

# TOOLBOX TALKS

A Quality Service Contractors Publication for Members

## *Brightening your day with Solar*

Solar energy has already successfully secured a prominent place for itself in the off-the-grid movement, and its popularity is growing steadily among those who are looking for a highly efficient, low-maintenance method of independent energy generation. But that doesn't change the fact that solar power systems are still a relatively unfamiliar technology to many homesteaders and survivalists, and to Americans in general. Consequently, people considering making the switch to solar often approach the topic with trepidation, worried that they might get in over their heads with a technology that they don't entirely understand. Fortunately, a wide variety of sources exist online that can answer just about any question a prospective owner of a solar power system could possibly think of asking. Here are some tips about purchasing, installing, and using a solar photovoltaic electricity-producing system. If you are thinking about hopping on board the solar train, what you will learn in this article could help you avoid some costly and possibly even catastrophic mistakes.

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Be sure the roof where your solar panels will be installed is facing the southern sun, and that your solar photovoltaic system will have an unimpeded view of the sun as it tracks across the sky from east to west. Trees that could potentially cast a shadow on even one panel during the critical 10 a.m. to 2 p.m. period, when energy harvest is greatest, should be trimmed, and solar panels should be kept away from chimneys or any other object on the top of the building where they are being placed that could conceivably shade them from the sun's energy-filled rays.



Have your solar panels installed with a decent amount of separation between the array and the rooftop. Despite what you may have heard, solar cells work much more efficiently when they are kept cool because it is the light from the sun that is being collected for conversion to electricity and not its heat. Allowing the air to circulate beneath photovoltaic cells will prevent heat from building up, which is necessary because solar panels can get extremely hot after the sun has been shining on them for a while.

Before you actually get to the point where you are ready to calculate your total energy needs and purchase a solar power system to meet them, perform a home energy audit that will help you to identify every way in which you may be wasting or losing energy. If you can afford newer more energy-efficient appliances, this would be an excellent time to get them as well.



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Make your energy use calculations during a time of year when your total consumption of electricity is at its peak. Remember that your system will have to be able to handle periods when demand is high, and it is these high points of energy usage that you should use when trying to figure out how large your new solar set-up should be. Generally speaking, you can probably expect to use the most electricity in the wintertime, when the heat will be turned up and the lights must be kept on for longer periods of time.



Don't let your solar PV system extend beyond the edge of your roof. Wind will be able to get underneath and weaken the fixings that hold the panels to the house, and if the winds are strong and consistent enough, you may eventually discover your expensive solar panels lying broken and battered in your front yard. A solar array should be fastened to the roof anywhere from a few inches to three feet from the edge, depending on how strong the strongest winds are in your area (the three foot standard is for panels mounted on homes located in hurricane zones).

Familiarize yourself with the code and permit requirements in your state and/or local area so you don't inadvertently violate the law when you install your new solar energy system. Most codes are based on Article 690 of the National Electrical Code, an official publication of the National Fire Protection Association, so it would be a good idea to check this out to see if what you are doing is safe and legal. In addition, city or county offices in your area are likely to require a building permit, an electrical permit, or both.

The world of solar energy is filled with promise and possibility. Energy self-sufficiency can be yours if you choose to purchase and install a new solar power set-up, and as long as you play it smart and pay attention to the details, we can almost guarantee that you will never live to regret your decision to go solar.



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