

# Free essay about how to extract electricity

[Environment](#), [Electricity](#)



## **Solar Power**

There are the following ways of generating electricity using solar radiation:

use of photovoltaic systems;

hot air power - converters of solar energy into the energy of the air flow directed to the turbine generator;

solar thermal energy (using the energy generated by the heating of a surface with its subsequent transformation into electrical energy in the steam generators);

solar balloon power plants. Electricity produced by the steam generation in the cylinder of the balloon heated by solar radiation.

The problem of extraction and processing of solar energy has long worried about the minds of scientists. In search of the optimal development of attractive both in terms of efficiency and cost a considerable amount has been tested solar technology, the improvement of which continues today. In this essay we will consider how to extract solar energy from solar concentrators

The operating principle of solar concentrators is focusing sunlight on the tank with the coolant. The coolant acts as an absorber of solar energy. Depending on the method for the concentration of solar energy can be used parabolotsilindricheskie hubs, focusing sunlight on pipes with water or oil, special solar parabolic mirrors or heliocentric setting tower. In some models, the solar radiation concentrator is concentrated at the focal point, and in others - along the focal line, and wherein a receiver. Achieving high temperatures reached by reflecting concentrators of solar radiation with a larger surface on the lower surface of the receiver absorber. Heat transfer

fluid passing through the receiver absorbs heat. In addition to the concentrator and receiver energy power station coolant enters accumulating system and transmission system.

The temperature in the receiver is high enough, but hubs can only focus direct solar radiation, which greatly reduces their effectiveness in foggy or cloudy weather. Most high efficiency of such systems is in areas with high insolation, such as in desert or equatorial regions. To use solar radiation was as effective as possible, it is necessary to provide orientation in the direction of the sun concentrators. To do this, equip special concentrator tracking system (tracker), which turns a system of " face" to the sun. Axle tracking systems turn the system from east to west, and biaxial and from north to south for orientation of the Sun throughout the year. Concentrators are used mainly in industrial power generation, because of their high cost, besides tracking systems require periodic maintenance.

These units can be used in hybrid power systems, for example, with systems operating in the hydrocarbon fuel. When using the accumulating systems in such plants it is possible to achieve a significant reduction in the cost of electricity generated by the possibility of its generation at any time of day or night and in any weather.

## **Wind Turbine**

One of the promising directions of development of renewable energy is wind power. The use of wind energy not only helps to solve many problems of energy supply of remote facilities and country houses and gain independence from the local power supply companies.

Wind power plants produce electricity from the energy of moving air masses

- the wind. For wind power plants with a horizontal axis of rotation of the minimum wind speed is:

4-5 m / s - with a power of  $> = 200$  kW

2-3 m / sec - if power  $\leq 100$  kW.

Wind power is a mast, which is located at the top of the container with the generator and gearbox. To gear axis wind power blades attached. Container power rotated according to the wind direction.

Wind turbines with a vertical axis of rotation less popular. The generator is under the truck, and most importantly, the need for the orientation of the wind is absent. Wind turbines with a vertical axis of rotation required for stable operation of higher wind speeds and pre-launch from an external power source.

### **Consider the principle of the autonomous wind turbines.**

Stand-alone wind turbines consist of a generator, liner, poles, controller, inverter and battery. In classic wind turbines - 3 blades fixed to the rotor. Spinning rotor generator creates a three-phase alternating current, which is transmitted to the controller, and then the current is converted into a DC voltage and fed to the battery. The current passing through the batteries and charge them at the same time and use the battery as conductors of electricity. Further, current is supplied to the inverter, which presents our usual indicators: AC single phase 220V, 50 Hz. If consumption of electricity generated is small enough for appliances and lighting, if the current windmill with a little and not enough - that is covered by the lack of battery. The same principle in the cars when we ride in a car alternator charges the battery and supplies electricity to all devices in the car when the car stops, the

accumulated current comes from the battery. Nothing daunting to a windmill there, they use all those inventions that we constantly use every day without knowing it.

Wind turbines modern designs allow the use of cost-effective wind energy. With wind turbines today can not only supply electricity to " network" and to solve the problems of power supply local or island objects of any power.

## **Fossil Fuels**

Coal, oil and natural gas - these are the three types of fossil fuels on which we depend for the most part in our energy needs, from home heating and electricity to fuel our cars and mass transit.

The problem is that fossil fuel is not a renewable energy source. Its reserves are limited and will eventually be depleted. There is no way to ignore or refute this conclusion.

Fossil fuels formed from plants and animals that lived hundreds of millions of years ago and have remained buried under the earth's surface, where their remains were transformed into combustible materials that we use. In fact, the very first known fossil fuel formed back in the Cambrian period about 500 million years ago, even before the first dinosaurs appeared. This is the period when the Earth first emerged major groups of animals. Older types of fossil fuels, which constitute the majority of non-standard fuels such as peat or brown coal, began to be formed later, 5 million years ago in the Pliocene Period. At our level of consumption of these fuels cannot be formed so quickly to ensure our future energy needs.

Nuclear energy, which is primarily produced by splitting atoms, covers only 6% of the global energy supply. Probably, this source is unattractive as the

main resource of the possible hazards associated with the release of energy from the atom, as well as those generated by the pressure of society. Yet some governments such as the United States see its huge potential and are betting on the continued use of nuclear energy.

In sum, the need for energy in the world is about 400 quadrillion (one million in the 4th degree) British thermal units (BTUs of British Thermal Units) per year. Btu roughly equal to the energy and heat released during combustion of one match. Oil, coal and natural gas provide about 88% of the world's energy needs, or about 350 quadrillion Btu. This amount belongs to the primacy of the oil, which provides about 41% of the world supply, or about 164 quadrillion British thermal units. Coal provides 24% of the world energy, or 96 quadrillion Btu, and natural gas provides the remaining 22%, or 88 quadrillion Btu.

## **Conclusion**

In conclusion we can say that the scientists agree: no type of produce alternative energy will be able “ alone” to meet the future needs of society without the use of any other types of energy. The issue will be in a variety of complex energy technologies that have a common feature - they do not deplete our natural resources and destroying our environment.

## **References**

- Raum, E. (2008). Wind energy. Chicago, Ill.: Heinemann Library.
- Scherer, L. (2010). Fossil fuels. San Diego, CA: ReferencePoint Press.
- Spilsbury, R., & Spilsbury, L. (2012). Solar power. New York: PowerKids Press.