

## Begin Sample Excerpt – Solar Power Course

### System Suitability

There are many different aspects to the suitability of a solar power energy system that you have to consider. We already looked at a couple of the more specific suitability questions in Lesson #2. Now we'll take a look at the broader suitability questions as well as some specific questions too.

The major suitability question you have to ask yourself is whether solar power is really what's best for you. Solar energy is the best alternative when at least one of the following is present:

1. You don't need a great deal of energy.
2. You have no other source for power available to you.
3. You have a high amount of sunshine to capture.

These are the best reasons to install a solar energy system. However, obviously there are other great reasons why you may want to go with a solar energy system. Some of these reasons may be private, but most likely they have to do with either the environment or ensuring that you have a way of generating power from a renewable source. Solar energy is certainly a renewable source.

In Lesson #1 we touched on how abundant the sun's energy is. Certainly the sun provides us with plenty of energy. Even though we've come a long way with our ability to harness that energy, we still are quite inefficient at it. Still, deciding to design and install a solar energy system is usually a very good idea.

However, the very first question of suitability that you need to ask is: Do you really want and have a need for solar power?

Most likely you've already decided you do. Still, you need to make sure you consider the suitability of a solar energy system.

You need to consider how large you need your solar energy system to be. Obviously this is directly related to how much energy you will be using. The size will obviously affect the cost as well. Though solar

energy has come a long way over the last several years, it still isn't best for things that require a great deal of energy. If you have the money and the time you certainly can build a big enough solar energy system to give you a lot of power. However, very few people actually have the money or the space to build a solar energy system that will power their entire home.

If you have no other source of power available to you then solar power is certainly needed. In fact, there are shacks in the deserts in the southwestern United States where solar power is their only means of electricity. Solar power allows anyone practically anywhere to have power at least part of the day. However, even if you have other sources of energy (from a utility company, wind power, etc.) then obviously solar power is still a viable alternative.

Electricity from a grid is the main source for just about everyone. But there are other energy sources such as wood, gas, oil, and kerosene. With the exception of wood, none of these energy sources are renewable.

Again, you need to make the decision about what is the best way for you to get your energy. You need to weigh the things you find important and then make your decisions accordingly.

For example, if you want to be guaranteed that you will always have power and you don't want to depend on anyone else to get that power then solar power may be the way to go. If you are concerned about the environment and you want to do what you can to cut down on the Greenhouse Effect and you don't want to burn-up fossil fuels then solar energy is probably the way to go.

Basically you want to look at all the ways you can get the energy you need, consider what is very important to you, and then make your decision accordingly. You have to decide that solar energy is the *best* way for you to get at a portion of your energy.

Finally, you need to think about where you live. How much sunshine do you get? Do you get enough sunshine? Obviously you will need sunshine to generate energy. You learned how important photons (from the sun) are to the entire process. So a continent like Africa would be a great place to use solar energy, but a place like England (which doesn't see a lot of sun) might not be such a great place. But again, only you can decide if it's worth it and if it's possible.

You also have to make sure you can place your solar panels where they can capture the sunlight. The sun's rays have to be able to directly hit your solar panels during the heart of the day and for as long as possible. (We'll get into this more when we discuss the design.) Obviously you want the sun to hit your solar panels for most of the day, everyday of the year, if at all possible. Also, if you are in the United States, the sun is always in the southern sky. So if you can have the panels on a southern facing roof then that would be ideal. However, you can arrange panels on a rooftop facing east or west too, but this isn't the best scenario.

## Action Steps

*So these are the main questions you need to consider:*

*How much energy do I need?*

*Is solar energy right for me and my situation?*

*Will I be able to get enough energy from the sun?*

Your decision is completely based on what you want to do. Just make sure you make a solid decision. You may really want solar energy because you want to help out the environment but if the energy you'll be getting is minimal then it isn't a good decision. You'll be wasting your time and your money.

Speaking of money, many people automatically assume that a solar energy system will save them money. They think that solar energy is free so it would be cheaper than getting power from the utility company. While it's true that the solar power is free, the system itself costs money. Depending on your unique situation, the cost could be quite high. So you need to gather all the facts about cost before you decide to jump into this endeavor.

If you are already hooked into a grid system then you might not save any money by going with a PV system. When you calculate all the money you'll need to spend on a solar energy system and then you divide that by the amount of energy you'll get from the system, it may very well be more expensive than simply getting your power from the grid. However, at least you'll know that your cost for the energy won't

go up as the cost for power does. You will have your own “free” energy system once you get everything installed. In other words: Though a solar energy system may seem more expensive now, it will probably be less expensive in the long run since energy costs are almost certain to rise, and the energy you create with your own PV system will remain the same (free). We will cover exactly how to calculate your savings in Lesson #4.

Of course, these are more considerations than just money. Before you do anything else, make sure solar energy is the way to go for you, and make sure you consider everything.

**End Sample Excerpt – Solar Power Course**