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Strengths and Weaknesses of Energy-saving Management in Housing and Public Service: Russian Experience

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Abstract: The functioning of the housing and public services affecting the interests of the entire population under conditions of socially-oriented market economy in the Russian Federation is the strategic indicator of evaluation of the social and economic policy conducted by the state. Attributed to the problems of the industry are rather low incomes of the basic mass of the Russian population which results in the low consumer demand of the people for the housing and public services; the monopolistic position of the producers and suppliers thereof, as well as the unjustifiably exaggerated prices for the energy commodities; inconsistency of the tariff-setting rules, high costly characteristic of production and rendering the Housing and Public Services (HPS), etc. The place and role of the federal, regional and municipal authorities have been revealed and substantiated in the process of incorporating the energy-saving technologies in the industry. The “Concept of complex modernization of HPS and a transfer to building the energy-efficient houses” developed by the All-Russia public organization Delovaya Rossia has been studied. The consideration has been given to the element structure of the energy-saving management system in the housing and public services. A scientific approach to the shaping and development of the energy-saving management system in the housing and public service of Russia has been proposed which will be based on the principles of uninterrupted operation of the housing and public service, financial balance of the private partner, state controllability.

Key words: Housing and public services, management system, energy-saving, energy efficiency of residential houses

INTRODUCTION

RF suffers gross losses under conditions of global economical crisis for the reason of underestimated energy-saving problems in the post-reform period: The energy intensity of the gross national product in Russia is twice as high as the world average. The energy-saving is the implementation of the organizational, legal, technical, technological, economical and other measures aimed at the decrease of volume of the used energy resources at saving the corresponding useful effect of utilization thereof (including the volume of manufactured produce, performed works, rendered services) (Petrov and Drozdova, 2013). According to the Federal Law (2009) “On energy-saving and increasing energy efficiency and on introducing changes into certain statutory instruments of the Russian Federation” (www.base.consultant.ru) such methods as the personnel involvement in the process of energy-saving management and the other non-monetary types of encouragement are widely used alongside with the remunerative incentives.

The relevance of conducting scientific investigations in the given field is substantiated by the fact that notwithstanding the problems present in the field, the energy-saving potential is quite high in Russia. We do have a real possibility of reducing the energy consumption by more than two times in our country. The European community is going to handle particularly this task, by setting itself the task of reducing the energy consumption by 2020 and decreasing the generation of the greenhouse gases by 20% as compared with 1990, as well as reach the energy consumption from the renewable sources in the amount of 20% against the total consumption (Smirnova *et al.*, 2013).

The federal, regional and municipal authorities in our country are not indifferent to solving this problem and take all necessary measures on reforming the domestic HPS. In particular, the competitive clusters are being formed. Endowed with powers and financial resources at the federal and regional levels they influence in the best possible way the efficiency of functioning of the industry complexes and the economy as a whole (Tokunova, 2013).

Presently, the Federal program “Housing” (www.rg.ru) is being implemented in RF, the dedicated structures (www.fondrgs.ru) are being established and function; the methodological, reference materials and recommendations, forms of reports, regulations for data exchange, reports from the sittings of the supervisory boards are being developed (Trudeau and Murray, 2011). The executive bodies of the regional and municipal authorities attempt to supervise the process of interaction between all the participants of the services market in the sphere of administration of multiflat houses, providing safe maintenance of the multiflat houses, etc. (www.minenergo.gov.ru).

The All-Russia public organization Delovaya Rossia has developed a “Concept of complex modernization of HPS and a transfer to building the energy-efficient houses” (www.deloros.ru). This concept offers the innovative approaches to solving the problems of housing and public service based on inviting business with its investments.

However, in case of solving an energy-saving problem at the local level (Andryushchenko and Strezhkova, 2013) in case of attempts of changing over to the new technologies the business organizations have to face the conservatism of administrators. Therefore, the available developments need to be adapted to the present Russian conditions and systematization (National Human Development Report in the Russian Federation, 2010).

METHODOLOGY

An urgent question of non-compliance of the methods applied nowadays and the methods of energy-saving management in HPS with the emerging requirements of the modern market economy has demanded a search for the new adequate approaches. The development of scientifically substantiated system of energy-saving management contributes to increasing the functioning efficiency of not only the domestic HPS, but the entire system of the national economy of Russia.

Many modern scientists and experts are of the opinion that the efficiency of a system of market relations is determined by the scientific feasibility of the approach to building the said system, the degree of sophistication of its regulatory and legal framework and the quality of professional training of specialists (Panibratov and Larionov, 2013).

The methodology of carrying out this study is based on the scientific results presented in the studies of the Russian scientists (Larionova *et al.*, 2012; Aizinova, 2007) and their foreign colleagues (Boyano *et al.*, 2013; Rezessy *et al.*, 2006;

Heiskanen *et al.*, 2013; Brandoni and Polonara, 2012) and other and other which are devoted to solving the energy-saving problems in HPS. The graphical and tabular techniques of processing the statistical and analytical data have been used as well.

MAIN PART

Does a good beginning make a good ending? The scientific approach to understanding the ways of development of the modern economical science manifests itself in providing a certain balance between the latest trends on one side and the former scientific results on the other side.

The Federal government has been assigned a mission of improving the quality of housing and public services in accordance with the Decree of the President of Russia No. 600 of 07.05.2012 “On the measures of providing the citizens of the Russian Federation with the affordable and comfortable housing and improving the quality of housing and public services”. Proceeding from the results of the State Council sitting “On the measures for improving the quality of providing the housing and public services” taking place on 31.05.2013, the RF Government has been assigned to ensure attainment of the following goals:

- Modernizing the municipal infrastructure before 2020 to the regulatory level of fixed assets deterioration
- Transferring HPS objects of all the state and municipal enterprises which perform an ineffective administration before 2016 to the private operators on the basis of concession agreements
- Reducing the number of accidents and emergency situations in the course of production, transportation and distribution of municipal resources at least 1.5 times before 2017
- Reducing the in-process losses of municipal resources in the course of transporting them via the networks down to the regulatory level before 2018

The improvement of the regulatory and legal framework taking place in Russia shall create a motivation for reducing the energy-consumption. The country’s leadership has set a task of reducing the GDP energy-intensity by 40% not later than before 2020 (www.irm.ru).

On the complex modernization of HPS and a transfer to building the energy-efficient houses in Russia: We deem a complex index of the heat-shielding of buildings used in the USA, Germany, France and a number of other European countries quite relevant in this respect: A

specific demand for heating the residential building, i.e., consumption of energy carriers per unit of useful area of the heated volume or per degree-days of the heating season (Van Staden and Musco, 2010). This principle has been used as the basis of standardizing the energy efficiency of the residential houses in the European Union (Directive 2002/91/EC, Directive 2010/31/EU). Such an approach has been tried in some constituent entities of the Russian Federation and later it was included into construction rules and regulations SNiP 23-02-2003 “Buildings heat insulation” as a standard requirement.

The implementation of the “Concept of complex modernization of HPS and a transfer to building the energy-efficient houses” developed by Delovaya Rossia LLC contemplates liquidation of the dilapidated housing facilities; reduction of tariffs growth rate; improving quality and uninterrupted supply of the housing and public services; carrying out major repairs of the multiflat houses with the use of energy-saving technologies based on the projects taking into account the cost of the life cycle of the multiflat house; adoption of the differentiated tariffs for the housing and public services on the basis of social rates of consumption of municipal resources; reorientation of the Russian construction complex to building the energy-efficient houses; establishing a letting stock, including the social renting; creating new vacancies.

Apart from this, the above concept envisages establishing a Federal network of energy-efficiency centers making it possible to shape a common information field in our country for the exchange of experience on introducing the energy-saving technologies. The pilot projects implemented nowadays in some constituent entities of the Russian Federation are, actually, the testing ground for exercising the mechanisms of inviting the private investments as well as exercising the engineering and technical and organizational solutions ensuring increase of the HPS energy efficiency.

Critical attitude (it is premature to speak about functionality of the efficient system of management of energy-saving in HPS): Nevertheless, the problems still remain. It is premature to speak about functionality of the efficient system of management of energy-saving in HPS adequate to the requirements of the modern market economy in Russia (Larionova and Janc, 2012). Such a system shall be built on the exacting scientific analysis. The author uses the preliminary studies of Larionova and Janc (2012) as the basis, where the subject and the object of management are interpreted in accordance with the system approach as the integral whole and in the

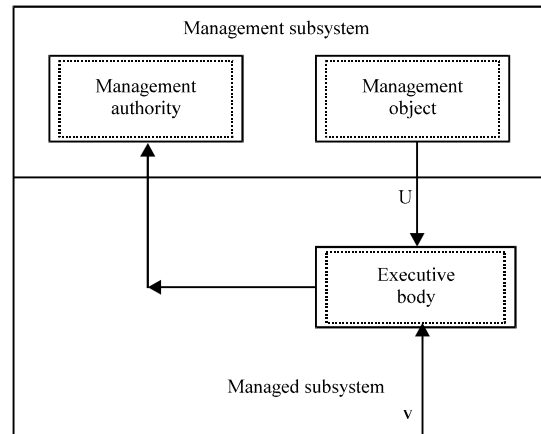


Fig. 1: System of energy-saving management in housing and public service, U: Executive body influence on management object and V: Deviation of management object status influenced by external effects

interaction with environment (Fig. 1). The energy-saving in HPS is taken as the object of management. The relevant structures at the federal, regional, municipal levels influencing the management object and managing it are taken as the subject of management. The management subsystem develops a goal and a program of the managed subsystem functioning, monitors and regulates the energy-saving processes, performs the management-relevant functions: Planning, record-keeping, monitoring, analysis, motivation, stimulation, regulation, coordination (Fig. 2).

Establishing favourable conditions for development of energy-saving in HPS: A program of efficient incorporation of the management object (energy-saving) into HPS system is also important. The record-keeping makes it possible to reflect the actual state of affairs on energy-saving incorporation into the management companies’ activity. The basic advantages for the municipal governments and HPS organizations are as follows:

- Transfer of the cutting-edge technologies and managerial skills, incorporating new forms of organizing economic management
- Passing the up-to-date equipment and production facilities into the ownership of the municipal body after expiry of the date of contracts
- Limitation of financial participation of the corresponding budgets in implementing modernization projects and developing energy-saving in HPS

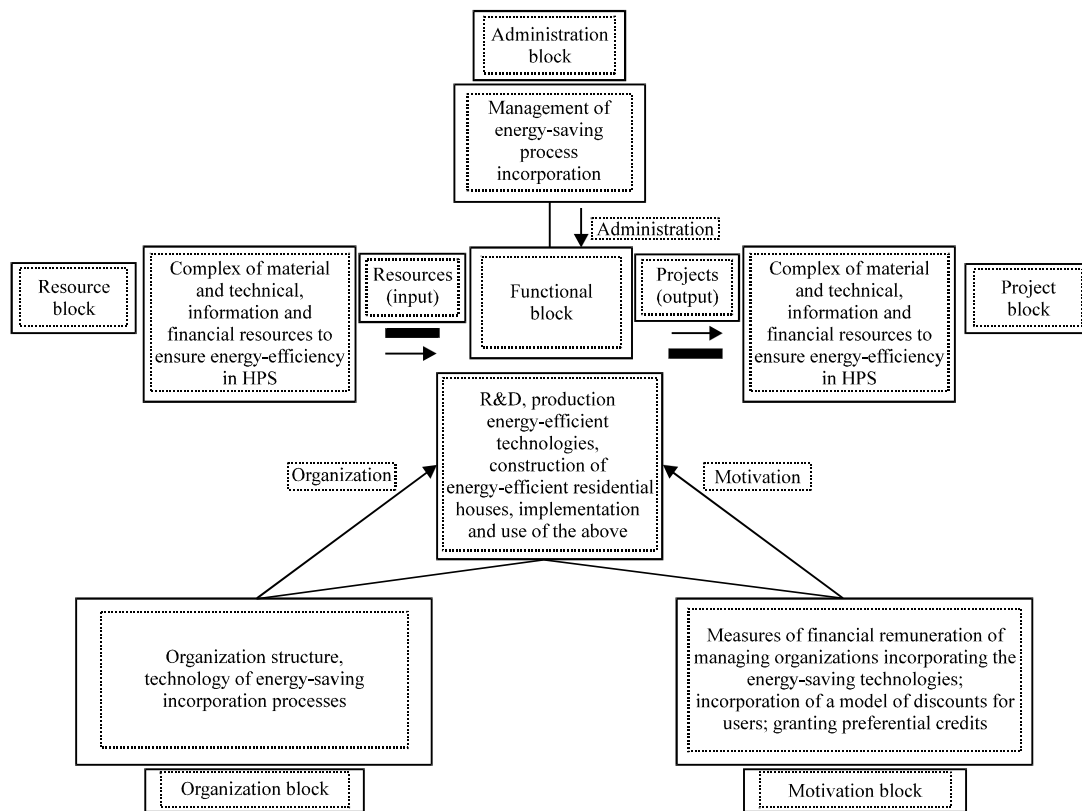


Fig. 2: Element structure of energy-saving management system in housing and public service

- Inflow of additional investments into the region or municipal body
- Establishment of additional employment and stimulating economical activity in the region, since some resources invested into the energy-saving project will be invested in the form of labour force recruiting, etc.
- Development of personnel potential of the housing and public service
- Possibility of transfer of some housing and public service objects and directions to delegated management

The analysis based on the planned and actual information provides for the quantitative and qualitative evaluation of changes taking place within managed object with respect to the assigned program over time. It is used to select the variants of the managerial solutions aimed at rectifying the reasons of negative deviations and establishing favourable conditions for progressive development of energy-saving in the housing and public services and enhancing the energy-efficiency of the residential properties. The internal reserves that were not used or are additionally emerging in the new situations

get revealed which become useful either in accelerating development of the managed object or transfer it to more efficient mode of functioning.

Major paradox on the path to getting real investments:

We reckon the results of investigations of Grabovij (2010) to be a contribution to shaping the system of energy-saving management in the housing and public services. According to K. Grabovij, the energy-efficiency remains to be the most important factor of the domestic produce competitiveness through energy-saving and resource-saving in case of full building management and utilizing the alternative sources of energy. The majority of HPS enterprises has quite a limited idea about its reserves in the sphere of energy-saving and resource-saving, since they do not possess the complete impersonal information on functioning all the engineering systems of this or the other building. The analysis made by K. Grabovoy has shown that the elements of a proprietary system get installed as before. In this case the elaboration of model of Return on Investment (ROI) becomes so much complicated that it appears to be the major obstacle on the road to getting real investments.

Table 1: Measures for general reduction of expenditures

Drawbacks of implementing the tariff policy	Recommendations on rectifying the drawbacks of implementing the tariff policy
Absence of clear rules of conducting competitive bidding when procuring materials, feedstock, etc.	Prepare a typical provision on the competitive bidding, specify the minimum amount of expenditures, in excess of which the enterprise is to betake itself to conduct biddings
Absence of clear list of required additional payment and substantiating documents and normative standards	Prepare in detail an exhaustive list of additional substantiating documents and normative standards
“Weighting up” of tariff due to including an investment component into its expenditures which brings about the profit tax increase	Abandon including an investment component into the tariff income or prescribe a profit tax relief in the Internal Revenue Code for organizations conducting active investment policy
Approval of the integrated tariff for the heat energy for customers without breaking down its structure to the components	Use a list of tariffs corresponding to the cost of every stage of heat supply process
Subjectiveness, prejudice of the regulatory bodies of municipal governments	Introduce a practice of mandatory annual audit of activity of energy providers which will remove influence of the personal opinion of specialists of the regulatory bodies and facilitate a procedure of tariff protection

Reduction of operational expenditures: V. Telichenko and E. Gogina consider a technology to be promising when it can be used to gain a systematic improvement of the current condition. According to Telichenko and Gogina (2012), this goal has a scope and a character of the national goal. The significant peculiarities of this project are the following innovations:

- Development of integrated automated system for keeping record of consuming various types of energy and resources
- Possibility of inexpensive and reliable way of administration
- Monitoring effected by the state regulatory bodies
- Rendering municipal services is organized more efficiently by means of establishing service providers

Many experts emphasize in the course of studying the present-day problems of the residential housing development that the actuation of mechanism of delegated energy-saving management in HPS is capable of bringing about the increase of quality and reliability of rendering services to the users as well as the reduction of operational expenditures. In this case the amount of resources allocated for elimination of accidents at the municipal utility networks will get reduced. The energy-saving monitoring the amount of resources consumption will also bring about a total reduction of expenditures, since the replacement of the obsolete utility networks with more efficient ones will inevitably result in the essential decrease of the tertiary industries cost (Larionov and Gorshkov, 2008).

As shown in Table 1, in general it is important to quit the system of centralized bureaucratic control which continues to play an important role in shaping a policy and way of thinking in our country notwithstanding the technological changes similar to those which determine a character of Western Europe development.

CONCLUSION

- The techniques and methods of managing the energy-saving in the housing and public services nowadays are non-compliant with the presented requirements of the contemporary market economy
- The main reason of management inefficiency in the sphere of HPS is the conservatism of administrators, lobbying the non energy-efficient technologies as well as primitivism of designing resulting in the increase of economical and transaction costs in the basic period of financing
- In order to solve the energy-saving problems and ensure the stable development of HPS enterprises, it is reasonable to create a network of energy-efficiency centers which will provide for a capability of experience exchange regarding the introduction of energy-saving technologies
- In order to develop a system of energy-saving management in HPS, it is necessary to proceed from the principles of priority ranking of introduction of energy-saving technologies in the housing and public services; state-based controllability; certainty; uninterrupted housing and public services; financial balance of concessionary; equality; adaptation and variation; neutrality

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