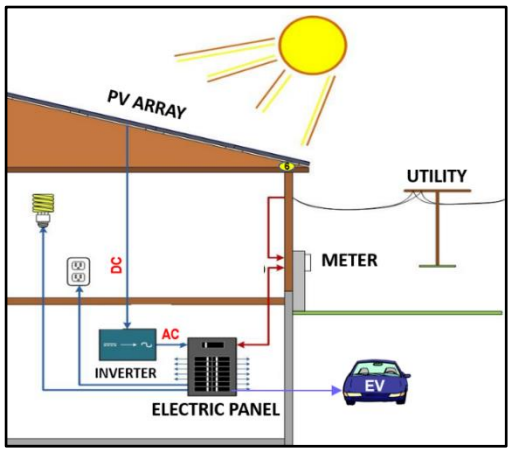
Park Ridge Solar Tour
Residential Solar Fact Sheet

Illinois Solar Tour 2023

Saturday September 30, 2023
10AM to 2PM

What is Solar Power? When sunlight shines on photovoltaic (PV) materials, an electric current is generated, which is *Direct* Current (DC). A home uses *Alternating* Current (AC), so the DC power is converted to AC using an *Inverter*. The inverter feeds into the home's regular electric service panel (circuit breakers) and from there, the home uses this solar-generated electricity. If the demand from the home's appliances, lights, EVs, etc. is greater than the sun can power, the utility grid will supply the difference. If the home's demand is less than the sun's supply, this extra solar generated electricity is sent back to the grid, effectively "turning the meter backwards".



What are my choices if I want to use solar power?

1. **Pay for and install on your own roof** – this typically has the best return on investment, provided the home has good sun and the homeowner can afford the investment. Citizens Utility Board (QR Code below) periodically offers group purchases to reduce the cost to participants. To find installers: QR Code below: Illinois Solar Energy Association - Home. Also, for a list of state certified installers, QR Code below Distributed Generation Installer Certification. Note, borrowing money to pay for an installation typically has a better investment return compared to third party leasing.
2. **Third party lease on your own roof** – companies will pay for the installation on solar on your roof and may share a portion of the incentives, plus the home gets to use the electricity. This will require monthly lease payments to the supplier. Different types of leasing arrangements are available.
3. **Community Solar** is for large solar projects up to 5 megawatts (MW) in size. Subscriptions are sold which correspond to a home's electricity usage, resulting in a 10 to 20% reduction in overall annual electricity costs. Learn how community solar works in Illinois at the Illinois Solar Energy Association and Citizens Utility Board websites. See CUB side by side comparisons.

How many panels does my home need? The amount of electricity generated is a function of the solar PV area and the amount of sun the panels see each day. Roofs covered with good solar exposure can usually provide the full amount of energy used in the home. The best exposure is on the South side of a roof, but Eastern and Western roof exposure work also. Typical homes consume electrical power at a rate of 5 to 10 kilowatt (kW). To meet this demand, the home would need 500 to 1000 ft^2 of PV area, which translates into 22' x 22' to 32' x 32' area. Each square foot of PV panel can generate about 10 Watts (W). Panels come in different sizes, but typically are supplied as 250 to 350 Watt per panel. If shade covers some panels during the day, more panels may be needed to achieve the same power. Qualified solar installers can make this assessment using online programs or site visits to estimate the area needed for power generation and provide cost estimates.

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How much do solar panels cost?

Typical residential installation costs range from $10,000 to $40,000 before incentives. This investment varies based on the size of the Photovoltaic (PV) panel array, the location of the panels (which side of the roof relative to the sun), shade coverage and site-specific factors. For starters, the all-in residential costs typically range from $2.70 to $3.50 per Watt, before incentives. A watt is a unit of power which is the amount of energy per unit of time. If you look at your utility bill, the total kilowatt hours (kWh) of energy each month are tallied and billed. For a typical home, the average amount of energy consumed over time is used to determine the PV array size. Commonly, an array will be sized for somewhat less than the total average energy usage. For example, if you use 12,000 kWh per year, the array might be sized to provide 10,000 kWh per year (80%).

What are the available incentives? For small solar projects (up to 25kW):

Illinois Shines - Solar Renewable Energy Credits (SRECs) Program. An SREC is the quantity of energy your home generates in a year, in Megawatt Hours (MWh). SRECs for residential are valued at around $70 to $80 per SREC and typically pay for 30 to 40% of the investment.

1 MWh = 1 SREC

Federal Investment Tax Credit – credits are paid on the total installed cost of your installation paid against on your federal income taxes at 30% through 2032. You must pay income taxes to get this credit. Not for profits can get direct equivalent payments.

Energy Storage combined with Solar PV. Stored energy can be used during peak demand periods and managed to reduce your bills and act as an emergency backup. Residents that install PV can get rebates of $250/kWh of storage. A 30% tax credit is also available on battery storage. This totals about half of the investment cost.

Illinois Solar for All Income-eligible participants will have ***no upfront costs*** and any ongoing costs or fees will not be more than 50% of the value participants get from their system. ILSFA has programs for **income-eligible** homeowners and renters (lookup eligibility →) as well as non-profit organizations, and public facilities.

Do I get a bill credit for generating excess solar energy and sending to the grid?

Yes, **Net Metering** will reduce your bill based the amount of solar power generated and billed under portions of the Supply and Delivery sections of your utility bill. On a sunny day, if you generate more electricity from solar than you consume, the balance goes to the grid and a bill credit is given. Credits are equal to the utility's avoided cost for any excess generation. Customers who are "time of use" or “hourly rate” are compensated at these rates. Some fixed costs are applied as you are benefitting from the grid. The amount that is billed each month is based on the net amount measured on the meter. For each kWhr gained from solar, you will reduce your bill by about $0.08/ kWh.

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What is my investment payback period?

- Payback (Years) = $\frac{\text{Total Installed Cost (TIC) – Incentives}}{\text{Annual Net Metering Value from Solar Generation}}$
- Example:
  - Assume 9.1 kW (DC) PV array system, which generates about 10.1 MWhr/year.
  - SRECs are based on *integer rounded down* value of the AC power generated, or 10 SRECs.
  - For generation <25kW, residents are paid 15-years' worth of SRECs upon interconnection and registration.
  - The current (9/23) SREC program in Illinois offers SRECs in the range of $70 to $80.
  - Assume $72/SREC: SREC Value to homeowner = $72/SREC. x 10 SRECs x 15 years =$10,800.
  - Assume TIC = $24,000.
  - Tax credit @30% ($24,000) = $ 7,200 (requires tax due equal to or greater than this).
  - Balance after SRECs and Tax Credit = $24,000-$10,800-$7,200 = $6,000 balance.
  - Energy Savings: 10,100 kWh/year savings x 0.080/kWh = $808/year savings.
  - Payback: $6,000/$808 = 7.4 years to positive cash flow.
  - Value of home increases by $24,000 as soon as solar is energized.
  - Added value cannot be added to assessed value of property.

Other Solar Information

Solar Property Tax Exemption The minute the system goes live, the home's resale value may be considered to be increased by the full investment value, but the law does not allow this to be assessed for property taxes. For example, if you own a $250,000 home and the PV array costs $30,000, the resale value rises to $280,000, but you will still be taxed on a value of $250,000.

Introduction to Rooftop Solar - Citizens Utility Board.
Good information on the basics of Solar PV

ComEd's Solar web page provides easy guides and tools for buying your own, community solar try ComEd's home solar calculator to estimate your investment.

Grow Solar Chicagoland | Grow Solar
Home and business owners throughout Cook, Will, DuPage, Lake and Kane counties may participate in this program to help pool their buying power to secure significant discounts that make installing solar more affordable. This program is seasonal, so check with Grow Solar if interested.

Illinois Solar Energy Association - Home
Good general education resource plus access to list of qualified solar installers.

Learn about solar at the Park Ridge Public Library: October 12, 2023 / 7 to 8 PM (or sign up for Zoom)!
To register: *https://parkridgelibrary.libcal.com/event/11152667:*