

# RENEWABLE ENERGY



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# Foreword

In today's unstable economic condition, many people have been looking for ways to cut costs and save money while protecting the environment. The poorest people in the world are those who are more affected by the devastating effects of climate change, caused by increased carbon dioxide emissions.

Energy efficiency is one of the most cost effective and easiest methods to combat climate change and clean the air that we breathe. The Department of Energy is even working together with businesses, universities and national laboratories to develop innovative, energy-efficient technologies.

The use of Renewable Energy has been found to be the most efficient ways to help people save power and at the same time reduce the impact on the environment. This is also an important part of the energy revolution that we need in order to curb the shattering climate change. By taking full advantage of our natural resources, saving power usage and using renewable energy, together, we can shape a better world for the future.

By saving power, we are helping the environment. This will not only improve our lives, but will also help make our lives simpler, more enjoyable and happier.

You can always help save the world and you can do this by saving energy. Lessen your carbon emission, enhance the health of the Earth and save the world.

## ***Renewable Energy***

# **Chapter 1:**

## *About Renewable Energy*

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### **Synopsis**

Renewable energy is the primary key to the global needs of many people in the future. When we run out of supply of uranium or fossil fuels or the overall costs of such fuels rises for political and economic reasons, the costs of renewable energy may be much more even competitive.

Renewable energy is the energy created from regenerative resources or renewable, which means that they can't be depleted. Such resources are safe for the environment and generate energy without the emissions and harmful pollutants associated with fossil fuels. The following are just some of the amazing benefits of renewable energy as our energy sources:

## **The Basics**

Renewable energy is actually growing rapidly, reducing pollution, creating many jobs and helping many consumers to save money. The use of renewable energy sources is also improving our health, cleaning up our water and air and protecting the world for future generations.

Globally, many people have recognized that the use of renewable energy sources is essential as it provides us with less dependence on foreign fossil fuels, cleaner air and a diverse energy portfolio.

It is a great energy source for our children and their future children. Renewable energy will never run out, while some other energy sources in the world will be depleted someday.

Majority of renewable energy investments are actually spent on materials as well as workmanship in order to establish and maintain the facilities, instead of being spent on expensive energy imports. The investments in renewable energy are often spend within the state and usually in the same town, which only means that your energy investments stay home to be able to create jobs.

It is also expected that sixty percent of the entire energy in the future will come from those renewable resources. Renewable energy is a sustainable energy obtained from the natural resources. It is also a great power that comes from the essential renewable resources like



wind, organic matter, hydroelectric dams and sun. Such resources are consistently replenished by nature. They are cleaner sources of energy.

There are many great power systems that will offer us comprehensive protection from those power surges and will serve as a home backup system. Various power supplies like the wind power are a very valuable source that could meet the needs of many consumers.

The benefits of renewable energy are virtually endless. It does not only provide us with the opportunity to save a huge amount of money, but also to create great opportunities that will enable us to survive in today's very unstable economic conditions.

# **Chapter 2:**

## *About Cutting Down On Power Usage*

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### **Synopsis**

Conserving energy through various ways like insulating your home or purchasing high efficiency appliances is often the most economical, smartest as well as the most potential environment that we can take. Greener and cleaner energy supplies may offer us the cleanest energy supplies that we need, but minimizing our power usage is still the primary step that we need to take before we select the greenest and cleanest supplies.

When you save energy, you are not only saving money, but also reducing the demands for fossil fuels like natural gas, oil and coal. Less burning of fossil fuels means lesser emissions of CO<sub>2</sub> or carbon dioxide, which is the main contributor to global warming.

There are a lot of things that you can do to cut down on power usage and save money. Here are some of the most valuable energy-efficient alternatives that could really benefit you.

## **Best Energy Saving Tips at Home**

There are many reasons why you should make all necessary efforts to cut down on your power usage, especially at home. This will not only help reduce the level of carbon dioxide emission, but can also help in cutting down the overall costs of your utility bills.

It is always possible for you to save energy while enhancing the convenience level at your home. You can also help protect the environment and reduce your ecological footprint by making your home even more energy-efficient.

Having a more energy-efficient home is actually the primary step that you need to take to go green. This will allow you to save money, enabling you to invest in some other green technologies available in the market, so you can make your home more sustainable, healthy and comfortable.

Evaluate your power usage at home. This can be one of the most essential things that you can do. Shut down or turn off any unused home or office equipment that consumes energy. This is also essential in warming our room or office.

Insulating your ceilings and walls is a great way to cut down power usage. This can actually save twenty to thirty percent of heating bills and can reduce carbon dioxide emissions more effectively. If you are living in a colder area, consider super insulating.

If you want to invest in new appliances, choose the most energy-efficient models. Find the Energy Star label that will give you an assurance that a certain product prevents pollution and saves energy.

Be very careful not to overcool or overheat rooms. During cold winter seasons, just set your thermostat at only sixty-eight degrees in daytime and fifty-five degrees at night. During summer, keep it at just seventy-eight. When you lower your thermostat by just two degrees during winter, you can save six percent of CO<sub>2</sub> emissions related to heating. That is actually a total reduction of 420 pounds of carbon dioxide each year for typical homes.

There are some other valuable ways that could help you save a huge amount of money and cut down power usage. Through this, you are also playing a huge part in saving the world.

# **Chapter 3:**

## ***See If Your Current Power Provider Has Alternatives To Go Green***

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### **Synopsis**

In today's world where we see the grave and devastating effects of climate change and oil prices continuing to increase, renewable energy is becoming a clearer choice for future consumers as well as corporate usage.

The depletion of our natural resources, the great cost in the environment and health, not to mention the national costs of both nuclear energy and fossil fuel will soon force the governments throughout the world to consider the renewable sources of energy.

Efforts should start at every home. If you would like to go step further and take full advantage of these power resources, determine whether your power provider offer alternatives to support this endeavor and to go green.

## **Determine if your Current Power Provider Supports Renewable Resources**

Nowadays, a greater number of public utilities are actually offering green power options as a way to show their support to the renewable resources. If you want ensure to obtain a more energy-efficient home, contact your power provider to be able to determine if they are offering energy audits.

Set your goals and make necessary changes in the world. Seek professional help from your utility provider who is dedicated to making the world a safer and more convenient place to live in.

For just a small fee, they will arrive at your home and check your insulations, doors, windows and appliances. They will also leave you with a customized action plan that you can employ to save energy. It also includes estimates about the amount of money you will save.

They will also offer you the best green options that will boost the energy-efficiency of your home. Through this, it is now possible for you to increase the convenience level inside your home.

You and your family deserve a convenient place to live in. If you want to give your children a fresh and clean air to breathe, be sure that your power provider has an alternative to go green by providing innovative approaches to help you save money while protecting the environment at the same time.

# Chapter 4:

## *Solar Power*

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### **Synopsis**

Solar power plays a vital role in protecting the environment as it helps slow or stop global warming, which threatens the human survival. The good thing is that many decades of research and development have been made which led to effective solar panel systems that produce electricity without generating global warming pollution.

Solar power is clearly one of the most essential solutions to the crisis of global warming. This can also meet the growing energy demands of people throughout the world. Solar energy is a highly valuable source of electricity that can help diversify the energy portfolio of our nation.

There are a lot of noteworthy solar power advantages. Some of them include the following:

## **Top Advantages of Solar Power**

Solar power offers energy reliability. Solar energy is actually not sustainable. It is renewable which means that we will not run out of it. Even though we cannot utilize the power of the sun during stormy or cloudy days or during nighttime, we can be sure that the sun will show up the next day as a consistent and constant power source.

Solar cells do not make any noise and do not create any pollution that is dangerous to the environment. This is one of the most essential advantages of solar energy compared to oil. Burning of oil is releasing green house gases, emitting carbon dioxide and carcinogens that pollute the air.

Solar cells require little maintenance as there is no any moving part that needs to be repaired. They are also durable and can last for a long time.

Solar lighting and solar panels may seem quite costly at first when you purchase them, but they will enable you to save a great deal of money in the long run. After all, it doesn't cost anything when you harness the sun's power. Since you are using energy from the sun to generate electricity, you will have an unlimited power supply.

One of the best solar power advantages is that it reduces that dependency of consumers on fossil fuels. As people reduce the overall



usage of fossil fuels, the carbon in the atmosphere will also be reduced, lessening the overall effects on global warming.

Solar powered products and panels such as power sources, cords and wires are very easy to install. The technology of solar power is constantly improving as many people begin to acknowledge the benefits that are provided by this excellent technology.

Nowadays, people are experiencing the devastating effects of climate change because of the harmful methane and carbon dioxide emissions of fuel-heating to the atmosphere. The energy is entirely clean and does not inflict any damage to our environment.

# **Chapter 5:**

## *Passive Solar Power*

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### **Synopsis**

The sun is actually a renewable resource and its power can be captured and utilized as a great source of energy, meeting the growing demands of people for energy. Great innovations and advancing techniques have been used to maximize this power and enjoy this clean and renewable energy source.

There are two different kinds of power with regards to solar power - the passive and the active. Passive solar energy is converting sunlight directly into valuable energy. It is best to delve deeper into its concept to determine its great value to people.

## **Take a Closer Look at Passive Solar Energy Techniques**

The use of sun's energy without the help of photovoltaic is known as passive solar energy. The passive solar energy methods offer a great way for consumers and homeowners to use inexhaustible and clean energy from the sun. The methods of collecting energy from the sun passively include solar ovens well as indoor heating techniques.

Solar energy can actually be used in many different ways – to provide lighting, heat, electricity and mechanical power. Passive solar cooling and heating can help you save substantial amounts of money.

Solar ovens are somehow similar to conventional ovens. They are great when the food needs to be heated to extreme levels of temperature. These use solar energy in extreme hot locales. The solar ovens usually require long periods of sun exposure. This is an effective and highly affordable technique that uses passive solar power.

The passive indoor heating is also a great way for you to utilize the passive solar energy effectively, while cutting down your energy bills during winter. This actually requires careful planning, especially in home construction to ensure that every home feature is properly positioned. With this, you can have a more improved level of convenience inside your home or working area.

Passive solar heating occurs when sunlight strikes the object and such object absorbs the heat. This happened in a building when windows are properly oriented. The most appropriate and powerful orientation of window is actually south. However, it is also of note that any orientation within thirty degrees of due south is enough.

Passive solar energy uses different building constituents like exterior building elements, landscaping, windows, roofs, floors and walls in order to control the overall heat that is generated by the sun. Many solar heating designs are made to capture and store thermal energy directly from the sun.

# **Chapter 6:**

## ***Solar Hot Water***

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### **Synopsis**

Heating cost is indeed a terrific burden on the cost of living in the cash-strapped economy today. With the unstable market conditions and more and more people facing a growing credit crunch, the overall costs associated with their survival are becoming even more unbearable. The incomes of people aren't even increasing at a rate that is fast enough to meet their daily demands.

The cost of heating water is actually one of the largest expenditures for many people. Whether you are renting an apartment or you have your own house, water heating costs can always account for forty percent of your annual bills. This estimated percentage will even increase during the cold winter seasons.

With the latest innovations, professionals have developed cost effective and highly affordable solutions to meet our needs and to improve our quality of life, despite the very tight economic conditions. It is a good idea to learn more about this innovative solution – the Solar Water Heating.

## **Have a Better Understanding of the Solar Hot Water Systems**

Many people from all parts of the world have been using solar thermal energy for heating water and for domestic use. This offers an economic and excellent solution by using the heat of the sun to generate hot water, thus reducing the overall amount of fossil fuels that are needed to be burned.

The solar hot water systems are using solar collectors, either evacuated tubes or flat panels, which absorb the sun's energy to heat water. The water that is heated is stored in an insulated tank. These solar collectors are mounted on your roof.

Generally, solar hot water systems cost more than any other heater types that you can find in the market. However, an extra upfront cost will easily be recovered in the long run as the system helps reduce energy bills. These systems will also recover their overall costs more speedily in many larger households.

These systems are using energy from the sun that is absolutely a free and renewable energy source. It cannot be depleted, so you can be sure to enjoy its benefits and services for a long time. People have also been using these systems as they help improve energy security and reduce consumer dependence on fossil fuels.

In warm and sunny places, solar water heating systems are highly economical. A lot of countries all over the world are providing favorable incentives for the solar water heating system insulation, so you can surely save a huge amount of money.

With solar water heating systems, you can now enjoy hot water all throughout the year, especially during cold winter seasons. The system works effectively all year round, giving you an unlimited source of hot water. Solar hot water is a renewable heating system. It will not only enable you to cut down your energy bills, but also reduce your carbon footprints.

By installing solar hot water systems, you can now make great changes in the world. Aside from saving a huge amount of money, you are also taking great part in saving the world.

# **Chapter 7:**

## *Teach Children To Conserve*

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### **Synopsis**

Regardless of the age of your children, it is important to teach them the importance of conserving electricity and the proper ways to do so. In today's economic condition, it has been increasingly apparent for parents to teach their children about going green and saving electricity as it is paramount to their survival and future lives.

The rising prices of fossil fuels, the excessive waste and global warming are dooming the health of the planet as well as those who are living therein. In order to prevent these crises from happening or continuing in the future, it is important to teach our children to conserve electricity.



## **Teach Children to Value and Conserve Energy**

It is vital for parents to explain their children that giving value, respecting and conserving energy is a highly essential thing. At their very young age, it is important to instill in the minds of our children the importance of protecting the environment and conserving energy is a very effective way to do that.

Children need to understand that the usual energy source has always been fossil fuels that pose risks to our health as well as to the environment. Now, people are given the chance to change that is it our role to maximize that for the benefit of their future and the planet. They also need to understand that if we do not care for those valuable sources, we will never have the chance to protect and save the world from being polluted.

Help your kids develop a habit of conserving energy. It must be part of their values and it is the duty of every parent to teach them how to do that. You can teach your children the fundamentals of energy conservations. Allow them to understand the great importance of using energy more efficiently. Let them know how to effectively reduce energy consumption and how to use those renewable sources of energy.

There are also some interactive and exciting ways to teach your children to conserve. Many children are more likely to learn through illustrations. They also love to draw and images can teach them a lot

of things. You can have them draw a house for you and have them draw a rooftop with solar cells installed on it, rather than a conventional roof. You can also talk to them regarding the value of solar energy.

The best way to teach your young ones is through example. Once you make eco-friendly choices, then your children will imitate your daily habits. Remember that you are a great role model and every lifestyle change that you can make is important. Teach them by beginning to recycle and conserve energy. In doing so, you can talk to your kids about what you're doing and the reason why you're doing it.

Allow your children to understand that they can also take part in changing the world. If they recognize that they play a vital role in saving the world, they will become more enthusiastic in doing all the necessary things to conserve energy.

Remember that the children of today are actually the grown-ups of tomorrow. In the future, they will be the ones in charge of taking care of the world. Start educating them now about the right use of the valuable resources that we have today. Allow them to make decisions that will bring benefits to people and to the world.

# **Chapter 8:**

## ***Energy Saving Bulbs Etc***

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### **Synopsis**

Do you want to save energy while improving the quality of life at home and in your working environment? If so, then you need to make an informed choice when selecting the right light fixture inside your home or in your office. If you are able to choose the best energy saving light bulb, the possibilities might surprise you.

Energy-efficient bulbs are now available in the market and they could save you a great amount of cash per year in overall energy costs. Replace your traditional incandescent light bulbs today and enjoy its impressive benefits.

## **The Great Energy-Efficiency of The Best Energy-Saving Bulbs**

Energy saving bulbs are being more popular all over the world while traditional incandescent lamps are slowly becoming phased out. There are actually a lot of excellent reasons why many homeowners and different consumers are opting for these types of bulbs. They will enable you to have a more convenient and eco-friendly home.

Energy saving bulbs actually last three times longer than the traditional incandescent bulbs and they have more than twenty thousand switching cycles. They are also eco light bulbs that utilize less than a quarter of the power that is needed to light up filament bulbs that will result in seventy to eighty percent energy savings.

Generally, the maintenance for energy bulbs is very minimal. The life span of a light bulb is typically longer than a traditional incandescent lamp, which means that there is no need for you to constantly change your light bulb at home or in your work place.

Many energy saving bulbs will enable you to save cash while protecting the environment. You can now have an ecologically friendly home that will also offer an extra level of convenience to everyone in the household.

Since there is no need for you to regularly replace your light bulbs with the use of an energy saving bulb, you are also becoming even

more eco-friendly, since used bulbs ends up in the landfills. Fewer resources are also used to produce bulbs.

Create a brighter future for your children by employing all the necessary approaches to make your home more energy efficient. Buying energy saving bulbs is more of an investment than an expense. It will bring excellent benefits not only to the family, but also to the environment.

There are lots of energy saving bulbs that are available in the market today. They are available in different sizes and colors, so you can get the right one that will benefit you and everyone in the household. You can now also create a more convenient and energy-efficient workplace.

# Chapter 9:

## *What To Avoid*

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### **Synopsis**

We actually have the ultimate power to change the world. By making the right choices and making all the necessary lifestyle changes, we can create a better world and a more convenient environment for us and our loved ones.

Are you suffering from an energy crisis? Perhaps, you are wasting energy. If you want to make a more wonderful world to live in, make some changes now. The key is to take the right step and you can shape the world.

## **Things to do to Save Energy and Make a Better World**

Many people from different parts of the world are taking all the necessary steps to effectively reduce the greenhouse gases that are emitted due to the way they live. The use of less energy will not only help you save cash on household bills, but will also help in saving the planet.

Insulating doors, electrical outlets and windows and adding some insulation to the basement and to the attic will effectively reduce overall energy consumption. Energy saving bulbs and spiral light bulbs are seventy-five percent more energy-efficient than the conventional light bulbs.

In warm weather, set your thermostat at home at least seventy-eight degrees. When there is no one at home, it is best to set the thermostat at eighty-five degrees. Through this, you will reduce the need for any air conditioning at home and you'll save more energy. In cold winter seasons, have your home thermostat set to sixty-eight degrees. Lower the temperature during evening or during daytime.

Taking public transportation, using a car pool, cycling and walking – these produce less emissions compared to those emitted by a single individual in a vehicle.

On average, an individual throws away ten times his/her waste in rubbish each year. One kilogram of waste that is sent to landfill is able to produce two kilograms of methane. The best way to lessen this burden is to purchase and waste less unneeded packaging.

Recycling steel, glass, paper, aluminum and some other materials in order to produce new usable materials can make great energy savings. When you buy things that can still be used or recycled instead of buying those disposable items that you can only be used once, you will surely save more.

What you do today can make a great change in the future. Your decisions and choices will also have great impacts to the world. The power to change the world is within your hands that is why it is vital to make all the essential lifestyle changes to save the planet and create a more convenient world for your children.



# Chapter 10:

## *The Benefits Of Saving Power*

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### **Synopsis**

As human beings, we are the caretakers of the world. For this reason, it is our responsibility to make all the necessary actions to ensure that the world will become a more convenient place for our children to live in. We also need to ensure that there is balance in this world. One of the best things that we can do to save the world is to save power.

Saving power means decreasing the amount of power or energy usage while obtaining the same outcome of end use. The use of less power offers impressive benefits that will improve the quality of your life and enhance the Earth's overall health.

## **Saving Power Will Help Save The World**

Saving power is of great importance. If many people are using less energy, then there is also less pressure to increase the energy supply like importing energy coming from various countries and building new power plants. With this, you can see significant changes in the environment.

Energy efficiency will also lower energy bills that are highly advantageous to many consumers. It reduces fuel poverty and provides essential benefits in terms of the overall quality of life of people.

The rising natural gas and volatile oil prices must be great motivations upon the people's need to reduce their use of energy and enhance its efficiency. Power savings also play a critical role in reducing our dependency on energy imports.

When everyone learns to save power or energy consumption, we will have a better and stronger economy, which is one of the most impressive benefits that we can obtain once we are able to save power. The crisis in the economy is giving greater importance to have a more efficient and greener recovery.

Improved energy efficiency is essential in countries and in the world. Many businesses can now take the lead in the international race for more sustainable and innovative products.

Indeed, much of the world has been complete dependent on electricity. As a matter of fact, without electricity, most of the modern-day conveniences that people enjoy will no longer be possible.

The problem is that many people abuse, waste and overuse electricity that lead to negative impacts to the everyday living of many people and to the environment. The good news is that there are now great ways that we can do to save energy or power consumption. In doing so, we can now create a more meaningful and wonderful world to live in.

Using power and energy wisely means being more efficient. We consume energy every day at work, at school, at home and in different places. By saving power and energy, you are helping save the world as well its energy resources. **SAVE POWER** and make a better and cleaner environment for everyone.