

Residential Solar Power Systems

LightWave Solar Electric designs and installs solar electric (photovoltaic) turnkey systems throughout the state of Tennessee. LightWave Solar is a system integrator, from design through installation and commissioning. With a background in electrical construction and training in PV design and installation, four NABCEP certifications and a state electrical license, LightWave Solar is uniquely qualified to provide a fully functional, professionally installed system that we will be as proud of as you are.

The following are a few general questions and comments for your consideration:

Grid-tied solar photovoltaic (PV) systems produce clean and renewable electricity that is used in your house. If you generate more electricity than you can use at any given time, the electricity will go out on the grid to one of your neighbors. Either way, the utility pays you for every kWh you produce no matter who uses it. This makes the system convenient because you don't have to worry about leaving for vacation or matching production to your consumption, etc. The electricity will just flow to where there is a demand, and you'll always see a credit for all your production as a TVA Generation Partner. For more technical details, [click here](#).

Generation Partners - You can expect production of approximately 1200 kWh a year average for each kW of installed capacity. The TVA Generation Partners program will credit your electric bill for all the energy the system produces at the base rate plus 12 cents per kWh, no matter your use. This premium payback is a floating rate that increases with rate hikes. To calculate the annual average income generated by solar through Generation Partners, multiply 1200 kWh by the kW installed. Then, multiply the total kWh by the current payback amount. For example, a 3 kW produces about 3600 kWh/yr. Currently, TVA pays 21 cents per kWh. So, a 3 kW system generates, on average, about \$756/yr. A separate meter measures all the solar electricity right off the inverter, and the utility reads this meter to issue a solar credit each month!

The local utility also makes a one-time payment of \$1000 upon system commissioning.

For more info on the Generation Partners program, visit www.tva.gov/greenpowerswitch/partners/index.htm.

There is an uncapped 30% federal tax credit for installing PV systems. The tax credit can be applied against your income tax liability over the next 7 years (the program expires in 2016).

What is your site like? You need roof or open space with a southern orientation, somewhere between SE and SW. East and west facing roofs can work if the pitch is fairly shallow. The panels will require about 100 square feet per kilowatt installed. Home systems generally range from 2kW to 8kW, so that would be about 200 to 800 square feet of roof space. We visit your home and conduct a thorough site survey to determine the best possible location for the panels and other equipment.

Solar electricity is worth a premium because it doesn't pollute, and it conserves our precious water resources. Solar reduces peak loads on sunny days and reduces transmission losses. Since electricity produced by solar energy has no fuel costs, the future price of solar electricity is known, unlike conventional sources, such as coal, which are market-based commodities. Generally speaking, most people are motivated to install PV systems by a desire to produce clean energy locally, an uncertainty over future energy prices, numerous environmental concerns, and the contagious fun of producing energy. Not to mention that the monthly production credits and 30% tax credit make for an attractive and safe investment.

Solar panels come with 25-year limited warranties, and there is a widening view in the industry that they may last substantially longer than that, as some terrestrial photovoltaic systems have been producing energy now for 35 years. There are no moving parts and the cells are encapsulated and framed in aluminum.

We are happy to discuss a system with you over the phone and can give you a good idea of system size and cost. If you decide to move forward, we can visit your home for a site survey at no charge. We can then create a scope of work and proposal and then move towards a full design with a one-line electrical diagram, specifications, and a site or roof layout drawing.

I hope this general information answers some of your questions.

The PV Watts website has helpful information as well: <http://www.pvwatts.org>. You'll be able to choose your location and see the estimated solar production based on average annual sunlight hours and system size - easy as pie! Just click on the PV Watt Photovoltaic Solar System Performance Calculator, then choose version 1.

Please contact us for clarification and more information. We are happy to help you!