ANALYSIS OF THE STATE AND PROSPECTS FOR THE DEVELOPMENT OF SMALL-SCALE ENERGY IN UKRAINE, TAKING INTO ACCOUNT THE EXPERIENCE OF DECENTRALISATION OF ENERGY GENERATION IN THE EU

Lytvynenko O., Kurdupov D.

National Technical University
«Kharkiv Polytechnic Institute»,
Kharkiv

According to NPC Ukrenergo, at the end of 2021, the total installed capacity of the integrated power system of Ukraine was 56, 169 GW, of which 49.7% were thermal power plants (TPPs, CHPs, block stations), 24.6% were nuclear power plants (NPPs), 11.2% were hydroelectric power plants and pumped storage power plants, and 14.3% were power plants using renewable energy sources (RES). According to the National Energy and Utilities Regulatory Commission (NEURC), the installed capacity of the alternative energy sector in Ukraine reached 9,655.9 MW as of December 2021, including residential solar power plants (RSPPs), or 8,450.8 MW excluding RSPPs. Ukraine ranks among the top ten European countries in terms of installed renewable energy generation capacity.

However, the war has had significant negative consequences for the Ukrainian energy sector, especially for the renewable energy sector. Most of the wind and solar power plants located in the south of the country have been heavily damaged or destroyed. Due to the hostilities and the destruction of infrastructure, the role of decentralized energy sources is growing. As the national power grid is overloaded with basic capacities and lacks maneuvering capacities, TPP units designed to operate in basic modes are used to balance the power system. This underscores the importance of developing small-scale generation, which is reflected in the Energy Strategy of Ukraine.

Taking into account the experience of EU countries such as Germany, Italy and the Netherlands, Ukraine needs to develop a legislative framework for the creation and operation of 'energy communities' that will give local communities the right to invest in local RES projects (small solar power plants, biogas plants, small hydropower plants) and distribute profits among community members or reinvest them in local infrastructure. Drawing on the experience of Denmark and Austria, it is important to introduce long-term conditions for the development of small-scale generation (Net Billing, Net Metering) and simplify grid connection procedures.

Ukraine has all the prerequisites for the effective implementation of European models of decentralized generation. Adapting the EU experience will strengthen the country's energy security, promote the development of local economies, strengthen social cohesion, and make the energy sector more sustainable and modern.