

GOING SOLAR

“I love the idea of using Solar Energy,
but where do I start?”

The answer is not as difficult as you might think. There has never been a better time to purchase a Solar Energy System as today. Depending on your location and your power company, **rebates can cover as much as 70% of the total costs of a complete Solar Energy System and the installation.** This document helps you to find the answers to five basic questions to help you get started generating your own Solar Energy. Call us for any questions, our team at Advancing the Green™ is ready to help.

1. [How much electricity do I use and how much can I save by adjusting my habits?](#)
2. [Will my community let me install a Solar System?](#)
3. [What kind of Solar System is right for me?](#)
4. [How much Solar Energy do I really need?](#)
5. [How much will it cost after rebates?](#)

Section 1 - How much electricity do I use and how much can I save by adjusting my habits?

This question is important because you typically want to minimize the amount of energy your home requires before you purchase solar panels. This way you save money by not having to buy as many solar panels to cover the energy needs of your home.

The average household uses over 1500 kWh per month. You can find out how much you use by taking a look at your last electric bill from your power company. Your bill will show how many kWh (kilowatt hours) you used. It may also show how much you used each month for the previous year.

You will notice that your energy consumption will rise or fall in relation to the seasons. Northern areas will typically use more energy during the winter to heat the home. Southern areas will use more energy in the summer to cool the home. Older homes will see a greater difference from season to season because they are typically less energy efficient and require more energy to maintain a comfortable temperature in the home.

Definition: kWh = kilowatt hour

This is how your electric company measures how much electricity you use and bills you accordingly. One kilowatt hour is equal to one thousand (1,000) Watt hours.

A 100 Watt light bulb left on for 30 hours uses 3,000Wh (Watt hours) or 3kWh (three kilowatt hours).

$$100W \times 30h = 3,000Wh (3kWh)$$

This is important because you will need to know your average and peak energy use so that you can properly plan how much solar energy you will need to meet your needs.

Heating and cooling your home are one of the largest sources of energy consumption. With a little care, you can decrease the amount of electricity you use by improving the seals in your attic, around your windows and doors and make sure that ceiling fans, lights, computers, TVs and stereos are turned off if nobody is in the room.

When purchasing a new appliance, computer or other electronics you should always look to see if it is Energy Star certified. Switching over to Energy Star certified appliances and electronics can add up to significant savings of the amount of electricity that your home uses.

Other home improvement ideas that can improve the overall efficiency of your home include adding a radiant barrier, solar screens and energy efficient windows etc.

Section 2 - Will my community let me install a Solar System?

Most cities will allow the use of Solar. However before you purchase a Solar System, you should check with your local town/city and also your Home Owner Associations (if you have one) to make sure that they will allow the use of Solar panels and what requirements they might have.

While you may have others, the typical questions you would want to ask your town/city and HOA are:

1. Are there any guidelines or requirements for the installation of residential Solar Panels?
2. If there are guidelines or requirements, what are they and can I get a copy of them.

Side Bar: Just to be clear, we're not talking about a Solar System with planets that orbit around a sun, but a Solar Energy Generating System that provides energy for your home and includes an array of Solar panels, a power inverter and possibly some batteries.



For example some towns/cities will allow the installation of a Solar System providing it is only mounted on the roof and not in the yard. Your town/city may have rules of their own, for the installation and use of a Solar Energy System.

Section 3 - What kind of Solar System is right for me?

There are three basic Solar Systems for you to choose from. So to help you know what your options are and to help you determine which system is right for you, the first question you will need to ask yourself is, **Do I want to be on or off the Grid?**

Being “ON the Grid” is going to be the best answer for most home owners because they live in urban or suburban areas where it may not make sense to get off the Grid. We recommend that you do your own analysis to determine if it is or isn’t cost effective to be off the Grid. As always, we are here to help if you need help with this analysis.

The three typical Solar System configurations are:

System 1 – Grid Tied without batteries.

Solar Energy is generated only during the day from the rays of the sun providing energy for the home. At night or when the sun is obstructed the Solar panels will not produce energy sufficient to meet the demands of the home. During these times additional energy from the power company can be used automatically.

System 2 – Grid Tied with batteries. When Solar Energy is generated during the day it provides not only energy to the home, but also stores excess energy in the Batteries to be used at night or when the sun is obstructed. Any energy needed beyond what the Solar System and batteries provides can be automatically drawn from the power company.

System 3 – Off Grid with Batteries. This system provides 100% of the energy to the home with no connection to the power company. This system will generate Solar Energy during the day that will be sufficient to supply the energy needs of the home, and also charge the batteries which will be used to provide energy during the night and when the sun is obstructed. If the Solar System and the batteries together cannot provide sufficient energy, the home will simply not have enough energy. This can be managed by running various appliances and other energy consuming machinery at peak generating times, in stages or simply limit their use.

Now that you know the three basic configurations, you will better be able to determine what is best for you. You can also call a representative at [Advancing the Green™](#) to further assist you in determining which system is best for your specific needs.

Definition: “On the Grid”

“*The Grid*” is a term that refers to being connected to the power company. So if you are “*on the Grid*”, “*Grid Tied*” or “*attached to the Grid*”, you are still connected to the power company and can still receive electrical power from them any time you need.

If you are “*off the Grid*” then your home is not connected to the power company and therefore cannot receive power from them.

Section 4 - How much Solar Energy do I really need?

The amount of energy your Solar Energy system needs to generate is determined by the following three questions.

1. How much electricity do I want to generate?
2. How many Solar panels will fit on my roof or in my yard?



How much electricity do I want to generate?

There is no rule that says when you use Solar Energy you have to generate ALL of your energy that way. In determining how much electricity you want to generate you need to know how many kWh you use on a monthly basis for each month throughout the year.

Side Bar: How does the power company track how much electricity I use vs. how much my Solar Panels produce?

When you are connected to the Grid, the power company typically does what is called "**Net Metering**" which means that as you use electricity from the power company your electric power meter runs forward counting the number of Watt hours you use. At the end of the month your total Watt hours are logged and you are billed for what you use.

When you have a Solar system that produces electricity, your home will use the Solar generated electricity first and only draw what it needs from the power company to make up the difference for your homes energy demands. So during the day when the suns energy is available if you produce more electricity than your home uses the electric power meter will run backwards which will decrease the total number of kWh that the power company will bill you for at the end of the month.



For example if you average 1000 kWh during the Fall, Winter and Spring, but use closer to 1800 kWh during the heat of the summer, you may want to consider getting enough Solar to produce 1000 kWh for the month which will provide all or nearly all of your electricity during Fall, Winter and Spring. Then in summer months when you need more electricity for the added cooling of your home your Solar System will still produce 1000 kWh per month, which leaves only 800 kWh which can be automatically drawn from your power company as needed.

How many Solar panels will fit on my roof or in my yard?

While you may want to provide enough Solar Energy to cover all the energy needs of your home, you may or may not have enough available space on your roof or in your back yard to allow for that many Solar panels. When you talk to an [Advancing the Green™](#) Solar Expert they will ask you where you plan on locating the panels, and how much space you have available in that location. If you are unsure we can help.

If the panels are going on the roof, they will typically need to be facing the sun, which means that the best location is on a south facing slope of your roof. There are mounting brackets that can put the panels at an angle on certain roof scenarios, but this may or may not be an option for your home. Once again an [Advancing the Green™](#) Solar Expert will work with you to help you determine the best solution.



Once you know what it is that you want to achieve with your Solar System, an [Advancing the Green™](#) Solar Expert can help you to determine just how many Solar panels would be needed as well as practical to meet the specific needs of you and your home.

Section 5 - How Much will it Cost after Rebates?

There are many different government programs (local, state and federal) that have been put in place across the country to provide various incentives and rebates to make renewable energy more affordable to the average homeowner. Granted some states and local communities are faster to adopt these incentives than others, but for the most part the price of ownership for Solar Energy is getting to the point of being a no-brainer.

Solar, like any other investment requires some up-front capital, whether that is capital out of your pocket, or a loan or line of credit from a bank. And like any investment, whether it is good or not is determined by how quickly the investment pays for itself and how long it will continue to perform at that same rate. Here at [Advancing the Green™](#) we know that every dollar counts and if you make an investment in Solar, that you want your pay-back period to be as short as possible. That is why we have done everything we can to keep the cost as low as possible reducing your investment pay-back period from the 15+ years of our competitors (after rebates), to as little as 7.3 years (after rebates).



So how is this possible? The following scenario takes place in Denton, Texas where Mr. Garcia the homeowner wants to purchase 22 Solar panels (180W each) to meet the energy needs of his home giving him 3,960 total Watts from his solar panels. Mr. Garcia's power company is Denton Municipal Electric (Denton, TX) which offers a very nice rebate for renewable energy. With the purchase of the Solar System and installation Mr. Garcia calculates that he will pay an estimated total of \$20,464.00. His energy company will then provide a rebate of \$11,880.00 and the Federal Tax Credit program will credit him (30%) \$2,572.24, which will give him a total rebate amount of \$14,452.24 and a total out of pocket costs (after rebates) of only \$6,001.89. Mr. Garcia calculates that this Solar System will give him an annual savings of about \$827.23 giving him a pay-back period of only 7.3 years. In shopping around for the best deal he discovered that competitors to Advancing the Green charge much more for their products costing him thousands of dollars more. He finds in his research that the competitors higher cost of solar products results in a much higher 15+ year pay-back period. He decides to call [Advancing the Green™](#) today to place his order for his Solar Energy System.

	The Math	Advancing the Green™	Competitors
Total Installation in Watts	(180W x 22)	3,960 Watts	3,960 Watts
Total Cost Installed:	(Panels + Inverter + Install)	\$20,454.00	\$29,820.00
Power Company Rebate	(\$3.00 per Watt, \$15,000 max)	\$11,880.00	\$11,880.00
Federal Rebate	(30% of total cost after rebates)	\$2,572.24	\$5,382.00
Total Rebate Amount	(Power Co. Rebate + Federal Rebate)	\$14,452.24	\$17,262.00
Total Cost (after Rebates)	(Total Cost – Total Rebates)	\$6,001.89	\$12,558.00
Annual Energy Savings	(average Solar production of 627 kWh per month)	\$827.23	\$827.23
Total Pay-back Period	(Total Cost after Rebates / Annual Energy Savings)	7.3 Years	15.2 Years

IMPORTANT FACT: Your Pay Back Period for an ATG Solar Energy system can be 1/2 that of our competitors.

There are many utility companies that provide renewable energy rebates to their clients. You will need to check with your local providers to see if yours provides an incentive or rebate. While the best resource is clearly to talk directly with your energy provider, the following website (<http://dsireusa.org/>) provides a general overview of some (NOT ALL) of the rebates and incentives available. Check to see if your state also provides a rebate.

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How can we help you today?

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