



## ENERGY SAVING TECHNOLOGIES AND ALTERNATIVE ENERGY SOURCES. THE IMPAKT OF ENERGY ON THE ENVIRONMENT

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### KEYWORDS

electricity, energy efficiency, renewable energy, solar power, biomass, wind power, thermal power, solar panels

### ABSTRACT

This article covers energy saving technologies and alternative energy sources. Scientific research work on the impact of energy on the environment presents problems and solutions. Energy is an essential element in all productive processes. In both the agricultural and transformation industries, however, its irreplaceable importance is often underrated. Alternative sources of energy which are irreplaceable can have a direct impact on the environment and does not seem to be sustainable to meet the future demands of human beings. This article is meant to be a brief guide to energy sources and technologies.

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**INTRODUCTION.**

A climate change, which is caused by carbon pollution from the production and burning of fossil fuels, will take a particularly hard toll on the mountain and desert West. The consequences of climate change are already visible: increased risk and duration of drought and wildfires, reduced snowpack, and extinction of vulnerable wildlife species. Conventional energy sources such as coal and natural gas are huge contributors to climate change. Electricity production accounts for more than one-third of U.S. global warming emissions, with the majority generated by coal-fired power plants. Renewable energy provides substantial benefits for our climate, our health and our economy. Most renewable energy resources emit no carbon pollution. In the Mountain West, we enjoy abundant renewable resources that can be used to generate electricity, like wind, solar, and geothermal. While geothermal energy systems emit some air pollutants, total air emissions are generally much lower than those of coal- and natural gas-fired power plants.

**MATERIALS AND METHODS.**

What's energy efficiency? The impact of energy on the environment.

Energy efficiency is the approach of controlling and reducing energy consumption without compromising the demands of society. A system is more energy efficient if it delivers more useful-work (service) for the same energy input, or the same useful-work for less energy input. An example is a compact florescent light (CFL) bulb that uses less energy (one-third to one-fifth less) than an incandescent bulb to produce the same amount of light. Here, the CFL is considered to be more energy efficient.

Energy has been used by mankind for thousands of years. It was originally used for fire, lighting, heating, cooking, and safety, and its use spans at least 1.9 million years. [3] In recent years, there has been a trend to increase the commercialization of various renewable energy sources. Rapidly evolving technologies can enable energy production, water and waste management, and food production to transition to environmental and energy management practices using ecological and industrial ecology systems. Rapidly evolving technologies can enable energy production, water and waste management, and food production to transition to environmental and energy management practices using ecological and industrial ecology systems. The impact of electricity generation on the environment is of great importance because modern society uses large amounts of electricity. Power plants convert several types of electrical energy, while this power is usually generated. Each such system has advantages and disadvantages, but most of them cause environmental problems.



## RESULTS.

As with any power plant, large solar power plants can affect the environment where they are located. Land clearing for construction and the placement of a power plant can have a long-term impact on local plant and animal habitats. Some solar power plants may require water to clean solar collectors and concentrators or to cool turbine generators. In some arid areas, the use of large amounts of groundwater or surface water can affect ecosystems that depend on these water resources. In addition, the concentrated sunlight created by the solar power tower can kill birds and insects that fly into the light. Renewable energy causes a number of other effects that can affect the environment. On the downside, renewable energy can render many land areas unsuitable for competitive use, disrupt marine life, bird life and flora / fauna, and pollute with visual and noise. Typically, these effects, which can affect the environment, are specific to the field, and there are several ways to minimize the effects, which are usually small and irreversible.



## RENEWABLE ENERGY SOURCES:

Solar energy is radiation from the Sun capable of producing heat, causing chemical reactions, or generating electricity. The total amount of solar energy incident on Earth is vastly in excess of the world's current and anticipated energy requirements. If suitably harnessed, this highly diffused source has the potential to satisfy all future energy needs. In the 21st century solar energy is expected to become increasingly attractive as a renewable energy source because of its inexhaustible supply and its nonpolluting character, in stark contrast to the finite fossil fuels coal, petroleum, and natural gas. The potential for solar energy is enormous, since about 200,000 times the world's total daily electric-generating

capacity is received by Earth every day in the form of solar energy. Unfortunately, though solar energy itself is free, the high cost of its collection, conversion, and storage still limits its exploitation in many places. Solar radiation can be converted either into thermal energy (heat) or into electrical energy, though the former is easier to accomplish.

Wind - wind turbines.

### **DISCUSSION.**

The power of wind has been used for many years to produce mechanical power for milling grain and pumping water. In recent times wind turbines harness wind to generate electricity. The electricity is then exported either to the grid for use locally or to power a standalone application. This renewable source of energy has great potential in both onshore and offshore wind farms and may also be used at a smaller scale on farms. Wind power is one of the cleanest and safest of all the renewable commercial methods of generating electricity.

Biomass - fuel from wood or other plants.

Biomass is a term used for solid fuels derived from plant materials, such as wood or specially grown crops. In order not to increase the amount of carbon dioxide in the atmosphere it is important that the wood burned as a fuel comes from sustainable sources. This means that as trees are felled to be used as a fuel, more trees should be planted. That way, the carbon released during the combustion of the wood is reabsorbed by the new trees growing and the process is carbon neutral. Biomass can be used as logs, wood chip and wood pellets in wood or pellet burning stoves, or in boilers for space and water heating. Biomass can be bought in quite small quantities bagged, but can also be purchased in bulk, typically supplied in a tanker that will then blow the fuel into a storage container. Biomass can also be utilized in bulk to generate electricity in power stations, either burning straw, specially grown crops, or as processed wood products. Some biomass power stations also capture waste heat in the combustion process to heat nearby homes or factories; this is known as biomass combined heat & power (CHP). Plants can also be processed to create liquid fuels (such as bioethanol or biodiesel) for use by motor vehicles or gaseous fuels that can be injected into mains gas. Waste plant materials can be processed in an anaerobic digester to produce such biogas. These are not covered in detail by this website, although some liquid biofuels have been tested in domestic oil central heating systems in a blend known as B30K.

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