energy generation in Illinois.

Community Solar: A program that allows consumers to enjoy the benefits of solar power without having to install panels on their property. With community solar, subscribers pay for shares or some other "interest" in a solar project (also called a "community solar garden" or a "photovoltaic community renewable generation project") in their utility territory and receive bill credits in exchange.

Community Solar Project Developer: Designs and oversees the development of community solar projects. The developer must utilize an installer for the project who is certified by the Illinois Commerce Commission ("ICC").

Direct Current: All electricity produced by solar panels is "direct current," or DC electricity. A device called an inverter converts the electricity to "alternating current," or AC, for household use.

Distributed Generation ("DG"): An energy-generating system—5,000 kW AC or less—that is located on-site and used primarily to offset a single customer's usage. Examples of DG include: solar panels, small wind turbines, natural gas-fired fuel cells and emergency backup generators that are often fueled by gasoline or diesel fuel. A DG project developer may oversee client relationships, design of the solar project and site management. They are required to use a DG installer certified by the Illinois Commerce Commission ("ICC").

Illinois Commerce Commission (ICC): The state agency that regulates public utilities in Illinois. It also approves parts of Illinois' "Adjustable Block" and Illinois Solar For All incentive programs.

Illinois Power Agency (IPA): The state agency that procures power for Illinois' major electric utilities (ComEd, Ameren Illinois and MidAmerican), including the renewable energy resources needed to meet the state's renewable portfolio standard. The IPA also developed and manages the Illinois Shines solar-incentive program through a subcontractor that serves as the program administrator.

Interconnection Agreement: An agreement with the utility to interconnect a community solar project or distributed generation system (rooftop solar, for example) to the utility's distribution system.

Net Metering: A provision in an electric utility's tariff that allows for crediting a customer's bill for all or some of the production of a home's solar panels that has been exported to the power grid.

Photovoltaic (PV) Electricity: Greek, for "light electricity." The photovoltaic effect is the physical process by which sunlight is converted into electricity.

Power Purchase Agreement (PPA): An agreement by which a solar company maintains ownership of solar equipment after installing it on a person's property. With a PPA, the customer is charged for the energy that the panels on their property send to the grid each month. Typically, the customer is allowed to buy the system at some point in the contract term, but it depends on the contract, and that's after the solar company has exhausted the federal and/or state incentives.

Renewable Energy Credit ("REC") or Solar Renewable Energy Credit ("SREC"): The environmental attributes represented by 1 MWh of electricity generated by a renewable generator. An SREC is a REC that specifically comes from a solar system. RECs are the mechanism by which the state of Illinois incentivizes solar development and meets its renewable energy goals. RECs from your rooftop solar system are sold by your Approved Vendor to the contracting utility over a 15-year contract. Learn more about what a REC is here: **https://vimeo.com/113250210**

Small Distributed Generation ("Small DG"): A distributed generation system less than or equal to 25 kW in size. The typical residential solar project in Illinois is around 7 kW and would be considered a small DG project.

Solar System: A solar photovoltaic array and all associated equipment necessary for it to generate electricity and connect to the distribution grid. Key components are:

- **Solar Cells:** Multiple cells make up a module, and multiple modules make up a panel, and multiple panels make up an array.
- **Inverter:** Converts the electricity generated by solar panels from direct current (DC) to alternating current (AC) for household use.
- **Service Panel:** Receives power from the solar system or the utility company and distributes it to circuits to power your household electrical items, such as lights, appliances and the internet connection.
- **Electric Meter:** Measures the amount of electricity, in kilowatt-hours (kWh), used by your home. New smart meters offer two-way communication, delivering information to the utility, but also giving consumers access to helpful energy-usage information as well as special power-pricing programs, such as Hourly Pricing, that make for a cleaner power grid and can save money.

Resources

Citizens Utility Board (CUB): A nonprofit consumer watchdog group that fights for pro-consumer solar policy and education. Its free digital library includes information on...

- **Rooftop solar**
- **Net metering**
- **Community solar (SolarInTheCommunity.com** is a resource on Illinois' community solar program, and it features information on offers in the market.)

Energy Sage: An online comparison-shopping resource for rooftop solar and community solar. The platform reviews multiple solar quotes, calculates the financial merits of each offer, and then presents them back to you in an easy-to-understand format. "Our mission is to make going solar as easy as booking a flight online," Energy Sage says.

Homeowners Guide to Solar Financing: A resource to help homeowners make informed decisions about financing solar. It covers three popular residential solar financing choices—leases, PPAs and loans—and explains the advantages and disadvantages of each, as well as how they compare to a direct cash purchase. It also lists questions you might consider before deciding if and how to proceed with installing a solar system.

Illinois Shines: Illinois' Adjustable Block Program, an incentive program developed and managed by the Illinois Power Agency to support the development of new solar energy generation in Illinois.

Illinois Solar For All: The state's solar program for lower-income customers, developed by the Illinois Power Agency and administered by the nonprofit **Elevate**. The program is designed to make solar accessible to people living in environmental justice communities.

Illinois Solar Energy & Storage Association/ Illinois Solar Education Association: Sister nonprofits that promote the widespread application of solar and other forms of renewable energy through advocacy and education.

Midwest Renewable Energy Association: Promotes renewable energy, efficiency and sustainable living through innovative programs, such as solar group-buys, renewable energy training and educational events.

Vote Solar: A nonprofit policy advocacy organization with the mission of making solar more accessible and affordable across the country.

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