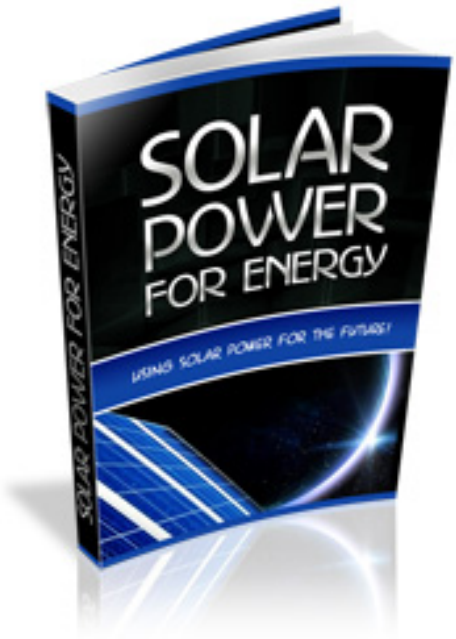
Solar Power for Energy



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Chapter 1 – What Is Solar Power

As we are involved in one energy crisis after another, we finally need to look at solar power and how it can be used to help us not only conserve energy and save money, but be more environmentally friendly. With the talk of global warming and the need for alternative energy sources you might hear that term is solar power mentioned on the news cast or in the newspapers. What exactly is solar power? Solar power is energy directly from the sun. The sun's energy is responsible for supporting life on Earth and it also creates the winds and weather conditions on our planet. Solar power can be attributed to creating wind. When that wind is harnessed by wind turbines, it creates analytical energy. Ancient cultures, a long time ago, collected solar power by having windows or doors that faced the sun. The sun would come in through these openings and warm the interior of the home. Homes were also built to protect against the wind. The least used part of the house was always facing north.

Solar power and solar energy is basically the same thing. It's the conversion of sunlight into electricity which is then used in our homes. Solar power can be used directly by using the photovoltaic effect or by heating some kind of fluid in a generator. When the sun heats the liquid, the steam rises, turning the turbines of the generator. This produces electricity which is used in homes, automobiles, and industry needs.

Particles in the atmosphere, such as dust and other air pollutants, reflect the sun away from the Earth. These damaging particles can reduce the amount of sun reaching the Earth which can cause troubles with plant and animal life. Clouds also reflect and absorb some of these solar energy. Once again, solar energy is prevented from reaching the Earth, for warm or any other use.

Many technologies have been invented to trap solar energy and solar power. These technologies are utilized in agriculture, city planning, solar lighting, water heating,

cooking, and most importantly heating homes and other buildings. These uses reduce the need for fossil fuel energy resources such as coal, gas, propane, and oil. By increasing the use of solar power technology, the world will significantly reduces its need and use of fossil fuels. The Earth would then have a cleaner environment because there would be less fuel emissions and factory pollution, Thus, drastically reducing the amount of air pollutants within the atmosphere.

With rising gas prices, the automobile industry is racing to find alternative ways to fuel cars. The hybrid is the most popular car that is being built today. The hybrid combines generated electricity to run an electric motor from a gasoline motor. However popular, this design has a negative and that is that is that hybrids still use gasoline. An ideal car would have the electricity generated from the sun and have a backup electric cell battery for cloudy day.

This text will explore the uses of solar power and how these technologies might change the way that you travel, heat your home, and go about your daily lives. Solar power is not going away and is one of the biggest sources of unharnessed energy that there is on the Earth. Any machine that has an electric motor can be powered by solar power. It just takes innovation, dedication, and money to bring these technologies around for full-time public use. In advertising the use of solar energy, an entire community converted to solar power receives the benefit of clean running energy that reduces cost while providing a cleaner environment. At this point, solar power equipment is expensive and it takes a few years before consumers recover the initial cost of lower energy bills

Chapter 2 – History of Solar Power

Photovoltaic cells are devices that convert light into electricity. Sometimes called a solar cell, photovoltaic cells have been used since 1883. Charles Fritts invented the cell using selenium but this process was soon stopped in 1954 when Darryl Chapin used silicon instead of selenium. The photovoltaic cells use conversion through the photoelectric effect. The photoelectric effect occurs when a metallic surface is bombarded with electromagnetic radiation. Photons are the sort of electron that any electric current produces. As the light is increased, the metallic surface is converted at a slower rate at first, but more and more solar power is converted into electricity. Every metallic surface that is used has a different threshold at which they can produce only so much energy, while the rest of the solar power is reflected after that threshold is met.

The frequency of the light and its reaction with the metallic surface cause the light to release electrons. Each photon in the light becomes a single electron of energy. The electrons that are emitted are often referred to as photoelectrons. The photoelectrons can be converted into electrical energy which can serve many uses and does not cause pollution or greenhouse gases.

At first photovoltaics cost a lot of money. The price of the energy and the equipment used to produce electricity was higher than the actual savings the user was getting. In the early days this ran at $100 per watt, these days you can usually purchase the electricity generated from the product at about $20 per watt. This kind of energy is produced in remote areas where a power line or a generator is not feasible. By placing at these cells the people that are working or living in this from an area can have a steady supply of electricity.
This type of solar cell has been used many times in public service venues. They have been used to power road crossings, road signs, street lamps, and other Department of Transportation issues that may be a long way from a source of power. It is more

economically viable to put a solar cell box on a remote road crossing sign than it is to strain power chords and build power poles to get the electricity to the unit. This allows for more safety precautions being put into remote areas where the drivers or pedestrians can see the hazard.

Since the 1973 oil crisis, photovoltaics have come a long way in both technology and cost. These solar cells are even used in nautical machinery. Buoys with lights that show boats and ships the channel or the water passageway once had to be changed on a regular basis by putting in new batteries. Now these solar cells allow the buoys to remain lit from the energy of the sun. Solar power has made the roadways, sea ways, and other avenues of transportation safer and easier to navigate.

Photovoltaic modules are the prime source of power for many space systems. Solar power is the only source of energy once you leave the Earth's atmosphere. By clicking the rays of the sun on solar cells, these satellites, spacecraft, space station, and other satellite orbiting systems can remain in space longer and work with little maintenance. Without solar cells, future space explorations to other planets or other space ventures would not be possible. The capturing of the sun’s rays upon a solar shield in the space station gives the astronauts electricity to run computer systems, life support systems, and everything it takes to support life while they are aboard the station.

The improved technology of solar power has increased domestic uses also. With the new trend of building greenhouses, solar panels are installed to take in the sun's energy and turn it into electricity. These solar panels have enough electricity to heat hot water tanks, run appliances, and give the family enough electricity needed to survive. Of course, supplemental electricity is provided to most of these houses in case there is a problem with the solar battery or if there is a cloudy day which would hinder the production of electricity. Solar panels have not only been used to power domestic homes, but they have also been used to power large high-rises. Entire business complexes have been powered by solar power.

The photovoltaic modules in solar cells are still being studied. They have a variety of uses that are capable of being expanded in industry, technology, space, and even in your own home. As the cells grow better they also become cheaper. Since the world's population pushes for more energy demands and the global market has raised the price of oil and other non-renewable energies to a breaking point, the average man is looking for a way to save some money. Photovoltaic cells will soon be a part of every aspect of our lives that deals with electricity. Whether it is a handheld game or an engine on an aircraft carrier, this technology will be the last remaining bastion of power once all the fossil fuels are gone or we have damaged our planet so much that fossil fuels are no longer a viable way to create energy.

Chapter 3 – The Cost Of Solar Power

If you are looking for an alternative energy source for your house, solar power could be for you if you have the right resources. As a general rule right now with today's technology, solar power can be very expensive. An average American either uses electricity or gas to provide heat to the house. These fuel sources can also be used for producing hot water, running your washing machine, and any other appliance or entertainment device you might have in your home. In some parts of the countries, such as the Northeast and out west, the cost of electricity and gas products are very expensive.

Solar power can be an alternative for your house. In a typical house there is a usage of over 14,400 watt hours per day. That's a lot of juice going to your house. The more family members you have and the more you are at home enjoying modern comforts the more electricity you will use. Solar panels can create 70 mW per square inch. In the course of the day these solar panels might receive about five hours of sun. This only equals 350 mW hours during the day. So to get the energy you need for your house which is at 14,400 W hours per day you would have to have 41,000 in.² of solar panel for your house. If you do the math that is almost 300 ft.² of solar panels. At today's prices that would cost you around $16,000.

Not only would you need a solar panel you'd also have to have a battery bank and an inverter. Adding these would double your cost of installation and adding materials and a 48 average size ouster, you are looking at close to $32,000. If you want to add an air-conditioner to the mix you might as well double that figure to $64,000 for installation. Added to the installation cost you also need to make your house energy-efficient. This means the closing of cracks between doors and windows. You would also have to use energy-efficient appliances. You may put the hybrid or hot water heater so that it only uses electricity during the times that you need it. You would

have to switch over from a desktop to a laptop computer to save on electricity.

This might reduce your need for such a large solar panel but in reality this would not really stop the sticker shock or the upfront money you need to pay. When you pay for electricity the traditional way, it only costs around a hundred dollars an hour to purchase power from the power grid. Of course you should pay for usage but the hookup to the power grid is a fractional amount of money compared to the large amount of money you would have to spend to install solar panels on your house. You have probably seen solar panels on houses in remote areas or as a lot in one neighborhood. These people have bought these to be more eco friendly and have invested their money for something they believe in. You too can do this if you have the resources and the finances, but it might be feasible to wait until the technology is more efficient and less expensive than it is right now.

Keep up on the technology that is being developed. Periodically go to the internet or to a science trade publication and see what advances have been made concerning solar cells and solar panel technology. There may be a break-through that would bring the prices down so that they are more affordable for the common man. You might want to start with a small solar panel and just direct that energy to one appliance that might be draining you, such as a freezer, a water heater, or a washer and dryer. Technology is moving at light speed these days and the resources to bring down the cost are here.

Chapter 4 – Everyday Use Of Solar Power

When you thnk about solar power, you may think of those funky looking houses that have those weird looking panels on them. That is not solar power for every day living. Solar power has many uses beyond those of producing electricity for houses or for automobiles. Even small electrical devices can be powered by solar energy in lieu of a battery or any outlet plug-in. Devices such as cell phones, GPS units, and laptops can be solar powered. All you need is the right connectors, the right amperage and voltage of the device and a battery to store the energy solar panels collect.

You can modify and customize your solar panels and battery device to collect any amount of energy you wish up to the threshold. After the threshold, or when the battery is full, the solar energy is just being reflected from the solar panels. The battery should be compatible with the device you want to use it for. For smaller devices you need a smaller area with less voltage or with a different lot rating. How many times have you been out fishing or camping and your cell phone battery goes out? Most people carry cell phone adapters for their cars so that they may recharge the battery in their automobile. This is fine if the engine is on or the engine has been used to charge the battery in the vehicle. But running the engine is a cause of pollutants and other toxic materials which you are releasing out into the environment just by charging up your cell phone.

By having a cell phone solar powered battery charger, you are able to take your cell phone outside and leave the solar panels out in the sun. You can even do this inside on a windowsill that is directly influenced by the sun. You don't have to worry about where to plug in your charger, you just have to worry about where the sun is and how long the solar panel needs to stay out to charge a battery. It is convenient and easy-to-use, although a little expensive.

People who work outside use all kinds of electrical equipment. From laptops to survey equipment and even for lighting, solar power can play an important role in reducing the needs for generators and batteries. If you are working at a remote site and you need power immediately, simply send out your solar panels to collect the sun's rays to produce the power that you need. Again, with this type of equipment, each solar panel needs to be equipped with the proper generator or charger that will produce electricity to either charger batteries in your device or to directly run the device.

So next time you're in your electronics store or planning a shopping trip or vacation, think about the uses of solar power and those endeavors. What device do you really want to use and how can you use solar power to have that device readily available when you need it? Solar power can operate pretty much anything you use, but you need to have the right number of solar cells and the right equipment to charge the device.

As technology advances and the demand for solar powered equipment increases, prices should go down and the technology should be accelerated. Right now only 1% of all houses in the United States are powered by solar energy. If we think outside the box and go beyond the house there is an entire world of devices that can be powered by the sun. All it takes is a little imagination and a little research and someday soon we will be out of the grips of fossil fuels and nonrenewable energy.

Chapter 5 – Solar Power Heating

The most cost-effective way to provide heat to buildings is called passive solar heating. Most of the sun that falls from the sky also falls on your roof. In other words, most of the heat and solar power hit your house. If you are building a new house, you might want to think of passive solar applications to let nature heat your house and not have to pay for power or electricity. Passive solar is very simple and can be a viable asset to any home.

When most modern homes are built, they may have a heating and cooling system that uses forced air are ready and floors to heat the house. This is usually called your heating/cooling system. In a passive design, the system is integrated into the elements the building is built with and the materials of which it was constructed. Every aspect of the house, including the windows, floors, roof, and walls, is used to collect heat and to store it for later use, such as when the sun goes down in the cool of the evening.

Passive solar design allows you to use the heat from the sun to help eliminate some of the cost of heating by conventional methods of stoves, furnaces, or others heating devices. This is a way to help reduce energy costs and not replace the existing heating system in your house completely. Passive solar design will allow you to let your house be heated up to a certain degree capacity that is determined by the materials that your house is composed of. When the capacity is met and the asset heat is used up, the conventional methods will kick in and you will have to rely on either fossil fuel or the power grid to heat your home.
Remember that it is the area and climate that you live in that will determine the amount of heat that you will receive from passive heat design. In the state of Wyoming, rest areas were constructed so that passive heat would be allowed to heat up the restrooms in the evening. The design of the shades provided in the windows was utilized to cool down the rest area facilities. This works very well and the solar

power and the wind power have been able to reduce the amount of energy used by the power grid or other sources by up to 80% or more. This does not sound like a tremendous amount of energy saved, but the amount of money saved heating these facilities can be astronomical when you add them all together.

Passive solar heat along with a combination of solar power panels can keep you completely off the grid. Not only would you reduce the amount of energy that is directed toward heating costs, you could eliminate your dependence on the power grid completely. The passive solar heat could form in the walls and roof from the construction of your house and be able to retain heat. The solar panels would be able to give you the electricity needed to run an electric power supply to heat the rest of your house when the passive heat fails.

When you are considering the construction for your new home, you may also want to ask the contractor what he knows about solar energy or solar power for your home. With a combination of passive construction, wind turbines, and solar panels, you should be able to run your home with free energy. Of course start up cost should be a consideration, but in the long term you will save on your power bill and be able to meet the needs of the environment at the
same time.

Chapter 6 – Using Solar Power For Your Home Appliances

Solar energy only accounts for 1% of all electricity use in the United States. Though solar energy has been called a joke by other energy industries, with the renewing interest in alternative fuels it is becoming viable again. Solar energy is very expensive at this point but some people have found a way to make solar energy or partial solar energy part of their lifestyle.

Solar power can supplement your regular grid power by being attached to only certain electrical outlets in your home. The initial setup is expensive but if you want to keep your freezer or your refrigerator, which runs constantly, on solar power, you have an opportunity. Start small with a small solar panel at a time. You'd be amazed at how much money you can save by having just your hot water run on solar power. You can break the bonds of the gas industry as propane and natural gas prices are starting to rise. If you have a natural gas or propane water heater, a simple solar panel can provide enough energy for you to have hot water for all of your family's hot water needs. This could be hygiene needs, cooking, your washer and dryer, or any other hot water uses.
If you are thinking about replacing your existing water heater look at an electric water heater instead.

Electricity off the grid may be expensive for a water heater but if you supplement with solar power the cost per month will be next to nothing. Find out how many watts per hour that appliance needs. Then contact a solar power specialist and find out what size of solar panel you need to produce enough energy for the appliance. You can install the solar panel yourself or have it professionally installed. Once the equipment is bought and installed you can also purchase a timer for your water heater.

A hot water heater timer allows you to set the time of day or night you want your hot

water heater to come on. If you go to work at seven o'clock in the morning and take your shower around 6:30, the timer will come on about six o'clock and heat the water to your desired preference. The same thing goes at night. If you are washing dishes at a certain time or taking a nightly shower, the timer will be able to give you hot water when you need it. It takes a little getting used to this because most people want hot water on demand. Heating water is an expensive process and wastes energy.

While having your hot water heater totally on solar power, it may take a few years for
you to recap the initial purchase price. Solar power at this point is a long-term investment. But once the initial cost of installation is set up you can run many appliances off solar power even that hot water heater that died and should have been replaced long ago.

As solar power and solar power panels are gaining in popularity and use, their prices should go down within the next decade. Keep your eyes open on the internet or while watching the news to see if there are new and better solar panels and solar cells being invented. Contact some companies; you may even be able to set your house up as an experimental station and have a solar panel for free to test the technology. Try other alternative energy sources such as wind power to couple with your solar energy panels and double your output of energy with two renewable energy sources instead of one.

Chapter 7 – Solar Panels For Today

One of the main problems with solar power is collecting the power of the sun and at the same time having the solar panels be pleasing to the eyes of the people around you. You have probably seen solar houses in your neighborhood with five or six solar panels reflecting the sun. Though this is the wave of the future, it is not at this time pleasing to the eye of most consumers. These home owners put their solar panels either on the roof or in the backyard and to the casual non technologically-oriented person this looks tacky and takes away from the beauty of a neighborhood.

There is new technology that allows the solar power user to set their solar panels up in a way that is aesthetically pleasing, and at the same time gives greater opportunities to collect sunlight. These designs have been put in place to serve dual purposes. They not only enhance the look of a house, but also give the owner a chance to use his solar panels as cover for other things. Solar panels can be set up in a variety of ways as long as they are angled at the sun and collect the optimal amount of energy that is emitted in that area of the house.

These new designs have combined traditional house extensions with a revolutionary new concept that allows the solar panel to act both as a part of the house and at the same time collects energy. One such design looks like a carport from the outside. The solar panels are set up so that they extend from the house above the car parking area. The driver of the car can park his car underneath the solar panels and they, in turn, give the car protection from the elements. Snow and rain cannot hit the car and the solid construction of the solar panels helps them support themselves, even under the weight of snow. These solar panels have a heating system that goes throughout them. The heat will melt any moisture such as snow or ice so that the sun can get through to the solar panels no matter what the weather.

Some designs have solar panels sloped gently from the second story of the house to

provide an area for which a person could put a garden box or flowers and have some protection from the sun during inclement weather. Other systems include panels that will come out during sunrise and can be retracted when the sun goes down.

Another technology advance allows a greenhouse to use only solar power. This will allow the heat to be trapped inside the greenhouse causing the plants to thrive. At the same time the sun collected above the greenhouse can be reflected down to the plants to give them the solar energy they need to live. This solar panel can only collect so much energy within each cell then the residual sunlight would go to the plants. The added benefit is that the installation of these solar panels will cause the humidity to be collected inside the hothouse and allow for the house to be warmer when the weather cools down. All this put together does not take away from the idea that the house is receiving renewable energy that cost nothing except for the setup of the solar panels in the first place.

Check out the Internet for the new designs of solar panels. These solar panels are becoming more attractive than is aesthetically pleasing to the eye because they are becoming more efficient to help you save money and to be less dependent on fossil fuels.

Chapter 8 – How To Use Solar Power For Cameras

If you are a professional photographer or you are just an amateur shutter bug, you know how frustrating it is to have your camera lose power during a vacation or an outing. It is just frustrating to be somewhere like Disney World or seeing a national park. In the middle of photographing your family by the very thing that you drove hundreds of miles to see, your camp camera battery dies. Some cameras have backup energy systems and last longer, but most batteries will die only after a few pictures.

There are rechargeable batteries which you can purchase but even if you use the batteries in your camera and then use the batteries that came extra with your charger, you still have only a limited life to your camera. The solution to this is solar powered cameras. You can take a small sheet of solar cells and place your camera in the sun and solar cells will recharge your batteries. This will allow you to be able to recharge and take the pictures you want to while at the same time you're not wasting electricity.

When you plug that charger into the wall of your home, you are paying for the electricity that is coming through. It may be a small amount but a lot of recharges can add up after a few years. The batteries, even though rechargeable, become old and do not work as well. You will be forced to buy new rechargeable batteries and throw the old ones away. Batteries are a horrible addition to any landfill. As the outside casing breaks down, the inner core and acids drip through the landfill and can contaminate groundwater.

By using solar power to recharge your camera's batteries you are not only saving the environment by keeping batteries from going to the landfill, but you also save electricity. The sun will recharge those batteries and in return you will get a longer life from your camera during the time you're taking pictures. No more having to

worry about running to the hotel room to grab the extra batteries or digging through your purse to find that extra battery pack to go into your camera.

Solar power is being used in more and smaller electronic devices. The camera, with its battery problems, has been the newest addition to the solar power equipment family. You can find solar power battery chargers at camera stores, your local camping, or outdoor equipment store, or they can be found on the internet.

Again some of these rechargeable solar panels are a little expensive at first but you can use them for different purposes other than your camera. Buy a solar panel that has a battery pack that can go with your rechargeable battery charger. If you do not need your batteries recharged, you can use the battery pack as a source of electricity for other light devices or a source to plug them into another device.

So next time you're on a vacation and you are about to take a picture of the Grand Canyon or a picture of Old Faithful gushing in Yellowstone National Park, you can have the confidence to know that your batteries are charged and that you didn't pay for electricity that you're using. Display the solar panels out in the sun, sit back, and relax. A good time to do this is when your family is eating lunch or dinner or when you are inside. Leave solar panels out in the sun and click away. You will never have a vacation or an outing without a chance to take pictures again.

Chapter 9 – Solar Powered MP3 Players

Everybody seems to have a personal music device these days. Whether they have an iPod or a CD player, people from all ages and all walks of life want their music with them wherever they go. The negative aspect of having your personal music player or iPod with you, is that sometimes your battery will run out and there is no place to plug in or recharge. Some iPods are charged only through a computer system. It is disappointing to be in the middle of your job or be in your car traveling somewhere and all of a sudden your iPod or music device goes out.

With the new micro solar powered technology that has recently become available, you can now buy a solar powered iPod charger. This charger becomes useful to the user as a backup power source which can be powered by the sun while you are listening or you can put your iPod charger in the sun to have that energy available anytime you wish to use it. It doesn't matter what iPod you are using or what generation it was made. The iPod solar powered charger will charge up any generation of iPod. This means that you do not have to search for a computer to charge with or hook into any electric power support.

It may not seem that you are saving that much energy by having a solar powered iPod charger. The energy that you save when added up with everyone else in the world having an iPod, which uses the same system, can save hundreds of watts of energy that would otherwise be generated from fossil fuels. Technology is great but with solar powered technology, you are more green-friendly and are able to protect the environment from dangerous pollutants and poisonous toxins.

The new solar powered iPod charger even works on the new iPhone. It is small and inexpensive, only running about $49 plus shipping. This works well on camping trips or long excursions where a power supply is not available. It is great to know that when you go on a hike or out on a boat you have your iPod powered all day long without losing the enjoyment of the music you're listening to.

It's very easy to operate. You simply open up the solar panel, which includes solar cells. It looks like a small sheet of aluminum foil. It will catch the sun's rays and the sun will convert its power into electrical power. The charger will store the energy and be ready for use whenever you run out of power in your battery. Simply hook up to the solar panels directly or use the charger to charge up your battery. Nothing could be that easy.

Solar power is coming of age. Although it is expensive to power large structures and buildings with solar power, technology is catching up by using solar power to get energy to smaller devices. To reduce global warming it takes baby steps. By using solar power for small devices you will be taking baby steps toward a cleaner tomorrow and a better world for your children.

There will be no need for disappointment anymore with your new solar powered iPod charger. You will be able to have your music with you when ever and where ever you want. You will no longer have to rely on computers or outside sources. This is simply just a better method of obtaining energy than the traditional method which includes looking into the power grid. The power grid costs money but with solar energy you do not have to worry about being harnessed to the power grid again and be power is free.

Chapter 10 – Personal Solar Energy Packs

A new invention by Solar Time Solardyne has brought new innovations to the personal utility solar power pack and has revolutionized the idea. You can use this portable power supply for camping, field research, emergency home power, or any of the things that you think of that would be useful in the field. It can even be useful as disaster relief. It is great because you're able to carry the power with you to a disaster zone if you are a first responder. Even missionaries have found it useful in a field where they can take electricity with them into areas that are void of power.

This personal solar power pack includes a folding 20/21 high-efficiency solar power panel. These solar cells are built with a mono-crystalline material that will produce more power personnel than any other solar panel on the market. It has a battery charged controller and state of charge indicators that will allow you to see how much power is in the unit and how much you need to meet the threshold. With a 300 W AC inverter using only one AC plug, you are able to patch into most electrical devices, lights, or camping appliances. The panel comes with jumper cables, a controller and even an extra port that will allow you to alternate your electrical needs as the situation dictates

The good thing about any personal backpack type solar power unit is that you can take it into almost any situation and be able to have power at your disposal. Firefighters jumping into a hot zone have carried these to be able to charge radios, flashlights, and other electrical equipment that will allow them to do their job more safely and efficiently.
Personalized solar backpack units can also be used for personal and recreational activities. In some instances, there are always times and places that you need a source of power for entertainment devices, camping equipment, or other necessary items in your personal toolbox. A solar backpack unit like this one will allow you to enjoy being outside more and to be able to go further into the wilderness without worrying about your power needs.

Personalized solar backpacks are a convenient way for you to carry power around with you for use anytime you need it, whether you are going to the beach or just out of town. If you are a professional who works out in the field, such as a surveyor, field biologist, or any other person that needs power in a remote area, personalized solar backpacks will give you enough energy to get the job done.

For example, imagine being a worker in the middle of an important project and the generator is down. With a solar backpack unit, you would be able to have emergency equipment or even equipment that might just give you the comforts of home. All you have to do is have the battery charged in the sun. When you are ready to use the battery, you can plug in any AC or other type direct current device to receive the power you need to work properly in any given situation. You can find personalized solar power backpacks on the internet or you can contact the company directly to see if these products might be right for you. They are small, lightweight, and portable enough for you to carry on your back to give you the electrical power you need when you need it.

Chapter 11 – Outdoor Solar Powered Equipment

Solar power can be used for other things than just getting off grid electricity for your house. Solar power can be used in small appliances outside the house. If you are going camping there is nothing so bothersome than to have a small appliance such as a radio, thermos, cooler, or art and entertainment device go down because the batteries are dead. With solar powered camping equipment you can have all the luxuries of home and not have to spend a fortune on batteries that go dead after a few uses.

Solar powered camping equipment can be implemented into a number of devices. A flashlight or lantern is standard camping equipment. If you have a solar powered flashlight you can put the flashlight out during the day to collect the sun's rays and use the flashlight at night when needed. An average flashlight will burn for nine hours on two D-cell batteries. With a solar powered flashlight you do not have to replace those batteries. You will also save on landfill pollution. Without the thousands and thousands of batteries in our landfills, it would reduce the chance of chemical contamination of groundwater supplies.

Another piece of camping equipment that you can use at the campsite is an electric stove. Traditional stones and grills used oil, propane, or other fossil fuel based additives that not only cost money but add damaging pollutants in noxious fumes to the natural habitat in which you are camping. By using a solar powered stove you will catch the energy of the sun during the day and then when you turn on the stove at night the electricity stored in the battery will ignite and run your heating coils. There are no pollutants or emissions whatsoever. This heat comes from the sun and is a clean and renewable source of energy.

When you go camping you may want to bring a small entertainment device like a DVD player, a radio, a CD player, and sometimes even a small television. You still

use solar power on these devices by purchasing a solar panel battery combination in which all the energy that you would need would be stored into the battery as the solar panels collected from the sun. This will allow you to bring more electronic equipment to the camping site without having to rely on generators that spew fumes and gases into the air or your car which has to be run from electricity to be generated.

By using solar powered camping equipment you not only protect the environment, you are also being green friendly. You can bring more devices with you and make your camping experience all the more enjoyable. Some people do not like camping because it takes them away from the comfort of their home and the things they like to do where electricity is important. Here you can take that couch potato, get them out in the woods where they can still enjoy the comforts of home, and at the same time see nature's wonder. The initial cost of solar powered camping equipment is a little expensive but if you factor in the cost of batteries, the comfort of having your electronic devices with you, and the fact that you protect the environment. You will see that a solar powered camping trip is the best thing not only for you and your family but also for the environment and the world at large. You can find solar powered camping equipment online or at your local camping or outdoor equipment store.

Chapter 12 – Using Solar Power For Our Cars

We have discussed the solar powered cars are still in the prototype phase but there are people out there that are breaking records with faster and more efficient solar powered cars. Scandinavia has done a remarkable feat by introducing a vehicle that performs like something straight out of a science fiction movie. On a tour through Norway and Sweden the car traveled on the runway at the top speed of 105 mph. This has revolutionalized the speed boundaries for solar powered cars because usually the top speed runs between 20 and 40 miles per hour. The most remarkable thing about this prototype is that during the nine-day road tour it never had to be recharged from an outside source. It relied totally on solar power.

Now, here is the drawback of this prototype. It is only large enough for one person. As a vehicle for everyday use it would have to be used for a single person to get to work or to travel around town. The solar panels cover most of the vehicles so safety ratings have not yet been tested. A crash at 105 miles an hour would shower the driver with solar cells and other electronic debris that most passengers or drivers would not survive. Safety equipment such as turn signals, brake lights, and other essentials of today's cars has not been incorporated on this prototype.

This solar powered car may not be for everybody. The driver has to lay down inside the car and look through a small plastic bubble. This is neither comfortable nor safe for most American drivers. The vehicle has three walls and is 16 feet long and six-foot wide. It is built with an aerodynamic chassis and comes with a whopping $500,000 price tag. Evidently this car is a novelty for car enthusiasts who have that much money. Most people would think this would be a prototype for a play toy instead of a car. Realistically this is a prototype for a vehicle to come. The perfect solar powered car may not have three wheels nor have a place where the driver has to lay on her stomach to drive, but the technology used in this vehicle can be used to create newer vehicles that are more traditional compared to today's automobile

appearance.

There are other companies that are working on the more traditional car. The problem with the more traditional solar powered car is that the solar cells and the batteries that support the energy to drive the car can be quite balky. The major engineering flaw is a way for the vehicle to handle such a load versus the vehicle's ability to generate that much power to pull the load. This is why these solar powered car prototypes of the day are more futuristic looking. They put more emphasis and time on the positioning of the solar panels than on what will really be needed on a traditional family car.

An idea from a Japanese marketer has suggested that solar collectors be placed alongside a highway and an electric cord be strapped to the waters of these collectors. A metal ring would go around the cables and your solar powered car would be able to run off electricity from these cables. All electricity would be generated by the sun and therefore eliminate the need for a design that would have to carry both the solar cells and the batteries to hold the electricity. This project is in the very grass-roots stage. It's only on the drawing board and nothing real has come out of it yet. The entire infrastructure of the world's highways would have to be changed to accommodate such a transportation method. Don't hold your breath for a realistic solar car in the near future but with the technology and the innovation that is being put into the effort, they are on the way.

With the energy crunch causing oil prices to skyrocket, transportation seems to be the main focus of energy needs. Even if American car makers and, in fact the world's car makers, agreed to surrender and increase fuel efficiency, the new population of industrial age China has caused an even greater demand for oil at an almost astronomical figure. The world has to stop depending on fossil fuels. The American love of the car will have to be shunted. A lifestyle change in the way we get around has to be developed.

Solar powered vehicles are the most intelligent way to tackle the problem. With no use of fossil fuels, solar powered vehicles can run off sunlight alone. They may look awkward and not have the power or pick up the gasoline vehicle does, but to be able to transport yourself from destination to destination on virtually no fossil fuels is a dream that needs to become a reality. Scientists and engineers have many problems to tackle before the solar power becomes proficient enough to be able to use the way that fuel vehicles are. This is why the public needs to take a back seat in believing that a solar powered car will be invented that will match the power and the look of the cars that we have today.

Manufacturers are racing to find what the American public wants in a car and what they can actually produce. Solar cars today are very slow moving. Some can reach speeds from 20 to 40 miles per hour, but the distance these cars can travel is not realistic. A solar car, at this state of technology, is best driven in town. If you move two or three miles from your workplace and use the vehicle for that kind of transportation, then you'll probably enjoy the use. For example, a 1999 SUV that is driven three miles to and from the workplace and no where else, at today's prices would cost the owner about $50 for three weeks use. This is only $50 if it is not used to go to the grocery store, pick up kids from school, and do the many domestic chores we count on our vehicles to do every day.

A solar powered vehicle would be more efficient but they would travel shorter distances. You can still get to work and maybe a trip to the grocery store out of a charge but if you were to go on a long trip such as 10 to 40 miles, you would get there very slowly and you would probably have to charge up before the ride back home. The technology is out there and it will be coming soon. The American public just has to change its view of what the car should be used for. The use of public transportation and other venues of transportation needs to be explored while we're waiting for the perfect solar car to roll off the assembly line. While we wait, we need to think of other uses of solar power to bring down our dependence on fossil fuels.

Conservation is the best method to bring this around. With conservation you'll be able to reduce your cost of living and energy expenses and at the same time help reduce the burning of fossil fuels. Sit down and think about how you use your car every day. What can you do on foot or on a bicycle? If there is a 7-11 or convenience store around the corner, don't drive unless the weather is really bad. You need the exercise and it's not that difficult to make this a part of your lifestyle change to save that extra fuel. In the long run, you will bring back hundreds of dollars worth of savings and at the same time help to reduce greenhouse emissions and reduce our need for foreign and domestic oils. It has to be a conscious choice on a local level to conserve before the global.

Chapter 13 – Using Solar Power In Boats

Have you ever been fishing or sunbathing on a boat? You probably wished you had something to listen to. Some people bring radios or CD players out to their boating excursions, but when the batteries are gone, they're gone. You could bring extra batteries but time and weather may have made a decrease in their potency and you would just be wasting time. That is why a marine solar powered battery is the best addition to any boat.

You can find these at boat shops, nautical parts stores, or you can order them online. It's amazing how much you can get out of these. There's not much of a supply of electricity on a boat. This is especially true if you have a john boat or just a little pleasure boat. You have the battery of a major engine but that's usually just a basic car battery which is hard to get the ampage and wattage correct for you to run your electrical devices upon them. With a solar powered marine battery you will have a source of electricity for all your electrical devices and even better, you don't pay a cent for it. The sun will hit the solar panels and charge the battery. When you need the battery you can plug in to a camping stove, flashlight, or even recharge batteries in the electrical equipment that you already have.

A solar powered marine battery is also good for emergencies. You may have not used your flashlight in a while but it is stationed upon your boat. The flashlight batteries could have been damaged by water or have just naturally died out. By using this solar powered marine battery you can hook up a light source to it to help you out in an emergency. It's a scary thing to be out on the water at night without lights. Other boats may run into you or there are a hundred different ways you can get yourself in really bad trouble. Having a light on board will signal to the other boats traveling in an area that you are actually there. You'll also be able to see obstacles in the water as you try to get back to shore.

Outside of emergency uses, the marine solar powered battery can charge the

existing batteries that you already have. With the right equipment you're able to recharge your flashlight batteries, recharge the batteries in the radio, or the solar power can become your direct source of energy for that device. If you own a larger boat and it has appliances or other equipment that needs logical power, you can use the marine solar power charger to run some of this equipment.

Electricity on a boat is not cheap. The engine turns a generator which creates electricity. The engine runs on fuel and fuel is expensive. The engine also creates pollutants not only in the air but also in the water. Have you ever seen the oil trail behind a boat as it goes through the channel or across the lake? This is oil that is being polluted into the water. By the use of solar power you can reduce the amount of pollution and have clean, free, green friendly power created right on your boat. A boat is a great place for solar power because there are very few shadows and you are out in the open. Lay your solar panels on the deck that will give them the most sun and go about your business having fun on the water. The solar power will power up the battery or charger and you will have ample electricity to run your appliances, electronic devices, and electronic nautical equipment. Though a marine solar power generator or charger is a convenience it is almost an essential piece of boating equipment.

Chapter 14 – What Are Solar Ponds?

Another technique similar to desalination pits is a solar pond. Solar ponds are not very deep. They usually run about three to six feet deep. The water in the pond is salt water. Salt water lakes and ponds have increased temperature. As you go deeper, the salt creates a density gradient. A density gradient will reverse or stop the convection currents that usually cool and heat water. During its experimentation phase, the solar pond produced 90° Centigrade temperatures. Not only was this a German in the amount of heat generated by the sun and the salt water, but the solar pond also produced 2% in solar to electric efficiency ratings.

Solar ponds used today have been very successful. At the University of Texas at El Paso, a solar pond heats the entire university. In other places where there are salt ponds, such as Israel or Utah, the salt gradient is used to produce heat for heating homes and other buildings in the community. The solar ponds have a dual use in which the salt and other minerals are collected after the water evaporates. By having a shallow salt pull, not only will you have solar produced energy, but you also have minerals and salt left behind at the bottom once the water evaporates. These can be used in a variety of industries. Sea salt and other spices are derived from the salt that is mined from solar salt ponds.

Some solar ponds have been used to grow certain species of salt water fish. In warmer waters, fish can be bred for food. For a non industrialized country that has salt ponds, one salt pond can produce enough energy and food for an entire village. Their extra income is also increased by the mining of the salts and minerals left behind. A campaign to increase salt pond usage has been spreading through the third world countries by organizations such as the Peace Corps. Peace Corps volunteers and scientists have taught entire villages how to create a salt pond, use the water for heating purposes, and to grow aquatic life within the salt ponds to help feed the population.

Chapter 15 – Solar Power In Space

Japan is joining the world's technology push for solar power to have a viable, profitable system readily available in the future. In the year 2040, Japan has plans to have a gigantic solar collector and generator put into orbit around the Earth. This sunlight collector and generator will be able to collect energy from the sun 24 hours a day. On Earth, the clouds and the rotation of the Earth only allow a certain amount of solar energy to be collected each day. In space, the solar power can be collected 24 hours a day without the obstruction of the atmosphere or the rotation of the earth.

The satellite will be able to generate over 1,000,000 kW per second. This is about as much energy as a nuclear power plant puts out. Nuclear plants have the reputation of leading to exposure of toxic radiation. Their use and the resulting danger to the environment have been documented with incidents like Three Mile Island and Chernobyl. Though improvements have been made to the nuclear energy field, an environmentally friendly power plant like the one that is proposed by Japan would make nuclear energy obsolete.

The satellite will travel about 36,000 km or 22,320 miles above the Earth's surface. With this geostationary orbit, this satellite will able to be gather power transmissions to an antenna that is over 1000 m in diameter. The electricity produced will be sent back to the Earth in the form of low intensity power comparable to those that are emitted by mobile phones. This power would be in the form of microwaves which would not interfere with any mobile phone service or other equipment on the Earth.

Solar power would be transmitted in such a way that it would take all the solar power that was collected within the dishes and transmit a concentrated beam towards receptors on Earth. The receiving antenna on Earth would be several miles in

diameter. It would probably be set up at sea or in a remote desert area so that there would be no accidental interruption of telecommunication services. The satellite would weigh about 20,000 tons and the Japanese are looking at a cost of around $17 billion. This does not take into account the inflation that will rise in the cost of materials between the year 2040 and now.

Satellites such as this will be able to produce a clean and renewable energy source able to power the same amount of recipients as a nuclear power plant. It would also not leak toxic or poisonous wastes and the environment would benefit from the lack of greenhouse gases produced by fossil fuel power plants. The world should come together with systems such as this and use the technology already in use for fossil fuels to power structures and infrastructures. This would greatly reduce the amount of greenhouse gases to such a limit that the effects of global warming could be reversed. It has been suggested that the United States and China contribute not only technologically, but also monetarily to the project to help the Japanese get off the ground faster. The efforts of the international community to place these type of orbiting power collectors into space would accelerate the ongoing battle against fossil fuel dependency

Chapter 16 – How The Government Is Using Solar Power

While the debate goes on about how solar energy can save you money and how solar energy is not a viable resource. The Department of Energy has released details that they are funding a two-year effort to concentrate totally on solar power. The mission of this effort is to see if solar power is as efficient as the solar power industries claim it to be. Their ultimate goal is to see if solar power can bring the cost per kilowatt hour down at least $0.10. This sounds like it isn't very much of a reduction, but look at the billions a kilowatt hour spent every day in the United States and you can see the huge savings in both money and energy.

The governmental effort at concentrated solar power will use an array of mirrors to focus sunlight onto a central receiver. Once sunlight is received, fluid within the receiver is heated and forced through a turbine. Currently there are such efforts going on but the costs to build the technology for the heating of the fluid and a turbine generator is not going so well. The $5.2 million project is part of George Bush's Solar America Initiative. Ironically, George Bush was a baby of the oil boom and his push toward new alternative fuel technology might be a reflection of the political climate in America. He wants solar power to be commercially viable by the year 2015.

The Department of Energy has concentrated its efforts to collect solar research in which the cells turn sunlight directly into electricity. This is the debate going on in many think tanks in public and private arenas. Twelve projects are being funded by the grant under the Solar America Initiative. There will be nine separate private companies involved in the coordinated efforts, needing funding of more than $2 million. The Solar Car Eight of Lakewood, Colorado will be looking at the development and advances to a system of collecting solar power. They have worked in the past using liquid salts to directly transfer energy, as with solar ponds. They are excited at the prospect of being able to build a better poly-meric reflector

Other companies that are contributing to this project are 3M, Alcoa, Brayton Energy, Hamilton Sundstrand, Infinium, Sky Feel, and Solar Millennium. With the declining American dollar looming under a possible recession, the race to find alternative energy and products is accelerated. With the possibility of the Iraq conflict continuing on and oil prices soaring beyond belief, multinational efforts will be easier to gather once the United States's solar power initiative is at its greatest extent.

With projects like the Japanese solar satellite system, which collects solar energy through huge panels placed in orbit around Earth and then transmitted through microwaves to huge collector dishes, alternative energy sources such as electrical power, coal, gas, and propane could soon be a reference in the history books. The government is finally looking at a hard-line approach of dealing with alternative energy solutions and diminishing the need for foreign oil and fossil fuels. As the public sees the prices of gas rise while the costs of solar powered technology decreases, the public will soon follow this new technology to create a more green friendly planet and healthier environment for its population.

Chapter 17 – Investing in Solar Power Companies

Whether you use solar power on an everyday basis or not, you are part of the push for solar power to become the number one energy source in the future. Many people believe that the technology of solar power is increasing on a daily rate. The need and use of full solar power will be on everybody's minds in the future. Whether you want to convert your house or car to solar power now or wait, it is a fact that countries around the world are pushing for solar power energy to become the number one source of fuels that are renewable.

Investing in solar power technology companies would be a wise choice for anybody. Sun Tech power has a low cost structure that is great for any grassroots investing. They have more margin leverage than most other solar power companies and reducing their ASP's help the industry grow. Sun Tech is seen as the company that will lead the market with declining prices and become one of the industry's leading players. Their relationship with China will solidify an agreement that will not only bring jobs and money into the United States, but it will also propel the solar power industry leaps and bounds, rather than just consist of American participation. Working with China has proven to be risky in the past, but Sun Tech believes that the opportunity for profit overshadows the risk involved.

Evergreen Solar is an up-and-coming solar power industry that would be a good place to invest money into. They use less silicon than the other industries which helps in lowering processing costs. By using standard wafer-manufacturing techniques, Evergreen Solar can reduce the cost of the assembly line and also the cost of insuring products to help reduce their services. This company has many growth opportunities, including their joint ventures with other solar power companies and their association with foreign markets. Evergreen Solar’s estimation for growth is realistic and their risk minimal.

Sunpower is another solar power industry that is being looked at as a potential leader in bringing together high efficiency products and leading the production of solar power and marketing fields. Sunpower usually has trouble reducing its prices to meet consumer demands, so right now the stock is ahead of itself and should be watched for a better entry point

These three companies are just the tips of the iceberg in the solar power market. If you want to be a wise investor, watch the market analysis and keep up on the press releases and industry. Solar power is becoming a watchword in the investment community. As the markets for fuel-based products such as cars, houses, and other energy using products are scrutinized, the need for solar power in that product will become paramount in helping us meet the growing recession and the decline of the American dollar.

To diversify your portfolio in the energy field, solar power is the most fluid investment you can make. The Solar Initiative was signed into law by President Bush giving American industries more than $5.2 million to research new technologies that will bring down the cost of the kilowatt to less than $0.10. This is a grassroots investment so prudence is advised.

Chapter 18 – Solar Power And Health

When a person decides to install solar power into his home or into the appliances of his daily life, he may think that he is living the natural lifestyle. Not only is he protecting the environment and also reducing dependency on the power grid and the need for foreign oil, but he is also saving money. If you want to go to solar power for a naturalistic approach, you may be surprised that solar power cells using blueberries instead of silicon in their makeup are currently being tested.

Blueberries are a healthy food and have all kinds of holistic health properties. They have been known to help a variety of health problems. Through technology they may be helping our energy problems also. Researchers at Tufts University analyzed more than 50 fruits for their antitoxins and capability. Amazingly, blueberries came at the top of that list. So now the blueberry is not only a health benefit, but researchers in Rome have announced that they have a new type of solar panel made with the pigments of the blueberries in which we eat every day.

They propose that they can make a solar panel that has no silicon whatsoever in it. This will make solar panels cheaper and more efficient. Since it is made with a natural material instead of silicon, the solar panel will be more flexible. Researchers contend that they can have a solar panel so thin that it could be transparent and still wrap around any solid object.

The production of solar panels and the cost of silicon has kept the technology of solar power expensive. It is believed that with a renewable organic compound made from the pigment of blueberries, the cost of creating a solar panel could decrease as much as 15% or more. This would create more electronic currents which the user could utilize. The research team in Rome has decided to develop the pigment solar panel more thoroughly before releasing the technology to solar power companies for further research and implementation.

This would make for an entirely natural process. Not only would you be using a renewable energy from a plant that can be grown just for the need of energy, but can also be used as an antioxidant and a healthy part of any diet. The transparent solar panel that can be created from the blueberry's pigment could be applied to the sides of houses, on the rooftops, on the sides of solar powered cars, and even solar powered boats. The uses are endless with a transparent solar panel. No more will you see the bulky metal frame solar powered panels jetting from the rooftops of houses or littering the backyards with unsightly clutter.

If you are thinking about converting your house over to solar power, you might want to really research the use of blueberry pigment solar panels. Check and see if the technology tool will be available to the public in the near future. You can save lots of money and also be able to make your house more aesthetically pleasing to the eye. There is no limit to the places you can put a flexible solar panel. They can be fastened on the side of a shed, the copier doghouse, or just wrapped around your clothesline support poles. The possibilities are endless with a little creativity and imagination.
Keep an eye on the Web for more developments in this new technology and you might even want to invest in a company that's coming out with it.

Chapter 19 – How To Use Wind And Solar Power As Energy Sources

When you think about solar power, you think of a way to convert the sun's energy to totally heat and power your home. This can be done with great expense. If you want to totally live "off the grid" as it's called when you do not have to use the local power or fossil fuel plants. You would have to construct very large solar panels and be able to regulate the power going into your home. It's possible but there are other alternatives.

While a minor solar power project can reduce your power bill, you may want to think of going off the grid by using other alternative energy sources that combine with your solar power. Wind generation is a great way to add wind and sun together to make your power bills lower and be less dependent on the grid. By combining the two alternative energy sources you will use less electricity and, in the long run, be saving the planet by reducing greenhouse gases that are produced by fossil fuel energy producers.

A wind generator is a generator that is hooked to a fan that is turned by the wind. When the fan turns, the turbine creates electricity which is then converted and moved into your home. Combined with a solar powered panel, which collects the power from the sun and converts it to electricity, you can use this to reduce your need for outside power sources. The negative thing about either system is on a day without wind or a day without sunlight. On those days you would have to go back to relying on either the battery power that was saved during the days with sun and wind or you would have to rely on the power grid.

In the United States, the best places for solar and wind power are in the Great Plains area. States like Colorado, Wyoming, Nevada, Nebraska, and Kansas have a high wind factor but also receive lots of sun. You can place your wind turbine in the back of your yard or in an area on your property that receives plenty of wind. They should

not be placed next to a tree or building, but somewhere a little bit away from these types of structures so that the wind can hit the turbine at full force.

You would want a rotating coupling on your wind-generator so that as the wind changes directions, so will the propellers that generate the electricity. The solar panel should be placed in an area that will get the most sun. Your house may be shaded with trees or other buildings, but there will probably be one spot in your yard or on your property that will allow for maximum sun exposure.

You can see that this is a great way to bring down your power bill and your reliance on the power grid, except for those cloudy or windless days when you will have to rely on the power grid system. The long, winter storms can cover your solar cells, while the cloudy skies will not allow the solar energy to reach the cells as they would on a bright, sunny day. The wind could cease for two to three days and, again, you would be forced to go back to the power grid. The only way to avoid this problem is to have a full set of power collectors in which you could switch from the energy source to the power collectors and stay off the power grid for a little longer.

Chapter 20 – Using Solar Power For Fresh Water

There are many parts of the world that have no clean water source or water in that area they can afford. Many Third World countries have trouble keeping their water clean from diseases and impurities. Solar power can help struggling nations by using solar desalination and solar disinfection. With the use of solar power, these communities can produce drinkable water and water clean enough to use in household activities. They are able to take a bath, to use the water to clean and disinfect, as well as water with which to cook.

Pooling water often will be used to desalinate or disinfect the water. The negative thing about doing this is that you use energy. You have to use wood to build a fire, use propane or gas, or use electricity to heat the water up to make it pure. The people in the Third World countries do not have the luxuries to do this. To use fuel is to use money and money is not something that these communities have a lot of. Using solar power to desalinate or to disinfect the water is a lot easier and does not use power, except from that of the sun.

To desalinate water, a solar powered desalination pit could be used. The concept is quite simple. A container of impure water is put into a pit. A piece of plastic is then stretched across the pit with a weight placed in the center. The weight will cause plastic to bend toward the container in a cone shaped. As the sun heats the water, the water boils at a rapid rate and condensed through the plastic. Here the water can be collected and used. The water will be free from salt or from any other type of debris that might cause sickness or death.

Desalination can be accomplished in large-scale. If enough pits are used, this method could supply a needy community's clean fresh water. It is not the depth of the container that is important, but its width. You want a container deep enough to collect enough water to be able to go through the process in a day and evaporate,

but shallow enough whereas all the water through will evaporate before that day is over. This may take some trial and error to make sure you get the most water on a given day. The container should be put in the pit deep enough to allow the condensation to take place, but not deep enough where the movement of the sun will cast a shadow over the desalination pit.

This method used by many countries in desert areas. It is solar power technology that anyone can use. The user, however, must make sure that the plastic is clean to start out with and that the condensation is collected quickly. The condensation could be a breeding ground for insect larva and other impurities that might land upon the plastic or on the water on top of the plastic. The ideal place for a desalination pit is usually in an open space away from trees or other objects, such as buildings that might shade the pit. Also, the builder of the desalination pit should make sure there are no animals, such as livestock or domestic pets that will run through the pit and contaminate the water. If the pits are put into a dry climate, animals will most likely be attracted to water and sewer. Crawling or flying animals like spiders, flies, and mosquitoes need to be monitored, making certain that they do not lay their eggs in the water on the plastic or on the plastic itself.

Chapter 21 – How To Start Converting To Solar Power

When looking at the usefulness of solar power, you have to consider how much power the appliances that you use will tax the system. For example if you wish to use a solar powered generator to run your hot water, you really don't have to put that much effort into figuring out that a couple of panels will do the trick. But if you want to run a window-type air conditioner or a 24-hour freezer, you would have to consider the possibility of adding more power.

Power-hungry appliances are not conducive to solar power. It can be accomplished, but it is best to rely on the power grid for your larger appliances. Then you can selectively pick the appliances that you want to use with solar power. This can be for only one room. For example in your bedroom you may have a couple of lamps, a television, and a fan. By looking at the amount of energy it takes for running those appliances and the amount of energy that can be produced by a certain number of solar panels, you can make a logical decision to purchase those panels for that use. The rest of the house could run off the grid. As you invest in solar panels, you can slowly convert more rooms to full solar energy.

One good thing about solar panels is that if your house does have an electrical failure due to a storm or high winds, you can go into your solar powered room. You would still be able to watch your television and have lights, without depending on the power grid since it does not supply the power needed for those comforts. Even if your power outage happens at night, the power collected and the solar batteries can run your appliances in the bedroom for several hours or more.

If you want to start converting your house over to solar energy, it is wise to start small unless you have a very big budget. The cost you initially put into a solar powered project will take a long time to turn around and become profitable. Since the Earth’s climate is changing, eventually the cost of power could override the cost

of the initial set up of solar panels. The long term possibility has to be entered into the equation.

For the first project in converting your home over to solar power, you may want to look at just specific appliances instead of an entire room. Of course, when the power goes out your entertainment is virtually gone. You may want to just use your solar powered energy for your television, cable box, VCR or DVD, or other entertainment equipment. If nothing else, it would be useful in killing the time until the power grid comes back on.

If you are unsure about solar energy and solar power, start small. You can buy a solar panel for your portable devices. Even though this is not saving a great deal of money, it helps the planet when you're not using the power grid to recharge batteries. You can even buy solar powered panels to power your Game Boy or handheld computer. A computer's battery only lasts two to three hours on the average. If you're away from a power supply, you could be sitting there with a dead box while you could be doing your work, surfing the internet, or dealing with your daily computer tasks.