

THE ROLE OF RENEWABLE ENERGY IN ENERGY TRANSFORMATION

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Анотація.

У цій статті розглядається глобальний імператив переходу до відновлюваних джерел енергії відповідно до Цілей сталого розвитку. Незважаючи на поточний прогрес, темпи цього переходу залишаються недостатніми, оскільки прогнози до 2050 року вказують на те, що відновлювані джерела мають становити 43-63% від загального обсягу енергопостачання. У статті підкреслюється необхідність комплексного механізму переходу, який об'єднує технологічні, економічні, екологічні, соціальні та політичні чинники, і наголошується на подальших дослідженнях у цьому напрямку.

Ключові слова: відновлювані джерела енергії, енергетична трансформація, цілі сталого розвитку, енергозабезпечення відновлюваними джерелами енергії.

Abstract.

This article delves into the global imperative of transitioning towards renewable energy sources as per the Sustainable Development Goals. Despite current advances, the pace of this transition remains inadequate, with 2050 projections indicating renewable sources should constitute 43-63% of total energy supply. The piece underscores the need for a comprehensive transition mechanism, which integrates technological, economic, environmental, social, and political factors, and emphasizes further research in this direction.

Key words: renewable energy, energy transformation, sustainable development goals, energy supply by renewable energy sources.

Introduction

The Sustainable Development Goals provide a powerful basis for energy transformation. The seventh is global the goal in the field of energy covers five key tasks:

- ✓ by 2030, ensure general access to inexpensive, reliable and modern energy supply;
- ✓ by 2030, significantly increase the share of energy from renewable sources in the global energy balance;
- ✓ by 2030, double the global rate of energy efficiency improvement;
- ✓ by 2030, intensify international cooperation in order to facilitate access to scientific and technical activities in the field of environmentally clean energy, including renewable energy, energy efficiency improvement and advanced and cleaner technologies of use of fossil fuels, to encourage investments in energy infrastructure and technologies of ecologically clean energy;
- ✓ by 2030, expand the infrastructure and modernize technologies for modern and sustainable energy supply of all developing countries, in particular in the least countries, small island states and landlocked countries, taking into account their respective programs support .Today, a number of global agencies are modelling energy transformation scenarios up to 2050.

Research results

Therefore, the share of renewable energy sources in the total volume of primary world energy supplies in 2050 is predicted at the level of 63-43% of the total (550-828 EJ/year) energy supply. In turn, this will lead before the change of most macroeconomic indicators. So, according to scientists, the energy transition can create about 19 million additional direct and indirect jobs in 2050 in the renewable energy sector and energy efficiency, which fully compensates for the projected loss of jobs in the fossil fuel sector (7.4million). Thus, the global energy transition, will lead to 11.6 million additional jobs in the energy sector.

Ukraine also strives for an energy transition. In the concept of "green" energy transition of Ukraine to 2050, 70% of renewable energy sources are planned total volume.

Analysis of today's world trends in the energy sector allows obtaining technical and economic indicators for further modeling and forecasting of the development of the situation in the energy sector, as in short-term periods, as well as in long-term perspectives.

So, in 2017, the share of renewable energy in the total final energy consumption was 18.1%, and the share of renewable energy in the total electricity production at the end of 2018 was 26.2%. Renewable energy accounted for 64% of the newly introduced power generating capacities in 2018.

We believe that the speed of transition to renewables source of energy does not meet the agreed sustainable goals development. Many scenario studies show that for increasing the share of renewable energy requires additional effort. According to experts, a six-fold acceleration of growth is needed compared to today's trends.

Conclusions

In turn, for the energy global transformation, a mechanism for such a transition must be developed, which is impossible without mathematical modeling taking into account technological, economic, environmental, social and political factors, which will be the subject of further research.

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