

FEATURES OF FUNCTIONING UKRAINIAN HEAT MARKET: REGIONAL ASPECT

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Annotation: the article is devoted to the theoretical analysis of the key aspects of Ukraine's energy strategy until 2035 and the main peculiarities of the regional heat supply system. In particular, local thermal energy markets and their key players are studied, and a range of main problems is identified, which are inherent in this market, and also pose a great threat to Ukraine's energy security.

Keywords: the heat market, a regional heat supply system, energy strategy, local thermal energy market, energy-saving, energy-efficient.

Introductions. The unsatisfactory state of Ukraine's fuel and energy complex, which correlates with all spheres of management and is the most capital-intensive, requires a systematic approach and active action by both state and regional government, and improving its energy efficiency and independence is a key task in stabilizing Ukraine's economy, and, consequently, is a state priority of our country.

The reform of decentralization, as well as the inability to ensure effective centralized management of the thermal energy sector, focused on the need to introduce regional energy markets, namely local thermal energy markets.

The authors in [1] propose to consider the sphere of heat energy circulation as a commodity that is in demand and supply within a certain region, which is limited by the systemic properties of the regional heat supply system.

Uninterrupted provision of district heating services has a high economic and social significance at the micro, meso, and macro levels, as it is responsible for providing thermal energy to all consumers (population, businesses, and social

infrastructure), which, in turn, creates the conditions for the normal functioning of society and economic development.

Aim. The purpose of this article is to analyze the theoretical basis of the functioning of the regional heat markets of Ukraine in order to identify typical problems and find ways to solve them.

Results and discussion. The issues of creation, development, evaluation, and effective regulation of regional heat markets were raised by scientists in their works [1 – 6]. At the legislative level, key aspects of the functioning of the heating industry on a national scale are identified [7 – 9], while in the regions of Ukraine there are regulations and relevant concepts, and strategies for the technological renewal of municipal (regional) heat supply system.

It should be noted that the regional heat supply system in most of Ukraine is represented by industrial (meeting the energy needs of enterprises operating in the region) and municipal (providing heat needs of households and social facilities operating in the region) heat.

Analysis of profile publications [1 – 6] allowed us to summarize the range of problems that are currently inherent in most regional heat markets of Ukraine:

1) wear and tear, obsolescence, unreliable and crisis technical and technological condition of fixed assets of heat and power enterprises, which do not meet modern requirements for energy efficiency, economy, and environmental friendliness of the heat supply system;

2) inefficient management and lack of qualified personnel in the field of heat energy;

3) unfavorable investment climate for attracting investment (variability of the legal framework, limited access to reporting, inefficient accounting and management of energy flows, etc.);

4) unprofitable financial condition and the presence of multibillion-dollar debt in most heat and power companies, the lack of prerequisites for their modernization;

5) lack of a competitive market and relevant market principles of heat energy (monopoly, administrative restraint on energy prices, state and regional subsidies to

consumers and producers of heat, introduction of differentiated tariffs, etc.), which significantly slows down the development of the heating industry in Ukraine.

Addressing these issues requires consolidating the efforts of state and local governments. Because it is impossible to improve the crisis state of regional energy complexes only through the efforts of territorial communities, given their material, technical and resource constraints. However, it is necessary to start work in this direction now, as the gradual modernization of the heating industry and the implementation of changes in the field will immediately have positive effects, namely:

- reducing the cost of energy resources;

- the possibility of the gradual introduction of modern technologies and renewal of fixed assets of the industry;

- diversification of routes and sources of energy supplies, suppliers of energy technologies, as well as the introduction of non-discriminatory conditions for connecting independent producers to heating networks;

- minimization of heat energy losses during extraction and transportation, ensuring energy-efficient consumption;

- improving the quality of heat installation services and thermal equipment repair services;

- reduction of harmful emissions into the atmosphere and implementation of a set of energy-saving measures and further expansion of the use of renewable energy.

All this will also help increase energy efficiency, the level of competitiveness of the energy sector, and the level of energy security of Ukraine as a whole.

It should be noted that the implementation of all measures in the regional heat market must comply with the principles of the national energy strategy of Ukraine until 2035 "Security, energy efficiency, competitiveness" [10], which is shown in Fig. 1.

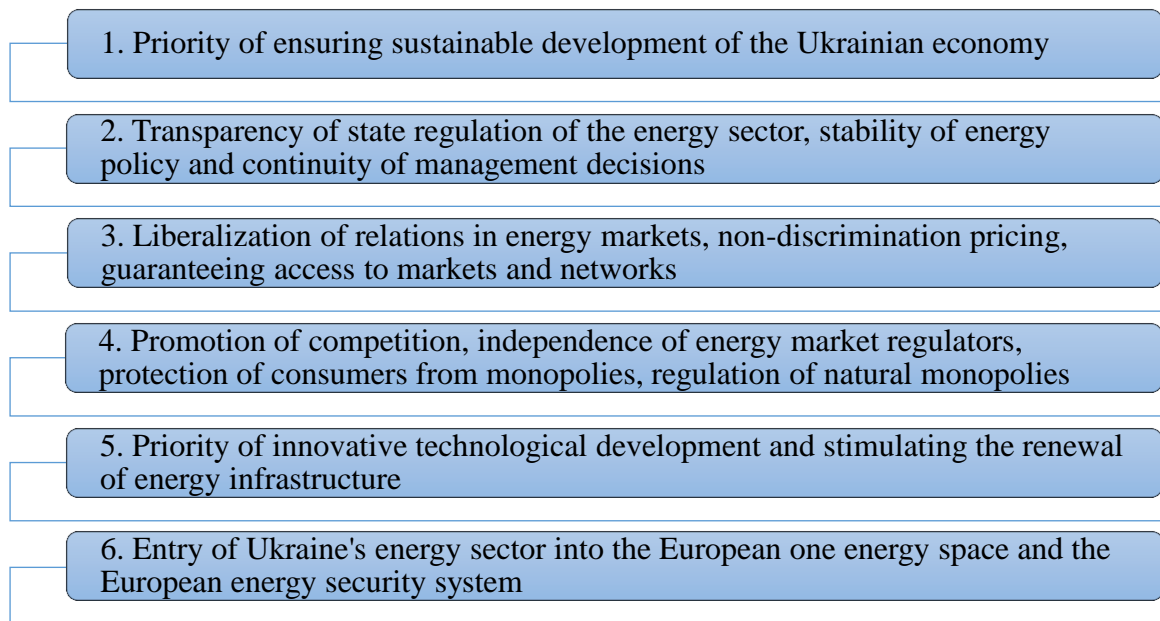


Fig. 1. The main principles of Ukraine's energy strategy until 2035 [10]

According to the Law of Ukraine "On Heat Supply" [9], heat supply should be understood as the activity and/or process of production, transportation, and supply of thermal energy (heat or hot water) to consumers. The implementation of the heat supply process is provided by a set of functional objects defined in [9] as:

1) sources of thermal energy (production facilities intended for the production of thermal energy);

2) objects of heat energy transportation (main heat networks, which are complex pipelines and structures that provide transportation of heat carriers from the heat source to the local (distribution) heat network);

3) thermal energy supply facilities, ie heat distribution networks is a set of power plants, equipment, and pipelines that ensure transportation of the main heat network to the consumer's heat input (under territorial conditions there may be cases when heat is supplied to consumers directly from the heat source).

Manufacturers, suppliers of energy resources and energy equipment, and consumers operate in the regional heat market. Their operation allows realizing the full cycle of the technological process of heat supply: production of thermal energy, its transportation, distribution, and consumption. By the way, in terms of the volume

of heat supply services provided to consumers, the heat energy sector is the largest in the housing and communal services of the territories.

Each regional heat market is part of a regional heat supply system (RHSS), which combines a system of territorial heat supply for industrial and domestic consumers, as well as social infrastructure.

The regional heat supply system is characterized by targeted orientation, certain boundaries, dynamism, hierarchy, openness, structure, and emergence.

There are several subsystems that form the RHSS in the administrative region. These include the district heating subsystem (heat sources, heat transmission, and distribution facilities, heat consumers), the autonomous district heating subsystem, and the region's district heating management subsystem, which serves to provide consumers with energy resources to meet their heat and hot water.

Among the suppliers of energy resources and energy equipment in the regional context, there are enterprises and companies that provide heat and installation services to the population, other enterprises, and organizations. The specialization of these companies includes:

- 1) installation and metrological inspection of heat and water meters;
- 2) dismantling and unsealing of old heat and water meters;
- 3) execution of the list of internal works concerning preparation for installation and installation of devices the account of the heat, hot water;
- 4) defectoscopy of metal structures;
- 5) preparation and issuance to customers (households, enterprises, and social infrastructure facilities) of technical conditions and the procedure for approval of documentation;
- 6) development of design and estimate documentation;
- 7) implementation of a control system at all stages of production and installation;
- 8) other services provided by the company's charter.

It should be noted that in the current realities of operating in accordance with progressive trends in the field of heat, the range of services of such companies can be

expanded to improve the energy efficiency of the heating system and the introduction of energy-saving technologies.

The existence of a significant number of private companies that provide a wide range of services indicates an open market for heating services in Ukraine. Of course, the number of such companies varies regionally and depends on the population of the territory, the number of potential customers and their purchasing power, the deterioration of utilities and housing in the region, as well as the current state of regional energy complexes.

Conclusions. The modern market of heat installation services in Ukraine offers its consumers the opportunity to choose the optimal in terms of energy-saving and energy efficiency of the heating system: centralized, moderately centralized, decentralized, and autonomous or their rational combination. However, the principles of forming competitive relations in regional heat markets and improving the efficiency of their management need further improvement.

Special attention should be paid to monitoring and analysis of the current state of regional heat markets in order to develop effective management decisions and promising measures in accordance with the goals and principles of Ukraine's energy strategy until 2035 "Security, energy efficiency, competitiveness", and taking into account the latest trends, innovative technologies and successful best practices of other countries in reforming the thermal energy sector.

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