



## Eastern Vector of Russian State Policy Development for Ensuring Energy Security

Ivan A. Kapitonov<sup>1,2\*</sup>, Vladimir I. Voloshin<sup>3</sup>, Vitaly G. Korolev<sup>4</sup>

<sup>1</sup>Department of Tariff Regulation in Energy Sphere, Plekhanov State University, Moscow, Russian Federation, <sup>2</sup>Department of Energy Policy, Institute of Economics of the Russian Academy of Sciences, Moscow, Russian Federation, <sup>3</sup>Department of Energy Policy, Institute of Economics of the Russian Academy of Sciences, Moscow, Russian Federation, <sup>4</sup>Basic Department of FAS of Russia, Plekhanov Russian University of Economics, Moscow, Russian Federation. \*Email: kapitonov\_ivan@mail.ru

### ABSTRACT

This article is dedicated to the current problem of forming the Eastern vector of oil and gas policy within new energy policy and modern circumstances. The main goal of the work is to study the energy relations between Russia and the countries of the Asia-Pacific region, namely China. Using the analysis method, authors have highlighted the threats and possibilities of the influence of the current situation in the fuel and energy complex on Russia's energy security. Analysis of the existing situation on the global energy market has revealed that deepening and expansion of partnerships in economic and energy sphere with China are of interest to Russia as a Eurasian state. The basis for a partnership is a cooperation, based on China's demand for natural resources, while Russia will benefit from using effective innovation models of modernisation.

**Keywords:** Asia-Pacific Region, Energy Sphere, Oil and Gas Policy, Raw Material Resource Potential, Energy Security, Energy Dialogue

**JEL Classifications:** P48, Q40

### 1. INTRODUCTION

One of the most transnationalised global market sectors is the energy market, where corporate interests of the largest oil and gas companies in the world have “clashed,” after having monopolised exploration, production, refinement, transportation and realisation of energy products. It is worth noting that the average transnationality index of energy companies in the world is about 70%, meaning nearly 3/4 of their assets value, sales and the number of personnel is attributable not to the countries these transnational corporations are based in, but to the states where they develop their foreign activities.

A critical analysis of modern activities of oil and gas TNCs of world's leading countries it is possible to distinguish a certain tendency of transnationality of the world's energy market - intensification of competition between them for the global resources under the influence of structural asymmetries of the world's energy market (Wei et al., 2018; Teleuyev et al., 2017).

Meanwhile, a fierce competition for energy resources has also unfolded between oil and gas companies of the BRICS countries.

For example, Russian TNCs, possessing a powerful domestic resource base, are less interested in its diversification through external sources, while Chinese, Indian, Brazilian and South African TNCs aggressively capture new promising deposits, “splicing” their economic interests in a vicious competition (Kapitonov and Voloshin, 2017).

The growth of the economy in China varies, on average, by 10% per year in 2000–2014. High growth rates were achieved by developing an export-oriented economy, attracting foreign investment and technology, increasing urbanization and industrialization, which was accompanied by a large volume of investment in infrastructure projects and the real estate market. Undoubtedly, the development of the economy leads to an increase in energy consumption (Figure 1).

As you know, China's fuel and energy balance is characterized by a high proportion of coal consumption. In 2010, coal production in China was about 3.3 billion tons, and according to the plans of the 12<sup>th</sup> 5-year plan (2011–2015) this figure will increase to 4 billion tons. However, depending on one source of energy creates a certain

threat from the point of view of energy security. In addition, the products of coal combustion cause great harm to the environment (Orlov, 2016). China occupies the second place in the world after the United States on the level of atmospheric pollution by carbon dioxide. In this regard, the PRC government aims to gradually reduce the share of coal by 2020 from 70% to 54% by increasing the share of gas from 3% to 10%, nuclear and hydropower from 7% to 9%. But its energy resources in the country are not enough, so it became necessary to import from other countries, including from Russia.

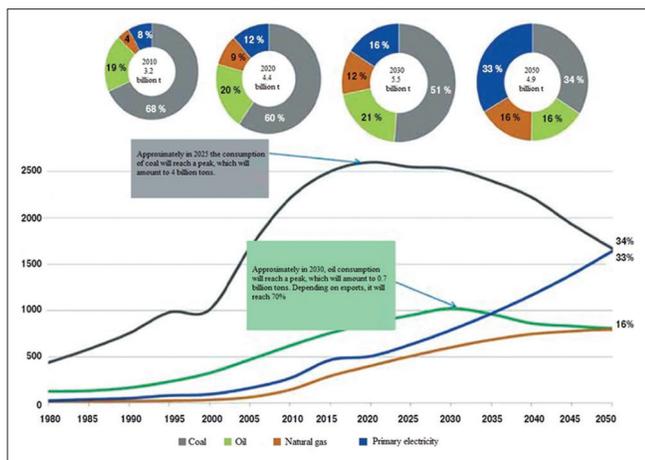
A dynamic development of the Asia-Pacific region (APR) at the current stage requires from the Russian Federation understanding of its geopolitical interests, realization of strategic determination, tactical precision and flexibility (Kahrl et al., 2013). According to most researchers, “energy issues are among the priorities in foreign economic relations with several countries of APR. First of all, this is energy dialogue between Russian and China, within which technological aspects of energy cooperation are discussed. There may also be opportunities to establish relations with Japan, the Republic of Korea, Australia, Canada and many other countries of the region” (Kuznecov, 2012).

## 2. MATERIALS AND METHODS

The Russian Federation possesses a powerful raw material resource potential, with a unique territorial location, an industrial energy base. Being one of the world’s largest energy resources supplier, Russia hugely sustains stability and security of energy supply on global and regional levels. The volumes of oil and oil products exports from the Russian Federation are presented in Figure 2.

Using various theoretical methods, it was established that the maximum impact on the level of energy security is made by the third group of factors, since the technological component of the energy resources extractive industry, transportation and infrastructure affects not only an internal but also a global energy security. A number of countries, including the USA, Japan, EU countries consider the realization of modern oil and gas technologies and services as one of the key priorities of their energy policy. Summarising the information made it possible

**Figure 1:** Forecast of the share of primary primary energy in China’s energy consumption



to reveal that the key contribution of the Russian Federation in ensuring the global energy security is connected to the resolving problems of resources extraction and transportation, stability of these resources foreign sales markets and others. However, in regards to the technological sector, Russian contribution is insignificant at the current stage.

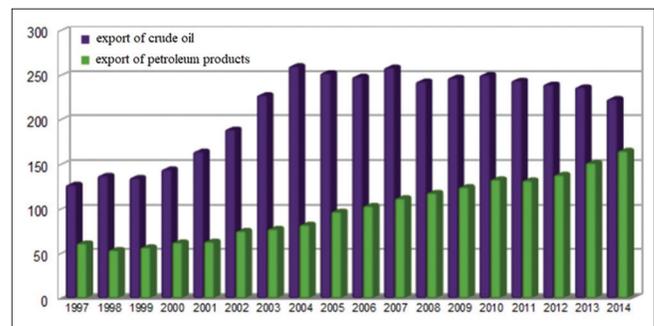
## 3. RESULTS

Scientists note that “the special status of Russia creates real prerequisites for it to play a key role in supporting the global system of energy resources supply.” Accordingly, the structure of the Russian foreign trade (Figure 3) is determined to a significant extent by the energy resources export.

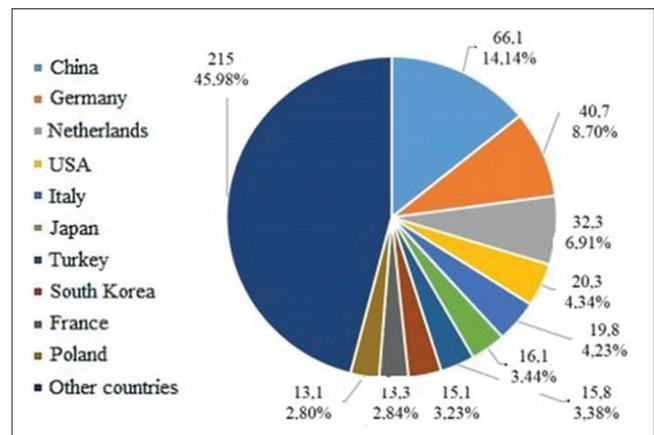
The dominating factor influencing the dynamics of the oil extraction and price is the regulation policy of oil-producing countries, particularly the OPEC cartel, which controls three-quarters of the world’s oil reserves. A deficit trend in production alongside an economic growth, and consequently a consumption growth leads to the increase in oil prices. Various speculations in the stock market lead to a redistribution of oil assets between market players, as well as to local rises and falls in oil index.

During the last decades, the development of world economic system has been characterised by an increased share of natural

**Figure 2:** Volumes of export of oil and oil products from the Russian Federation, million tons



**Figure 3:** Structure of Russia’s foreign trade with the main countries of the distant Far East in 2016, billion dollars and %



gas in the structure of world's energy balance, which is mainly caused by the growth in the level of production and consumption of this product. In many countries, natural gas is the most attractive type of fuel for electricity generation and industrial sectors because of low greenhouse gas emissions in comparison to coal and oil (Huang et al., 2017). The International Energy Agency anticipates that by 2035 the natural gas consumption will increase in the world, and theoretically its growth level can amount to 4,8 trillion cubic meters in comparison to the current 3,3 trillion cubic meters. The highest annual growth rates in consumption are expected in developing countries (Enerdata: Global Energy Statistical..., 2015). For example, the installed capacity of China's electric power industry is shown in Table 1.

Nearly half of the growth in the global oil production will support natural gas from countries outside OPEC (82 billion cubic feet per day, or 1.5% a year), predominantly from Middle Eastern countries and Russia. At the same time, shale gas production will increase, and by 2035 it will account for approximately one-third of the growth in gas production. North America will dominate in shale gas production. However, China may become the most promising country, able to maintain 13% growth in global shale gas production. It is estimated that by 2035 China and North American will account for 85% of global shale gas production. The United States' "Shale revolution" deserves a special attention, being one of the most important events for the last two decades. It is suspected that by 2020 the country will be able to completely satisfy its internal gas demand by means of domestic production, primarily through unconventional sources (shale gas, tight gas in sandstone and coal bed methane). Oil suppliers to China are shown in Figure 4.

The main factor that stimulated an increase in the interest of private companies for new investments in gas extraction was the growth of the world's prices on oil, which made investments in high-cost technologies of horizontal drilling and hydraulic fracturing viable. Their extensive use made it possible to exploit the vast resources of petroleum, previously considered hard-to-get. The shale revolution in the United States in parallel with commissioning of new exportable LNG terminals in Qatar, Russia and Australia will bring about a fundamentally new stage of development of world's gas markets in the nearest future. It is believed that the majority of growth of interregional gas trade will be supplied with LNG. So, LNG supplies will grow by 4.3% annually, and as a result, LNG will be a dominant form of the gas trade by the end of the projected period (Enerdata: Global Energy Statistical..., 2015).

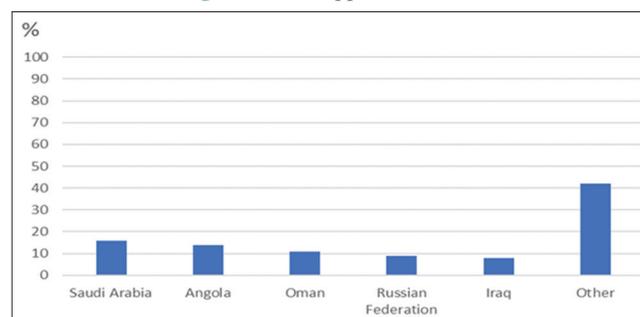
The European gas market occupies the leading position within the world's gas market. By 2035 gas imports to the European countries will grow by 1.5–2.0% annually because gas extraction in this region will be reduced during the projected period (mainly in the Netherlands and Great Britain). Therefore, Europe will remain to be the largest net importer of natural gas, while Russia - the largest net exporter for countries of the European Community (Kuznecov et al., 2014; Ibrayeva et al., 2018).

In this context, the vector of oil and gas interest of the Russian Federation as the largest exporter of energy resources shifts from the West to the East.

**Table 1: Installed capacity of China's electric power industry**

Type of energy	2017, GW	Growth for the year, %
Thermal power plants (TES)	1106.04	4.3
Hydroelectric power stations (GES)	341.19	2.7
Nuclear power plants (NPP)	35.82	6.5
Wind and solar energy	163.67	10.5
Total	1777.03	7.6

**Figure 4: Oil suppliers to China**



Experts note that "energy is one of the declared spheres of cooperation between BRICS countries, though the development of this direction has not yet prompted the creation of functioning mechanisms within the group. Russia is the most active in establishing connections in the energy sphere and in 2014 proposed to create instruments of energy development and cooperation. BRICS energy association may become such an instrument, its activities are supposed to focus on ensuring energy security of its member countries and conducting complex research and analysis of the petroleum market (Dong et al., 2018). It was also proposed to create a reserve bank of fuels and a BRICS energy policy institute within this association. These proposals have not been realised and have not found a sufficient support from other members of BRICS."

According to the existing statistics, the only country from BRICS Russia conducts energy trade with is China (excluding limited export of coal to India), and a continuous rise is on the Russian side continuously raises its superiority. It should be noted that in the modern multipolar world, the People's Republic of China is developing into one of the strongest economic powers. 25% of the world's population lives in China, and in the last 30 years its economy has made a giant leap forward, and it has gradually transformed into a powerful state. In general, China imports more than the United States in terms of imports of crude oil. In 2017, the average daily supply to China was 8.4 million barrels, while in the US 7.9 million (Figure 5).

International and cross-border cooperation between the Russian Federation and the People's Republic of China is the most important component of bilateral economic, political, cultural and scientific relations, which contributes to the development of both countries' border regions. So, many entities of the Russian Federation has trade and economic relations with Chinese provinces. Development of a close cooperation between Russia and China in the energy sphere has a number of prospective directions,

realisation of which will allow both states to consolidate their positions in the face of a possible pressure from western countries.

It is hard to disagree with the opinion of the Professor of Sociology in Princeton University Gilbert Rozman, who noted in his article, published in *Foreign Affairs*, that “under V.V. Putin and Xi Jinping, the convergence of the Russian Federation and the People’s Republic of China became more organic, since the ideological focus and the geopolitical strive of both countries coincide. They are not allies officially (and will not become in the nearest future), though their cumulative potential impact on international relations in Asia and the whole world cannot be overestimated” (Rozman, 2014).

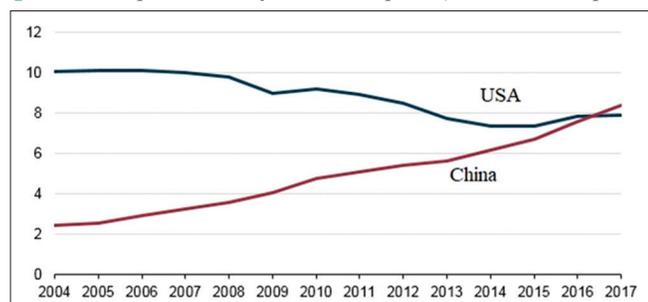
The foundation for the current convergence between Russian and China is the shared belief that “the existing international order needs at least an alternative, and at most a complete overhaul. Both countries’ elites experienced the global financial crisis of 2008 in similar ways and walked away from that experience with a degree of vindication that the western way was by no means adequate.” It is undeniable that persistent and long-term relations and coordination between Russia and China represents a considerable power in the global coordination system. Both countries are major players on the global diplomatic arena as permanent members of the United Nations Security Council, both play a key role in

external processes like the nuclear negotiations with Iran and the six-party negotiations with North Korea.

Currently, two projects on pipeline construction from the eastern part of Russia to China are active: Russia - China and Tayshtet - Nakhodka. At the moment, the Russia - China pipeline is already operational. Construction of the Tayshtet - Nakhodka pipeline corresponds with Russian interests to the fullest extent. Construction of the Russia - China pipeline confirms the importance of the PRC as a consumer of Russian resources. Factors contributing to the deepening of the Russian-Chinese cooperation in the energy sphere and obstacles adversely affecting the development of bilateral relations are presented in Table 2. Consequently, the deepening and extension of partnership in economic and energy spheres with China pose and interest for Russia as the Eurasian state (Energy of China...). The key sphere of Russia-China relations is cooperation, based on the necessity in natural resources in China and utilisation of effective innovative models of industrial and agricultural modernisation development of a close cooperation between Russia and China has a number of perspective directions in energy sphere, scientific-technical sphere, interregional and cross-border cooperation sphere, energy transportation sphere, construction and reconstruction of energy infrastructure sphere, cross-border trade sphere.

## 4. DISCUSSION

**Figure 5:** Comparative analysis of oil imports (million barrels per day)



China made the following critical demands for penetration of Russian oil and gas sector: “Establishment of long-term agreements between the governments of China and Russia and oil and gas companies, formation of a direct oil and gas transportation infrastructure, in particular - an offshoot (or, which is) from the Eastern Siberia–Pacific Ocean oil pipeline along the route Skovorodino - Daqing; construction of the Altai gas pipeline with integration into the existing trans-Chinese gas pipeline system West – East, West – East – 2 and the projected system

**Table 2: Analysis of factors that have a positive and negative impact on the development of Russian-Chinese cooperation**

Group of factors	Positive impact	Negative impact
Geopolitical factors	The stability of the border areas of the two countries depends on the development of Russian-Chinese relations. Complementarity of foreign trade is an impulse for the development of mutually beneficial border cooperation	General deterioration of the international political climate
Economic forces	As China has become one of the fastest growing economies, its economic growth can contribute to the development of Russia’s economy	The nomenclature of exports and imports between Russia and China is not balanced; the transport infrastructure does not meet the requirements of trade and economic cooperation; specific features of trade for the Chinese side are insufficiently high quality of goods and low brand recognition
International factors	The aggravation of relations between Russia and the West, caused by the Ukrainian crisis, will objectively contribute to the further rapprochement between Russia and China, dividing each other’s fundamental views on the international the situation	
The factor of stability and security in Central Asia	Strengthening cooperation between Moscow and Beijing Russia and China is beneficial for ensuring political and economic stability in Central Asia	

West - South. Under current conditions, Chinese companies strive to secure any access to oil and gas assets in Russia, which is the goal of Chinese strategy of gradual penetration onto Key Russian industries and resource regions with subsequent establishment of a long-term economic control and, consequently, reinforcement of their political influence on both regional and interstate levels.”

With the goal to ensure an increase in oil transfer to Russian oil refineries and for export, the further capacity development of the ESPO (construction of new oil pump stations).

Russia and the PRC signed an agreement on the increase of oil transfer on 22 March 2013. At that time, Russia had already been delivering China nearly 15 million tons of oil per year; oil shipments began in 2010 and were secured by the loan, received by Moscow from Beijing for construction of the Eastern Siberia–Pacific Ocean oil pipeline system. The agreement obliges Russian side to increase oil supply to China (Transneft increased the capacity...). In 2013 oil supply had an increase of 800 thousand tons. Starting from next year, the Russian side has increased supply by 2 million tons per year and will increase it by 5 million tons per year from 2015 to 2017. A drastic growth of supply is planned for 2018, more specifically - by 15 million tons per year (Li and Chen, 2017). This agreement has a duration of 25 years. As a result, the maximum supply is planned for the year 2018, and its figures are to exceed 30 million tons of Russian export to China per year. (Figure 6).

Currently, this amount of supply constitutes the capacity of the ESPO that connects deposits in Eastern Siberia and port Kozmino of Primorsky Krai. Using oil pipeline to deliver resources to China would be completely sufficient, especially considering that its capacity is planned to be increased up to 50 million tons per year. However, according to the last year’s data, the supply to China accounts for 24%, while for Japan it is 31% and for the USA it is 22%.

The most crucial region of liquefied natural gas (LNG) consumption is traditionally the APR (over 70% of global consumption). Global demand for LNG can reach 400 million tons by 2030, while the key consumers of this utility will be Asian countries (Razmanova et al., 2015).

At this moment, traditional exporters and importers of LNG keep expanding their activity, building and engineering LNG plants and regasification terminals in numerous countries across the globe (Razmanova et al., 2016; Chen et al., 2013). According to the data

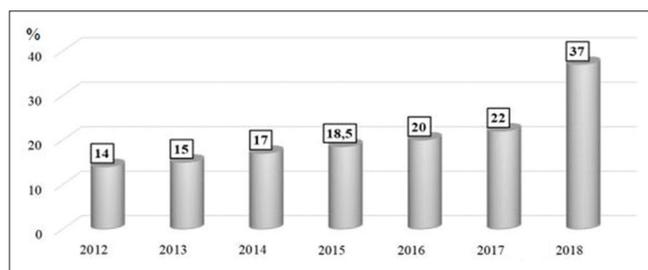
of 2016, LNG is imported to 34 countries, among which are regional markets – the APR, Europe, North and Central America. The main global export of LNG is represented by three countries - Japan, South Korea and India (Ivanov and Matveev, 2015).

Actual prices of long-term supply have declined alongside the oil prices drop. According to analytics at Ernst and Young, by 2030 global demand for LNG will almost double and reach approximately 400 million tons per year, two-thirds of which will belong to the Asian region. Currently, the main consumers are developed countries of the APR (Japan and South Korea), but the future growth will be achieved by the “second echelon” - China, India, Pakistan. An important factor is the fact that even LNG producers, such as Indonesia and Malaysia, will become gas importers in the near future. For example, Indonesian company Pertamina has already secured a contract to procure 800 thousand tons of LNG per year from American Cheniere Energy Partners Inc. starting from 2018. Indonesian government predicts that the main growth of demand will be gas-fired power plants and industrial consumers on Java and Sumatra islands. According to S.V. Razmanova, “Russian companies will need to enter the LNG market in a short time, otherwise, the expenses for entering the LNG market in the region will be extremely high, regardless of assessment and prospects of consumption growth of natural gas in the APR countries” (Razmanova et al., 2016).

Japan, the PRC and South Korea are among the most prospective partners of Russian in the APR in the medium- and short-term. It is hard to overestimate the importance of China as a growing market of natural gas consumption. As a result of an increased level of natural gas consumption in China from 35 billion cubic meters in 2000 to 186 billion cubic meters in 2014, including the launch of their own production in 2009, the interest of global gas producers in satisfying increased import demands of the county for gas has risen, which led to increased activity to realise gas transportation projects to China in the form of LNG or through pipelines. Having analysed the tendencies of gas consumption in Guangdong, Beijing, Sichuan, Shaanxi and Shandong provinces, researcher from the Oxford Institute for Energy Studies concludes that in general gas consumption rises in most of the chosen provinces, excluding Sichuan province, while in gas producing provinces (Sichuan and Shaanxi) the proportion of natural gas in total consumption tends to decline, and the surplus is exported to other regions. Based on these predictions, none of the Chinese regions will be able to satisfy their demand for natural gas for the following 25 years (Proskuryakova and Filippov, 2015).

A major advantage for Russia as an energy resources exporter to the East is a steadily growing demand of China for gas. In 2012 the PRC extracted 107 billion cubic meters of gas and 121 billion in 2013. Furthermore, the consumption in 2013, according to the report of the CNPC Research Institute of Economics and Technology, reached 167.6 billion cubic meters (almost 14% more than in 2012), while gas import grew up to 25%. In 2013 gas deficit in China reached 6.7 billion cubic meters. The PRC, the largest producer and consumer of coal, plans to increase gas consumption up to 400 billion cubic meters per year by 2020. Air pollution in Beijing, Shanghai and other big cities exceeds seven

**Figure 6:** Forecast of dynamics of the growth of oil supplies from Russia to China



times the permissible levels while their own gas production will be able to provide only half of the planned consumption.

Let us examine the described benefits more closely. An agreement with OAO Gazprom allows China to decrease their dependence from LNG import. Currently, it accounts for the half of gas import, yet five years ago it was 100%. The situation was changed by putting pipelines from Myanmar and Turkmenistan into operation (cumulative capacity 12 billion cubic meters per year). As of 2014, China has seven substantial agreements for LNG import with Australia, Malaysia, Qatar, Indonesia and European companies. The cumulative annual capacity of these supplies does not exceed 25 billion cubic meters, their prices range from \$135 (Australia) to \$667 (Qatar) for a thousand cubic meters. Increasing LNG supplies is infinitely hard on account of shortages of tankers and LNG plants.

Moreover, in the White book “China’s energy policy 2012,” published by Information Office of the State Council of the PRC, it is noted that “risks of sea transportation are rising, and there is a problem of operating offshore pipelines.” Gas becomes a strategic resource for China with its level of energy consumption, therefore stable supply is necessary. The PRC opts for gas supplied by onshore pipelines (Figure 7).

Concerning the benefits for Russia, its powerful resource base on the East of Russia, the consecutive formation of massive gas production centres and creation of necessary transport corridors will allow organisation of a new centre of Russian gas export supplies, targeted at the APR.

Joint stock company Gazprom has preliminary arrangements to trade helium from a gas refining complex in Belogorsk for 20 years with 5 main players on the international arena in this industry: Air Liquide (France), Linde (Germany), Matheson (Japan), also praxair and air products, both are from the USA. Therefore, the development of the gas chemical industry in Eastern Siberia will give synergetic effect, and helium will offer leadership on the international arena.

Such synergetic effect from implementing joint Russia-China project the Power of Siberia settles within the new development

framework of Siberia and the Far East: Substitution of raw materials export with the high-added value products.

## 5. CONCLUSION

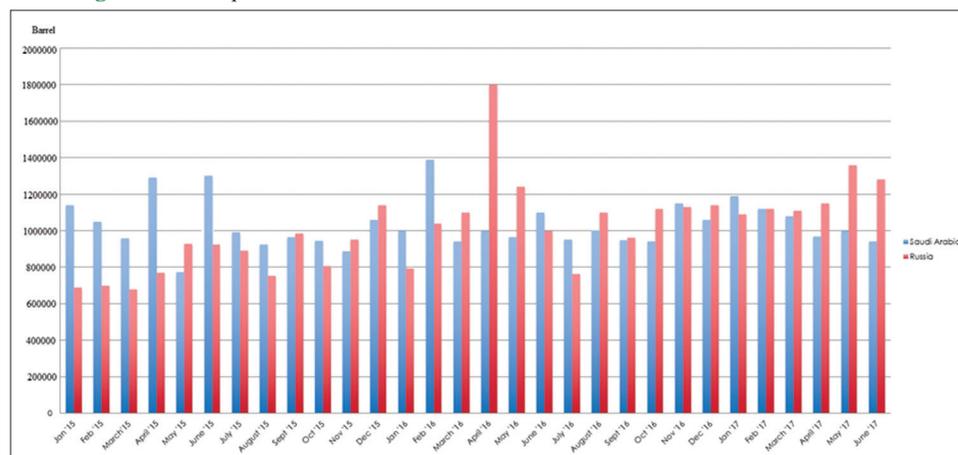
In summarising the analysis of main social-political and financial opportunities, which are provided to Russia by joint projects with China, it is possible to conclude that effective and prospective projects in the oil and gas industry are one of the key components in the current convergence between Russia and China as economic and strategic partners amidst European and American sanctions.

Therefore, joint energy projects in the oil and gas industry with China and other countries of the APR is, first and foremost, a chance for the Russian Federation to fully realise their competitive advantages in the global division of labour. Besides this, their implementation and development minimise a sharp interregional imbalance in development of foreign economic relations in European and Asian vectors. Furthermore, contacts with Asian partners, established during realisation of joint projects, provide a real opportunity to activate additional investment sources to improve the export structure in an effort to increase their market share with the high-added value products.

The Russian Federation, while trading their energy resources in the eastern direction, is interested in solving several issues simultaneously. In particular, entering the premium grade oil and gas market of China and countries of the APRs, Russian demonstrates the West that is capable to successfully sell energy resources on an alternative market for the prices matching with netback prices (price on the global market minus export charges and transportation expenses). A future drastic diversification of Russian oil and gas export should be expected: Supplies not only for the PRC’s market but also for markets of other Asian countries owing to the LNG production increase on modernised domestic manufacturing lines and factories.

With that in mind, the effort of Russian oil and gas companies to enter the markets of their East Asian partner as a supplier of energy resources by offshore and onshore LNG pipelines. At the same time, it gives Russia an opportunity to have a major short-term

**Figure 7:** Oil exports from the Russian Federation and Saudi Arabia to the PRC for 2015–2017



impact on the oil and gas sector of the global economy, stimulate social and economic development of Eastern Siberia and the Far East, support the domestic energy industry through realisation of large infrastructural projects.

## REFERENCES

- Chen, S., Guan, J., Levine, M.D., Xie, L., Yowargana, P. (2013), Elaboration of energy saving renovation measures for urban existing residential buildings in North China based on simulation and site investigations. *Building Simulation*, 6(2), 113-125.
- Dong, K., Sun, R., Hochman, G., Li, H. (2018), Energy intensity and energy conservation potential in China: A regional comparison perspective. *Energy*, 155, 782-795.
- Enerdata: Global Energy Statistical Yearbook. (2015), Domestic Gas Consumption. Available from: <https://www.yearbook.enerdata.net/natural-gas-consumption-in-the-world.html>.
- Energy of China. 2010, Available from: <http://www.webeconomy.ru/index.php?page=cat&newsid=975&type=news>.
- Huang, S., An, H., Gao, X., Wen, S., Hao, X. (2017), The multiscale impact of exchange rates on the oil-stock nexus: Evidence from China and Russia. *Applied Energy*, 194, 667-678.
- Ibrayeva, A., Sannikov, D.V., Kadyrov, M.A., Zapevalov, V.N., Hasanov, E.L., Zuev, V.N. (2018), Importance of the Caspian countries for the European Union energy security. *International Journal of Energy Economics and Policy*, 8(3), 150-159.
- Ivanov, A.S., Matveev, I.E. (2015), The world market of energy resources: Today and yesterday. *The Russian Foreign Economic Bulletin*, 4, 3-23.
- Kahrl, F., Hu, J., Kwok, G., Williams, J.H. (2013), Strategies for expanding natural gas-fired electricity generation in China: Economics and policy. *Energy Strategy Reviews*, 2(2), 182-189.
- Kapitonov, I.A., Voloshin, V.I. (2017), Strategic directions for increasing the share of renewable energy sources in the structure of energy consumption. *International Journal of Energy Economics and Policy*, 7(4), 90-98.
- Kuznecov, A. (2012), Transnational corporations of the BRICS countries. *MEiMO*, 3, 3-11.
- Kuznecov, A.M., Savel'ev, V.I., Bahtizina, N.V. (2014), World natural gas market: Current trends and development prospects. *Problems of the World Economy*, 5, 273-276.
- Li, N., Chen, W. (2017), Coal flow of present and the future in China-A provincial perspective. *Energy Procedia*, 142, 2448-2453.
- Orlov, A. (2016). The strategic implications of the second Russia–China gas deal on the European gas market. *Energy Strategy Reviews*, 13, 1-10.
- Proskuryakova, L., Filippov, S. (2015), Energy Technology foresight 2030 in Russia: An outlook for safer and more efficient energy future. *Energy Procedia*, 75, 2798-2806.
- Razmanova, S.V., Machula, I.A. (2016), The Asia-Pacific market as the leading driver for the development of liquefied natural gas production in the Russian Federation. *Oil and gas geology. Theory and Practice*, 11(4). Available from: [http://www.ngtp.ru/rub/3/42\\_2016.pdf](http://www.ngtp.ru/rub/3/42_2016.pdf).
- Razmanova, S.V., Machula, I.A., Zh, V.P. (2015), Modeling of forecast prices for liquefied natural gas for China. *Gas industry*, 8(726), 19-24.
- Rozman, G. (2014), Asia for the Asians. Why Chinese-Russian Friendship Is Here To Stay. *Foreign Affairs*. Available from: <http://www.foreignaffairs.com/articles/142305/gilbert-rozman/asia-for-the-asians>.
- Teleuyev, G.B., Akulich, O.V., Kadyrov, M.A., Ponomarev, A.A., Hasanov, E.L. (2017), Problems of legal regulation for use and development of renewable energy sources in the republic of Kazakhstan. *International Journal of Energy Economics and Policy*, 7(5), 296-301.
- Transneft Increased the Capacity of the First Stage of the Eastern Siberia-Pacific Ocean oil Pipeline to 58 Million Tons Per Year. Information Agency Nord-News. Available from: <http://www.nord-news.ru/news/2014/12/16/?newsid=68713>.
- Wei, Y.M., Chen, H., Chyong, C.K., Kang, J.N., Liao, H., Tang, B.J. (2018), Economic dispatch savings in the coal-fired power sector: An empirical study of China. *Energy Economics*, 74, 330-342.