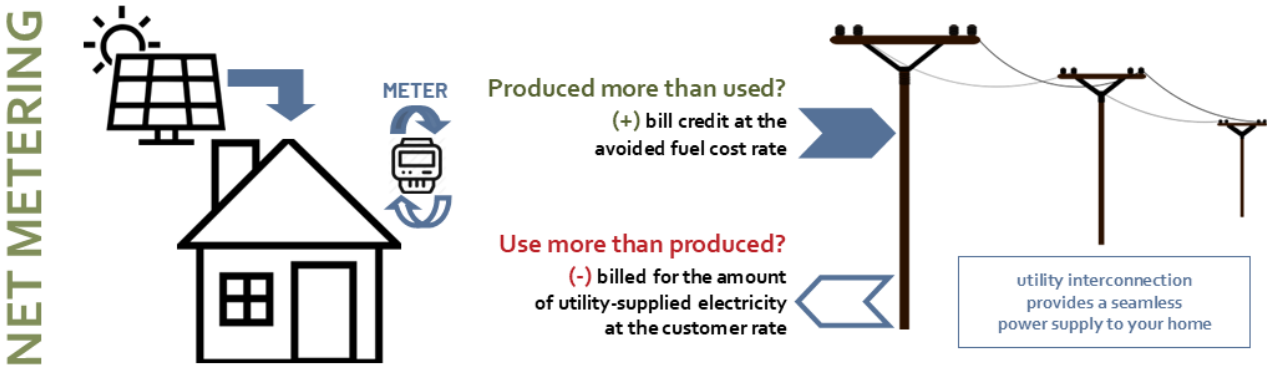
Installing a solar energy system?

do your research for the best possible return on your photovoltaic (PV) investment



How big of a PV system do I need and what will it cost?

Evaluate your energy usage: Contact your local utility for your annual electric consumption and ask for the past three years of data. A multiple year analysis will provide you with a better idea of how much of your usage will be covered by your photovoltaic (PV) system. The average residential customer, with natural gas heating, uses about 1,000 kilowatt hours each month during a year.

Electric production amounts: In Missouri, one kilowatt of solar panels will offset at a maximum of around 1,350 kilowatt hours of electricity each year. The location of the panels and shading can drastically reduce the optimal output of electricity. From your annual electric usage (kWh) you can determine how much you want to offset with your PV system.

Cost: The cost of your PV system will depend on the size, efficiency, and complexity of the system and its components. You should check the reputation of the solar installer you are working with by asking for recommendations from people in your community and consult with several different suppliers for more cost estimates.

- If installing rooftop panels, have a professional roofing company evaluate the condition of your shingles. You want the roof to be in excellent condition before installing any PV panels.

Payback: When calculating the payback of your solar panel investment, carefully evaluate the predicted utility electric rate increases. Many solar installers use examples of national trends that can differ from costs in Missouri. Contact your local utility for your current electric rate and ask about any expected future rate increases.

What is net metering and what laws apply?

Net Metering is a transaction between a customer and a utility where energy is transferred back and forth. The arrangement allows solar production to be used in the building where the panels are located and any extra to be sent to the utility's system. The 'net' is the ending balance of the electricity transferred back and forth each billing cycle. It can either be negative which means you will owe some money to your electric utility for the power supplied to your home. If the net is positive where you produce more electricity than you use, you will receive a credit to your utility account at the avoided fuel cost rate. This rate is established by your utility on the average price for generating the electricity, not

the other items your electric rate includes, like maintaining and operating the electric system, metering systems, administrative costs, etc.

The State of Missouri has a net metering law, Section 386.890, known as the "Net Metering & Easy Connection Act" that utilities must follow. An electric customer can enter into a net metering agreement with a PV system that has a generating capacity of not more than 100 kilowatts. The PV system must meet the safety codes outlined in the law. The system must operate in parallel and synchronize with the utility's electric system with an automatic disable switch in case the utility supply of electricity is interrupted. Customer-generator systems of 10 kilowatts or less are not required to purchase liability insurance beyond what is required by the city. The law does provide caps on how much net metering is available so it is offered on a first come, first served basis until the caps are met.

Invest in energy efficiency before installing solar

If you are making an expensive investment in a solar energy system, it is recommended to first make energy efficiency improvements. The cheapest way to reduce your electric consumption is to not waste it. Projects like air sealing, insulation, and installation of an efficient heating and cooling system should be completed before you make a more costly solar investment. Taking a whole-house approach with the Home Performance with Energy Star program will earn customers the highest savings. For more information on how to conserve the most energy and receive the most savings from your electric bill, consult energystar.gov.

What is the best location for a solar system?

PV generates electricity from the sun, so the best locations are consistently sunny throughout the year. In general, the most important factors are clear and unshaded roof space. These conditions simplify the PV installation and will produce the most energy. Which way your roof is facing will determine what part of the day your solar panels will be most exposed to the sun. South-facing solar systems are traditionally the most popular because they have the highest potential to capture solar energy throughout the day. The location of the solar panels and shading issues may decrease production; therefore, they may increase system payback time.

Tax credits for solar panels

Check with the IRS and your tax professional to ensure that the PV system you are considering meets all the tax credit guidelines. Tax credits are subject to change so it is best to check the exact amount you can check at the time of purchase.

Six steps to installing your solar system

Step 1: Educate yourself. Study solar systems and evaluate your energy consumption history. This will give you an idea of what type of system will work best for your location, and the size and cost of the system.

Step 2: Choose your contractor. Contact several solar installation contractors. It is important to ask the contractors for references, licenses, and certifications.

Step 4: Submit a Net Metering Agreement application with your local utility. You will be contacted by your utility on whether your application is approved. If it is not, you will be instructed on what needs to occur for approval.

Step 5: Obtain an electrical permit. Check with your local city government on what permits are required to install a PV system. At the least, you will probably need an electrical permit. After the solar installation is complete, you might need to schedule a final code inspection.

Step 6: Finalize the interconnection with your electric utility. There are serious safety concerns for your local electrical lineworkers if the PV system is not installed properly. It is important to work with your electric utility to ensure the system is safe for your home and the community.

- Solar panels installed without going through the proper procedures with your utility can cause project delays and can be a serious safety hazard.