

Incentives and Shortcomings of Housing Legislation and its Influence on Implementation of Energy Efficiency Projects in Multifamily Buildings

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Situation in the Republic of Moldova

- Lack of own sources of energy resources (the import of such makes up about 98%);
- decrease of the number of performing enterprises, which consume a significant amount of energy resources; and a seasonal regime of work of some of these enterprises;
- increase of consumption of thermal energy resources (up to 40%) in the housing sector, and a constant increase of energy costs in this sector;
- on-going increase of the specific weight of consumed natural gas in the general amount of energy resources as a result of successfully carried out program of gasification of Moldova's settlements (in 2001, the ratio of gasification of settlements was 25%, whereas now it has exceeded 35%, and the works are being carried out up-tempo due to the Government-adopted measures).

National Program for Energy Supply 2003-2010

- National Program for Energy Supply for the period of 2003-2010 states there are huge losses of water in the water supply system, which are referred to the cost of thermal energy, hot water, drinking water. Because of this, the country's economy's energy efficiency has been declining.

Reasons for Losses (1)

1. Electric energy costs for supply of 1 m³ of water to consumer makes up 1.78 kWt.h on average in Moldova, and fluctuate within the range of 0.5 - 8,16 kWt.h/m³ .

Given that the average tariff in Moldova is 4.21 lei, the share of electric energy makes up about 33%, and fluctuates with the range of 25 % - 70 % in different economies of the country, whereas the share of electric energy in the structure of costs is about 60 %.

Replacement of old electric equipment by modern highly economical equipment can reduce consumption of electric energy by 15-25 % . Thus, for instance, replacement of equipment at the Edinet water pipeline, carried out with the help of joint investments of the beneficiary and ДАНСИ, will allow the water users to annually save about 530 thousand lei.

Average saving per each water user equals to payment for approximately one-month water services.

Reasons for Losses (2)

- 2 According to data from the Academy of Communal Economy named after Panfilov, annual thermal energy costs for hot water supply in the dwelling buildings, equipped with centralized systems of hot water supply, in the middle climatic region, exceed the thermal energy costs for heating.

According to specialists' estimations, non-rational losses of thermal energy and water in the hot water supply systems, used to be only 10-15 % as long as 10-15 years ago.

Currently, mass-scale disconnection of heating standpipes in the staircases, elimination of return pipelines in the hot water supply systems is characteristic for our large cities (Chisinau and Balti), which results in discharge of network water into the sewage system, non-regular heating of bath-rooms. Because of non-observance of heat-carrier parameters in the centralized heating and hot water supply systems, residents have been hurriedly installing over the recent years gas boilers in their apartments, and, in some cases, boiler-houses for the buildings of different destination.

These facts jeopardize the efficiency of existence of the centralized heating supply system of the city.

Legislative Package: Laws

It is worth underlining, that there is a sufficient, even good, legal support in terms of laws and regulatory acts for due organization and performance of the national economy of Moldova, in general, and for the energy and housing sectors, in particular. The legislative package includes:

- National Sustainable Development Strategy (XXI century);
- Law on Energy (No. 1525-XIII as of February 19, 1998);
- Law on Electric Energy (No. 137-XIV as of September 17, 1998);
- Law on Gas (No. 136-XIV as of September 17, 1998);
- Law on Concept of Privatization of Electric Energy Sector Enterprises;
- Law on Energy Saving (No. 1136-XIV as of July 13, 2000).

Regulatory Package: Government Decisions

A variety of Government Decisions have been issued, including:

- On reconstruction and thermal rehabilitation of dwelling houses (No. 421 as of April 5, 2002);
- On approval of Concept of System of Exploitation of Existing Developed Fund (No. 378 as of April 22, 1997);
- On measures to ensure rigid economy of energy resources (No. 334, as of June 2, 1993);
- On approval of energy strategy of the Republic of Moldova till the year 2005 (No. 542, as of June 11, 1997);
- On approval of Regulation of National Energy Saving Fund (No. 1528, as of November 26, 2002)
- On approval of National Energy Saving Program for the years 2003-2010 (No. 1078 as of September 5, 2003);
- On measures to reduce costs for energy resources in the national economy (No. 1057, as of August 6, 2002);
- On approval of the National Program for Renewal and Decentralization of Heat Supply Systems in the Republic of Moldova (No. 1059 as of June 29, 2003);
- On approval of the Energy Strategy of the Republic of Moldova till the year 2010 (No. 360 as of April 11, 2000).

Legislative Developments

- Currently, the work on the amended version of the Law on thermal energy was resumed. The Energy Strategy of the Republic of Moldova contains concrete indices of the energy sector development for a 10-year period (2000-2010) in the context of increase of the population's level of life.
- Among the above-listed documents, the National Energy Saving Program for the years 2003-2010 and the National Program for Provision of Ecological Security (see Government Decision No. 447 as of April 17, 2003) are the key documents that are designed to ensure reduction of the level of energy consumption in the Republic of Moldova. The key objective of these documents is not just to ensure saving of energy resources, but to manage to increase energy efficiency, i.e., to maximally decrease energy costs per one unit of the gross domestic product, because the current situation gives rise to a founded concern.

Situation with Consumption

Thermal energy consumption in dwelling houses in our country makes up about 350-600 kWt.h/m² per year, whereas in Germany - 260, in Sweden and Finland -135.

Moldova annually spends for purchase of fuel more than 30% of its GDP (USA – 4.1%, Germany – 4.2%, Spain – 4.5%, Bulgaria – 9.8%).

By 2010, it is expected that consumption will increase as compared to 2000 as follows:

- natural gas - 1.55 times;
- oil products – by 24.5%;
- electric energy – 2.25 times.

In 2000, average index of annual electric energy consumption per capita made up 959 kWt/h, whereas by 2005 this index reached almost 1650 kWt/h, and it is expected to attain 2274 kWt/h by the year 2010. These figures once again demonstrate the need to adopt measures targeted to save thermal energy resources, especially in the housing economy.

Energy efficiency in the housing economy is of economic interest from the standpoint of on-going increase of communal services consumed by the population.

The communal services bills increased by 4 times by 2005 as compared to 1997 and reached 1.5 billions MDL

Financial and Technical Barriers (1)

- There are both financial, and technical difficulties on the way to implementation of energy efficiency measures. Operation of the housing fund in Moldova is carried out in difficult climatic and engineering and geological conditions.
- The existing fund has been periodically subject to unfavorable impacts, caused by natural calamities, such as floods, land slides, underflooding, soil subsidence, and other. Average annual material damage caused by these calamities to the Republic of Moldova, makes up about \$200 million, or 20% of the GDP. This is why Moldova does not have enough financial possibilities to carry out measures designed to ensure energy efficiency of buildings.

Financial and Technical Barriers (2)

- It is worth pointing out that during the period of mass-scale privatization the apartments have been privatized (94% at the moment), whereas buildings virtually turned out to be ownerless. Thus, public spaces and their key construction elements have not been exploited or repaired for a long time, now. After the privatization was finished, all previous systems of maintenance, repair, and operation of the housing fund disappeared from the everyday practice of housing fund managers. In the sphere of reconstruction and modernization, implementation of energy efficiency measures were farmed out to the local governments, which are too busy to get involved in implementation of energy saving measures. Therefore, due to the lack of financial means, and despite a good legislative and regulatory framework in place, there are some steps made in this respect and there are only several executed projects.


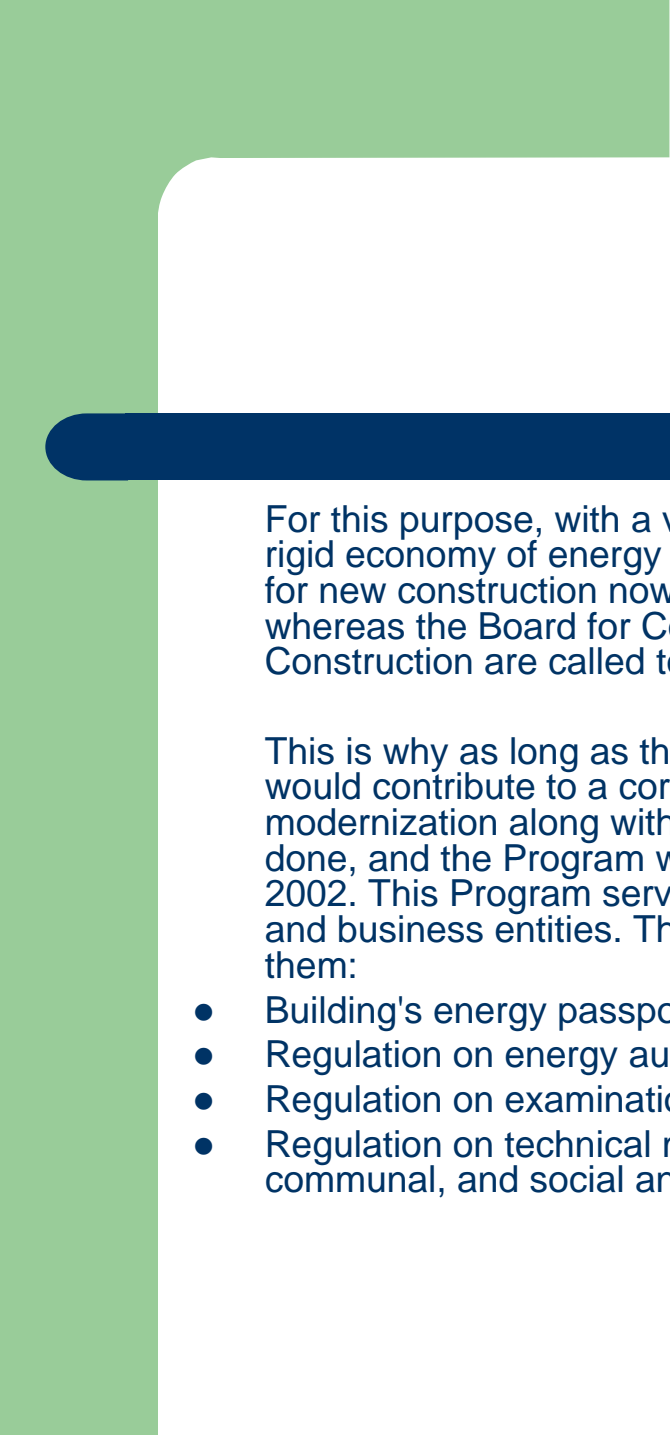
State of the Housing Stock

- For the year 2006 the mayor's office of Chisinau allocated about \$160 thousand for technical expertise of old buildings, and the subsequent designing and construction of attics at the account of business entities' means.
- Significant number of houses, built in '60-'80-s of the 20th century (more than 30%) are considerable deteriorated; many houses have become obsolete, and they excessively consume energy.
- According the current norms and rules of exploitation, in Chisinau alone it is annually needed 160 million lei for repair and exploitation of 3503 dwelling houses with overall floor space of 5.3 million m². On the basis that financial possibilities, the municipality allocated for this purposes 35.2 million lei (22%) in the year 2005. Taking into the fact that apartments have been privatized (94%), the necessary expenses have to be borne, through the tariff for house maintenance, by owners of apartments. The current tariff (0.19 lei per 1m² usable area) is 11 times below the economically justified tariff (2.44). So, given the population's solvency, implementation of energy efficiency measures in the housing fund will, unfortunately, be delayed.

Structure of Expenses

The structure of average monthly expenses for the housing and communal operation (December 2003, 2004 and 2005) of a 2-room apartment, $S = 46 \text{ m}^2$, year of putting into operation – 1970, walls made of saw lime, number of residents – 2. The total of amount of expenses per month – 390 lei (\$30).

- Electric energy –24 % (illumination, household devices, boiler)
- District heating – 47% ;
- Natural gas –7% ;(food, water heating)
- Cold water and sewage - 5 % ;
- Technical maintenance of the house, garbage removal – 5 % ;
- Various expenses - 12 % ; (telephone)



For this purpose, with a view of execution of the Government Decision measures to ensure rigid economy of energy resources (No. 334, as of June 2, 1993, the project documentation for new construction now includes a chapter “Energy Saving”, Energy passport of building, whereas the Board for Control and Expertise of Designs and the State Inspection in Construction are called to exercise control over their implementation.

This is why as long as three years ago there emerged the issue of drafting a program that would contribute to a correct organization and control over the process of reconstruction, modernization along with thermal rehabilitation of the developed fund. Thus, the work was done, and the Program was approved by the Government Decision No. 421 as of April 5, 2002. This Program served basis for drafting similar programs by ministries, departments, and business entities. The following departmental documents helped and are still helping them:

- Building's energy passport;
- Regulation on energy audit of existing buildings, heat and hot water supply;
- Regulation on examination, technical inventory and certification of built dwelling houses;
- Regulation on technical maintenance, repair, and reconstruction of dwelling buildings, communal, and social and cultural objects.

It is worth underlining that the energy efficiency issues are constantly within of eyeshot of the central public administration authority – the Agency. The progress of implementation of the scheduled measures has been regularly examined at the working meetings (17.08.2005), meetings of the collegiate body (25.08.1999, 06.07.2004); Orders are issued with regard to this topic (No. 154 as of 16.07.2002, No. 256 as of 25.12.2002, No. 198 as of 24.09.2003, No. 66 as of 17.10.2005, and other).

Some measures, stipulated in the Programs, have been carried out, and namely:

- installation in apartment-meters to register consumption of gas, hot and cold water, and thermal energy at the input to the building;
- all-round transferal of boiler-houses from solid and liquid to gaseous fuel;
- execution of a pilot attic construction project;
- drafting of the 1st wording of the Law on thermal energy, and other.

The following are the key tasks for the next period, which are stipulated in the main documents of the energy policy of the European Union:

- development and implementation of campaigns to render energy services with the state's participation and by attracting technical assistance of international programs and organizations;
- increase by 30-35% of the general floor area of the housing fund at the account of building's extensions, top-outs, and attic floors;
- reduction by 35-40 % of energy costs at the account of insulation of enclosing structures, modernization of engineering and systems;
- state expertise and audit in the field of energy saving;
- inventory-taking and certification of the existing housing fund;
- scientific, informational, and financial provision of energy saving;
- establishment of state control in the field of energy saving, record-keeping of energy efficiency and inclusion thereof into the state statistics.

- According to the Plan of Measures Intended for Execution of Government's Action Plan for the years 2005-2009 годы „Modernization of the Country – Prosperity of the People”, approved by the Government Decision No. 790 as of August 1, 2005, this year it is envisaged to develop a new energy strategy of the Republic of Moldova, which will entirely correspond to the energy tasks of the European Union (EU), in which the Law on energy efficiency of buildings was enacted. Since the Republic of Moldova embarked upon integration in Europe, the country should follow the general European rules.
- Implementation of more advanced technologies also contributes to the increase of energy efficiency. This allows to make generation and consumption of electric energy and heat cheaper. Such project has already been implemented in the campus of the State University.

- Currently, the Agency is working on the Program of development of the building materials industry for the years 2006-2010. The draft program envisages creation of capacities to annually manufacture 40.0 ths. m³ of porous concrete, 50.0 ths. m³ of foamed concrete, production of 100.0 ths. m³ of thermal fiberglass-based insulating material, 100.0 ths. m³ of claydite, 30.0 ths. m³ -of concrete blocks “Termonfort”, production of mineral insulating material „Bisipar”, panels „Sandwich”, and many other, which will allow to significantly decrease import of building materials for the regenerating building sector.

- At the end of my speech, let me inform you that the Parliament of the Republic of Moldova approved in December 2004 the Strategy of Economic Growth and Poverty Reduction (2004-2006), which is a general political ground for provision of a sustainable development of the Republic of Moldova in the middle-term period.
- This document is also a basis for development and implementation of new strategies of technical assistance on behalf of international financial organizations and donating countries.
- The strategy contains the task to develop power engineering development in the middle-term perspective. This task is designed to increase the energy security of the country and to create conditions for an efficient and stable development of the sector, whereas for the housing sector – to further develop and implement pilot projects for modernization and rehabilitation of the existing housing, including thermal rehabilitation of houses.

