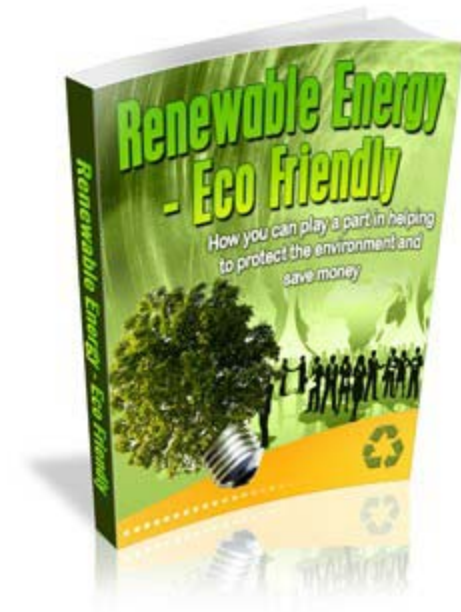


# Renewable Energy



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### 3

## Renewable Energy: Wind Power and Water Power

Renewable energy is energy that is generated from sunlight, rain, tides, geothermal heat and wind. These sources are naturally and constantly replenished, which is why they are deemed as renewable. The usage of renewable energy sources is very important when considering the sustainability of the existing energy usage of the world. While there is currently an abundance of non-renewable energy sources, such as nuclear fuels, these energy sources are depleting. In addition to being a non-renewable supply, the non-renewable energy sources release emissions into the air, which has an adverse effect on the environment.

While there are many different types of renewable energy sources, wind power and water power are two of the most popular, only surmounted by solar power. The use of wind power and water power is popular because they are actively found throughout the world and readily available for use.

Wind power is a commonly used renewable energy. Wind power produces no methane or other greenhouse gasses while in operations, which makes it a popular source of renewable power. Wind can be used to operate wind turbines, which are especially very popular in the commercial arena. The main issue with wind is that it is not constant, thus it tends to be less energy producing than solar power. In addition to consistency, wind turbine farms generally require significant space for construction and operation. Even though it is not as popular or as efficient as solar power, wind power is believed to be able to produce more than five times the amount of global energy used.

Water power is the use of energy located in water as a renewable energy source. From large oceans and rivers to a small brook or stream, significant amounts renewable energy can be collected and used from all type of moving bodies of water. Types of water energy that are being used today include hydroelectric energy, damless hydro systems, ocean energy, tidal power, wave power, and deep lake water cooling, just to name a few. As water is a part of the entire world, advancements have been made and developments continue to try to better enhance the understanding and usage of water energy.

Renewable energy is a very important topic for the future survival of the planet Earth. It is important that the world works together in order to share discoveries and research, especially regarding how to reduce the use of non-renewable resources and lowering the cost of renewable resource technology.

## 4

### **A Few Words about Solar Energy**

You have probably heard it all before; that one day, we will be able to use all renewable resources and cut ourselves loose from the stranglehold of foreign oil and fossil fuels. You have probably heard it so many times that you may have stopped believing it. Have you ever really stopped to think about it though? Each and every day, most consumers use a great deal of energy. They use electric power to light their houses, gas power to cook their food and run their cars, as well as a long list of other non-renewable energy sources. You may not think that you use that much, but even multiplying your usage by a few billion is still a great deal of energy used each day. When you remember that sources such as fossil fuels are not easily or quickly renewed, then you can begin to see that we may not be far away from big trouble.

Not only are we in danger of running out of these resources, but the processes used to collect them and refine them is costly to the consumer, and even more costly to the environment. Even now, areas are being stripped of their natural resources and polluted with chemicals. Animals are seeing their habitats destroyed to either gather resources, or make room for more power plants and companies to process them. Our only answer; our only way out of this is to search for renewable sources of energy that we can harness safely and effectively. Luckily, we do not have to look far to find them. Take the sun; it comes up each and every day beaming rays of warmth and light down upon us. What we have wasted for so many years has now been found to be a valuable source of energy. Not only are solar panels a great addition to millions of homes today, but there are other solar powered items in the works, such as the solar powered car. There are even giant solar panels made to catch the moonlight as well, and harness it into useable energy.

Unfortunately, we have not yet found a way to harness enough solar energy to make ourselves completely independent of the power companies, but we should all remember that every little bit helps. Even cutting half your power bill through the use of solar powered energy can make a difference of several hundred dollars each year.

### **Hydropower as Renewable Energy**

Hydropower, also known as hydraulic power or water power, is one of the many different sources of renewable energy, offering many advantages as opposed to the other similar renewable sources. The energy from this source comes from the harnessed energy or force generated by moving water. Like solar and geothermal energy, the energy from hydropower is not depleted in the process of energy production.

Hydropower has many uses. It was previously used for irrigation and machine & mill operations. In fact, it was used in India and Rome in their watermills and water wheels for hundreds of years, as well as in Britain's metal ore extractions. Today, hydropower is primarily used to generate electricity. It does this in a very efficient manner, as turbines are able to convert more than ninety percent of this renewable energy source into electricity. Also, because it uses water, it is not detrimental to the environment. There are no toxic by-products produced, and no air pollution in the process of energy generation. Furthermore, it has a role in the reduction of greenhouse gas emissions, and is a reliable energy source. This ability to handle seasonal high peak loads is an important attribute of hydropower. In times when there is a low demand for hydroelectric energy, the dam stores more water, thereby producing more flow once it releases, when demands are high again. Aside from electricity production, hydropower projects also serve to control floods, provide water supply to the community and create recreational opportunities. Hydroelectric energy is used for the electricity generated from large-scale dams. According to the U.S. Department of Energy, hydropower represented 7.1 percent of the sources of energy in 2006. Some states, like Washington, Oregon, and Idaho use it as their main energy source. Hydroelectricity is already a large source of energy not just in the U.S. but also in Canada and Brazil, and there are still many areas in Latin America, Central Africa, China and India that can

potentially yield abundant sources of this particular renewable energy. The largest and most notorious hydroelectric dam in the world is the Three Gorges Dam on Yangtze River. While hydroelectric energy has many advantages, it also has its downsides. It may lead to loss of habitat for wildlife, changes in stream water quality, and even the displacement of local populations due to the large areas used for hydropower projects. Aside from hydroelectric energy, there are other forms of energy generated from hydropower. This includes tidal power, tidal stream power, and wave power. While tidal power captures energy in a horizontal direction as occurs in bays or sanctuaries, tidal stream powers captures in a vertical direction. Wave power refers to energy captured in ocean surface waves.

## 5

### **Why Renewable Energy And Eco-Friendly Tactics Matter**

You might be sitting at home wondering why all of this renewable energy and these eco-friendly products and changes should matter to you. It is rather simple, renewable energy and ecofriendly is the future. You see hybrid cars all over the freeways now, green advertising is everywhere; and in many new homes solar panels are installed to utilize renewable energy and make life more eco-friendly.

#### **Consumers Beware**

Green, at times can be a huge turn off to consumers, not only because it tries to make people feel guilty for driving SUVs or taking a longer shower, but because it has been overdone. Be careful also, just because a company says that something is green does not make it green. One of the best examples I can give is at Victoria's Secret. I love Victoria's Secret and believe that they should stick to what they do best, making beautiful lingerie, instead of making political and eco-friendly statements. In their Pink line, you will notice an enormous amount of peace signs and statements such as Vote Green. It was interesting to be told by the store manager at one location, that they were amused by the hypocrisy of opening the green products boxes and seeing that all of them were shipped in plastic!

### **Global Warming Is Not Killing Us**

As much as many environmentalists and celebrities may want you to believe that global warming is the most dire of situations, and is completely manmade, its just not true. If we all don't stop eating meat once a week, which would be the equivalent of taking millions of cars off the road due to greenhouse gases by the livestock industry, we are not all going to die. It is bothersome to see that climate change which may or may not have a disastrous outcome to our planet, being compared to the lives that are being taken away by radical Islamic terrorists.

#### **Do What You Want**

If you want to drive an electric car, do it, just don't expect everyone else to. If you want to become a vegan, that's great, some of the desserts are actually great. Going green and living organically is not always economically friendly, so be realistic. If you want to have fun trying out eco-friendly homemade beauty products, have fun! But my goodness, stop with all the green already!

## 6

### **What are Solar Water Heaters?**

A solar water heater isn't like your everyday water heater. Instead of it being operated from pure electricity that is sent to your home from a power plant that is using fossil fuels to fuel it, your energy comes straight from the sun. In other words, your energy is 100 percent natural. It doesn't have to travel through electrical wires to make your water hot.

Instead of electricity, solar water heaters have solar thermal collectors and a system that consists of fluid that moves heat from the thermal collectors to the usage point. The system may have to use electricity in order for the fluid system to work, but the amount of electricity that is used is very minimal. It is much less than what would be used if the entire system operated off of electricity itself.

The solar water heater will also have a reservoir that will store the heated water for use. Homes, businesses, and industrial environments can use solar water heaters to heat their water.

Systems can be constructed to be different sizes to accommodate the particular structure that the heated water is for.

So what are the benefits of using solar water heaters?

- You are doing a great service to the environment by using minimal electricity. Minimal electricity means fewer fossil fuels being used. Not using so much in fossil fuels means a safer environment for you, a safer environment for your family, and animals can continue to enjoy their natural habitats.
- There are tax incentives that you can take advantage of. When you install something in your home or business that uses renewable energy, you'll find that you can get a tax credit on your next tax return.
- You also save money because you're not using as much electricity. Electricity is beginning to get very expensive. It seems like power companies are looking to increase their rates more often now than they used to.

Between the tax incentive and the money saved from using so much electricity, your solar water heater is going to more than pay for itself. You're going to feel really good about what you are doing for the environment. You're also going to feel rather great when you see the tax incentives and can take advantage of them. So not only is the world becoming a little more beautiful, but so is your wallet. Actually, your wallet may actually grow from using renewable energy.

[\*\*A good DIY guide for building your own solar water heating system\*\*](#)

## 7

### **The Growth of Renewable Energy Sources**

Renewable energy pertains to reliable, affordable energy generated from natural resources, like water, wind, solar power, and geothermal heat. They are termed renewable because they cannot be depleted and are naturally replenished.

Many countries are now resorting to harnessing and utilizing renewable energy to keep up with the demands for energy. There has been a steady increase in the generation of energy from hydroelectric and geothermal sources, for example. In 2007 alone, more than 100 billion dollars was used in investments in renewable energy projects, according to the Renewables 2007 Global Status Report released by REN21. Eighteen percent of the energy consumption all over the world came from renewable energy sources in 2006, of which biomass and hydropower were highest contributors. There was also a 50 % increase in the electricity generation capacity worldwide from 2004 to 2007, which is now estimated at 240 gigawatts. Why has there been an increase in both the development and the demand for renewable energy? Well, these sources improve the energy security of countries worldwide, with the production of an alternative energy source that is sustainable and less expensive. In addition, renewable energy is an attractive option because it brings minimal pollution, as there are no toxic gas emissions or byproducts produced, as opposed to the conventional means of energy generation. Renewable energy is far more climate-friendly.

Renewable energy sources comprise the traditional biomass, hydroelectricity, solar energy, geothermal energy, wind power, and ocean energy. These different renewable sources possess particular characteristics that affects how and where they are used. For instance, since the power output increases considerably as the wind speed increases, wind farms and turbines are best run in high altitude sites, where the wind speed is fast, strong, and a little bit more constant. Similarly, since geothermal energy comes from tapping heat from the Earth's crust, geothermal power plants are best built in areas where hot underground steam or water can be easily tapped, such as in parts of the United States, Chile, and the Philippines, to name a few. In the recent years, there was an observed quicker growth in the production and use of renewable energy sources compared to the past trends. This is attributed to the considerable increase in prices for oil and natural gases worldwide, prompting governments to come up with strategies to meet the continuous demand, while avoiding the depletion of resources in order to obtain conventional fuel. The use of renewable fuels is still expected to rise over the coming years, with the onset of renewable energy policies, legislations and commercialization. These include the incentives for consumers shifting to use of renewable energy sources, the tax imposition on fossil fuels, the grant funds issued by some governments for research and development, and the availability of loan programs.

## 8

### **Water Power: A Great Energy Source**

In recent years, there has been a jump for consumers and industries alike to find better and cheaper forms of energy, and forms that were better for the environment and its inhabitants. Everyone is looking to end the stranglehold that foreign oil seems to have over this country, and the quicker we can get it done, the better. Perhaps the shaky state of the economy has contributed to the recent push towards the green movement. Not only are we looking at the impact that we have on the earth itself, but we are also looking for better and cheaper ways to provide energy. Everyone is more concerned about where their money is going, and that is adding to the urgency.

There are many different types of renewable energy out there, including wind power, water power, solar power and thermal power. Perhaps one of the best known types out there is the water power. People have been harnessing the energy of water for thousands of years. Farms used water energy to power equipment, and then industries began to use the same technologies on a larger scale. However, when oil and gasoline came about, they ended up being cheaper to use. However, what started out as a cheaper alternative turned out to be much more costly than we ever imagined. The drilling used to get to the oil left permanent damage to the areas, the processes used to turn that oil into usable items such as gasoline also caused a great impact to the environment, and the burning of oil based fuels has added more pollution to the earth than we ever could have imagined.

Think about how many cars were on the road when gasoline power started to take hold. Now think about how many cars are on the road every minute of every day. Millions of cars are burning fuel and oil, spitting out harmful fumes that float up into the atmosphere and stay there. It's no wonder that many of our cities have a permanent haze of smog hanging around. Luckily, water power technology is growing in leaps and bounds, and we are closer than ever to developing water into a usable energy source for consumers. Pretty soon, you will be able to drive cars that run on water instead of gasoline; that throw out water vapor instead of harmful exhaust. Hopefully that day is not too far away, and we can begin to repair some of what we have done to the earth.

### **Why We Must Develop Renewable Energy**

All it takes is one look outside your window to see some of the damage that we have inflicted upon our environment. If you live in a city, you can see cars clogging the streets, emitting dangerous exhaust fumes that threaten our every weakening ozone layer, you can hear the noise of the vehicles and of factories and companies in the distance. There are not many places anymore in the United States that are quiet and unspoiled by some form of pollution. Sadly, those areas are growing smaller each and every year. Luckily, the green movement has come along just in time, and we may have a chance of saving the earth after all.

If you have a car, just think about how much fuel you are burning each and every time you take a trip to the grocery store, think about how much pollutants are coming from your car, and then think about how many millions of cars are on the road each and every day. The amount of pollution coming from that is hard to imagine, yet we have cities in this country that are constantly choked by a heavy blanket of smog. So what if you could run your car on fuel that didn't pollute the environment every place you went, would you want to try it? If you said yes, you are definitely not alone. More and more people each year are looking for ways to get out from under the oil companies while also reducing their carbon footprint. While it may not be very feasible to do right now, various forms of alternative and renewable energy are being adapted to make them more available to average consumers.

For example, hydro power has long been a favorite of environmentalists, and it continues to be developed and tested today. We are very close to seeing cars that actually run on water, and produce exhaust that is nothing but water vapor. Can you imagine stopping at a water station

instead of a gas station to fill your tank up? Or keeping a few gallons of water in the trunk just in case your fuel runs a little low? You certainly can't easily do that when your car runs on gasoline! There would be no more fumes to get sick on, no more dealing with flammable liquids, and no more accidental gas station fires caused by static electricity. However, the best part of all is that water is easily and cheaply replenished!

## 9

### **Using Wind Power as Renewable Energy**

Wind power or wind energy is a clean form of renewable energy where wind generates mechanical power or electricity. Wind is considered a plentiful and widely distributed source of energy where about 1.5 percent of electricity is derived from. This source is rapidly developing and is considered one of the fastest-growing energy sources in the world that can conserve water, lower natural gas prices, provide an alternative to fossil fuels, expand manufacturing, and lower greenhouse gas emissions. In fact, it is believed by the U.S. Department of Energy that by using 70 percent of wind energy can be achieved by connecting wind farms with a super grid. Wind energy is also one of the most cost-effective forms of renewable energy available today, with costs averaging four and six cents per kilowatt-hour.

The energy of wind is converted into electricity through the utilization of wind turbines at a wind farm where electricity is connected to an electrical power transmission network. A wind turbine works by using wind to make electricity through blades that spin a shaft that is connected to a generator and produces electricity. The electricity is sent through the transmission and distribution lines into buildings, homes, businesses, schools, etc. Wind turbines are generally built where winds are stronger and more constant, such as offshore and high altitude sites on rural locations such as farms or ranches. Wind turbines are also favorable to the environment since they don't not emit or produce atmospheric emissions correlated with acid rain or greenhouse gasses.

The horizontal axis and the vertical axis are two types of wind turbine machines.

The horizontal axis model is the most widely used and is characterized by its three propeller-like blades that is the height of a 20 story building. The vertical axis wind machine is characterized by its large blades that stands 100 feet tall and 50 feet wide.

Though a favorable form of energy, electricity generated from wind power can be inconsistent and uneven depending on the time of day and year that wind is generated. Generating wind can be difficult to figure, so it is estimated that only half of the energy available from wind is utilized. This can present problems especially in areas that rely on energy from wind as their source of electricity. Researchers and scientists are currently working on ways to make wind power more consistent by incorporating wind power into a grid system. This requires that various existing technologies and methods be extended such as the use of stronger interregional transmissions, the use of hydro storage, and energy management

## 10

### **Renewable Energy Sources: Wind Power**

No matter who you are, how old you are, or where you live, you have experienced the power of wind. Whether it was a gently breeze that barely moved your hair, or you witnessed a tornado and the damage that it did, you have seen and felt what wind can do. It is only natural that at some point, we would figure out how to harness this power in a way that can benefit everyone. That's the great thing about renewable sources of energy; they are free, and there are no signs of them running out anytime soon. This is good because the sources we depend on right now, including the use of fossil fuels, is depleting faster than we had expected, and if we don't do something soon, we are going to be in big trouble.

If you are wondering how wind can be harnessed to help you, just think about all the times that you may have seen a windmill or two out on a farm somewhere. You may not have realized it, but that windmill is doing a lot more for the farm than sitting there and looking pretty. They harness the energy from the wind and transform it into usable energy. This can be used to power farm equipment, among other things. Simply put, the energy fuels the farm so they can successfully raise their crops and animals that will someday make it to your dinner table.

Wind energy is definitely not new, we have known for thousands of years what the wind could do, we just never harnessed it on such a large scale before. Hundreds of years ago, the only way a ship could make it across the ocean was with the help of wind in their sails. Even a few decades ago, consumers had no other way to dry their clothes except to hang them on a clothesline and wait for the wind to do the work for them. Even today, there are still people who prefer drying their clothes on a line instead of in a machine.

If you want take advantage of this great renewable source of energy, there are lots of ways that you can do it. You could even build a small wind turbine in your back yard! You can't expect to become energy independent with one small turbine, but you can supplement your power usage, and cut down on your power bill each month.

### **[Do it yourself Wind Power](#)**

## **What is Renewable Energy?**

Renewable energy is type of energy, or a physical quantity that describes the amount of work that can be produced by a force. Renewable energy is generated from natural resources such as sunlight, wind, rain, tides, and geothermal heat, or underground heat. Why is necessary to know this? Multiple reasons, but the most important it is the future.

It starts with the present. Everything you hear nowadays is go "green". I have to be completely honest never before have I disliked a color so much! Like Kermit the Frog said, "It's not easy being green"...well, that might just be the case. Within the last few years, particularly the last year with the U.S. presidential election, we have been bombarded with ideas of becoming a color. Turn on your television set or flip through a magazine, and you will be sure to hear about the greenest cleaning product, the greenest cars, and the greenest gas.

It has had a negative affect on many people, and if there were an exact opposite of green, one might just go way that way instead. Even people who have not jumped on the bandwagon of green, believe oceans shouldn't be polluted, trash shouldn't be dumped in unnecessary areas, but to many people the only green that really matters is in their pocket: money. Renewable energy is a necessary path to take to save a little or a lot of that green cash.

In 2006, about 18 percent of the global energy is from renewable energy. In a world of terrorism, wars, recessions, unemployment, renewable energy can change the way many of us live for the better. Through renewable energy development, gas prices may be lowered and the United States will be able to become less energy dependent upon terrorist nations, which hold many of the world's oil reserves. In creating new renewable energy plants and developing the renewable energy industry, jobs will be created. By making your home energy efficient, particularly through solar power, the largest of the renewable energy categories, you can save on your monthly utility bills.

It is important to understand the truths and debunk the myths of global warming, going green, and renewable energy so that you may adapt your lifestyle and accept these changes willingly. So, even if you have to consider it going pink, or blue, or even mint, renewable energy can affect each of us by putting more of the great green, back into our wallets.

### **Want to Make Your Own Energy? Try Solar Power!**

It seems like lately all anyone is talking about is the green movement. Everyone is jumping on the bandwagon and becoming more environmentally conscious. While you may be annoyed at the sudden overwhelming nature of this fad, keep in mind that it's a fad that we can all benefit from. It may have taken something as large as our failing economy for people to start taking a look around at the energy that we use and the energy that we waste every single day. Whatever the reason for our newfound awareness, it could not have come at a better time.

You may be wondering what kind of renewable resources there are out there that you can take advantage of. There are actually several different kinds, including wind energy, water energy, and thermal energy, but perhaps the most well-known and popular of all the renewable resources is solar energy. You may have heard of solar energy in passing and just brushed it off as a novelty. Unfortunately, that is what many people did for way too long. If you ever purchased a solar powered calculator and didn't feel impressed, you were not alone. However, those first attempts at solar powered consumer items pale in comparison to the products we have available today.

For instance, there are even cars being made today that have solar panels to supplement the use of gasoline. While the cars may not be totally energy independent yet, it can greatly lower the cost of energy that you use each year. It also reduces the amount of harmful exhaust fumes that are being sent out into the ozone layer each and every time you drive your car. Soon, solar

powered cars with battery backups will be readily available to the public and at affordable prices as well.

If you want to take advantage of solar power right now, there are lots of ways that you can. If you don't have the funds to attach solar energy collecting panels on your rooftop just yet, do not be discouraged. You can still save money on your power bill by letting your clothes dry in the sun, you can dry food in the sun for storage, and you can even build your own small solar panels out of used items. All of the information to do this can easily be found online. A simple search for solar energy can provide you with an absolute wealth of information on the subject.

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### **Renewable Energy Sources**

We are seeing many issues with the environment and they don't seem to be getting much better. That is why it is a good idea to look into renewable energy. Renewable energy is 100 percent natural and comes in a never ending supply. It just keeps coming and coming.

As it stands, the renewable energy technologies of today include the use of the following:

- Wind power, which is where electricity is produced through wind power. If you've seen fields of wind mills, then you've witnessed renewable energy at its finest. As they turn, they produce tons of energy.
- Hydropower is also used to generate electricity. Rivers and other bodies of water are used to create this. The Hoover Dam, for instance, is the perfect example of hydro power. However, this makes hydropower available only in certain areas.
- Solar energy is something that is growing in popularity for the fact that solar panels can be installed on the top of a roof and the sun can power a home through the use of these panels. The energy is stored during the day so that it can be used in the evenings or on days when the sun is not very strong.
- Biofuels are also growing in popularity and it is hoped that all automobiles will one day run off of biofuels since they are considerably more environmentally friendly. Hydrogen is an example of a biofuel and hydrogen technology is something that has been researched for years. Some hydrogen powered cars are in existence, but they are not quite on the roads yet. That is something that is being worked on. There are also biofuels created from such things as corn oil and even the grease that comes from fast food fryers.
- Geothermal power is something else that is rather amazing because it draws its energy from deep within the earth. It draws energy from the magma that flows below. Hot gasses and hot water can also be drawn to the surface.

These are all the renewable energy sources that we hope to see more of in the future. For individuals who decide to employ renewable energy sources, there are tax incentives to take advantage of. Whether installing solar panels or a solar powered water heater, a lot of money can be saved through these tax incentives and throughout time. Most importantly, the environment is getting a jump start toward a better future.

### **[DIY Geothermal Energy Guide](#)**

## 13

### **What Is Biodiesel?**

Can you really use soybeans, mustard and corn to fuel your car? Yes, you can, through biodiesel. Biodiesel is a type of fuel that is created through the renewable sources, particularly local crops. You can use vegetable oil and other crops to power your car. If you have a source, for example a restaurant that discards vegetable oil at the end of the night, you can make biodiesel and you can make a lot of it.

#### **Who**

Rudolf Diesel, the man who invented the diesel engine in 1892 intended for his engine to run on various fuel sources, derived from many different crops. Many celebrities believe in the power of Biodiesel and use it in their everyday lives. Jay Leno had GM create what is known as his EcoJet, is a jet engine, biodiesel-powered car. Willie Nelson's tour bus is powered through biodiesel. Splash actress Darryl Hannah and sustainable living advocate powers her Chevrolet El Camino with biodiesel.

#### **What**

Biodiesel is derived from plant or animal fat. Therefore, some cars omit a "French fry" smell if powered solely through vegetable oil. Biodiesel is created through a process known as transesterification. Methanol or Ethanol is used as the alcohol component when combined with vegetable or animal oil, or the oil component. Lye or potassium hydrochloride is the catalyst. After processing, this results in biodiesel.

#### **Why**

- Biodiesel is good for your diesel car and the environment. Why?
- Fewer Emissions
- No Contribution to Global Warming
- Lubricates Engines
- Equal Amount of MPG for Petrodiesel
- Clean Burning
- Safe
- Saves Money

#### **Where**

You can purchase biodiesel from producers and marketers, petroleum distributors and certain "gas" pumps across the nation.

#### **How**

You can also create Biodiesel yourself. There are step-by-step guides for creating your own biodiesel. The best thing to do is research online and pick up books that provide a detailed account of exactly how to make the product. Biodiesel is not straight vegetable oil. It is absolutely necessary to follow the detailed procedures to ensure that you are safe and that your car and its engine is not harmed in any way. Through the creation of biodiesel, you do not need to add any type of conversion or modification to your engine or fuel system. Therefore following the directions is absolutely crucial. Do your research and make a checklist to see if biodiesel is right for you and your car.

### **[Make your own Biodiesel](#)**

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### **How to Get Renewable Energy from Your Power Company**

Did you know that you can get renewable energy very easily? You don't have to build a new home or remodel your existing home to do it. You don't even have to install solar panels or solar powered water heaters. You don't need any of that, although those things may be investments you may want to consider. Not only do renewable resources do a lot for the environment, but they also do a lot for your wallet in the form of tax incentives and savings over time.

So how can you get renewable energy so easily?

Well, you can get it through your power company. All you have to do is pick up the phone and call them or do a little bit of Internet research.

Believe it or not, there are major power companies around the country who already have renewable resources. They just aren't pumping them through your power lines. They are still pushing through electricity that is created from fossil fuels. So why aren't they using the renewable energy that they have? Well, they are working on making their systems bigger. It is also a cost thing. Renewable energy costs them more, so it will also cost you a little more. The difference isn't much, though.

For instance, your power company may generate renewable energy with wind power or hydro power. They can generate a never ending supply of electricity. All you have to do is let them know that you want it. If you tell them that you want it and that you understand that it may cost you a little bit more, they will start sending renewable energy to you. If more and more people do this, the power companies can expand their operations and provide renewable energy to everyone. It is important to understand that hydropower and wind power electricity keeps going and going. There is no worry that one day there will be no fossil fuels to power up our homes. So check to see what sort of renewable energy your power company is offering so that you can get in on it. And keep in mind that there are tax incentives for this that you can take advantage of. You also need to take into consideration that the cost of renewable electricity will decrease over time. In the next 5 years, the cost is expected to decline to rates that are similar or lower than what you are paying now.

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### Renewable Energy and Your Taxes

Now there is a bigger incentive to renewable energy than just reducing energy consumption.

You can now save some money on your taxes by investing in renewable energy sources.

The Federal government has started offering these tax incentives and the new administration is expanding upon the already existing incentives to encourage those building new homes and existing homeowners to use renewable resources rather than the usual fossil fuels that most of us rely on. Fossil fuel use is resulting in air pollution and ground pollution, not to mention we are stripping the earth of its resources. If the world were stripped of its fossil fuels, the results could be catastrophic, but we continue to mine these fuels. To stop it, we must do what we can to renew our energy and a few simple items can do that.

Here are the items that you can invest in and receive a tax break:

- [Solar water heaters](#)
- Photovoltaics
- Wind generators
- Fuel cells
- Geothermal heat pumps
- Anything else that implements solar electricity

The standard allowance on your tax return for renewable energy is 30 percent of the cost. There is a cap on some incentives if the renewable energy devices or the renewable energy source was acquired before January 1<sup>st</sup>, 2009. There is no maximum incentive if the renewable energy component or source was acquired after January 1<sup>st</sup>. You may find, however, that the deduction caps vary. They are as follows:

- Solar water heaters, solar electric systems, and geothermal heat pumps are capped at two thousand dollars.
- Wind turbines with a 2008 installation date are capped at four thousand dollars.
- Fuel cells have a cap of five hundred dollars.

It is also important to keep in mind that any credit that is gained from the incentives can be carried over into the next tax year. This means you aren't just benefiting in one tax season. You can benefit for multiple tax seasons, further offsetting the cost.

So if saving the environment through reduced energy use is not enough of an incentive, you now have monetary incentives to get you on the road to saving the world. These incentives help you offset the costs of making the world a better place. If more and more people realize these incentives, then more people may start installing devices and investing in renewable energy. If everyone would invest in renewable energy in some way, the amount of fossil fuels being used would reduce dramatically in a short span of time.

## **Why We Need Renewable Energy**

Take a look around you, it seems like everyone is jumping on the Green bandwagon these days. Fortunately it is not a fad. People are taking a look around themselves and around their environments and they are starting to see the damage that we have done to the earth. Even in the last 50 years, the amount of damage done has been significant. While we cannot turn back the clock, we can clean up the mess we have made up until this point, and we can begin finding better ways to live that will lessen our impact on the environment.

Consumers have begun to do their part; they are turning in their recyclables, they are conserving energy and heading cleanup efforts across the country and the world. Luckily, more and more companies are following suit, and we are searching for ways to bring renewable energy to the forefront. While it remains that oil continues to be the cheaper route for us to go energy-wise, scientists and engineers are working day and night to improve the way we handle renewable sources, so that one day they can replace oil, and perhaps release some of the stranglehold that foreign oil seems to have over us.

One of the most popular forms of renewable energy is solar power. The sun is constantly beaming powerful rays to us each and every day, and we have invented ways to harness that power. While solar panels and solar powered items were not commonplace several years ago, they can be found in abundance these days. There are many homes out there with solar panels on the roofs, and some businesses as well. Some of these buildings have even become energy independent, and are actually putting energy back into the grid! Imagine if you saw the energy meter on your house running backwards instead of forwards! This is only one of the many sources of renewable energy that we should be taking advantage of. It not only reduces our need for foreign oil, but it curbs the damage and pollution done by other forms of energy production and reduces our overall carbon footprint. If everyone continues to pitch in and we can keep moving forward with renewable energy, then we will not be too far from having complete energy independence, and we also will not be too far away from seeing a healthier planet; one that we can enjoy for generations to come.

## **A Word about Solar Power**

Have you ever wondered what it would be like to be totally independent of the big energy companies? Have you ever wanted to get rid of that ridiculously high power bill that you pay each and every month? If you could be more self sufficient and take advantage of energy sources that are free and plentiful? If you answered yes to that question, you are certainly not alone. More and more people each day are searching for ways to incorporate alternative and renewable energy sources into their lifestyles; both to reduce their carbon footprint and also to lessen the stranglehold that we all feel from the big energy companies.

Maybe it's because of the green movement that has been taking hold in across the world in the last few years, or perhaps it's because our economy seems to be getting shakier by the minute, but thousands of people each day are beginning to take a good hard look at the kind of energy they are using, and what cost it has to their bank accounts and to the earth. Luckily, solar energy is becoming increasingly popular and easier to afford. While it still takes quite a bit of money to install large solar panels on your rooftop, it is still able to be done, and the benefits will be long lasting. If you are not yet able to afford to take full advantage of solar energy, you can still benefit from the energy that the sun provides us each and every day. With a little experimentation, you can even make your own solar panels that could be used to dry food or clothing. There are even solar ovens you can make that you can bake cookies in! This is especially fun if you have small children to help out.

Basically, the sun comes up every day, ready to give off waves of energy that we shouldn't let go to waste. The more that technology grows, the easier it will be to afford and successfully use solar energy. The hope is that one day it can help to replace our current sources of energy, such as foreign oil and fossil fuels. Maybe then we can really begin to repair some of the damage that we have unknowingly done to our precious earth. If we cannot achieve this, there is no telling how much more damage could be done, or how much more this earth can take.

## **Become Energy Independent With Renewable Resources!**

Let's face it; everyone seems to be in a financial bind these days, and as a result, everyone seems to be looking for cheaper ways to power their daily lives. There are also consumers out there who want nothing more than to be out from under the big power companies, and to not have to pay an outrageous power bill each and every month. So how are average consumers supposed to achieve this? It's pretty simple actually; this can all be done by taking advantage of our earth's renewable resources.

If you really think about it, the earth gives us pretty much everything we need to power our daily lives, we just have to know how to harness what the earth gives us and put it to good use. Doing this may take you a little more time and cost you a little bit of convenience, but it will be well worth it in the long run. Not only will you be lowering your own bills, but you may help to lower everyone else's by getting them into renewable resources as well. Also, the earth will certainly benefit from the use of renewable resources, and this can help us repair some of the damaged that oil drilling and refining has done to the land.

All you have to do is step outside to get an idea of just how much power and energy there is to harness. That stiff breeze blowing through your trees can be harnessed by a small wind turbine and converted into usable energy. The sun that shines down on you each and every day can be collected through solar panels, or used to perform smaller tasks, such as drying your clothes on a line or dehydrating fruits and vegetables that you can put away for the winter. There are so many different things that you can do yourself with renewable energies that it would be impossible to list them all here. A great way to find out more about these renewable sources

and how to put them to good use is simply look for a good [DIY renewable energy guide](#). You can find detailed information about each source and step by step instructions on how to construct them.

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### **Ethanol Renewable Energy Myths Debunked**

I love corn, especially the sweet white kind. I would love it even more if it reduced how much I pay for gas each time I fill up my car. Ethanol is a form of renewable gas, powered through corn. Ethanol reduces our reliance on foreign oil, therefore giving us independence to not have to do business with terrorist nations. It is also extremely effective both economically and environmentally.

#### **Ethanol and Emissions**

The first myth is that many compare ethanol to gasoline and state that it produces the same amount if not more greenhouse gas (GHG) emissions. In turn, it is actually completely biodegradable. On a life-cycle basis it actually produces 20 percent less GHG emissions than regular gasoline. Ethanol is a fuel that is harm free to the environment, and is a highperformance replacement to additives including MTBE.

#### **Ethanol Process**

The U.S. is the world's largest producer of Ethanol. It can be created using corn, wheat, barley and sugarcane. Brazil primarily uses sugarcane, and the cars and buses in the country are fueled by Ethanol. The corn is ground, mixed with water, heated; an enzyme is added to create sugars and yeast ferments it. The "beer" result is 10 percent alcohol. Distilling separates alcohol from the rest, before the water is removed. A small amount of gas is added to the remaining alcohol result, so that one cannot drink it. It can be used alone or to supplement gas to power automobiles. MTBE, a harmful additive, is now being replaced with Ethanol.

#### **Ethanol and Energy**

The creation and implementation of Ethanol is to reduce the energy and emissions that pollute the earth. Some skeptics fear that the amount of energy put into the creation of Ethanol is greater than the renewable energy we gain from its use. It is true that people worry that rainforests will be cut down to make room for Ethanol productions. Over the last 20 years though, through the advance in farming technologies, the amount of energy needed to create Ethanol has significantly decreased. Forms of other renewable energy including British Thermal Units BTUs, and the solar energy used to grown corn have cut the energy production into nearly half. Therefore the amount of energy that goes into creating Ethanol seems to be outweighed based upon the end product and eco-friendly outcomes that the renewable energy creates.

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### **Renewable Energy: The power of solar energy**

The sun is a powerful source of energy that has produced energy for billions of years. This form of renewable energy uses photons or rays of solar energy and heat from the sun to absorb energy, which in turn generates electricity. Along with solar thermal technologies, it is believed that solar energy is an adequate source to supply our energy needs that can be used for heating purposes and electricity. This can offset the energy used and often wasted, particularly with heating, cooling, ventilation, and additional power sources.

Thermal energy from the sun is defined as low, medium, or high energy that is collected through thermal energy technology. The two basic types of solar heating systems are liquid or air. These systems are heated in a device where a fluid is heated by the sun called a collector. These systems that use liquid heat through a hydronic collector. An air-based system heats energy from in the sun in an air collector.

Solar energy can also be converted into electricity through photovoltaic (PV devices) or solar cells. This converts light from the sun into electricity. It uses concentrating solar power and various technologies to utilizing solar energy. This allows a direct conversion of electricity, without a large and bulky mechanical generator. The devices to convert photovoltaic energy generally have a quick installation and can be installed in a variety of sizes. They are also correlated with minimal impact on the environment, so the water system and no by-products are emitted.

Solar technology is characterized as either passive solar or active depending on the way sunlight is captured, converted, and distributed. Active solar technology uses electrical or mechanical equipment where it converts sunlight through photovoltaic panels or solar thermal collectors. Passive solar technology uses materials such as thermal mass or light from the sun. These properties naturally circulate the air and heat from the sun and increase its energy flow. Passive solar technology is more prevalent while active solar technologies are believed to be more environmentally friendly and alternate resource as they reduce the demand and need for non-renewable energy sources.

Opponents of solar energy say that utilizing the sun has its downfalls since the amount of sun that reaches the earth is not consistent and can affect the amount of energy that an area receives and is dependent upon. One solution is to create the necessary technologies needed for consistent and steady solar energy.

**Renewable Energy: Why We Need It**

Many people have never stopped to think about just how much energy each person uses every single day. Everything from the lights in our houses to the gasoline in our cars is a form of energy. Better yet, hardly anyone stops to think about the impact that the use of that energy has on the rest of the world. Since the green movement has taken hold however, more and more consumers are taking a good hard look at just what they use and how it affects the world around them. This has caused the subject of renewable energy resources to become a hot topic everywhere from classrooms to kitchen tables, all the way up to the offices of the world leaders. The development of renewable resources is nothing new; we have been developing these methods for decades. However, this increased attention has done nothing but good for the development, and we continue to get closer and closer each day to becoming energy independent. There are many different forms of renewable energy, including air power, water power, thermal power and solar power to name a few. Perhaps the most popular of these tends to be solar power. A few decades ago, children marveled at the thought of playing with solar power remote control cars, and it has since become a reality, and very easy to come by. There are businesses and households across the nation with solar power panels on their rooftops, and some of these homes and businesses have become almost independent, if not totally independent of the energy companies. The sun is a valuable commodity that we wasted for far too long. Everyone recognizes the sun for the warmth and light that it gives us, but it was thousands of years before we began to harness that energy successfully enough to deem it a valuable energy source.

If you are interested in solar power and other renewable energy sources, and perhaps employing some of those technologies in and around your household, the internet has become the best resource to find a wealth of information. Not only can you find out more about the sources themselves, but also how to harness them, as well as likeminded individuals who can help you in your endeavors. It may take you some time and possibly a lot of money to begin your adventure, but it will be worth it. Not only will you be freeing yourself from the big energy companies, but you will be reducing your carbon footprint as well!

### Need Cheap Renewable Energy at Home?

For those who hope to do the environment a little favor, they may find that turning the way of renewable energy does not fall within their budget. But don't rule out renewable energy just because your budget may seem like it doesn't want to accommodate it. There are ways in which you can create renewable energy right in your home. When you do, you are doing a great favor to the environment and you are doing a favor to your bank account, which means you're helping yourself.

First of all, all you need to do is take a trip down to your local hardware store. You can actually take such things as solar panels and place them on top of your home. Some individuals even go as far as building their own windmills and rigging them to where they can pump electricity into their home. Many individuals are using their imaginations and it is working.

You can also purchase the materials to create a solar powered water heater. You can create quite the project for yourself. If you have a garage or another type of building that you do work out of in your spare time, you can also place solar panels on those areas so that you can use solar power rather than electricity. This is a cheaper alternative than making your home solar powered if your budget doesn't allow for it.

And then you can call your power company and ask them about renewable energy. See if they have it. If they do, tell them you want it. Instead of your traditional fossil fueled electricity, you will acquire electricity that is hydropowered or wind powered. You may even be able to receive geothermal energy. These are ways in which an endless supply of electricity can be provided without damaging the environment.

And here are some benefits for you: Not only are you saving the environment, but money can be saved in the long run. You can also receive tax incentives for using renewable energy in and around your home. If using renewable energy through your power company, you may notice that there isn't much of a difference in your power bill now, but in a few years to 5 years from now, you may find that the cost of your electricity will go down. But don't forget the tax incentives you'll get for making the world a better place by making it a cleaner place to live.

### **Renewable Energy: Solar Power**

Renewable energy is energy that is derived from natural resources which can be replenished naturally. Renewable energy sources are sunlight, rain, wind, geothermal heat, and tides to name a few. Non-renewable resources are not naturally replenish-able, and although there may be currently be an abundance of them, once those supplies are depleted, they are gone forever. Examples of non-renewable energy sources are fossil fuels and nuclear fuels.

There has been an increasing focus on the development and reliance on renewable energy resources for many reasons. There is a fear that we could one day run out of natural resources, such as fossil fuels, thus we will be required to find an alternative form of energy. In addition, renewable energy sources are more environmentally friendly, causing no emissions, which lowers the impact on global warming.

While there are many different types of renewable energy sources, solar energy is one of the most studied and developed. Solar energy is also considered to be one of the most important types of renewable energy. Not only is the sun a large contributor to our everyday energy needs, such as warming the Earth's surface temperature to maintain life, but according to scientific findings, the sun should be able to provide solar power for at least 5 billion years.

If a building or house is properly designed with the correct equipment, it can be both warmed and lit by the sun, almost eliminating the need to use heating systems and artificial lights. Solar power can also be used to heat water for bathing and for washing.

No matter where you live in the world, solar energy can be used to generate heat and light.

While the cloudy atmosphere of Great Britain may not be able to generate as much solar power as Mexico, the sun's energy is still detectable and usable. In places such as California, Florida, and Mexico, solar energy can be used to run machinery, maintain large buildings, and supply energy to entire blocks of houses.

Capturing solar energy is a sophisticated process, which can increase the price for purchase. In addition, installation on roofs of buildings can be quite complicated and a time consuming process. However, the money saved on utility bills will far outweigh the costs of purchase and installation.

As solar power and renewable energy continues to grow and develop, the costs will hopefully reduce so that more companies and individuals are able to take advantage of the savings while helping the environment.

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### **A Word about Wind Energy**

Have you ever dreamt of being free from the big power companies? Are you looking for ways to reduce your carbon footprint, and the impact that you have on the world around you? Are you interested in alternative and renewable sources of energy to fuel your daily life? If so, then you might want to look further into wind energy. Whether you realize it or not, wind is a valuable resource that can help you in so many ways. Just think about how many ships would never have made it to America without some powerful wind in their sails. Unfortunately, wind can also be dangerous. Thousands of homes are damaged or destroyed by tornadoes each year. It goes to show that the energy must be harnessed or it could do a great deal of damage. Luckily, if done right, wind energy is cheap and effective.

For instance, people spend a few extra hundred dollars a year just from the energy used by their washer and dryer. Did you know that by simply hanging your wet clothes out to dry on a clothes line, you can cut that in half? Sure, it takes a little more time and a little more work, but you will be saving the energy that you have to pay for, and using the energy that is free and readily available. There are even people out there who prefer line drying over machine drying any day. Another great way that you can take advantage of wind power is to build a small wind turbine somewhere on your property. They do not take up too much space, and can supplement your energy usage each month and bring that power bill down. We do not yet have the technology to be completely energy independent just by wind energy, but we are getting there. Combining energy sources such as wind energy, thermal energy, solar energy and water energy could help you achieve independence faster.

If you want to know more about wind energy and other renewable energies, then there has never been a better time to learn. The internet can provide you with a wealth of information, including how to build your own wind harnessing devices, and how to become more energy dependent. It can also put you in touch with other like-minded individuals who can help you along the way on your path to environmental consciousness and energy independence.

### **[DIY Wind Energy Guide](#)**

## **Renewable Energy Product Links**

[Earth4Energy](#)

[GreenDIYEnergy](#)

[Alternative Energy Guides – DIY Renewable Energy Guide Reviews](#)

[Magniwork](#)

[Efficient Planet](#)