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ORGANIZATIONAL AND ECONOMIC FUNDAMENTALS OF AMOUNT OF HOUSING THERMAL MODERNISATION

With energy security balanced system formation the conservation and rational energy resources using, including the housing sector is still important for Ukraine. Fuel and energy resources lack identified priority areas of the Ukraine Energy Strategy till 2030 as the energy-efficient society formation, functional task of what involves energy saving and efficiency, along with the energy efficiency awareness formation among our country citizens [1]. At the same time, housing and communal services power consumption of 31% requires energy efficiency and conservation increasing directions identifying in the housing policy formation and implementation.

Scholars and practitioners working hours towards energy efficiency and conservation and own researches allowed us to reveal the main problems of housing policy formation in Ukraine and offer their solutions [2-5]. It is proved that the efficiency of the domestic real estate market requires legislative and regulatory support this process, amount of housing assessment and analysis methods, financial model selection ensuring its thermal modernisation. At the beginning of 2016 the state amount of housing increased by 1% compared to 2015 and amounted to 973,8 million m^2 of total area. The amount of housing in urban areas was 60,8% (592,5 million m^2) from total fund. According to the State Statistics, almost the entire amount of housing (98,2%) was placed in homes housing type, area of dormitories and residential premises in non-residential buildings in total was 1,8%. A large amount of housing proportion of the country which is home to about 50% of the population is in disrepair or outdated and needs major repairs. According to Ministry of Regional Development specialists on the 1st of January 2017 more than 70% of amount of housing needs thermal modernisation. In this regard, more than 40 thousand multi-storey buildings need energy efficiency increasing and energy consumption reducing by thermal modernisation.

Amount of housing energy efficiency increasing requires financial resources presence, according to various experts reaches more than 50 bln. USD. The amount of housing deterioration and housing and utility service quality leads to social risks exacerbation and social security condition deterioration in Ukraine. Under these conditions, the organizational and economic amount of housing thermal modernisation principles determination is relevant and timely. The amount of housing thermal modernisation process needs first the current legislation analysis in this area and its improvement on the experience of the organization and reorganization of amount of housing in the world leading countries. We consider it is appropriate to develop a road map that would contain residential buildings stages modernization realization, legal and organizational aspects, institutional and financial supporting. In terms of decentralization one of the important stage for growth strategy drafting of Ukraine's regions energy sector is the stock count of existing amount of housing and evaluating its condition in terms of energy efficiency and conservation.

Energy efficiency measures implementation and home remodeling require significant financial resources, the payback period of what ranges from 8 to 15 years, for example, the cost of full thermal modernisation of residential 5-storey 80-apartment building is about 1,7 million. Therefore, the important stage is to analyze the possible financial models that can be used for financial resources providing, necessary for the energy efficiency implementation. The main ones are: credit model; model revolver; ESCO model.

The real mechanism of reforms in the field of heat supply and energy cost reducing in homes may become their energy audit. It is conducting an energy audit to determine the building condition and propose effective measures for energy conservation. He also contributes to obtaining financial benefit by reducing the cost of heat, electricity, water or fuel, and thermal comfort, living conditions improving.

The amount of housing condition stock count of Poltava region found that the largest share in the structure of housing area construction for years in the amount of housing commissioned in 1946-1960 years (25,7%). Next in size is the amount of housing that was built in 1961-1970. It is lawful to note also about amount of housing availability consolidated until 1919, its share is about 4 percent. From the 36327 thousand m^2 of general housing area in the Poltava region at the beginning of 2016 the total area of premises in the amount of 170,4 thousand m^2 was in dilapidated condition (Table 1).

Table 1

Distribution of residential buildings construction by year in Poltava region

	Houses total	Including built in the period						
		Till 1919 year	1919-1945	1946-1960	1961-1970	1971-1980	1981-1990	1991-2006
Poltava region	423312	17751	52408	108668	97112	66801	50216	30356
c. Poltava	21250	2326	1982	3082	3828	3432	3156	3444
m. Komsomolsk	2354	71	226	628	490	419	275	245
c. Kremenchuk	16100	494	1784	3828	3564	2807	1878	1745
c. Lubny	9168	466	854	2093	2155	1882	1132	586
c. Myrgorod	7680	206	513	1610	1931	1861	1030	529

According to experts, in Ukraine, first of all thermal modernisation need buildings of 1971-1980 years erection – is about 18140 (105 100 000 m^2). Among them – 13 240 five-storeyed buildings, 4170 nine-storeyed buildings and 730 sixteen- storeyed buildings. In the Poltava region there are 66801 houses of 1971 – 1980 years erection. In houses of 1981 – 1990 years erection thermal modernisation should be done in the second turn. In general, such houses in Ukraine there are 22 270 (134 500 000 m^2). Among them 11140 five-storeyed buildings, 8480 – nine-storeyed, 2200 – sixteen-storeyed and 450 – above sixteen-storeyed buildings [6]. In this regard, towards thermal modernisation it is lawfully to consider not only years of erection but also building class according to the Unified classifier residential buildings depending on the quality of existing housing and engineering equipment. Distribution of residential buildings in Poltava region for classes at the beginning of 2016 were as follows: building class 1 – 0,6%, 2nd grade – 2,7%; 3rd grade – 6,5%; 4th grade – 24,7%; 5th grade – 32,9%; 6th grade – 32,6%.

Energy conducting as one of thermal modernisation stages involves review and subject specific professional appliances; collect, study of technical documentation for the facility; prepare a report in accordance with national standards of Ukraine on energy auditing and energy management.

An important part of the thermal modernisation is to develop sources of funding energy efficiency measures. Energy efficiency projects can be financed using various mechanisms and through various funding sources.

In Ukraine to improve the energy resources efficiency from 2010 it is accepted the state target economic program on energy efficiency and the energy production development from

renewable energy sources and alternative fuels in 2010-2016 [7]. The estimated funding for the program amounted to 344,22 billion USD, including 5,91 billion – for the state budget, 15 billion – at the expense of local budgets, 323,31 billion USD – from other sources. The government program aimed at encouraging the population to energy efficiency measures; condominiums, housing cooperatives.

We consider it is appropriate to examine the possibility of using private pension funds in carrying out measures to amount of housing thermal modernisation of Ukraine that will serve as the improvement of social protection of older persons and development of real economy sector. At once it is rightly to note also the need for energy efficient formation of citizens consciousness of our country, including the reduction of energy consumption in buildings. In the housing sector for energy conservation and appropriate use of financial leasing relationships in an economic justification, legal and economic principles of what are determined by the Law of Ukraine «About finance lease».

Thus, the residential buildings energy efficiency ensuring in need of amount of housing thermal modernisation and encouraging people to reduce energy consumption. An important thermal modernisation direction is still model choicing with energy efficiency funding measures. The main principles of energy saving state policy in the housing sector are: the creation of the state economic and legal interest in energy efficiency businesses and individuals; energy efficiency requirements order of precedence in carrying out the housing erection and maintenance; creating energy-efficient structure of the material production of building materials and structures; popularization of economic, environmental and social benefits of energy conservation, improving public education level in this area.

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