



 Research Article

PROBLEMS AND DIRECTIONS OF DEVELOPMENT OF ALTERNATIVE ENERGY

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ABSTRACT

The article focuses on important problems of energy production and methods and means of its production, prospects of alternative energy, problems and new technologies of wind energy production.

KEYWORDS

Biomass, hydrogen fuel, large wind power plants, photo effect converters, green certificates, green tariff.

INTRODUCTION

Energy is one of the main factors of human life. Meeting the demand and need for energy is one of the urgent and important issues of today. But, unfortunately, we are currently facing the problem of the energy crisis, which causes several other environmental and economic problems. For many years, the use of various types of energy in the world has been growing rapidly. Scientists

estimate that the world's coal reserves will run out in about 350 years, gas in 60 years, and oil, according to their opinion, in 40 years. The sharp increase in energy prices at the beginning of the 21st century is explained by the limited reserves of fossil fuels. Thus, the role of using alternative and renewable energy sources is increasing.

THE MAIN PART

Integrated use of different types of alternative energy is a part of the state energy policy and leads to a decrease in the country's energy dependence.

Also, efforts are being made to convert biomass into a new source of electricity and motor fuel production. In the future, efforts are aimed at creating technologies and technical means capable of turning hydrogen into one of the main energy carriers. In one of the projected scenarios of world energy development, it is stated that by 2030, renewable energy can meet 20% of the world's commercial energy needs, this figure can reach 50%, and currently, renewable energy covers about 2%. It is natural to consider these indicators not as a forecast of development, but only in terms of RES possibilities. Nevertheless,

Currently, the energy obtained from alternative sources - wind, solar, biomass, etc. is enough to provide electricity to 400 million homes. One of the indirect proofs that alternative energy has become a commercially attractive area for investment is the analysis of the structure of the market. Large companies have entered it - about 27% of the world's solar cell production market is controlled by the Japanese corporation Sharp Corporation. The American company General Electric has become a world leader in the production of equipment for wind power plants. Many developed countries have State programs for the development of renewable energy sources.

Alternative energy is one of the most important types of energy production today. However, promising energy production methods are not as widespread as traditional methods, they have significant limitations and several disadvantages. Nevertheless, in many countries where people are increasingly thinking about the reduction of carbon resources and climate protection, alternative energy is gaining attention not only from energy experts but also from economists, environmentalists, politicians and ordinary citizens.

The main directions of implementation of the planned program:

- The mass introduction of photoelectric converters;
- Construction of large wind power plants (WPP);
- Construction of combined biomass power plants.
- These activities can be supplemented by:
- Creation of geothermal facilities in active geothermal zones;
- Construction of wind platforms and wave energy technologies in coastal waters;
- Connecting alternative sources to electrical networks.

The implementation of these measures will allow obtaining a clear socio-economic effect, in particular, to increase the number of jobs and reduce fuel imports by almost 20%.

Thus, future energy must solve three main tasks in its further development:

- Economical use of non-renewable energy sources (energy saving);
- Efficient use of energy (to reduce losses during production, transformation, transmission and consumption);
- Increase the use of renewable (alternative) energy sources and encourage the search for new energy sources (development of hydrogen energy research, etc.).

Solving these global challenges aims at three main goals of the new energy policy:

- risk minimization;
- climate protection;
- sustainable development.

The following macroeconomic policy instruments deserve special attention:

- Indirect taxes on environmental pollution (taxes on energy carriers depending on the level of emissions, in particular, CO₂);
- Tax regulation that promotes sustainable economic activity (new tax calculation schemes);
- Monitoring the dynamics of internal energy markets in order to ensure optimal use of resources;
- Incorporating environmental aspects of transboundary impacts into international trade and cooperation policies.

Due to the development of wind energy and other types of renewable energy sources, the problem

of electricity shortage will be solved, and interruptions in the energy supply will disappear. "Green Certificates"¹ it is impossible to encourage the development of alternative energy by the state without introducing the system; should be implemented in stages, be as flexible as possible and focus on small and medium-sized businesses. At this stage, state certification of producers based on renewable energy sources is promising, and then tax credits, allowances and compensations will be provided [3].

CONCLUSION

Considering the "energy hunger" and related economic problems, it is necessary to direct the environmental and economic reorientation of technologies towards technologies that work on energy-efficient and renewable energy sources. Here, it is appropriate to follow the example of the achievements in the field of energy saving in developed countries, for example, the USA, France, Italy, Sweden, England, Denmark and other countries. Conservation of resources increases the use of natural renewable energy. The introduction of the "green tariff" in our country is of great importance for encouraging the transition to renewable energy sources.

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¹Green Certificates - Renewable energy certificates are a financial and regulatory tool used to implement and support the

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