

THE PROBLEM OF DEVELOPING OIL DIFFICULT TO RECOVER IN RUSSIA AND SOLUTION APPROACHES

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Abstract. The article deals with problems of functioning and further development of the fuel and energy complex of Russia. As a result of negative trends the status of the mineral resource base of hydrocarbons in recent years is characterized by a reduction of proven reserves and an extremely low rate of production. In Western Siberia, as in other oil-bearing provinces of Russia, cost-effective oil reserves are reduced. It is now apparent that the prospect of oil production in Russia, the further development of the fuel and energy complex are anyhow related to the development of reserves difficult to recover that make up almost 2/3 of proven oil reserves. Technologies for production of such oil are very costly. The current state of tax policy and legislation for the development of 'complex' oil is simply unprofitable, as well as engagement of technologies that increase the recovery factor. The article highlights the main areas, in which we need to seek solutions to problems of Russian fuel and energy complex. New approaches to improve the situation, more effective mechanisms of the tax system are needed across the industry. Only the implementation of a new development model of the mineral complex will allow to launch new large-scale projects in the industry, which can not be considered and implemented without an integrated approach, apart from the solution of social and economic problems of development of the territory, active participation of the government, both at the federal and at the regional levels.

Keywords: fuel and energy complex, problems, oil difficult to recover, development, tax policy

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The processes of globalization, which the international community has faced in the last century, directly affect the scope of world energy. In Russia, taking into account our own competitive position in the global market, we understand the energy security issue as, first and foremost, to ensure the reliability of all countries and the entire population of the planet with energy resources.

The very problem of energy security brings to the fore one of the most important strategic objectives of our country. And it is clear to all: almost in all economic forums, summits it comes to energy supplies – in the depths of Russian world gas reserves are up to 40 %, oil – 13 %. In spite of the current relations with Europe, and the US efforts to reshape the architecture of global energy security, we must not abandon the planned line on the leading role in energy policy (Shmal, 2016).

State balance of mineral reserves in the Russian Federation accounts 2923 of oil fields, including 12 unique, with reserves of more than 300 million tons, 83 large – 60-300 million tons. The share of these categories accounts for 57 % of recoverable reserves and 58 % of domestic production. Gas reserves are included in 923 fields, including 29 unique – more than 500 billion m³, 81 large – from 75 to 500 billion m³; 71 % of reserves – in the unique, 22 % – in the major fields. 450 fields contain condensate (Shmal, 2016).

At the same time, recent events in the international

arena – activities of oil and gas industry in the conditions of sectoral sanctions, instability of oil prices on world markets with the increasing cost of oil production in our country, as well as the continuing desire of our government to fill the federal budget in the face of declining state revenues at the expense of the oil industry – sharply exacerbated for oil and gas producers perennial national problem: what to do? How not to reduce investment in the Russian oil production in 2017 and subsequent years? How to solve one of the major problems of the industry – reducing the volume of reserves growth through geological exploration (GE) and the lowest proportion in the total growth of reserves in the Russian Federation (Table 1) mainly due to the slow pace of exploration drilling (Table 2).

As a result of negative catastrophically accumulating trends, condition of the mineral resource base of hydrocarbons in recent years is characterized by a reduction of proven reserves and an extremely low rate of reproduction. In the Yamal-Nenets and Khanty-Mansi autonomous districts oil production is falling, the share of the Tyumen and Tomsk regions in Russia's oil production has declined. In Western Siberia, as in other oil-bearing provinces of Russia, cost effective reserves of oil for extraction are declined.

Analysis of the efficiency of oil reserves growth in 2013 at a price of 50 \$/b showed the following:

cost-effective reserves amounted to 146 million tons; low-profit reserves – 108 million tons; unprofitable reserves – 357 million tons.

The share of low-profit reserves increased from 36 % to 55 % in recent years.

Today, everyone understands that the prospects of oil production in Russia, the further development of the fuel and energy complex, one way or another, are related to the development of reserves difficult to recover. Almost 2/3 of the proven oil reserves are hard to recover, including: 13 % – heavy oil, 36 % – low permeability reservoirs, 14 % – areas under the gas cap, 4 % – small reservoir thickness.

The scale of this task is huge, in fact comparable to the development of Western Siberia. But the technologies of extraction of such oil are very costly, in the current state of tax policy and legislation, development of ‘difficult’ oil is simply unprofitable.

The only way to stimulate this for the oil industry is introduction of tax incentives.

Of course, over the past twenty-five years, we can find a lot of positive things in the life of oil industry. The geography of oil and gas has significantly expanded in Western Siberia. In the Khanty-Mansi and Yamalo-Nenets autonomous districts a number of oil and gas fields are put into development.

We recognize that the government and regulatory authorities of the fuel and energy complex do something to give opportunity for the oil and gas companies to work more effectively: in particular, the benefits provided by manufacturers for MET and export duties on oil fields with reserves hard to recover. However, these measures are clearly insufficient to address today’s systemic problems in the industry. The industry-wide we need different approaches to improve the situation, more

Year	Number of fields	A ₁ B ₁ C ₁ million tons	C ₂ million tons	ABC ₁ + C ₂ million tons
2010	66	57,4	339,2	396,6
2011	34	27	224,9	251,9
2012	51	24,4	231	255,4
2013	49	29,2	122,9	152,1
2014	38	24,2	221	245,2

Table 1. Increase in reserves at new fields.

	2009	2010	2011	2012	2013	2014	2015
Funding budget/business, bn rub	<u>18,9</u> 150	<u>20,6</u> 170	<u>20</u> 205	<u>27</u> 225	<u>32</u> 240	<u>36</u> 270	<u>32</u> 336
Exploration drilling, million tons	0,46	0,71	0,75	0,8	0,82	0,99	0,82

Table 2. Exploration drilling.

effective mechanisms of the tax system.

Here is an example. In Norway, direct taxes are levied solely on the profits of companies, and not field belonging to them and include a tax on oil production in the amount of 27 % and a fee of 51 %. Special duty implies additional deductions and interest on capital expenditure, with a period of four years from the date of investment of the total amount, up to 5.5 % can be deducted each year. Moreover, the current losses of operators can be transferred. Also, under a license agreement the partners are entitled to a reimbursement of up to 78 % for exploration expenses (Shmal, 2016).

In place of reasonable financial policy we have adopted incomprehensible decisions, such as tax maneuver of the Ministry of Finance that oil companies regarded as ‘Operation Barbarossa’. As a result of such a ‘maneuver’ imbalances were created that led to the fact that the high load on the Western Siberia has increased even more. As a result, the volume of production drilling in the region has fallen.

It is the same in the legislative field. Speaking of the government policy in relation to the energy industry, the fact must be mentioned with bitterness that for more than two decades we have been waiting for the adoption of the new edition of the Russian Federation’s law ‘On Subsoil’, the laws ‘On Major Pipeline Transport’, ‘On stimulation of production on low productive fields’, ‘On the resource base of the country’, ‘On small and medium-sized enterprises – independent oil and gas producers’, technical regulation ‘On the safety of major pipeline transport and field pipelines’, the development of the federal laws ‘On government regulation of oil and gas industry’, ‘On the national energy security’, the formation of a block of laws ‘Oil and Gas Code’, entering the amendments dictated by the time to the Tax Code and the law ‘On technical regulation’.

This fact speaks volumes: both about the approaches to the management of economic processes, and government priorities. The legislation, which is important for us, has to give finally unambiguous interpretation of terms and definitions relating to the basic parameters of the entire oil and gas industry, including the concepts of oil difficult to recover; regulate the system of relations between the government and production companies; ensure proper uniform government control and supervision on the rational, comprehensive and effective development of fields of liquid hydrocarbons. Government regulation should be, finally, a basic component of the measures formation that would ensure the proper functioning of the fuel and energy complex and its efficient development.

Despite all the talk about the state of the resource base and the entire geological service of the country, which determine

the future of the fuel and energy sector, investment in geological exploration fell fivefold.

If the government's financial unit does not hear the arguments of the professional producers and does not have strong long-term economic strategy, there is no question about demanding a reasonable policy, economically considered solutions.

In this case it is really hard to explain to those who make the final decision that today the majority of our fields are in the late stage, when they need extra care to preserve their capacity, to increase oil production and ultimate recovery, to save jobs.

We work mainly in the fields, which are developed from 30 to 70 years. For example, the degree of depletion of unique fields in the Nadym Pur Taz region reached 70-85 %. The size of discovered fields is reduced. We can only dream about the Romashkino, Samotlor, Fedorov fields. The average size of fields opened in recent years – 900 thousand tons (of recoverable reserves) (Shmal, 2016).

But we have no right to give ground – oil complex is with us, as well as Russia's interests. It is necessary to urgently develop and implement a set of measures aimed at stimulating exploration works and involvement in the development of new fields.

As is known, the further increase in oil production is hampered by lack of discovered and completed by exploration large oil fields, which are not put into the development. Oil difficult to recover requires large volumes of drilling, including horizontal wells. We have a very small amount of drilling – about 22 million meters that seems to be good parameter. But in the United States they drill 110 million meters, although previously they drilled by 70 million. Let us compare: 22 and 110 ... In the 80-s we've had about 50 million meters (Shmal, 2016).

The development of competitive oilfield service companies is behind. An urgent problem is the technical renewal of oilfield services equipment: domestic drilling rigs are not enough – previously “Uralmash” would make them 300 units per year, and now – 30. It is necessary to develop our own national base for the manufacture of equipment.

I agree with the position of Governor of the Khanty-Mansiysk Autonomous region – Yugra N.V. Komarova that the development of the fuel and energy complex is needed to be the national project of national importance, in view of the prevailing geopolitics. The involvement of reserves hard to recover should be a national project; domestic business should be supported; subsoil users have to be stimulated. This must be done without delay.

By the way, the ex-governor of the Tyumen Region V.V. Yakushev often gives a good example of the rapid development of ‘difficult’ reserves. Back in 2004, the regional government has signed an agreement with oil companies on the development of reserves of Uvagsky group of deposits belonging to hard reserves, and began

to invest in infrastructure development in conjunction with production companies. In the same year, production was increased by 1.2 million tons, 9.6 million tons were produced in 2013, and in 2015 the bar has passed 10 million tons of production. Over the years, the help that was provided to the subsoil user amounted to about 100 billion rubles. The federal budget as a result of this work has received about 500 billion rubles. At the same time the governor emphasized that no one would get close to the fields, if the Region did not introduce a special tax regime.

Experts believe – if the tax on the extraction of minerals remained in the regions and went for the development of reserves difficult to recover, the question of the corresponding groups of deposits would be solved much more effectively. But, unfortunately, MET became a federal tax, reducing the possibility of the regions in benefits distribution for ‘difficult’ reserves.

Let us take as the example Yamal. The specific volume of reserves difficult to recover in the oil production is 82 %. Almost all areas with reserves difficult to recover are developed at least by 50 %. However, the adopted changes in the tax code do not explicitly promote an increase of the oil production. We are talking about the top limit of the field depletion, after which it is impossible to use tax benefits – it is currently set at a very low level of 3 % of the total volume of reserves.

We've been a long time talking about the role of the regions in the fuel and energy sector development. It should definitely increase if we want to have a cost-effective production of oil. This is especially true with hard-to-recover reserves. As oil producers say – it is not areal drilling, here each individual well has its own face.

We got hectic, difficult time today. And we can understand the current mood in the financial unit of the Government – ‘plug the holes’ at the expense of incomes of the oil industry, to increase their contributions. But we must cease to live only by simple solutions and one of today's times, we must look forward and learn to count precisely. For example, the initiative only in the sphere of export duties in the next two years, will give to the government budget about 200 billion rubles. But the price for the decline in production will be much higher. The effect of the payments increase to the budget very quickly will come to the absence, and starting in 2018 will be completely negative.

Additional payments to the budget will lead to the freezing of new promising projects, especially small and medium-sized fields, including in Eastern Siberia, as well as to refuse to drill new wells. Discussed fiscal initiatives will hit the mature fields in Western Siberia, where the production is reduced. According to preliminary estimates, reducing the oil companies' investment programs can lead to a decrease in oil production in Russia in 2016-2018 a total of more than 11 million tons, including in 2018 to about 6 million tons.

Cost items	Tax assessment before 1.01.2015		Tax assessment after 1.01.2015	
		%		%
Geological exploration costs	2	0,5	2	0,5
Drilling cost	21	5,8	21	5,8
Other	16	4,4	16	4,4
Current cost	85	23,3	85	23,3
Export tax	39	10,7	25	6,8
Mineral extraction tax	75	20,5	123	33,7
Profit tax	15	4,1	10	2,7
Property tax	6	1,6	6	1,6
Other taxes	25	6,8	25	6,8
Profit	81	22,2	52	14,2

Table 3. The structure of the oil price, USD/t (365 d/t, the data of A.I. Varlamov).

In the current tax system it is unprofitable to engage in the implementation of technologies that increase the recovery factor.

Slowing down the development of new oil provinces can lead to problems with the implementation of Russia's obligations on eastward oil supplies.

Reduced investment will have other negative consequences. A topic such as import substitution, in relation to the oil industry could be considered closed, as orders from oil companies for the development of new equipment would be reduced significantly. Reducing orders to contractors would lead to job losses with all its consequences. Reduction of investment and consumption volume of resources and services would lead to closing up of business activity in related industries, such as machinery, metallurgy, drilling, oilfield, construction, and employment reduction of 1 million people in the current year.

Thus, taking from one industry, the government will have to solve problems in other industries, work with the social tension in the regions.

Another item of expenditure, which will inevitably be subject to audit, is geological exploration. Without it, development of the industry in the medium and long term is impossible, old fields are being depleted, and to discover new once resources and time are needed. The structure of the oil price according to A.I. Varlamov (Director General, Federal State Budgetary Institution «All-Russian Research Geological Oil Institute») is presented in Table 3.

Thus, the additional removal in the current conditions, very difficult for the oil industry of such a significant amount will be the beginning of regression, loss of stability, a reversal from the stable growth to reduction of all rates.

The draft of the Energy Strategy of the Russian Federation until 2035 marks the main tasks of the oil industry development in the near future:

- A stable annual production of oil with gas condensate at the level of 525 million tons, with its capabilities to increase in favorable global and domestic markets;

- Modernization and development of the industry;

- Increase of the oil recovery factor from 28 to 40 %;

- The development of hard-to-recover resources in the amount up to 17 % of total oil production, etc.

Initiatives to increase the fiscal burden on oil companies do implementation of these tasks almost impossible.

The Council of the Union of Russian Oil and Gas Producers highlights key areas, in which we need to seek a solution to these problems:

- The first – the further improvement of subsoil use regulations, the use of such levers as licensing, innovation, tax policy;

- The second – to stimulate reserves growth process through tax preferences, changes in the principles of obtaining a license for geological exploration of mineral resources, the revival of the geological sciences;

- The third – the creation of favorable economic conditions for the establishment and development of small and medium-sized regional-oriented companies, the subject of the activities of which will be small and difficult fields of mineral raw materials;

- The fourth – the coordination of central and regional efforts, providing them with a better interaction with the mineral resource businesses, improvement of management systems of oil and gas companies;

- Fifth – the translation of legislation in the direction of creating an effective public administration system capable of implementing major changes in the oil and gas sector.

Experts of the Council of the Union of Russian Oil and Gas Producers believe that to successfully meet the challenges of overcoming negative consequences of the global financial crisis and the stabilization of oil and gas activities, it is necessary to adopt a comprehensive government program to support the fuel industry with the following urgent measures.

- In view of the prevailing geopolitical program, to make the development of the fuel and energy complex as a national project of national importance, which includes a separate special section of involving reserves difficult to recover.

- Provide tax breaks for the main taxes to the release of the newly commissioned capacity on planned production volumes.

- Enter a zero rate of mineral extraction tax for hard-to-recover reserves of new oil and gas fields in the extraction from the idle wells and wells that are in preservation, up to cost recovery for the start-up of wells in operation, as well as small fields (with initial recoverable reserves as of 1 January 2009 not more than 3 million tons).

- Provide deferred taxes for companies facing serious financial difficulties, to establish procedures for such delay.

- Concentrate government investment in the implementation of priority infrastructure projects.

- Compensate for interest rates on loans sent to the investment programs.

- The government should participate in the financing of R&D centers in the field of modern technologies for complex use of deposits.

- Create conditions for the development of new advanced technologies of hard-to-recover reserves: scientific grounds, which should become a platform for testing and implementing new methods of research and development of reserves difficult to recover, development of unconventional oil resources, and solution of environmental issues.

- Create conditions for wide application of import substitution for the equipment: today dependence of oil companies from imports is critical in nature: the share of imported equipment and technologies in general is up to 80 %, and in some categories – equipment for offshore projects or software can exceed 90 %.

- Develop own oil service; create a document at the federal legislative level that will stimulate domestic subsoil users. It is necessary to initiate the withdrawal from Russia of Western leading oil service companies and to set embargo on the delivery of the service equipment.

- Provide innovative development of Russian machine-building and service industry for the oil and gas and process industries.

- Provide the government participation in the investment of new projects, legislative solution of these issues.

- Develop tax breaks to oil companies according to the proportion of domestic equipment used in dealing with the issue of import substitution.

- Resolve issues related to the provision of rights for subsoil use (wells with low flow rate) to small and medium companies with the largest share of domestic equipment in the project.

- Oblige oil and gas companies to spend a certain proportion of research in national research institutes.

Such instruments must include:

- The development of domestic research institutes, testing laboratories, training of personnel;

- Regulated investment share of profits in the development of new technologies;

- Assist of domestic companies to conduct pilot tests;

- Government programs of unique types of equipment development with a focus on high-tech;

- Co-financing of investment projects aimed at launching new production facilities and modernization of existing ones.

Only the implementation of development new model of the mineral complex will allow launching new large-scale projects in the industry. All our previous experience shows that they cannot be considered, especially implemented without an integrated approach, apart from the solution of social and economic problems of the territory development, the active participation of the government, both at the federal and regional levels.

The most successful countries are making, applying planning techniques in the economy management, and skillfully combining the advantages of market and government regulation.

China already becomes a reference, which began in 1978 consistently and gradually to carry out conversions, which brought backward and poor country on the path of the highest rates of growth, sustainable and harmonious development. Its example was followed by Vietnam. From the post-Soviet countries, this type of model has been taken as a reference point in Kazakhstan and partly in Belarus.

The United States can be referenced as an example that has achieved shale oil production growth due to economic incentives. In recent years, The United States increases production to 20-25 million tons per year.

India successfully conducted under the government supervision the modernization and became the second fastest growing economy after China in the world. Transnational corporations and the national capital operate in the country, but along with this, the scheduled controller continues to operate defining strategic development targets implemented by five-year plans. Well-educated specialists helped to such a turn of events. The Indian institutes of technology are often not inferior to Western competitors. Now according to the number of qualified scientific and technical manpower, India is on one of the first places in the world. All this was the result of deliberate policy of the authorities.

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