

To determine if solar power is right for you, consider the following criteria. This will require you to make some estimates; be conservative in your guesses. It is better to be pleasantly surprised that your solar system performs better than expected, rather than disappointed that it doesn't meet your goals.

Sunlight

Geography dictates how much sunlight you can expect.

Cloud cover

Ultimately, cloudy regions provide less sunshine, making solar systems harder to justify.

Temperature

With PV systems, the lower the temperature, the happier the semiconductors, and the greater the output. You get more system output on a cold, clear day than a sunny day.

Rainfall

Installations in a wet, humid areas have less efficient factors because of the rust and corrosion effects on the metal.

Frequent fog

If you're living in an area that's foggy and misty in the morning, orient your solar panels more westward to optimize the amount of sunlight you can achieve over the course of a day.

Wind

The surface of the panels can be cooled very efficiently by wind. Strong winds can also damage the panels and the mounting hardware. Proper placement can increase system life and efficiency.

Other factors to consider

What kind of payback can I expect in terms of breaking even?

The payback period for a PV (photovoltaics) system can range from fewer than 10 to more than 20 years, depending on the cost of the system, available incentives and the amount of electricity produced.

How reliable are PV systems? What is the life expectancy of a PV system? What kind of maintenance is required?

Certified PV products and systems generally are reliable. Manufacturers test PV panels for hail impact, high wind and freeze-thaw cycles that represent year-round weather conditions. Unless your PV system uses a tracking device, it has no moving parts.

How much electricity can I generate?

You should first determine how much electricity you want to generate. Based on your current electricity usage, decide how many kilowatt-hours you would like your PV system to generate. Once you know how much energy you want your system to produce a qualified installer can help you select a PV size that comes closest to meeting your needs. PV system cost is likely to be a critical factor in this decision.

How do I calculate the payback of a PV system?

You can calculate the simple payback of a PV system by using the following formula: Total of Life Cycle Costs (capital costs + finance costs + O & M cost - federal and state incentives) / Average Value of Energy Generated per year (kWh generated x cost of power).

Additional information may be obtained from websites such as:

- U.S. Department of Energy: www.usde.gov
- www.nationalgeographic.com: www.in.gov/oed
- RushShelby Energy: www.rse.coop



A Consumer's Guide to Solar Energy



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Solar Energy

Consumers are looking for ways to be more self-reliant when it comes to energy use ...

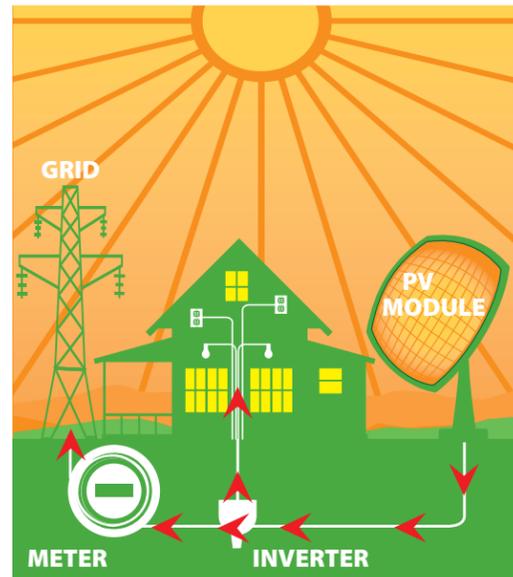
It often seems it is the trendy thing to do without regard to economics. However, an informed consumer is able to make decisions that are good for them, good for the environment and for their community.

Sometimes just knowing what questions to ask before we embark on a process are the biggest challenge. It is our hope to offer you information that will help you decide if installing a solar energy system is right for you.

As part of the Hoosier Energy network, we have been adding renewable energy to our purchase power portfolio for a decade. Our wind and solar demonstration projects have served as a valuable resource to our members for nearly 10 years. Renewable energy needs to be a part of the future mix of electricity sources. It is our goal to work with consumers to make the most economical choices when they install systems on their property.

Some Basic Definitions

In the State of Indiana, renewable energy projects installed for a consumer's personal use are covered under statutes, rules and regulations under the term distributed generation (DG). The sources of DG power include wind, solar, hydro and more. This publication will focus on solar energy which is emerging as the most popular and economical form of DG. Small-scale, on-site power sources located at or near consumer's homes or businesses. Some common examples include rooftop or ground mount solar panels. Electric utilities are guided in their work with consumers installed DG systems by the Indiana Administrative Code (IAC) Section 170. These are rules and regulations as established by the Indiana Utility Regulatory Commission(IURC). Consumers with these types of generation systems connect to RushShelby Energy lines. They buy power when their DG system is not producing enough to meet their needs and sell power back when their systems are generating more electricity than they need.



The solar panel process is not complex. The panels collect the sunlight and turn it into direct current (DC) voltage. That current is fed into an inverter which changes it into alternating current (AC) voltage which is used in our homes. There are other pieces of equipment that are installed for safety and metering purposes and the system is connected via conduit and wires. The panels can be mounted on a roof, on a mounting bracket or nearly any structure that will support its weight.

Net Billing and Rates

RushShelby Energy has established a GS-1-DG rate tariff that covers the monthly billing for a solar installation. Net billing allows electric customers to sell back to the electric company any excess electricity generated by their DG systems. Your home will always draw its energy needs from the solar system first and only pull from the utility when your system can't supply your needs.

Scenario #1: Your home uses 1,240 kWhs per month, an average of 41 per day. The home will draw from your solar installation its production each day. If it

produced 20 kWhs one day, you would only be billed for 21 kWhs by RushShelby Energy. Thereby, you have reduced your monthly bill using the DG system.

Scenario #2: Using the same average use above but estimating you produced 50 kWhs one day during the month. You would be billed zero that day from RushShelby Energy and would be paid for the additional 9 kWhs at the agreed upon rate.

In 2009, RushShelby Energy installed a 3 kW solar generator at the headquarters to provide real world cost and data for members. Since that time, prices for the system have dropped as interest increased.

2015 Solar PV Information Cost

Residential solar installations range in price depending on where, how, what type and who installs the system. Typical installed costs range from \$3.50 - \$5 / Watt.

Size:

The average residential solar installation is 4 kW; enough power to offset 40 percent of the average home's energy usage.

Energy:

In Indiana, a 1 kW solar system will produce 1300 kWh / year but can be affected by various factors such as tilt, direction, panel type and shading.

Tax Credit:

Qualified solar photovoltaic system installations can receive a 30 percent federal tax credit until the end of 2016.

Lifetime:

Solar panels can last for 25 years and inverters can last for 10

years. Be sure to understand all warranties, necessary system maintenance and insurance requirements.

Solar Installation To-do List

Perform an energy audit:

Smart energy efficient upgrades to your home can save you money. Know your household energy costs.

Review the physical installation options:

Would a roof mount or ground mount best serve you?

Choose the right installer:

Be sure to compare at least 3 companies. You may find helpful information at www.solarreviews.com.

Complete a RushShelby Energy application:

Our engineering department will help you with your plans and insure your installation meets codes and safety regulations. They can also assist you with the interconnection agreement and rate tariff.

Allow time for inspections:

RushShelby Energy must inspect the installation before operation. Your county may also require installation and/or operation inspections from them.



3kW Solar Install	2015 Costs	2009 Costs
Total Installed Cost	\$12,000	\$30,000
30% Tax Credit	\$3,600	\$9,000
Total Cost w/30% Tax Credit	\$8,400	\$21,000
Average kWh/Year	3,900 kWh	3,900 kWh
Electricity Value	\$250 - \$500	\$250 - \$500
Payback Time	15 - 25 years	40 - 80 years