

home power

The Hands-On Journal of Home-Made Power

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Hiring a PV Pro



Laurie Stone

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Finding a solar-electric system installer is like choosing a long distance phone company—it can be as simple or as complicated as you make it. You can let your fingers do the walking and choose the first one you find in your local yellow pages, or you can do additional research and find an installer that best meets your needs. Mail-order companies, large discount warehouses, small mom-and-pop businesses, and large corporations all sell and install renewable energy (RE) systems. As the number of dealers, distributors, and installers grows, being an informed consumer is increasingly important. And just like buying a car or a computer, you'll want to be sure that the person designing and installing your new system has the expertise to provide you with an efficient, safe, and reliable system.

With 20 years of experience, licensed solar-electric installer Bob-O Schultze is a pro at installing both large and small systems.

Think Local

To locate an installer near you, you can always inquire with your local solar organization. The American Solar Energy Society (ASES) has chapters in 34 states, and your local chapter can provide you with a list of installers and dealers (see Access). ASES also cosponsors the "Find Solar" Web site at www.findsolar.com, where you can find detailed listings of PV pros across the United States and Canada. If you live in the Heartland, the Midwest Renewable Energy Association offers a great resource for finding an installer. You can also check out *Home Power's* Web site for a searchable database of RE dealers and installers, or look in the Installers Directory at the back of each issue.

Most of us want the best product for the least cost. Shopping by price is important, especially if you are on a tight budget, but there are also other factors to consider. Following is a list of some of the issues to think about when selecting an installer.

Professional credentials.

Organizations are now certifying installers by a set of standards, and asking for an installer’s credentials can give you an idea of these qualifications. The North American Board of Certified Energy Practitioners (NABCEP) offers PV certification on two levels—an Entry Level Certificate of Knowledge, and a PV Installer Certification. According to NABCEP, “Certification is not intended to prevent qualified individuals from installing PV systems...it is meant to provide a set of national standards by which PV installers with skills and experience can distinguish themselves.”

That said, many seasoned pros who have been in the business for years don’t see the need for additional certification. They may not choose to dedicate the extra time or expense to become NABCEP certified.

Electrical License. If you contract with an installer who doesn’t have an electrical license, you or your installer will also need to hire a licensed electrician to obtain the permit, supervise the job, and do the final AC hookups. Regulations for residential electrical work vary from state to state, so be sure to check with your local building department

prior to system installation. Your installer should have a good working relationship with the local electrical inspector. Also, if you expect to take advantage of financial incentives, be aware that most states won’t provide rebates if the installer isn’t licensed.

Bonded & Insured. It’s always a good idea to check if your installer has liability insurance. This insurance coverage protects you against any installation mishaps—if the installer’s work damages your house during or after the installation. Some installers advertise that they are “bonded” as well. This guarantees that the contractor will meet his or her obligations in a satisfactory manner. Failure to do so results in the bonding company paying you compensation. However, being bonded is expensive, so if you want an installer who is both bonded and insured, you’ll probably have to forego a mom-and-pop operation for a large installation company.

Training. How recently and where has your installer been educated and trained? Find out if the installer has kept up-to-date with training courses on the specific products he or she sells. Many companies that manufacture and distribute RE

products offer training, enabling installers to stay current on new product developments.

Experience. Don’t be shy about asking about an installer’s experience. Every installation is different, so the more installations an installer has handled, the better. Find out how many systems similar to yours the installer has designed and installed. Plus, there are always new products entering the market, and new regulations to deal with. An installer who has completed several recent installations will probably be up-to-date on the newest products and the latest code issues.

Variety & Quality of Products. The variety of products an installer carries may or may not be important to you. But the more brands an installer carries, the more likely he or she will be to have one that fits your application. However, if the installer only carries a couple of brands and those brands work for your system, variety is not important.

While the variety of products might not be crucial, the *quality* always is. Do some research on the inverter, controller, and other balance of system components that your installer suggests. Do the products meet industry standards? All components used in your system should be listed by Underwriters Laboratory (UL) or an equivalent testing agency. UL is a nonprofit product testing and certification organization that verifies electrical products are safe for their intended use. ETL Semko and the Canadian Standards Association (CSA) provide similar approvals. Checking products to make sure they are UL, ETL, or CSA approved is one way to make sure the equipment used for your installation is reliable and safe.

What kinds of warranties come with the products that your installer carries? Also, how long have the equipment manufacturers been in the PV industry? Long warranties are meaningless if the manufacturers aren’t around in five years. If you know of other people who have used these products, ask for their feedback: Are they satisfied? Have they had problems?

Service Agreements & Performance Guarantees. Installers should provide you with some kind of optional service agreement. If problems arise with your system,

Neal Mock from Solar Wind Works wraps up another system installation.



Courtesy Electron Connection, www.electronconnection.com

Courtesy Solar Wind Works, www.solarwindworks.com

10 Things Your Installer (Probably) Won't Do For You

Your installer should provide you with a safe, reliable, working PV system. He or she should also be prepared to perform maintenance and repair visits if that's stipulated in your contract. However, be prepared to do some things for yourself. Here are ten things your installer probably will not do for you.

1 Analyze your energy needs. While it is up to the installer to size your system to meet your needs, it is up to you to tell him or her what your needs are. Your installer will not know how often your lights are on each night, how many hours you spend watching TV, or how many loads of laundry you do each day. If you're having a stand-alone system installed, it is especially important to tell your installer how much energy you use and when you typically use it, so that he or she can design a system accordingly. If you've chosen a grid-tied PV system, your installer will examine your previous year's electrical bills to help determine the appropriate system size.



2 Install equipment that you provide. Some installers may agree to install equipment that you purchased from another dealer, catalog, or online store, but most installers want to provide you with the equipment themselves. This offers them the ability to match the right components and hardware to your particular job, and ensures familiarity with the components to be installed. Be aware of this before purchasing a "great" deal online.

3 Let you help install the equipment. Many homeowners want to help with some of the installation, either to keep costs down or just because it's satisfying to have some hands-on participation. However, understand that many installers are reluctant to have your help. First, you may impede the installation if the installer has to stop frequently to answer your questions. And, more importantly, the installer's insurance may not cover you if you are injured as a result of lending a hand.

If you have your heart set on helping, be honest about your technical knowledge and skills with the installer, and work out the details of what your contribution will be beforehand. For example, a good way to save money without stepping on the installer's toes is to do any excavation work yourself.

4 Maintain your batteries. For battery-based systems, some installers will offer a maintenance contract and will visit on a regular basis to check your system's batteries. However, batteries need occasional equalizing

and, in many cases, regular watering. If you do not have a maintenance contract for that, then it's imperative for the life of your batteries that you do it yourself.

5 Adjust arrays seasonally. If you don't have a tracker for your PV modules, they are most likely on a fixed mount that is set for optimal year-round performance. But some systems are designed with adjustable mounts, which enable you to get the most out of your PV system each season by adjusting the tilt angle of your array. Don't expect your installer to do it, unless you have this responsibility written into the contract.

6 Install and maintain an engine generator. If you have a stand-alone system, you most likely will have a backup engine generator. From time to time, it will need maintenance and repair. Not all PV installers are familiar and knowledgeable about repairing generators. Ask about your installer's expertise

and willingness to troubleshoot this part of the system, or hire someone who has experience with generators.

7 Read the owner's manuals for you. If you really want to understand your system and each component, which is highly recommended, read the owner's manuals!

8 Be on call to address maintenance and service issues. Even with a contract, your installer may not be able to drop everything to help you exactly when you need it. Thus the importance of reading the owner's manuals, and for taking good notes when the installer discusses maintenance issues with you. It pays to learn how to troubleshoot and fix small issues. Jeff Tobe, PV installer for SEI, likens this to owning a new car. "If it gets a flat tire and you don't know how to change it, you don't expect the dealer to come out and perform this task—even though you paid them thousands of dollars for the car."

9 Manage loads to ensure battery power. Based on your input, your installer should be able to design a system that meets your energy needs. However, if you have a stand-alone system, your installer won't be there to warn you to turn off your TV or delay doing a load of laundry because you'll discharge your batteries too deeply. Household energy management is up to you.

10 Make the sun shine during cloudy weather. Although most installers probably wish they could, this one's out of everyone's hands.

what services will the installer provide and for how long? Will the installer be readily available to troubleshoot and fix problems? If something goes wrong, who is responsible for repair or replacement costs? Who is responsible for maintaining the system? If you are responsible, what kind of training will the installer provide? Will basic system safety issues be explained?

Although service or maintenance agreements have not been standardized throughout the industry, many installers will agree to a site visit at least once a year to make sure the system is performing satisfactorily. For the early years of a system's operation, consider buying a service contract.

References. Contact an installer's former clients to find out if the installer was knowledgeable, easy to work with, and took the time to explain the system's operation. Also find out if their systems are working well, if there have been any problems, and, if so, if the installer returned to fix them. Ask for an installer's business references, and check them, especially if the company's reputation is unknown.

The Final Call

"Homeowners planning to be their own electric utility company," says Solar Energy International Executive Director Johnny Weiss, "should take that responsibility seriously and learn the basic safe operation and proper maintenance of their systems."

While the installer is sizing up the system design, you should be sizing up the installer. Online and mail-order

suppliers who never visit the installation site may have difficulty recommending the most appropriate equipment. A comprehensive, on-site solar and load analysis and two-way interview can help ensure a thoughtfully designed and well-planned installation.

Access

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Installer Listings:

American Solar Energy Society • 303-443-3130 • www.ases.org

Find Solar • www.findsolar.com

Midwest Renewable Energy Association • 715-592-6595 • www.the-mrea.org

NABCEP • 518-899-8186 • www.nabcep.org

Product Testing & Certification Agencies:

Canadian Standards Association • 800-463-6727 or 416-747-4000 • www.csa.ca

Intertek ETL Semko • www.intertek-etlsemko.com

Underwriters Laboratories Inc. • 847-272-8800 • www.ul.com



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