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SOLAR ENERGY AND ITS IMPACT ON THE ECONOMY OF VINNYTSIA OBLAST

Introduction. Dependence on non-renewable energy sources in the modern world is one of the main issues that require an early solution. This topic is relevant because burning fossil fuels creates carbon dioxide, the main greenhouse gas emitter that contributes to global warming. Moreover, at the current rate of global energy demands, fossil fuels cannot replenish fast enough to meet our growing needs, thus becoming economically inefficient.

To solve these problems, renewable energy derived from natural processes should replace non-renewable one. Its utilization can significantly improve the economic efficiency of the existing technologies at the state and regional (oblast) level. Nowadays, a number of organizations are increasingly investing in renewable energy, so it is an attractive industry for the regional development.

Analysis of recent research and publications. Scientific papers of Diachuk O. A. [1], Kudria S.O. [2], Los L.V. [3], Trofymenko O.O. [4], etc. present the efficiency of using alternative energy sources. However, in terms of Vinnitsia region, this problem has not been fully explored and there are only singular research works dealing with alternative energy sources.

Objective of the paper is to analyze the impact of solar energy, as an alternative source of energy for the region's economy, to present the degree of use of this type of energy, its utility (prospects) development in Vinnytsia region.

Results of research. The consumption of alternative energy is constantly increasing in Ukraine. In Vinnytsia oblast predominantly solar power plants, biomass and secondary energy sources are used, with hydroelectric power and wind power being less popular.

Today, there are 39 solar power plants operating in Vinnytsia oblast and three more are being build now, namely in Pohrebyshche, Blashky (Pohrebyshche region) and in Pavlivka (Kalynivka region). Kness Group has set up a solar panel production plant in Vinnytsia, which will make it possible to build and launch solar power plants in Ukraine as a whole and in Vinnytsia oblast in particular. It is the most powerful plant in Ukraine, the production capacity of which is more than 200 megawatts. Typically, such electricity is sold at *feed-in tariffs* (FITs) designed to support the discovery and exploitation of renewable energy sources.

Gas consumption in Vinnytsia oblast has almost halved since 2014, and its monetary value is about 2.5 billion UAH. Because of geographic and climatic features Vinnytsia oblast does not produce a lot of solar energy, and its output is about 25% of Ukraine's output [5].

The chart below shows the overall electricity generation capacity of Ukraine's solar power plants (fig.1):

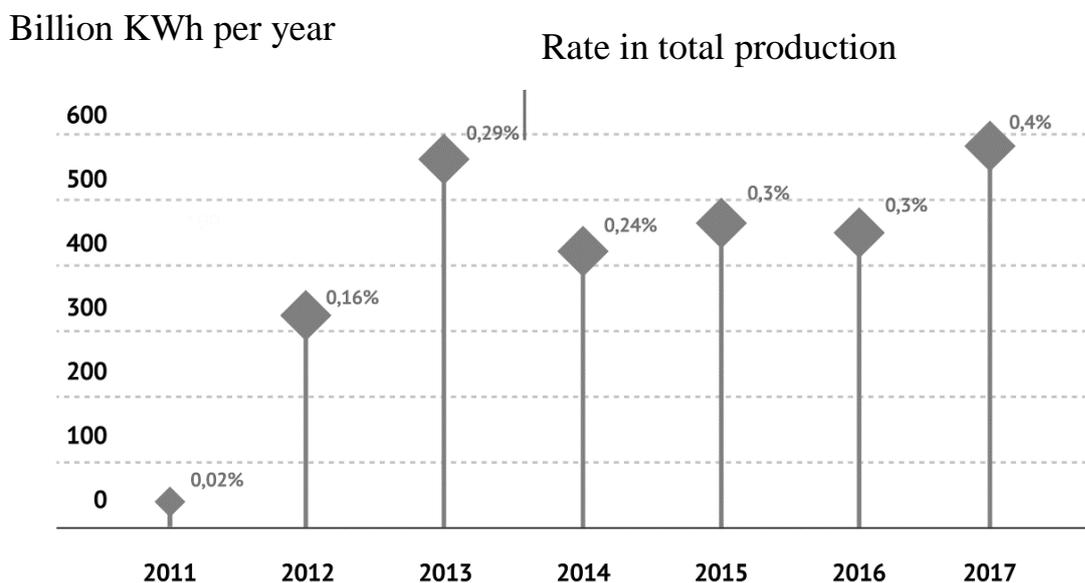


Fig. 1 Electricity generation capacity of Ukraine's solar power plants
Source: created by the author based on [6]

Modern studies indicate that in the overall structure of Ukraine's energy production, the share of renewables is gradually increasing; the energy of water dominates whilst the share of solar energy is rapidly increasing [3: 102].

Such an intensive use of alternative energy sources has a direct impact on the economy of the oblast and the country as a whole. Firstly, its production is

economical, so consumers can purchase energy at a lower price. According to expert forecasts, the price of fossil sources of heat and energy – coal, gas, and oil, will significantly rise in the near future due to increased demand, depletion of stocks, as well as international conflicts and internal political crises. Therefore, it is necessary to reduce the dependence of the energy and heat sector of the country on fossil fuels, which will also lessen greenhouse gas emissions [5].

Secondly, the opportunity to build solar power plants attracts foreign investors to the oblast, bringing funds to the local budget. Often, the land on which the station is constructed is in lease, which provides additional benefits to local communities. For example, according to the signed agreement, for lease of land, the budget of the village of Chechelnyk will receive about 145 000 UAH per annum.

Finally, new plants create new jobs in the oblast, which in turn increases the standard of living of local people. Furthermore, a more profound research into the use of new energy sources can be carried out.

Conclusion. In summary, this paper argued that the development of solar energy sources in Vinnytsia oblast provides a powerful incentive for improving the socio-economic level of the oblast, reducing the emission of greenhouse gases and pollutants into the atmosphere – the leading cause of global warming and climate change and accelerating Ukraine’s integration to the EU.

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ANALYSIS OF THE LEVEL OF ROBOTISATION AND ITS IMPACT ON PRODUCTION

Introduction. Rapid advances in technology have led to a surge of public interest in automation and robotics. Driving the increase in public interest in robotics and automation is both a fascination with the potential of these technologies to change our lives, and a fear of the impact of automation.

Review of recent publications. Both native and foreign scientists, such as C.B. Frey [2], M.A. Osborn, M. Henkel [3], M. Arntz, T. Gregory, U. Zierahn [5] and others looked into the robotics and its impact on economic and social transformation of the world.

Objectives of the paper. The aim of the article is to analyze the current level of robotisation and the transformation processes that occur under its influence.

Results of research. The number of robots in use worldwide multiplied three-fold over the past two decades, to 2.25 million. Trends suggest the global stock of robots will multiply even faster in the next 20 years, reaching as many as 20 million by 2030, with 14 million in China alone. [1]

The rise of the robots will increase productivity, competitiveness, thus fostering economic growth. Moreover, it will result in the emergence of new industries providing new jobs. However, the active business models across many sectors will be strongly disrupted; tens of millions of the existing jobs will be cut, with human workers displaced by robots at an increasing rate because robots are increasingly becoming more sophisticated.