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## **GREEN TRANSFORMATION OF PRODUCTION: HOW SMALL AND MEDIUM-SIZED ENTERPRISES CAN BECOME A FACTOR IN ENERGY STABILITY**

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The current challenges facing Ukraine in the context of full-scale war require a rethinking of approaches to energy security and economic stability. Rising energy prices, the destruction of energy infrastructure, and the need to gradually phase out fossil fuel imports from Russia are driving demand for decentralised solutions and the development of renewable energy sources. In this context, small and medium-sized enterprises (SMEs) are of strategic importance, as they account for over 99% of all businesses in Ukraine, provide more than 60%

of jobs, and play a key role in the development of the regional economy. Thanks to their flexibility and ability to quickly implement innovations, SMEs can become not only the driving force behind green transformation, but also the foundation of the country's energy stability.

The vector for "greening" production is enshrined in the strategic documents of both the European Union and Ukraine. The European Green Deal aims to achieve climate neutrality in the EU by 2050, while the Fit for 55 package sets an interim target of reducing greenhouse gas emissions by 55% by 2030 [1]. At the national level, an important benchmark is the National Energy Efficiency Action Plan until 2030 [2], which obliges the state to stimulate the introduction of energy-saving technologies, as well as the Strategy for Decarbonisation of the Economy until 2050. For SMEs, these documents open up opportunities to access financial and technical instruments from the EU and international financial institutions. For example, the EU4Business and EBRD GEFF programmes provide grant support for production modernisation, while GIZ finances decentralised renewable energy projects [4].

Despite its high potential, the green transformation of SMEs faces a number of barriers. These include limited access to credit, high technology costs, lack of knowledge about innovative solutions, and weak information support. However, these difficulties are offset by significant advantages: a 30-40% reduction in energy consumption, increased competitiveness, access to EU markets where green certification is becoming a prerequisite, and increased energy autonomy for regions. It is the decentralisation of energy production through the participation of SMEs that makes it possible to strengthen the resilience of the energy system, especially in the face of threats of damage from shelling or cyberattacks.

Practical examples demonstrate how small businesses can play a strategic role in the green transition. One of the most successful cases is the Lviv-based innovation cluster Promprylad.Renovation, where a business space with its own solar generation and energy efficiency systems has been created on the basis of a

former industrial facility, reducing electricity consumption by up to 35% [5]. Another example is the small Galychyna Eco dairy plant in Poltava region, which, with the support of GIZ, installed a 300 kW rooftop solar power plant and heat pumps, reducing energy costs by 38% and shortening the payback period to four years. A third example is the Dobryi Khleb craft bakery in Vinnytsia, which modernised its ovens and introduced a heat recovery system, reducing gas consumption by 30% and lowering production costs.

Thus, small and medium-sized enterprises are not only able to adapt to the requirements of the green transition, but also play a key role in ensuring the country's energy security. Their participation in the development of renewable energy, the introduction of energy-efficient technologies and the creation of local energy solutions not only reduces dependence on energy imports, but also forms the basis for sustainable economic growth and competitiveness of Ukraine on the path to European integration.

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