

STUDY OF ENERGY RESOURCES AND THEIR USE

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ABSTRACT

Important to analyze and know the importance of non-renewable energy . Nevertheless, most of our planet is supplied with this type of energy. Their major drawbacks are the contamination that occurs during their use and extraction. Environmental pollution can lead to serious environmental problems and climate change. We will thoroughly analyze all types of non-renewable energy and the consequences of their use on our planet

Keywords: Industrial power grid, oil, renewable energy sources, gas.

INTRODUCTION

General concepts. Non -renewable energy sources. Organic fuels (combustible). Composite products of burned organic sources. Inorganic fuel . _ The mechanism of nuclear energy and heat separation. Renewable energy sources.

Non-renewable energy can be defined as **a source of energy that expires in a timely manner**. Although they last a long time, they eventually run out, and when there are fewer reserves left, they become very expensive or pollute the environment.

On the contrary, there is renewable energy, the heirs of the world. They are able to recover naturally in a relatively short time. There are ways to get it from non-renewable energy sources. This is because certain natural processes, such as the accumulation of carbon for oil production, **took up to 500 million years to form**.

Clearly, carbon could be considered renewable energy, as oil is formed as organic matter decomposes, but not on a human scale. In other words, the energy we are currently losing cannot restore it to the level required by human life.

In general, non-renewable energy is energy that consumes certain types of fuel (oil, coal, uranium ...). Renewable energy uses other types of energy sources (solar energy, wind energy, hydraulic energy, wave energy, etc.). In the near future , the fuel is expected to contain renewable raw materials such as hydrogen.

Renewable energy sources

There are two sources of energy that run out over time and are:

- **Traditional non-renewable energy sources** . They are fossil fuels called coal, oil and natural gas. Chemical reactions between some materials are also non-renewable energy.

• **Non-traditional renewable energy sources** . These sources are derived from agrophilic, biofuel, or cultivated fuels. Nuclei such as uranium and plutonium are elements of nuclear energy .

renewable energy is a type of geothermal energy , there is a certain type of geothermal energy that uses hot water that is considered non-renewable in certain places.

Energy and non-renewable sources



Figure 1. Underground excavations

The picture above depicts renewable energy. The main sources of fossil fuels are **coal, oil and natural gas**. They are called conventional mineral resources. Non-traditional minerals are not available in their current form and are found in deposits that are difficult to extract.

Renewable resources are closely linked to non-renewable energy. All resources that are spent at a higher rate than renewable are non-renewable resources. This happens not only with energy, but also with materials and minerals.

For example, coal is one of the non-renewable minerals that is used to generate energy. Most of the world's coal reserves are being used.



Figure 2. Coal

Examples of non-renewable sources.

Metals themselves are abundant in the earth's crust. Man-made mining occurs only when heat, pressure, weather, and natural geological processes accumulate. Thermal energy and other processes should be economically viable to start mining them, however this minerals time o`tooth with to be completed for o`n thousands, millions years need will be Local deposits with large amounts of metallic minerals on Earth can be mined by humans. **They are something that cannot be renewed in human life.** Rare lands contain certain minerals and elements that are rarer than others. Today, these materials are in great demand in industry, especially in electronics.

The supply of most metallic minerals is considered to be much easier than fossil fuels because the formation of fossil fuels is more difficult and limited than the conditions under which metallic minerals are formed.

Types of non-renewable energy

Let's look at the types of non-renewable energy that people use:

- **Oil.** It is a viscous colored liquid consisting of **both green and yellow and brown or black** and hydrocarbons. The emergence of oil began millions of years ago when the Earth was a water-covered planet. After millions of years of evolution, geological processes and the movement of bacteria have created this mixture of hydrocarbons.

- **Natural gas** is another non-renewable energy source. It is a fossil fuel consisting of another mixture of hydrocarbons. Like oil, it exists millions of years ago due to the effects of underground bacteria.

- **Coal** is a rock that is made up of carbon and other substances. In 1990, **it became an energy source that covered more than 27 percent of world demand.**

- is formed from a process known as **atomic energy i.e. nuclear precision.** Energy can be generated due to the collision of neutrons at high speeds. Uranium 233 and plutonium 239 are the most commonly used substances.

As you can see, renewable energy is needed to stop pollution and the reduction of fossil fuels.

Use of renewable energy sources In the 21st century, industry is accelerating at an unprecedented rate. Industrial production consumes about 90-93 percent of the world's energy. Improving overall energy efficiency is one of the priorities of the policy of the Uzbekistann Federation. In this regard, renewable energy sources in Uzbekistan have become increasingly popular. Do states really need to switch to alternative energy? Is energy saving policy mandatory? How will these changes benefit? The questions need to be answered.

Industry and energy are two closely interrelated sectors. It is necessary to connect to the most powerful sources of electricity to ensure the operation of large and small enterprises, as well as to organize the transportation of goods.

Power supply in the network :

- lighting of roads and highways;
- television and radio stations;
- accommodation, shopping malls;
- inpatient and private facilities;
- service enterprises.

Thus, electricity surrounds a person from all sides. But how do you get it? Energy is supplied to the city network mainly from heat (TPP), water (HPP) and nuclear power plants. They are representatives of traditional fuel energy.

Natural fuel works as energy sources at the following stations:

- coal,
- peat;
- oil;
- radioactive ores (uranium, plutonium).

Power conversion stations appeared a few years ago, but their efficiency is evidenced by their efficiency:

1. Uzbekistan's thermal power plants operate due to the combustion of combustible fuels. The strong chemical energy released during combustion is converted into electrical energy. The maximum efficiency is about 35%.

2. Nuclear power plants work the same way. In Uzbekistan, uranium ores or plutonium are used to ensure their effectiveness. When the nuclei of these radioactive materials disintegrate, energy is released, which is then converted into heat and electricity. The highest efficiency ratio is 44%.

3. At hydropower plants, energy is derived from strong water currents. Huge masses of water enter the turbines and move them. In this way electricity is generated. Efficiency - up to 92 % .

4. GT S - gas turbine stations are relatively new devices that generate electricity and heat at the same time. The maximum efficiency is 46%.

Basics of alternative energy and use of renewable energy sources.

Renewable energy uses the following for its own needs:

- wind;
- small river flows;
- the sun;
- geothermal sources;
- stop and flow.

Uzbekistan is seeking to switch to alternative energy sources. This energy sector is developing in the country as follows:



Figure 3. Renewable energy (wind generators)

The data on the list show that renewable energy sources in Uzbekistan are developing rapidly, but slowly but clearly. However, the country still lags behind the world leaders in the use of renewable energy sources.

Disadvantages of the RES system

Scientists estimate that the use of RES in Uzbekistan today should be about 15-18%. These optimistic predictions did not come true. Why didn't the promise come true?

The following shortcomings of the RES system have had a major impact here:

1. Relatively high cost of production. Although the extraction of traditional minerals has long covered its costs, the construction of new equipment that meets alternative energy standards requires significant investment. So far, investors are not interested in making large investments, their returns will be minimal. It is becoming more profitable for entrepreneurs not to spend money on the wind and to open new oil and gas fields .

2. The legal framework in the Uzbekistan is weak, and world scientists believe that the state will determine the direction of development of alternative energy. Public authorities form the appropriate framework and thereby support it. For example, many European countries have introduced taxes on CO₂ emissions into the atmosphere. The share of renewable energy use in these countries ranges from 20 to 40%.

3. Consumer factor: Tariffs for energy produced by renewable energy sources are 3-3.5 times higher than traditional. Modern man works on his well-being and wants to achieve maximum results at the lowest cost. The most difficult thing is to change people's mentality. Neither big business nor ordinary people want to overpay for alternative energy, even if the future of our planet depends on it.

4. The variability of the system Nature is variable. The effectiveness of different types of RES depends on seasonal and weather conditions. On a cloudy day, solar cells do not produce energy. Wind turbines do not operate in calm weather. So far, people have not been able to overcome the seasonality of renewable energy sources.

Uzbekistan's renewable energy sector lacks the capacity and support for successful development. In this regard, Uzbekistan energy companies believe that in the near future RES will be used only as an aid to conventional fuel they believe.

The need to switch to renewable energy

From the point of view of sciences such as biology and ecology, the transition to alternative energy is the best option for the development of society for both man and nature.

The fact is that the industrial use of non-renewable energy sources (petroleum products) is a strong detrimental factor for the Earth's ecosystem and therefore:

1. Fuel reserves are not unlimited. Gas, coal, peat and oil are extracted by humans from the Earth. Uzbekistan is rich in deposits of these useful resources. However, no matter how huge the mining area is, sooner or later all resources will run out

2. The extraction of wastes changes all the systems of the planet.

3. The operation of power plants changes the properties of the atmosphere, changes the composition of the air, increases the CO emissions of the gas, and creates ozone holes.

4. Hydroelectric power stations damage rivers and as a result of their operation, river floods are destroyed and nearby areas are flooded.

Conventional fuel energy has a number of undoubted advantages because it:

1. Relatively cheap. The production of jet fuel is already on the conveyor belt. Mankind has been doing this for decades in a row. For such a long time, efficient equipment widely used in the mining industry was invented. The cost of producing coal, oil and natural gas is no longer that expensive. Modern man has experience in this field, so it is much easier for people to "follow the chosen ones" than to look for new ways to produce energy. "Why rediscover what we have?" - Mankind thinks so.

2. Public use: Due to the fact that perennial fossil fuels have been mined, all costs allocated for this activity have been reimbursed. The cost of equipment for fuel energy was paid in full. Maintenance is not expensive. In addition, energy companies

are a stable source of employment. All of these factors play into the hands of traditional energy, which is why it is becoming increasingly popular.

3. Easy to use. Fuel production and energy production are periodic and stable. People can only keep this system running so it makes a good profit.

4. Demand: Economic viability is a decisive factor in the energy industry. What is required is cheaper and more practical. At the same time, these features are not specific to alternative sources.

All of the listed advantages of fuel energy make it a global production favorite. It will be a competitor for renewable energy sources as long as it does not require irreversible financial investments and generates huge profits.

In addition to the advantages of fuel production, there are also disadvantages to using renewable energy sources.

If we look at the lists above, it becomes clear that fuel energy is promising, while the alternative is just trying to “stand on its own two feet” and many obstacles need to be overcome for its development.

Alternative energy is still imperfect and therefore not in great demand. Today, however, experts in the field understand that Uzbekistan’s promising future lies behind the use of renewable energy sources. Therefore, the entire scientific potential of the state is focused on solving problems related to renewable energy sources and overcoming the main shortcomings of alternative energy.

Renewable energy sources have an inexhaustible source based on natural processes. Their use as an alternative to traditional forms of energy supply has long attracted the attention of experts. Today, at least 20 percent of the world's electricity is generated using these technologies.

We will consider the potential of renewable energy, the prospects for its introduction and development, and what is being done in Uzbekistan in this area.

Conclusion

Renewable energy comes from natural sources, whose resources are almost inexhaustible. They are constantly regenerating and are able to replenish naturally. A distinctive feature of the use of renewable energy is its extraction from natural processes and its transfer to the consumer for use.

Both species are part of the planet’s natural resources. Renewable energy sources are characterized by fossil organic reserves of various types of fuel: gas, oil, coal, peat. The rate of consumption of these resources is much faster than the rate of recovery of their volumes, so the reserves of this type of energy resources will be exhausted or depleted in the very near future. The core stands alone, but its use involves many risks to human life and work. The use of oil and coal leads to air pollution and the destruction of natural ecosystems.

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