

This FAQ was last updated in August 2021.

Why should I go solar?

Interested in reducing your electricity costs? How about reducing greenhouse gas emissions? What about having back-up power when the grid goes down?

How does a solar system generate electricity?

Solar PV cells generate electricity by absorbing sunlight and using that light energy to create an electrical current. There are many photovoltaic cells within a single solar panel, and the current created by all of the cells together adds up to enough electricity to help power your home. This process is explained in a [short video](#) from the U.S. Department of Energy.

What conditions are necessary?

The solar array must have a reasonable amount of non-shaded, unobstructed space, either for a roof, ground or pole mounted system, during the key sun hours of the day. A southern exposure is ideal, but east- and west-facing roofs can capture over 80% of the power of a south-facing roof.

How long will solar panels last?

This can vary based on the quality of the manufacturer, but most solar panels come with a warranty of 25 to 30 years. At the end of that period, the panels continue producing electricity, although with less efficiency. This [article](#) discusses limited maintenance costs.

Will a solar system produce enough energy to handle all my electric needs?

That depends on the size of the system. Most homeowners and businesses have systems that produce between 10%-40% of their needs, depending on how much energy they use. However, energy not used is energy you need not buy, whether it's from a solar panel or electricity from a grid.

How much electricity will my solar energy system produce?

The amount generated will depend on the size of the system you install, orientation of the system and shading. Typically a solar energy system using 100 square feet of solar panels will generate 1,000 -1,440 kWh per year. Depending on factors like temperature, hours of sunlight, and electricity use, property owners will need [varying amounts of solar panels](#) to produce enough energy. Regardless, installing a solar panel system will likely include several hundred solar photovoltaic cells working together to generate an electrical current. The [EnergySage Solar Calculator](#) will give you an idea of the savings you might see from a solar panel installation.

How will I know if the system is working?

Your inverter display will show you how much power is produced at any given time. Solar energy systems with micro-inverters, which have become increasingly popular, allow you to see how your system is performing on a module-by-module basis.

What happens during an electric outage if my system is tied to the grid?

Grid connected solar energy systems will immediately shut down to protect your electric provider's lineworkers.

How durable is a solar energy system?

Systems must pass a standard set of tests and are built to withstand winds up to 125 mph and 1-inch sized hail. To meet these standards, the racking system and solar panels must be installed to the manufacturer's specifications. Racking systems must be bolted to rafters, not decking.

What about storage using batteries?

Energy storage systems provide emergency backup power and financial savings. But they also bring technical complexity and unfamiliar terminology. For details about batteries, click [here](#).

If I live in a neighborhood with a homeowner's association (HOA), will I need their approval?

Probably not. HB-362, which was passed in the 82nd Legislative Session, limits HOAs and POAs (Property Owners' Associations) from directly prohibiting solar devices. The following is a synopsis from the Texas Renewable Energy Industries Association:

POAs and HOAs cannot withhold approval for the installation of a solar device on a roof or in a yard or patio as long as the installation

- Is installed no higher than the roofline*
- Conforms to the slope of the roof and has a top edge that runs parallel to the roofline*
- Has solar panel frames that are silver, bronze, or black color tones (commonly available colors in the marketplace)*
- Is no taller than the fence line if installed in a yard or patio as ground or pole mounted*

How long will installation take?

Typically two to three days. Whichever local solar installer you choose will be able to give you a more accurate estimate.

What happens at night and cloudy days?

Solar panels are most effective when they have direct access to the sun; they don't produce energy at night. However, solar panels *do* work during cloudy days, although they only generate 10-25% of what they're normally capable of. Many solar systems have batteries designed to store energy produced during the day.

Is temperature important?

Solar energy systems typically operate in temperatures ranging from -13 to 122 degrees Fahrenheit. Though output drops as the system gets hotter in the summer, the increased daylight hours ultimately increase energy production.

Do solar energy systems have warranties?

Most solar energy systems typically carry 20-30 year warranties. Check with your potential solar installer.

If this is a grid-tied system, does the electricity produced by the system go directly to my house or to the electric provider?

All the energy produced by your solar system flows to your house if all the energy being produced is needed. Sometimes only some of the energy is needed. Any excess electricity from the solar array will flow into the grid. This is a simplified version of the fluctuating path of the energy produced.

What is net metering?

If your solar energy system is grid tied to your electric provider and it produces more power at any given moment than the property consumes, the extra power will flow to the electric provider. Over a month in which a solar energy system sends more power into the electric grid than your home takes from the grid, the difference or *net*, will result in a credit determined by the electric provider. Net metering “credits” can be as little as the base rate the utility pays for wholesale power or as generous as the retail rate you pay as a customer. *Currently, not all electric providers offer net metering. Contact your electric provider (or providers if you live in a deregulated area of Texas) to determine if this is available.*

What incentives are available for homeowners installing a solar energy system?

The most up-to-date information on federal, state and local incentives can be found at <http://www.dsireusa.org>

Federal: The federal residential solar energy credit is a [tax credit](#) that can be claimed on federal income taxes for a percentage of the cost of a solar photovoltaic (PV) system. (Other types of renewable energy are also eligible for similar credits but are beyond the scope of this guidance.) The system must be placed in service during the tax year and generate electricity for a home located in the U.S. There is no bright-line test from the IRS on what constitutes “placed in service,” but the IRS has equated it with [completed installation](#).

In December 2020, Congress passed an extension of the ITC, which provides a 26% tax credit for systems installed in 2020-2022, and 22% for systems installed in 2023. (Systems installed before December 31, 2019 were eligible for a 30% tax credit.) The tax credit expires starting in 2024 unless Congress renews it. There is no maximum amount that can be claimed.

State: Texas currently does not offer state incentives for homeowners who have installed a solar energy system.

Local: Homeowners should check with their electric provider to see if local incentives are available.

Incentives for businesses. Businesses are eligible for federal tax credits and may also have incentives available from their electric provider. Additionally, Texas allows a corporation or other entity subject to the state franchise tax to deduct the cost of a solar energy device from the franchise tax. Entities are permitted to deduct 10% of the amortized cost of the system from their apportioned margin.

What size system should I get?

This depends on how much energy you want your system to produce, but it also depends on the amount of money you want to invest. Your potential solar installer will be able to provide a customized needs assessment. Additionally, you should take into account the amount of available space on your roof. This space should be suitable for solar (i.e., it should be an unobstructed, non-shaded area at an orientation other than north).

How much does a solar PV system cost?

This will depend on various factors: the size of the system, the manufacturer's rates, etc. Consult [multiple solar installers](#) before choosing one. Fortunately, the price of solar modules has dramatically decreased in the past few years. Solar can be an excellent investment; after the initial installation costs, most systems require very little maintenance and are designed to last 25-30 years. [Here's](#) some additional information about solar costs.

Will a solar energy system increase the taxes on my home?

No. In fact, you will not be taxed on your solar energy system if the energy produced is used for your property. The form to declare a renewable energy property tax exemption must be filled out yearly. Download [Form 50-123, Property Tax Exemption Application for Solar or Wind Powered Energy Devices](#) from the Texas Comptroller's website.

May I increase the size of my system at a later date?

Absolutely! As long as you have enough unshaded space.

How do I choose a company? What should I be looking for in a solar installer?

We have answers [here](#).

Where can I find out more about solar?

www.energy.gov/solar offers lots of excellent resources! Additionally, <https://www.energysage.com/> is a great database, with everything from the science behind solar to weekly news round-ups.