

IMPACT, ADVANTAGES, AND DISADVANTAGES OF ALTERNATIVE ENERGY ON UZBEKISTAN'S ECONOMY

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Annotation

This article analyzes the role, advantages, and disadvantages of alternative energy sources in Uzbekistan's economy. It examines the positive impact of alternative energy on energy security, environmental protection, and economic diversification. Additionally, technological, economic, and infrastructural constraints in implementing alternative energy are discussed. Proposals for further development in this field are presented. The article considers the broad development of alternative energy sources as a key direction for Uzbekistan's sustainable development.

Keywords: Alternative energy, renewable resources, economy, energy security, ecology, solar energy, wind energy, Uzbekistan.

Introduction

Energy supply and environmental security remain pressing issues in the 21st century. High dependence on traditional energy resources, depletion of natural gas, oil, and coal reserves, and the severe consequences of climate change compel countries to actively explore renewable energy sources. From this perspective, Uzbekistan is implementing comprehensive reforms to modernize its energy system and transition to green energy.

At international forums held in 2025, Uzbekistan's President Shavkat Mirziyoyev emphasized the importance of green energy. He stated: "Uzbekistan aims to become a leader in green energy. Major projects to develop solar and wind energy are underway, with plans to produce at least 30% of electricity from renewable sources by 2030".

Uzbekistan's geographical and climatic conditions provide significant opportunities for the development of alternative energy sources. With an average of 300 sunny days annually, the country has great potential for solar energy production. The central and southern regions also hold substantial potential for wind energy development. Moreover, there are significant opportunities in hydropower, biogas, and other renewable resources.

Under the President's strategy for green economic development until 2030, investments in alternative energy have intensified. This strategy focuses on modernizing the energy system, improving energy efficiency, and ensuring economic growth without harming the environment. The President noted: "By developing alternative energy sources, we not only

diversify the energy sector but also establish an environmentally sustainable green economy for future generations."

In 2025, the "Green Valley Initiative," introduced by President Mirziyoyev, marked an essential step toward ecological sustainability. As part of this initiative, nearly \$10 billion is allocated to developing alternative energy infrastructure, aiming to create a sustainable development model for the country.

This thesis analyzes the positive and negative aspects of alternative energy sources for Uzbekistan's economy. It also explores urgent proposals and directions for further development in this field. The growth of alternative energy sources is examined as a critical factor for ensuring energy security, achieving ecological stability, and promoting economic diversification.

Advantages and Disadvantages of Alternative Energy

Advantages:

- Energy Security:** Reducing dependency on natural gas ensures energy independence, which is particularly crucial in fluctuating global energy markets.
- Environmental Benefits:** Alternative energy sources help reduce emissions and protect the environment. Solar and wind power plants, in particular, mitigate the impact of climate change.
- Economic Diversification:** Introducing new technologies creates new jobs and positively impacts local economies.
- Cost Stability:** Unlike natural resources, the production cost of alternative energy remains stable in the long term.

Disadvantages:

- High Initial Investments:** Developing alternative energy infrastructure requires significant financial resources, posing challenges for developing countries.
- Technological Constraints:** The lack of advanced equipment and skilled specialists slows progress in this sector.
- Dependence on Nature:** Solar and wind energy depend on variable climate conditions, raising concerns about stability in energy production.
- Grid Integration Issues:** Connecting electricity from alternative energy sources to the national grid requires additional infrastructure.

Conclusion

Uzbekistan's abundance of natural resources and sunny days provides vast opportunities for developing alternative energy sources. Proper utilization of these opportunities can diversify

the country's energy sector, ensure ecological sustainability, and create new economic prospects. It is also crucial to overcome technological and financial constraints in this sector through international collaboration and enhancing local scientific potential.

Proposals include:

- Developing economic programs to incentivize investments in alternative energy.
- Enhancing research and introducing new technologies.
- Strengthening cooperation between public and private sectors.
- Raising public awareness of alternative energy.

Developing alternative energy in Uzbekistan not only ensures energy security but also enhances regional economic integration.

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