

# THERMAL MODERNIZATION OF BUILDINGS AS ONE OF THE ELEMENTS OF THE GREEN TRANSITION

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In today's world, most of the different activities of all social and economic actors (population, business, public sector) need energy. According to the forecasts of the International Energy Agency, energy consumption will increase by 30% by 2040 due to a significant increase in energy demand in developing countries. At the same time, the European Union will remain a well-known leader in the implementation of energy-efficient solutions.

The energy supply is mainly carried out by non-renewable energy sources, most of which are concentrated in several geographical areas. This creates a vulnerability of the global energy system to short-term impacts (e.g., conflicts in energy-exporting countries), as well as a threat in the long term due to possible imbalances between supply and demand. Therefore, the International Energy Agency sees energy efficiency as "a critical tool for reducing pressure on the energy supply system."

Ukraine has undertaken a number of international commitments to implement energy efficiency reforms by signing the Association Agreement with the EU, becoming a member of the Energy Community and joining the UN concept and goals of sustainable development. The basis for the creation of an energy efficiency system is the transposition of EU Directives, in particular, Directive 2012/27/EU and Directive 2010/31/EU. [1]

Recently, Ukraine has been paying special attention to energy efficiency in the residential sector. This is due not only to the significant economic potential, as the possible reduction in energy consumption of residential buildings is estimated at around 9 million tons of fuel equivalent and 3 billion euros annually, but also to social necessity due to the increase in utility tariffs. Under the leadership of the Ministry of Regional Development, with the support of donors and international partners of Ukraine, prerequisites and mechanisms for the implementation of energy-efficient solutions are being actively developed in this direction. Relevant legislation has been adopted, executive regulations are being developed, a mechanism of state financial support in the form of "Warm Loans" is in place, and the Energy Efficiency Fund has been established.

One of the ways to introduce energy efficiency of buildings is their insulation, namely the use of heat-saving structures using modern heat-insulating materials, which can significantly increase the level of comfort of buildings and structures, as well as improve their heat and sound insulation characteristics. Along with this, thermal insulation helps to preserve the maximum amount of heat in buildings, reduce fuel consumption for heating, and therefore the cost of operating costs.

Currently, due to difficult geopolitical, economic and social conditions, there is only one operating enterprise in Ukraine for the production of heat-insulating material - namely mineral wool. This company is located in the city of Zhytomyr, manufactures products under the trademark "IZOVAT", and has been successfully operating in the international market for more than 15 years. When analyzing the scale of demand in the market and the number of uninsulated residential buildings, there was an urgent need to expand production capacities and attract investment in this area, and this is what further research will be based on.

As a conclusion, it should be noted that the insulation of buildings is only one of the steps in the broad process of green transition. Saving energy through insulation not only helps save money and reduce greenhouse gas emissions, but is also an important element of a strategy to reduce the impact on climate change. By promoting the adoption of energy-efficient technologies in construction, we contribute to the creation of a more sustainable, environmentally friendly and energy-efficient future.

#### Resources:

1. Farenjuk H.G., Farenjuk E.H. "On the legislative and regulatory framework of Ukraine". Round table "Possibilities of accelerating thermal modernization in Ukraine", 2020 - URL: [http://www.niisk.com/images/novini/termomodern-zats-ya-bud-vel-sporud/%D0%A4%D0%B0%D1%80%D0%B5%D0%BD%D1%8E%D0%BA%20%D0%93.%D0%93.\\_18.09.2020.pdf](http://www.niisk.com/images/novini/termomodern-zats-ya-bud-vel-sporud/%D0%A4%D0%B0%D1%80%D0%B5%D0%BD%D1%8E%D0%BA%20%D0%93.%D0%93._18.09.2020.pdf)