

**RUSSIAN ENERGY COMPLEX DEVELOPMENT IN CONDITIONS OF DECLINING WORLD  
PRICES FOR RAW MATERIALS**

(Recibido el 14-06-2017. Aprobado el 27-09-2017)

**Dmitry Vladimirovich Rodnyansky**  
*Kazan Federal University*  
*drodnyansky@gmail.com*

**Yana Stanislavovna Yasnitskay**  
*Kazan Federal University*

**Abstract.** The budgets of the largest energy resource exporting countries depend to a large extent on the macroeconomic indicators, such as exchange prices for raw materials, growth rate of the world economy, as well as on the world economy demand for these raw materials. In the conditions of volatility of world prices for raw materials, the issue of effectiveness of the system of public administration and regulation of strategically important sectors of the Russian economy is most acute. The energy complex of Russia still remains the basis of domestic economy, for this reason the prospects for economic growth and improving the population well-being depend on the quality and effectiveness of its regulation. The article considers the main administrative problems existing for today in regulating the activities of the fuel and energy complex in Russia. Each of the identified problems is confirmed by the statistical data and mathematical calculations. The article also examines the operation features of the country's largest oil companies, includes a comparative efficiency analysis with the foreign companies, and puts forward the offers for improving the quality of state regulation of the country's fuel and energy complex. The authors of the article also offered some measures to reduce the negative effects of a significant drop in world prices for the raw materials.

**Key words:** fuel and energy complex, energy policy, public administration efficiency, labor productivity, modernization.

## 1. INTRODUCTION

The fuel and energy complex are an important structural component of the Russian economy and takes a leading position not only on the scale of our country, but also on the international level. However, the state regulation of this sector is not perfect at the moment that entails a number of pressing problems slowing down the country's economy. The functioning of the fuel and energy complex is influenced by a number of factors - from internal factors, manifested in the change in the structure of oil reserves, deposit depletion in the traditional areas, to external ones, expressed in the volatility of prices for energy resources.

There are various approaches to identifying the main factors affecting the state regulation system of the raw material industries in the world literature. Thus, the majority of authors identify a balanced tax policy as the main factor in the development of the country's fuel and energy complex (Ramírez-Cendrero & Paz, 2017) (Aslanli, 2015) (Manaf, Mas'ud, ZuainiIshak, Saad & Russell, 2016) (Rodnyansky & Yasnitskaya, 2015) (Rubtzov, Gabdrakhmanov, Delabarr, & Tyabina, 2015).

Other authors identify the active actions of the state as the main player in the strategically important markets as a key factor (Wolf, 2009) (Lund, 2014) (Antolín & Cendrero 2013) (Mahdavi, 2014).

## 2. METHODS

Strengthening of Russia's positions in the foreign markets is largely ensured by the predominance of the commodities of the fuel and raw materials sector and primary product processing in the country's export. Thus, according to the data of the commodity export rating of developing countries with the emerging market published by the International Monetary Fund in October 2015, the share of fuel and energy resources was noted at 50.3% in Russia's export. (International Monetary Fund, 2015)

It should also be noted that according to the results of the correlation-regression analysis carried out in the article "Forecasting the Development of the Fuel and Energy Complex of the Region in the Macroeconomic Instability Conditions" (Rodnyansky & Gilfanova, 2016), one of the significant problems in the state regulation of Russia's fuel and energy complex was the predominance of the country's extractive sector of economy over the manufacturing one (Rubtzov, et. al, 2015). For example, in the regions that are the base for oil production, such as the Khanty-

Mansiysk and Yamal-Nenets Autonomous Districts, the extractive sector provides up to 75% of GRP.

A consequence of the problem of commodity structure imperfection of Russia's export is a significant shortfall in the budget revenues, in particular, due to a significant excess of the share of crude oil relative to the share of oil products in the export structure. Thus, revenues from exporting the crude oil amounted to 3,669.7 billion roubles with a physical volume of 244,485.1 thousand tons, while revenues from exporting the motor gasoline were noted at only 159.1 billion roubles for 4 746.2 thousand tons in 2015.

Thus, if the automobile gasoline was sent at the volume reaching at least 50% of the exported crude oil for Russia's export, then the export revenues would reach the level of 4,098.8 billion roubles. Accordingly, the lost profit from exporting the crude oil relative to exporting the gasoline of at least 50% of the volume of crude oil exported for 2015 was: 4,098.8 billion roubles - 3,669.7 billion roubles = 429.1 billion roubles. This issue is relevant, especially in the current conditions of budget shortage.

A low level of using the secondary processes remains the problem side of oil refining in our country. As of 2015, the total load of secondary processes was noted at 57% of the primary processing, while the value of this indicator exceeded 100% in the countries of Western Europe and the USA. A consequence of this is the fact that there is practically no growth in the depth of oil refining with a marked increase in the volume of oil refining. (Gromov, 2016)

A possible way to solve the above problems is to modernize the oil refineries. To date, the situation is critical in this area. According to Thomson Reuters, there are 37 oil refineries in our country, whose capacity is over 1 million tons of oil per year. And according to the VNIPINeft Institute presentation on the status of oil refining projects, 15 largest refineries, which account for more than 40% of the total ones, planned to postpone the modernization for a period from 1 to 4 years in 2015.

The work activation on the so-called "quadrupartite agreements" signed in 2011 between the oil companies, the Federal Antimonopoly Service, the Rostekhnadzor and the Rosstandart should encourage the resolution of this issue. These agreements are a kind of a "road map" for modernization of our country's oil refining to improve its quality characteristics.

As an example of activities for oil and gas companies in this direction, one can consider the activities of TatneftPJSC, which acquired the shares of Nizhnekamskneftekhim PJSC and TANECOJSC in the amount of 24.9% and 9%, respectively, on March 18, 2016. This step will enable the company to gain a foothold in the market of petrochemical and oil products, increase the added value of products produced in the Republic of Tatarstan as a result of deeper processing of oil raw materials. The acquisition of TANECO shares enabled Tatneft to establish a sole control over the oil refinery. It should be noted that the first stage of the plant was launched in 2011 and the depth of oil refining can be increased to 97%, and the yield of light oil products will reach 90% upon completing commissioning of all capacities. According to the President of the Republic of Tatarstan RustamMinnikhanov, privatization of oil state's holdings in the republic is explained by the creation of a petrochemical cluster for Tatneft. (Devon News Agency, n. d)

Thus, changing the vector from extensive to intensive should be carried out in most regions of Russia.

### 3. RESULTS

The next issue in regulating the companies of fuel and energy complex with the state participation is the efficiency of functioning of these companies, namely the determination of interrelation of such indicators as market capitalization of companies and payments to the board of directors. For reference, the company's market capitalization is understood as the valuation of the company's value by the market value of its shares, in other words, it is a production of the number of shares issued at the price of one share formed on the stock exchange. Accordingly, payments to the board of directors should be correlated with the companies' capitalization level - the payments to the board of directors should be also declined with a decrease in the company's capitalization. However, as can be seen from Table 1, this pattern is not always preserved in the largest oil companies in Russia, in most cases, even the reverse relationship is noted.

Table 1. Capitalization dynamics and payments to shareholders in 2011-2015.

|                 | Capitalization, billion roubles |         | Payments to the Board of Directors, million US dollars/thousand shares/million roubles. |         |         |                       |                        |                       |                          |                       |
|-----------------|---------------------------------|---------|---|---------|---------|-----------------------|------------------------|-----------------------|--------------------------|-----------------------|
|                 | 2011                            | 2012    | 2013  | 2014    | 2015    | 2011                  | 2012                   | 2013                  | 2014                     | 2015                  |
| Rosneft         | 2,249.9                         | 2,856.2 | 2,649.9   | 2,071.4 | 2,714.7 | 129.5 thousand shares | 185.5 thousand shares  | 616.4 thousand shares | 3.99                     | 3.99                  |
| Gazprom Neft    | 709.2                           | 674.2   | 699.8   | 668.1   | 728.5   | 108.5 million roubles | 133.8 million roubles  | 165 million roubles   | 203.4 million roubles    | -                     |
| Surgut-Neftegaz | 895.2                           | 958.6   | 1,009.6   | 850.6   | 1220.4  | 18.1 million roubles  | 18.9 million roubles   | 19.8 million roubles  | 21.6 million roubles     | 23.6 million roubles  |
| Tatneft         | 341.3                           | 474.2   | 451.1   | 505.7   | 695.9   | 388.6 million roubles | 450.6 million roubles  | 522.5 million roubles | 686.5 million roubles    | -                     |
| Bashneft        | 228.3                           | 300.2   | 376.2   | 270.1   | 293.7   | 1.054 billion roubles | 540.7 thousand dollars | 973 thousand dollars  | 1,148.4 thousand dollars | -                     |
| Lukoil          | 1,445.5                         | 1,706.1 | 1,723.6   | 1,886.1 | 2,001.1 | 54.4 million roubles  | 72.9 million roubles   | 129.4 million roubles | 161.4 million roubles    | 203.7 million roubles |

### 4. DISCUSSIONS

The solution of this issue should be the establishment of specific criteria (key performance indicators) at the legislative level, on the achievement of which the amount of payments to the governing bodies of the companies will depend. Thus, it should be entrenched the material incentives, enabling investors and shareholders to assess the degree of interest of members of the board of directors and company management in improving the company's efficiency and increasing its shareholder value.

If the payments to these individuals are not related to the company performance, then the effectiveness of the management bodies is reduced, and only interest in earning personal income can be noted, while the shareholders do not receive the proper return on their investments.

The legally established criteria may include an increase in the financial performance of the company's activities, measured, for example, in the growth rate of the company's own funds per share, and reflection of the company's financial performance in the exchange value of its shares and the amount of dividend payments on which the shareholders' income depends.

The above criteria should be applied systematically, because only the indicator of the company's share price or only the amount of dividends paid are not indicative in assessing the company's success. The share price dynamics, for example, can be caused by the actions of participants in the secondary market (speculation, manipulative actions, etc.), and an increase in the dividends may result from the sale of property or, in the long run, may cause damage to the shareholders.

Thus, the main principle in determining the remuneration of members of the company's management bodies should be a dependence of the amounts paid on indicators that can and should be influenced by the government bodies.

## 5. SUMMARY

A separate aspect of the effectiveness of state companies and companies with state participation is the level of labor productivity. Let us estimate this indicator for companies engaged in the oil and gas sector of Russia, in comparison with the international companies. Let us compare the labor productivity through the ratio of the oil production volume in physical terms (tons) and the average number of company employees.

According to Forbes rating, the largest Russian oil companies are NKRosneftOJSC (operating both in the Volga and Ural Federal Districts), LukoilPJSC (whose basic regions are also the Volga and Ural Federal Districts), Gazprom NeftPJSC (whose base regions are the Khanty-Mansiysk and Yamal-Nenets Autonomous Districts), TatneftPJSC (the main production volumes are provided by the Republic of Tatarstan and the Volga Federal District in general) (Table 6). (Aslanli, 2015)

Table 2. Labor productivity of the largest Russian oil companies

| No. | Company          | Volume of oil produced, million tons | Average number of employees, thousand persons | Labor productivity, oil production per 1 employee of industrial and production personnel |
|-----|------------------|--------------------------------------|---|--|
| 1   | NKRosneftOJSC    | 190.898                              | 248.9   | 767  |
| 2   | LukoilPJSC       | 86.571                               | 110.3   | 784.9  |
| 3   | Gazprom NeftPJSC | 33.624                               | 57.5  | 584.8  |
| 4   | TatneftPJSC      | 26.529                               | 77  | 344.5  |

The world's largest oil and gas companies are ExxonMobil (USA), Chevron (USA), BP (Great Britain). The productivity level of these companies significantly exceeds our country's performance. Thus, the labor productivity in ExxonMobil is noted at the

level of 1,396.1 tons per employee, in BP this value reaches 1,510.9, and in Chevron - 1,384.5. For clarity, let us reflect the obtained productivity values of oil and gas companies in Figure. 1.

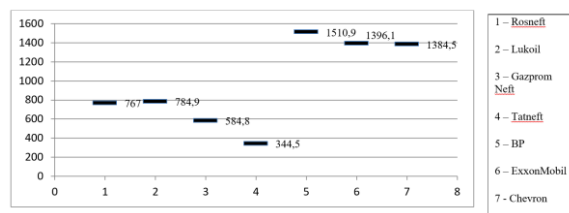


Figure 1. The labor productivity of the largest Russian and foreign companies in 2014. Oil production per 1 employee of industrial and production personnel

## 6. CONCLUSION

Thus, the issue of increasing labor productivity in domestic oil and gas companies remains topical. The main factors of being behind the backlog of world leaders are material and technical ones, in particular, the use of new technologies, increasing the level of production automation, equipment upgrading).

This issue may be solved by a set of measures on increasing the oil recovery factor at the developed fields, achieving the mass development of medium, small and small oil fields.

Thus, the solution of relevant problems in managing the fuel and energy complex is possible through the improvement of the regulatory legislation and the transition to new areas of development of the oil and gas processing industry.

## ACKNOWLEDGEMENTS

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

## REFERENCES

- Antolín, M. J., & Cendrero. J. M. (2013). How important are national companies for oil and gas sector performance? Lessons from the Bolivia and Brazil case studies. *Energy Policy* 61, 707–716
- Aslanli, K. (2015). Fiscal sustainability and the State Oil Fund in Azerbaijan. // *Journal of Eurasian Studies* 6, 114-121
- Devon News Agency (n. d). Tatneft Became the Sole Owner of TANECO and Made Nizhnekamskneftekhim Dependent on itself.

- Retrieved from:  
[http://iadevon.ru/news/corporate/%C2%ABt%20atneft%C2%BB\\_stala\\_edinolichnim\\_vladeltsem\\_taneko\\_i\\_sdelala\\_zavisimim\\_ot\\_sebya\\_%C2%ABnizhnokamskneftehim%C2%BB-3908/](http://iadevon.ru/news/corporate/%C2%ABt%20atneft%C2%BB_stala_edinolichnim_vladeltsem_taneko_i_sdelala_zavisimim_ot_sebya_%C2%ABnizhnokamskneftehim%C2%BB-3908/)
- Gromov, A. I. (2016). Prospects for the Russian Oil Industry Development in Conditions of Turbulence in the World Oil Market. *Journal "Drilling and Oil"*. No. 2. P. 6-10.
- International Monetary Fund, (October 2015). *Prospects for the World Economy Development*. Retrieved from: <https://www.imf.org/external/pubs/ft/weo/2015/02/pdf/text.pdf>
- Lund, D. (2014). State participation and taxation in Norwegian petroleum: Lessons for others? *Energy Strategy Reviews*
- Mahdavi, P. (2014). Why do leaders nationalize the oil industry? The politics of resource expropriation // *Energy Policy* 75. 228–243
- Manaf, N. Mas'ud, A. ZuainiIshak, I., Saad, N. & Russell, A. (2016) Towards establishing a scale for assessing the attractiveness of petroleum fiscal regimes – Evidence from Malaysia. *Energy Policy* 88 253–261
- Ramírez-Cendrero, J. & Paz, M. (2017). Oil fiscal regimes and national oil companies: A comparison between Pemex and Petrobras. *Energy Policy* 101. 473–483
- Rodnyansky, D. V. & Gilfanova, L. G. (2016) Forecasting the Development of Fuel and Energy Complex in the Region under Macroeconomic Instability. *Economics and Entrepreneurship*. No. 4 (P. 2). P. 721-723.
- Rodnyansky, D.V. & Yasnitskaya, Y.S. (2015) Forecasting the export energy policy of Russia in terms of volatility of world prices on resources. *Mediterranean Journal of Social Sciences* 6(1S3), pp. 313-316
- Rubtzov, V. A., Gabdrakhmanov, N. K., Delabarr, O. A. & Tyabina, D. V. (2015). Equilibrium tasks in geography. *Mediterranean Journal of Social Sciences* 6(3), pp. 669-672
- Wolf, C. (2009). Does ownership matter? The performance and efficiency of State Oil vs. Private Oil (1987–2006). *Energy Policy* 37, 2642–2652