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## To a question from About modern state and prospects of development ah Russian oil and gas complex

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**Abstract.** The work explains the reasons for the high level of energy intensity of the Russian economy. The analysis of the current state of the domestic oil and gas complex is presented. Its key's problems are identified. Further promising directions for the effective development of the Russian oil and gas complex are proposed. As one of the most promising mechanisms to improve the competitiveness of domestic companies' oil and gas complex, organization is invited to consider the effective process and resource and energy efficiency of these companies.

According to the forecast data of the International Energy Agency (IEA), by the end of 2030, the planned energy consumption in the context of the development of the global economy should increase in 40% [1]. According to the study of international consulting company "McKinsey & Company", in the nearest ten - fifteen years, in order to fully provide the world economy with energy, it will be necessary to build about 77% of the energy infrastructure [2]. Energy Ministry data of Russian Federation (RF) show that despite the progress in recent years, progress in reducing the energy intensity of GDP (based on 2007 energy intensity of GDP was reduced to 5.94% in 2015 a year) [3], Russian economy is still in a little more effective, because, in the real sector the production of a unit of GDP consumes almost twice as much energy as in the world developed countries (picture 1) [4]. According to experts, an increased level of GDP energy intensity of the Russian economy in comparison with other countries, caused be the complex problems [5].

First, these are established regional sustainable energy systems, regional cluster unions that are interconnected by the supply of energy resources, the structure of production and consumption of energy resources, the result is the problems associated with the process of resource optimization and energy saving.

Secondly, despite the extensive Russian regulatory and legal framework (Federal Law No. 261 "Energy Saving and Improving Energy Efficiency ..."; "Energy Russian strategy for the period till 2035 year"; Russian government program "Energy efficiency and energy development", etc.), control the process, resource, and energy saving, on the regional and



municipal levels is still not effective. It is believed that the regulatory functions comprehensively should be implemented at all levels - from the federal to the level of local government.

Thirdly, effective incentive mechanisms for innovative investment and organizational activities of resource and energy conservation are not fully developed. One of the effective method can be energy management, which includes a set of organizational and technical measures needed to improve the energy efficiency of the resources [6]. This mechanism makes it possible to increase the interest of private investors in the financing of resources and energy-saving projects companies in practice.

Finally, one of the key problems today is the absence of fully developed innovation infrastructure in the field of resource and energy conservation. In a number of regions there are diverse innovation centers, IT - parks, technology transfer centers, small innovative enterprises. Nevertheless, we have to admit that in practice, all of them do not fully cooperate effectively with each other, and even more so with other subjects of the resource and energy saving processes on the mutually beneficial use of energy-saving innovations. The failure of these problems reduces the role and importance of the resource and energy saving process in increasing the economic efficiency of the Russian economy. All of this, in practice, does not allow to fully realize the existing potential resources and energy conservation. This figure is quite impressive. So according to the RF Department of Energy the potential savings of final energy in the key industries of RF until 2020, it amounts more than 190 million tons of reference fuel (toe) [1]. Electric power industry (42 mln. Tons of equivalent gas), housing and public utilities (33 mln. Tons of equivalent gas) and the oil and gas complex of the Russian Federation (21 mln. Tons of equivalent gas) are in the lead parts of [1].

Since the object of our research is the oil and gas complex of Russia, we will try to analyze what are the main trends exist today. Currently, the domestic oil and gas complex is a key sector of the Russian economy. This is a kind of backbone element of both the internal (Russian) and external (global) energy market. The last twenty years, this segment of economy fully defines the dynamics and quality of the socio-economic development of the Russian Federation. Oil and gas are high margin export of Russian goods on the world energy market. Oil and gas complex of Russia is a one of the most competitive industries in the context of world economic relations. Its development and operation determines the state of the Russian economy, as almost 70% of exports of hydrocarbon materials generates over 40% of federal budget (Figure 1).

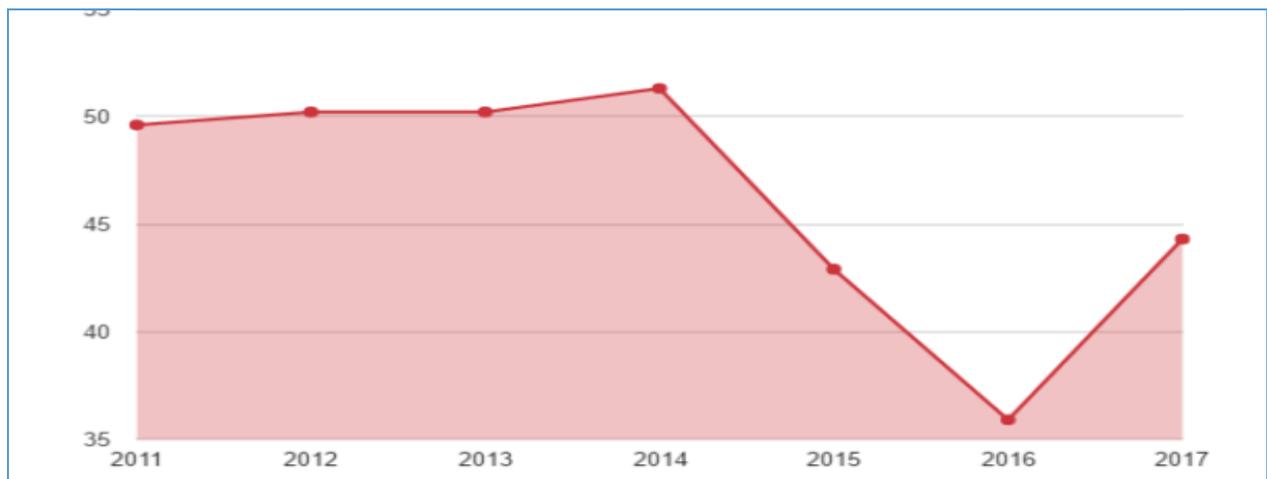


Fig. 1. The share of oil and gas revenues in the Russian budget on years. [7]

The balance of payments of the Russian economy and the rate of the national currency depend on the effectiveness of the domestic oil and gas complex. The development of the domestic oil and gas complex creates a certain demand for the products of related sectors in Russian's economy real sector, determine the prospects for their development in short and medium terms. It is maximally

connected with industrial companies in the mining and manufacturing industries, mechanical engineering, electric power, and construction. An additional effect is formed through the growth of the tax base, the creation of new jobs, and the increase in real incomes of the population. It provides a powerful impetus for the development of science and high-tech sectors of the domestic economy. This is a peculiar source of investment - multiplier effect.

Nevertheless, the studies have shown a number of significant problems that characterize the current state of the oil and gas complex of the Russian Federation.

1. The problems are associated with the deterioration of the domestic mineral resource base of hydrocarbons produced. This problem is due to a sharp decrease in current proven reserves and their reproduction rates. If there are no questions about the proven reserves of Russian natural gas, the questions of oil supply in Russia give a certain suspicion.

Today, most of the Russian oil-producing regions do not have significant industrial oil reserves, which are necessary to maintain the required volumes of its production for the medium term (10-15 years).

According to the forecast data compiled at the end of 2011, oil reserves will last approximately for 24 years in Russian [9]. Considering that today is the end of 2018 we can talk about a figure not exceeding 20 years.

This fact, from our point of view, makes it necessary to organize work to transfer the high oil and gas country's potential into active hydrocarbon reserves.

2. The problems associated with a significant lag of domestic technologies from foreign analogues, on the background of a high level depreciation of fixed production assets in Russian oil and gas complex [10]. This fact is one of the reason in a growth in the share of hard-to-recover oil and gas reserves from their total number.

3. The problems related to the strong dependence from the conjuncture of the world energy markets. Also, we should not forget about the sanctions imposed by the European Union and the United States in 2014 and still ongoing, which imply a total ban for the supply of innovative technologies, as well as specialized equipment in the field of hydrocarbon production, transportation and processing.

4. Finally, the key issues are associated with the lack of an effective innovation management system in the oil and gas sector, and also the lack of effective mechanisms to stimulate the use of new resource and energy-saving technologies. As a result, our country today is seriously lagging behind in terms of the main indicators of innovation activity from developed oil-producing states. Thus, all of the above-listed problems require the development of further promising areas for the effective growth of the domestic oil and gas complex. We agree with the opinion of many experts, and we believe that the implementation of the following activities can be considered as one of the most popular areas. [11]:

1. Measures aimed at solving problems associated with the increase in oil recovery coefficient. First, it is necessary to increase the effectiveness of work with difficultly recoverable reserves in the fields, with their further inclusion in the industrial turnover. To organize work to identify the latest hydrocarbon fields, including in the implementation of oil and gas potential of the seas on the basis of large-scale geological exploration work. With the help of modern science potential, at each significant field, to organize work to determine the maximum allowable intensification's degree at oil and gas production. To carry out full-scale systemic diversification of the transport infrastructure for the extraction and processing of hydrocarbons. And finally, to make a register of regions that have oil and gas potential to create specialized large-cent oil and gas production under the auspices of the regional authorities.

2. Measures related to the regulatory framework in the oil and gas sector. We agree with the opinion of experts [12] who propose to improve the mechanism of legislative consolidation of the procedure for deductions for replenishing the mineral resources base. As an alternative, it is proposed to consider the issue of creating a specialized fund, the functioning of which could replace all kinds of deductions. It is also proposed to consider the abolition of the flat tax scale in the DPI; to carry out in

accordance with the international classification, an adjustment in the export duty tariffs, namely, to consider a barrel as a unit of measure, and not as a ton of oil; to develop mechanisms of improving the tax system in the field of research geologic exploration and development.

3. Measures related to the implementation of the innovative potential of the domestic oil and gas industry. As we indicated above, it is inappropriate to wait for the foreign investments and innovative technologies from our “foreign colleagues” in view of a tough sanction policy. Studies show [13,14] that domestic oil and gas industry is not fully ready for the implementation of the Energy Strategy 2035. This is primarily due to technological problems, the lack of necessary innovative technologies, including technologies for the development of hydrocarbon fields on the Arctic shelf of the seas (the Yamal Peninsula, Eastern Siberia, the Sakha Republic), which has significant oil and gas potential. First of all, it is necessary to organize large-scale work at the federal and regional levels: to develop effective mechanisms and effective instruments for the implementation of innovative development programs; to organize transfer of existing innovations in the oil and gas sector; to develop mechanisms for industry’s development stimulation through the full realization of the innovative potential oil and gas companies in the field of resource and energy saving; to intensify the work in the direction of increasing the ecological and energy efficiency at oil and gas production processes, their processing and transportation. In conclusion, it should be noted that the analysis of the main problems presented at Russian oil and gas complex allows us to conclude that today, as one of the most available tools to improve the performance and competitiveness of domestic oil and gas companies is the process of resource and energy saving to ensure economic efficiency and the effectiveness of the extraction and oil and gas processing.

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