



Energy efficiency policy activating in Russia by project management methods

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ABSTRACT

The existing approaches to management of energy saving and increase in energy efficiency at various levels of the Russian economy are analyzed. Special attention is paid to the analysis of the main documents in the sphere of standard and legal regulation of system of power management and to detection of methodical features of management of energy saving and increase in energy efficiency at the federal and regional levels. Basic distinctions between the process approach which was widely adopted in practice of activity of various structures of management and project approach to management which application in public authorities of executive power did not gain so far development are presented. Need of use of project management for activation of innovative activity in the sphere of energy saving and increase in energy efficiency is proved. The features of the developed structure of management limiting application of project approach in the Russian economy and constraining its sustainable development in modern conditions are revealed. Organizational and administrative solutions for coordination of implementation of projects on creation, introduction and commercialization of the energy efficient innovations allowing creating favorable conditions for achievement of strategic objectives of innovative modernization of the Russian economy are proposed. Results of the conducted research can be the basis for methodical maintenance of project management in the sphere of energy saving and increase in energy efficiency at various levels of management of economy.

Keywords: project management, project office, energy efficiency, innovations, regional policy.



1. INTRODUCTION

High level of power consumption of the gross domestic product of Russia in comparison with the developed countries (fig. 1) predetermines need of activation of the pursued state policy for the sphere of energy saving and increase in energy efficiency.

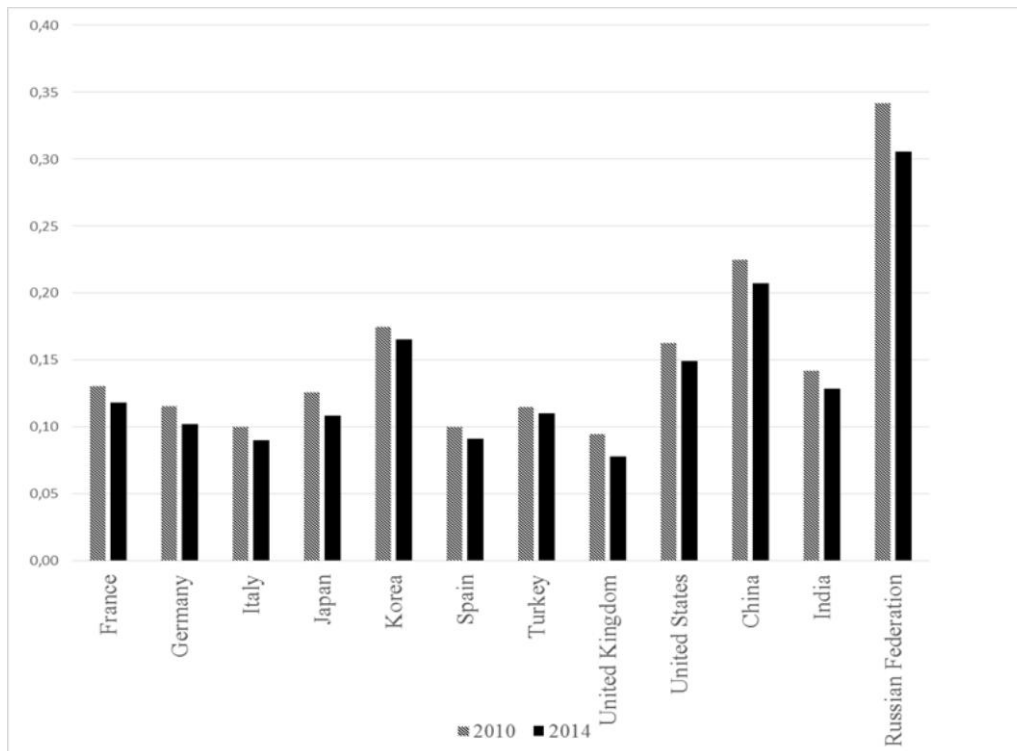


Fig. 1. Energy intensity by countries of the world in 2010 and 2014., tons of oil equivalent per of 1000 USD. Source: based on (OECD ,2016).

One of the possible directions it activation can be based on the effect of mutual influence of processes of innovative development and processes of energy saving and increase in energy efficiency which is earlier revealed by us (Melnik, A.N., Ermolaev, K.A., Antonova, N.V. 2014, Melnik, A.N., Lukishina, L.V., Sadriev, A.R.2015). Its essence consists that, on the one hand, use of innovative technologies, the equipment and materials creates qualitatively new opportunities for realization of processes of energy saving and increase in energy efficiency (Melnik, A.N., Mustafina, O.N. 2014, Melnik, A.N., Mustafina, O.N., Sadriev, A.R. 2015). From other party, consideration of process of energy saving and increase in energy efficiency as the priority direction of



development of economy forms a vector of development of the innovative technologies possessing high rates of energy efficiency. Realization of the revealed effect will demand entering of serious changes into system of public administration in the considered fields of activity. In recent years more and more in practice of activation of innovative activity at various levels of the Russian economy use of methods of project management is widely adopted. However so far a number of unresolved problems of methodical and organizational character constrains their wide use in relation to the solution of various problems of increase in energy efficiency of the Russian economy.

2. METHODS

The research of the developed Russian practice of management of energy saving and increase in energy efficiency was conducted on the basis of the analysis of the existing standard and legal base, results of monitoring of the pursued policy in the considered sphere and polls of heads of the large industrial enterprises. During a research the comparative analysis of possible approaches to management of processes of energy saving and increase in energy efficiency which allowed to prove advantages of use of project approach to the solution of objectives was made. For elimination of the revealed problems significantly limiting application of project approach at various levels of management of economy requirements to creation of management processes and to formation of structure of project management on creation, introduction and commercialization of the innovative technologies oriented on the solution of various problems of energy saving and increase in energy efficiency were formulated.

3. RESULTS AND DISCUSSION

Energy saving and increase in energy efficiency is one of the priority directions of development of the Russian economy for a number of the last years. The developed standard and legal and legislative base for its realization differs in different degree of regimentation and methodical security at various levels of management of the Russian economy. Classification of the main developed documents in the considered sphere is presented in fig. 2. For all levels of management requirements to creation of system of planning and realization of actions for achievement of the objectives in the sphere of energy saving and increase in energy efficiency and indicators of energy efficiency of the made goods and services are defined.



	Strategic priorities and framework conditions	Plans and programs	Demands
Federal level of management	<ul style="list-style-type: none"> ✓ Presidential decrees ✓ Russian Federation power strategy until the year 2030 ✓ Federal law «On energy saving» 	<ul style="list-style-type: none"> ✓ State program of energy saving and energy efficiency enhancement 	<ul style="list-style-type: none"> ✓ Demands and conditions for information providing ✓ Demands and conditions for granting subsidies to regions ✓ Demands and conditions for subsidies provided for regions ✓ Demands on energy inspection and compilation of energy efficiency passport ✓ Demands on development and realization of programs of energy saving and energy efficiency enhancement in state companies ✓ Demands on objects, goods, technologies
Regional level of management	<ul style="list-style-type: none"> ✓ Regional policy and strategy in the field of power industry 	<ul style="list-style-type: none"> ✓ Regional programs of energy saving and energy efficiency enhancement 	
Enterprise level	<ul style="list-style-type: none"> ✓ Strategy and enterprise development 	<ul style="list-style-type: none"> ✓ Energy efficiency passport ✓ Program of energy saving and energy efficiency enhancement 	

Fig. 2. Classification of main legal documents in the field of energy saving management and energy efficiency enhancement at different levels of Russian economics. Source: compiled by the authors

At the regional level of management practically in each subject of the Russian Federation (RF) own program of energy saving and increase in energy efficiency is developed. In many respects thanks to it for the last five years in all regions of the Russian Federation decrease in power consumption of the gross regional product (GRP) in the current prices was observed. As showed the analysis of the received results, about a third of all regions of the country reduced power consumption of VRP in 2015 in comparison with 2012 by 30% and more than (Federal State Statistics Service. (An electronic resource) - the access Mode: <http://www.gks.ru>. (Date of the address: 13.06.2017)). As a result of the carried-out analysis of regional programs it was revealed that the main attention at their development and realization was given to the budgetary and housing-and-municipal sectors of economy, and actions for increase in energy efficiency are not oriented sufficiently on support and development of innovative activity.



At the level of the companies for realization of energy saving activity the process approach to management described in the international standard of power management of ISO 50001 on the basis of which the corresponding Russian national standard was created is widely used. By results of the conducted surveys of heads of the industrial enterprises it was revealed that the most part of the realized energy saving projects - low-cost and fast-paid back, and the vast majority of the interviewed heads of the Russian enterprises rather conservatively estimate the potential of energy saving (The state report on a condition of energy saving and increase in power efficiency in the Russian Federation (An electronic resource) – 2016; Energy saving in a mirror of industrial policy (An electronic resource),2016.). In many respects current situation can be explained with the fact that in standards of power management only the general requirements to the organization of processes of management of energy saving are set (Anisimova, T.2016., Sadriev, A.R., Anisimova, T.Y., Mustafina, O.N., Lukishina, L.V. 2015).

Results of the carried-out analysis of the existing practice of management of energy saving and increase in energy efficiency allowed to formulate the following problems limiting possibilities of activation of innovative activity. First, so far energy saving and increase in energy efficiency both at the level of regions, and at the level of the enterprises is still connected only with the solution of the current problems of development, leaving strategic priorities of innovative modernization out of the sphere of the attention. Secondly, there are practically no mechanisms of stimulation of development and use of the new power technologies creating production with qualitatively new consumer properties. Thirdly, the full-fledged system of the regulations, standards and norms directed to methodical support of innovative projects in the considered sphere is not created.

One of the possible directions of the solution of the specified problems can be connected with activation of innovative activity in the sphere of energy saving and increase in energy efficiency on the basis of introduction in administrative practice of tools of project management. In fig. 3 comparison existing (process) and project approaches to management is presented.

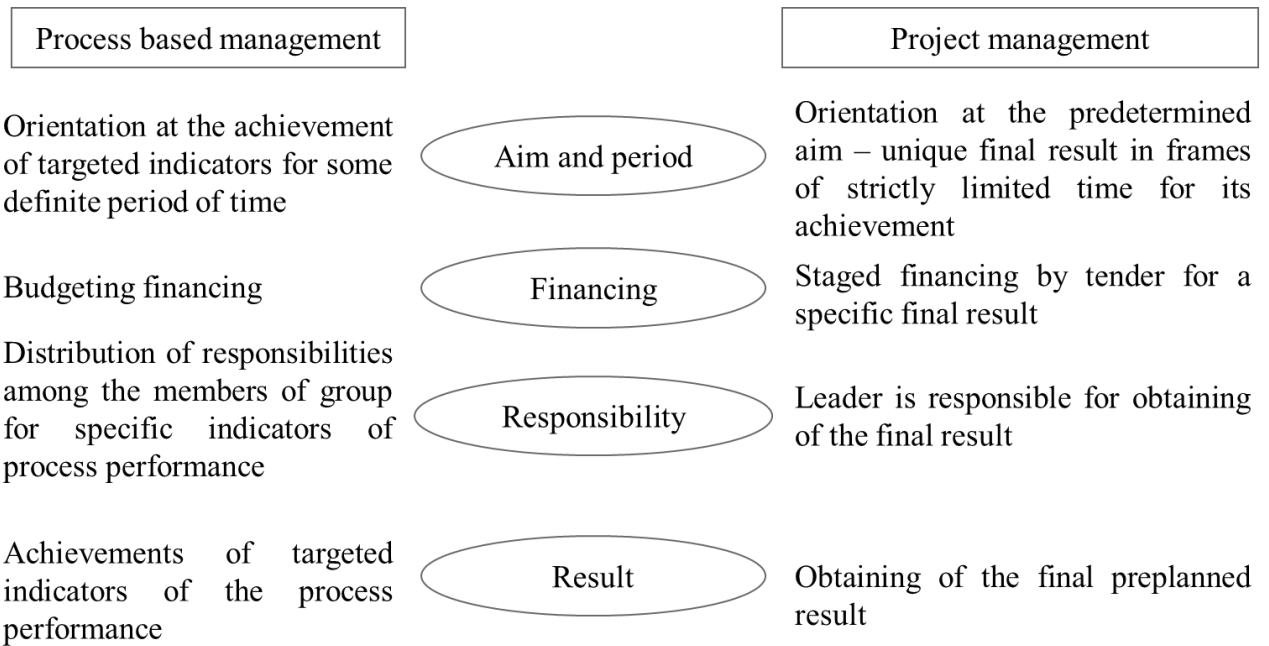


Fig. 3. Comparative analysis of process based and project management. Source: compiled by the authors.

At process approach to the organization of management each structural unit participates in realization of one or several processes. Such approach in the best degree is adapted in relation to conditions of operating activities and calculated on periodic repeatability of the carried-out processes. Within project management special attention is paid to obtaining the set end result in strictly certain temporary terms that becomes especially urgent during creation of innovative solutions in any branch of economy. Therefore in the Message to Federal Assembly of the Russian Federation for 2015 the Russian President especially emphasizes importance of introduction of project management in executive authorities.

At the federal level of management at the end of 2016 the Resolution of the Government of the Russian Federation approved functional structure of a control system of project activity which includes federal project office, departmental coordinating bodies, project offices of federal executive authorities, etc. Since 2016 pilot approbation of system of project management in executive authorities of 6 regions of the Russian Federation is carried out. Thus, project management is in executive authorities of the



Russian Federation now so far only at a formation stage, and methodical base of project management at the initial stages of its development.

It should be noted that introduction of project approach directly in the sphere of energy saving and increase in energy efficiency has to consider already created structure of management. In fig. 4 the developed structure of management of energy saving and increase in energy efficiency is presented and the scheme of management of innovative development at various levels of management of the Russian economy is shown. At the federal level and at the level of the region various divisions which form independent regional program documents are responsible for realization of the specified directions of state policy and define target indicators of development, and, eventually, independently from each other are responsible for results of performance of the accepted strategy and programs of development. For this reason activation of innovative processes in the sphere of energy saving and increase in energy efficiency is an activity prerogative of two specified structures of management at once at the same time which uncoordinated actions exert direct impact on approachability of the objects set in this part.

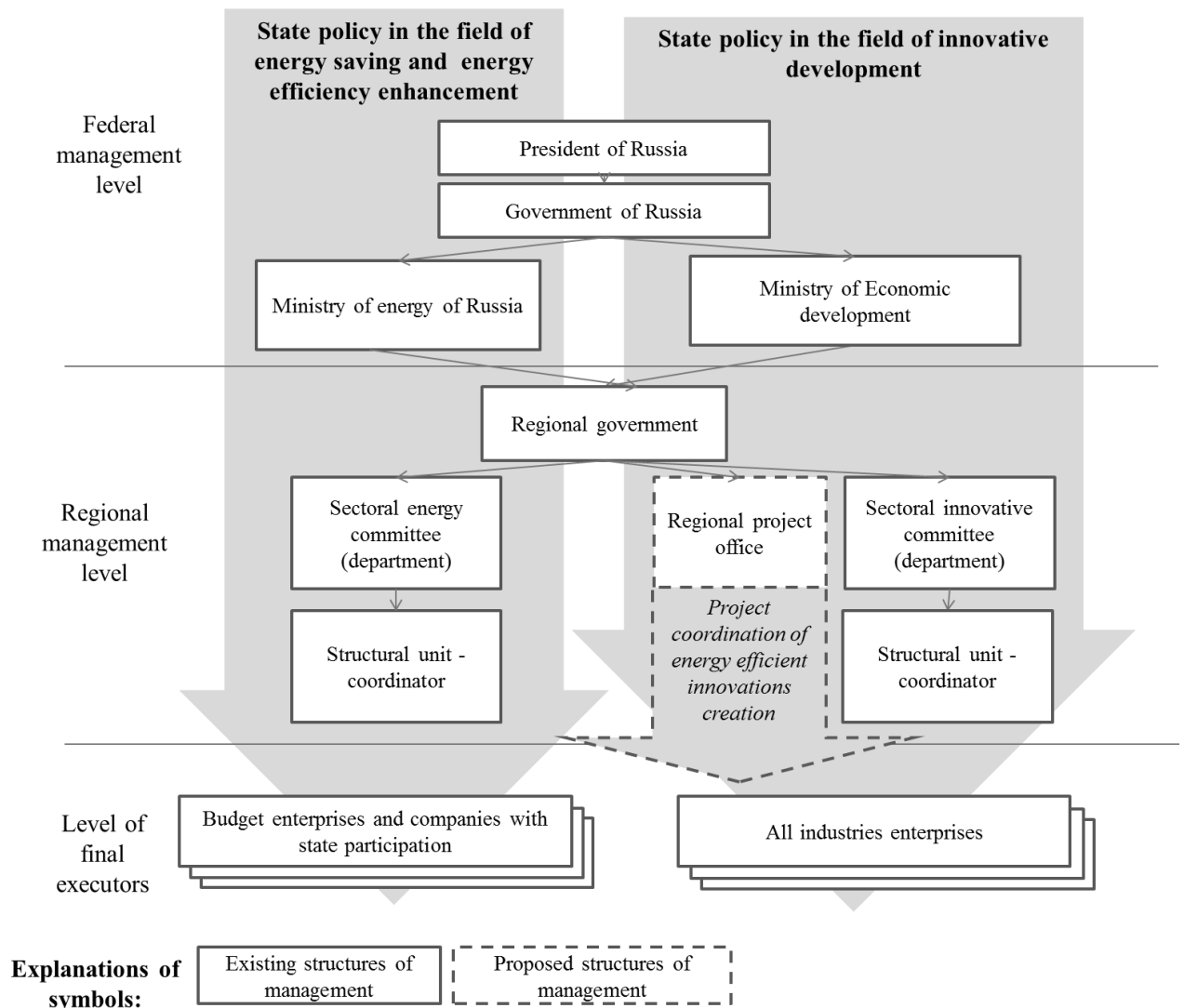


Fig. 4. Directions of structure management development for energy efficiency enhancement and system of innovative development in the Russian Federation.

Source: compiled by the authors.

For elimination of the revealed problems the following solutions were proposed. First, it is necessary to define accurately the field of mutual crossing of priorities of two considered directions of state policy as "energy efficient innovations". Secondly, it is advisable to integrate functions of management of energy saving and increase in energy efficiency and management of innovative development within project management. At the regional level similar approach can be realized on the basis of formation of regional project office which will be responsible for carrying out all complexes of works on



management of the projects of creation, introduction and commercialization of energy efficient innovations. At the same time creation of similar structure at the federal level of management is represented superfluous. On the one hand, such structure should compete for financial, personnel and administrative resources with already existing divisions of federal executive authorities. And on the other hand, from a position of regional structures of management of innovative projects, existence at the federal level of the uniform center of adoption of strategic decisions and definitions of priorities of innovative development is more preferable.

The regional project office can become such organizational structure which will allow integrating management in the sphere of increase in energy efficiency and innovative development within a uniform contour of management and will provide adoption of administrative decisions according to the established priorities. However use of "classical" structure of creation of project office for project management on creation, introduction and commercialization of innovative solutions in the sphere of energy saving and increase in energy efficiency will demand expansion of traditional functionality of project management with additional specific functions (table 1).

Table 1. Functions of project management on creation, introduction and commercialization of energy-efficient innovations

Standard functions of project management	Expanded functions of project management
1. Introduction and development of a project-oriented control system. 2. Organization of execution of projects. 3. Administrative support of execution. 4. Methodological maintenance of	1. Definition of need for energy efficient innovations. 2. Determination of potential of project decisions, including: 2.1. Search of the project ideas and their analysis with use of methodologies of DRL and TRL. 2.2. Examination of tech-work projects and feasibility study on introduction of energy efficient innovations. 2.3. Competitive selection of projects. 3. Competitive financing, including: 3.1. Initiation and closing of financing of innovative projects



execution. 5. Motivation of implementation of the project. 6. Implementation of projects. 7. Drawing up reporting. 8. Introduction and development of the information management system by projects.	with use of the GAP analysis. 3.2. Maintenance of receiving additional financing of projects on creation of energy efficient innovations. 4. Coordination of execution and acceptance of result, including: 4.1. Assessment of a possibility of use of the received result in production economic activity of the industrial enterprises of the region. 4.2. Support of scaling of energy efficient innovations in the territory of the region and the country, export support abroad. 5. Development and information maintenance, including: 5.1. Maintenance of improvement of separate procedures of system of power management within ISO 50001 for implementation of projects on development of energy efficient innovations. 5.2. Holding scientific and practical actions and information promotion of achievements of science and technology in the sphere of energy saving and energy efficiency.
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Source: compiled by the authors.

One of key conditions of effective functioning of regional project office is its close interaction with the industrial enterprises of the region on the basis of use of various mechanisms of stimulation of their activity. The speech, first of all, can go about accurately to define the needs for energy efficient innovations and to estimate the potential of project decisions from a position of achievement of strategic objectives both regional development, and development of the industrial enterprises. All this imposes certain requirements of entering of serious changes into a control system of project activity and at the industrial enterprises. Realization of project approach to management of energy efficient innovations at various levels of economy can become the effective instrument of activation of activity in the sphere of energy saving and increase in energy efficiency.



4. SUMMARY

As a result of the conducted research the existing approaches to management of energy saving and increase in energy efficiency at various levels of the Russian economy are considered. The problems limiting activation of innovative activity in the sphere of energy saving and increase in energy efficiency are revealed and also advantages of project approach to management of energy efficient innovations are proved. The analysis of the existing standard and legal base allowed to draw a conclusion that project management is in executive authorities of the Russian Federation now so far only at a formation stage, and methodical base of project management at the initial stages of its development. For activation of innovative activity in the sphere of energy saving and increase in energy efficiency in territorial subjects of the Russian Federation creation of the regional project office oriented on coordination of implementation of the corresponding projects is offered. The formulated offers on adaptation of methods of project management to creation, introduction and commercialization of energy efficient innovations are oriented on activation of the state policy pursued at various levels of management in the sphere of energy saving and increase in energy efficiency.

5. CONCLUSIONS

As a result of the conducted research need of adaptation of project approach to conditions of creation, introduction and commercialization of innovative solutions for the sphere of energy saving and increase in energy efficiency at various levels of management of the Russian economy is proved. The possible direction of the solution of the problems limiting the application of project approach in the developed structure of management of economy assuming carrying out a wide range of works on integration of functions of management in the sphere of increase in energy efficiency and innovative development within a uniform administrative contour is revealed.

The received results can be the basis for expansion of the applied tools of management of processes of energy saving and increase in energy efficiency as priority direction of modernization of the Russian economy and are used at various levels of management of the Russian economy for development of methodical maintenance of project approach.



6. ACKNOWLEDGEMENTS

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