

Chapter 19

Development of Regional Energy Supply as a Component of Ukraine's Economic Security Under Martial Law

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ABSTRACT

In this chapter, the state of Ukraine's economic security in the context of military operations is researched. A correlation analysis of the density of the relationship between the economic security of the state and the introduction of energy-saving technologies was carried out. It is determined that the outdoor lighting is important both in terms of ensuring the safety and comfort of the citizens and in terms of energy efficiency. To improve the efficiency of outdoor lighting enterprises, a comprehensive analysis of their activity was carried out by region of Ukraine to identify leading companies and implement best practices. The original methodology of rating assessment of enterprises is proposed, which helps to identify typical

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groups and develop measures to improve their efficiency. Particular attention is paid to the implementation of EU Directives and the concept of sustainable development, with a focus on reducing Ukraine's energy dependence and improving energy efficiency.

INTRODUCTION

Ukraine's energy sector is in crisis. Since the beginning of Russian invasion, a large number of important energy facilities have been damaged, resulting in significant losses in the country's energy system (Popik, 2022). Today, it is one of the most vulnerable components of the country's economic security. Even in relatively calm regions, the development of other components of economic security is hampered by the lack of energy supply. The key aspects that are usually taken into account when defining economic security include maintaining an adequate level of welfare of the population, ensuring conditions for sustainable development, and the ability of the economic system to respond effectively to external and internal threats. The first two aspects are the focus of this section of the study.

The energy security of any country, including Ukraine, largely depends on the state and functioning of its energy infrastructure. This dependence is manifested in ensuring stable energy supplies, the efficiency of energy facilities, the ability to withstand external threats and the ability to recover from crisis situations. In a military conflict, the state of energy infrastructure becomes a critical factor of national security. The military conflict in Ukraine has had a significant impact on the energy security of the country and the whole World. This impact was manifested in the physical destruction of Ukraine's energy infrastructure. A large part of Ukraine's energy infrastructure has been affected by the attacks: power plants, substations, power lines, oil depots and gas pipelines. Attacks on nuclear power plants, including the occupation of Zaporizhzhia Nuclear Power Plant (NPP), endanger nuclear safety and increase the risk of long-term electricity shortages. The destruction of district heating facilities in large cities during the winter period exacerbates the humanitarian crisis. Ukraine's energy sector suffers significant financial losses every day. Reconstruction of the infrastructure requires multibillion-dollar investments and effective changes in Ukraine's energy policy.

These changes may include diversification of energy supply (Zuk & Zuk, 2022; Zahir et al., 2024), integration into the European energy system, and implementation of renewable energy policy as a prerequisite for sustainable development.

Ukraine actively uses various mechanisms to guarantee economic and energy security, in particular, maintaining stable tariffs for housing and communal services, partially reducing tax pressure, fixing the hryvnia exchange rate, introducing currency restrictions and developing the use of renewable energy sources. A decrease in the number of working-age population leads to a decrease in purchasing power, which leads to a fall in GDP and an increase in inflation. An important role in these processes is played by public initiatives aimed at ensuring security in the economy and energy. The joint work of the state, business and society creates the prerequisites for qualitative changes and strengthening the economic and energy stability of the country (Kubatko et al., 2023).

Russia's invasion of Ukraine has caused global disruptions in energy, food and fertilizer markets, exacerbating the cost of living crisis and threatening human security, especially for vulnerable populations. Governments must respond to immediate challenges while investing in the long-term resilience of economic and social systems to cope with future global shocks (Benton et al., 2022). Umar et al. (2022)

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