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## Article

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## A Critical Review of Russia's Energy Strategy in the Period until 2035

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### ABSTRACT

Noting the enormous importance of the Russian and energy complex for international and domestic energy policies, the paper critically reviews the Energy Strategy of Russia until 2035, focusing on the state, challenges, and development trends of the global and Russian energy. We devote a lot of attention to the internal problems and export opportunities, the key aspects of the Russian energy policy in long-term perspectives, as well as review the development scenarios and stages of implementation. While conducting a critical review, we focus on how well the Strategy captures the current situation in international energy markets and trends in the development of the Russian energy and fuel complex. We also look into how comprehensively the Strategy addresses the identified challenges and possible prospects, as well as discuss which provisions could strengthen the Strategy. Our analysis clearly demonstrates that the Strategy adequately addresses both international and domestic processes leading to the current state of the Russian fuel and energy complex. However, we also point out to a number of shortcomings. First, it still supports the export-oriented model of energy development in Russia, but it would be much promising to focus on building a model of resource-innovative development. Second, there is no comprehensive strategy of working on the European energy market and the markets of the Asia-Pacific region, and the proposed scenarios do not take into account the shrinking export demand in the future. Third, it primarily focuses on the carbon resources, not providing sufficient attention to the increasing role of renewable energy. Fourth, the outlined ambitious plans of technological modernization of the refinery sector appear hard to implement in the current conditions of protracted technological development and technological sanctions. These identified drawbacks could be used for developing policy recommendations.

**Keywords:** Energy Policy, Energy Strategy, Fuel and Energy Complex, Russia

**JEL Classifications:** Q2, Q3, Q4

### 1. INTRODUCTION

Russia has been one of the leading world energy suppliers for many years. No doubt that Russia's resource resources significantly influence foreign policy strategies (Rutland, 2008; Orttung and Overland, 2011; Ocelik and Osička, 2014; Wilson, 2015; Bouwmeester and Oosterhaven, 2017) and contribute to its economic and social development and (Didenko and Skripnuk, 2014; Mau and Ulyukaev, 2015; Sasana and Ghazali, 2017; Simola and Solanko, 2017; Russell, 2018). Therefore, it is highly

important to analyze Russian federal energy policies, because they have a huge impact on the world energy market and the domestic economic growth and development.

One of the key strategic documents on Russia's energy policies, both domestically and internationally, is the newly adopted Energy Strategy of the Russian Federation in the Period until 2035 (MERF, 2014). This document provides a long-term vision on the development of the world energy in general and the Russian energy and fuel complex in particular. More than that, the Strategy

determines a set of measures to be taken in order to ensure the most advanced, efficient, and safe development of the energy and fuel complex in Russia. Consequently, a precise study of this document is necessary to develop a comprehensive understanding of the Russian energy policies, focusing on its domestic and international features.

Thus, this paper critically reviews the key provisions of the Energy Strategy of the Russian Federation in the Period until 2035. In particular, we review (a) the state, challenges, and development trends of the global and Russian energy; (b) internal problems and opportunities for energy development; (c) external challenges and export opportunities of the Russian fuel and energy complex; (d) key priorities of Russia's state energy policy; as well as (e) two development scenarios and issues of their implementation. By conducting an analysis, we focus on (a) how well the Strategy captures the current situation in international energy markets and trends in the development of the Russian energy and fuel complex; (b) how comprehensively the Strategy addresses the identified challenges and possible prospects; (c) which provisions could strengthen the Strategy if being added.

It is worth noting that the issues of Russia's energy development and its strategies are actively discussed in the literature, and numerous studies are devoted to various aspects. However, there is no critical study of the Russia's Energy Strategy until 2035, and this research contributes to the scientific literature.

For instance, the key issues discussed in the scholarship include the following: (1) Russia's energy security, oil and gas strategies (Bilgin, 2011; Mitrova, 2014; Vatansever, 2017); (2) implication of energy strategies for sectors of the Russian fuel and energy complex (Kapustin and Grushevenko, 2018; Mareš and Laryš, 2012). Exploring the implications of Russian Energy Strategy project for oil refining; (3) domestic and external energy strategies (Minin and Vlček, 2017; Kuznetsova and Kuznetsova, 2018; Kryukov and Moe, 2018).

There is also a very strong pool of research on how Russia uses its energy influence in foreign policy with respect to the European Union (Orttung and Overland, 2011; Romanova, 2014; Hauser et al., 2018; Boussena and Locatelli, 2013) and post-Soviet Countries (Kropatcheva, 2014; Van de Graaf and Colgan, 2017). A special attention is devoted to the strategies of energy relations with China (Røseth, 2017; Freeman, 2018; Skalamera, 2018; Xu and Reisinger, 2019).

Energy strategies in the development of renewable energy are also actively studied (Boute and Willems, 2012; Lanshina et al., 2018; Proskuryakova and Ermolenko, 2019; Matraeva, 2019). A set of strategic issues in relation to the modernization of the Russian energy sector (Aalto, 2016), energy technologies in Russia (Proskuryakova and Filippov, 2015), and Arctic energy development (Andreassen, 2016; Boute, 2016; Sidortsov, 2019) are also extensively covered in the scholarship.

The paper proceeds as follows. The next section discusses the methodology used in this research. We rigorously review the Strategy in the "Results" section, and provide its critical

assessment in the "Discussion." Finally, the paper concludes with final remarks.

## 2. MATERIALS AND METHODS

The paper presents a classical case study of the Energy Strategy of the Russian Federation in the Period until 2035. Since the main goal of this paper is to critically review the Strategy 2035, we study the document in details, focusing on a number of different aspects. First, we review how the Strategy defines the current state of world and Russian energy, its key developmental trends. The special attention is, of course, devoted to the internal issues and opportunities for energy development. Also, we take into account how the world energy markets are developing and in which directions. Then, taking into consideration these features, the paper evaluates which energy policies are proclaimed in the Strategy to address such challenges and whether they are sufficient. More than that, we analyze which provisions might be included into the strategy (and which to be excluded) in order to make it more coherent and adequate in the context of the current state of and emerging challenges in the Russian fuel and energy complex. For our critical review we use the official Strategy published on the website of the Ministry of Energy of the Russian Federation (MERF, 2014).

## 3. RESULTS

### 3.1. The Strategy in the System of Strategic Planning

In short, the Energy Strategy of Russia for the Period until 2035 is an inter-sectoral strategy for a set of industries and areas of state governance in the energy sector. It is based on such strategic documents as the previously adopted Doctrine of the Energy Security of the Russian Federation (approved by Presidential Decree of November 29, 2012) (MERF, 2012), the National Security Strategy of the Russian Federation (approved by Presidential Decree of December 31, 2015) (President of Russia, 2015), the Strategy of the Scientific and Technological Development of the Russian Federation (approved by the Decree of the President of the Russian Federation of December 1, 2016) (President of Russia, 2016), the Forecast of the Scientific and Technological Development of the Fuel and Energy Sector for the Period until 2035, developed by the Ministry of Energy of Russia and others (MERF, 2016).

The implementation period of the 2035 Energy Strategy is divided into 2 stages – up to 2020 and from 2020 until 2035. Within the strategy, there are two forecast scenarios ("conservative" and "optimistic"), which define the lower and upper limit of possible changes in the parameters of the fuel and energy balance. The year of 2015 was chosen as the base year. All the calculations included into the Strategy are made by the Energy Research Institute of the Russian Academy of Sciences, the leading think-tank in the field of energy economics and policy in Russia and the whole post-Soviet space.

### 3.2. State, Challenges, and Development Trends of the Global and Russian Energy

The role of the fuel and energy complex in strengthening the national security of Russia and the socio-economic development of

the country is considered evident in the fact that about half of the federal budget revenues come from the fuel and energy complex (MERF, 2014). In investments in fixed assets, this share is about one third, and more than half in Russian exports. The contribution of the fuel and energy sector to GDP is 25-26%. At the same time, the share of people employed in the fuel and energy complex is <4% of the all people employed in the country's economy. According to the Strategy, Russia is the leader in world energy trade and exports almost half of the primary energy produced (MERF, 2014). These provisions of the Strategy are also supported by the research (Faisal and Resatoglu, 2016; Kryukov and Moe, 2018; Kluge, 2019).

### 3.2.1. Internal problems and opportunities for energy development

The Strategy devotes a lot of attention to the analysis of the internal problems and opportunities for energy development both in Russia and in the world. It is stated that the fuel and energy complex of Russia has the largest resource base capable of meeting the needs of the country and the rational export of energy resources until about the middle of the 21<sup>st</sup> century. The country's energy security is ensured by a developed energy infrastructure, including fuel and energy, nuclear power, large hydropower and renewable energy facilities, and a twofold excess of primary energy production over domestic consumption. The power system of Russia, combining both centralized systems and autonomous systems, has enormous experience in reliable power supply for vast territories of the country. There is a large potential for energy savings, reaching one third of the current energy consumption. An important factor in the socio-economic development of the country is the annual investment of energy companies in the amount of 3.5 trillion rubles, which give a significant impetus to the development of high-tech industries in Russia.<sup>1</sup> Energy projects act as points of growth and support zones for the implementation of strategies for accelerated socio-economic development of the Far East and Eastern Siberia, the Russian Arctic zone, the Crimea and the Kaliningrad region. In turn, the development of these territories opens up new opportunities for the development of the fuel and energy complex by forming new energy consumption centers. "New industrialization" and/or "new electrification" in the eastern regions of Russia and in the border areas of the EAEU member countries, China, and other countries of the Asia-Pacific region may lead to a surge in demand for sources of energy in the domestic market.<sup>2</sup>

Despite the enormous potential, the Strategy notes that the power industry of Russia is faced with a whole complex of serious internal problems and unusual external challenges. The main internal problems that limit the progressive development of the Russian energy sector, according to the Strategy, include the following: (1) Low competitiveness and the export-raw material model of the Russian economy, as a result of which the fuel and energy complex carries an increased tax and customs tariff load; (2) low rates of

economic development, significantly slowing down domestic demand for fuel and energy and reducing investment activity in the fuel and energy complex; (3) the deteriorating resource base of the fuel industries due to the depletion of old deposits and the complexity of developing new deposits, their growing capital intensity; (4) a technological lag of some segments of the fuel and energy complex from the world level and high dependence of the Russian energy sector on certain types of equipment, materials and services; (5) a low renewal of production assets and infrastructure; (6) high dependence on world energy prices; (7) difficulties in attracting external long-term loans (MERF, 2014).

### 3.2.2. External challenges and export opportunities of the Russian fuel and energy complex

Despite external and internal difficulties, Russia remains among the world energy leaders. In 2015, Russia was the leading gas supplies to world markets, again ranked first in oil supplies (12% and petroleum products (9%) and ranked third in coal supplies (Rosstat, 2018). The Strategy notes that in recent years, the global energy markets, long supporting the dynamic development of the Russian energy and economy, are undergoing a profound transformation, as a result of which the structure and volumes of demand for energy resources change, competition is seriously aggravated.<sup>3</sup> Features of the current stage of world economic development are as follows: (1) Unstable, relatively slow, and uneven economic recovery in different regions of the world; (2) the aggravation of geopolitical competition and the inevitability of the onset of new global and regional economic crises; (3) acceleration of scientific and technological development and the beginning of a new technological revolution in the leading countries of the world; (4) tightening international climate policy due to the catastrophic consequences of further climate change (MERF, 2014).

Also, global energy markets are experiencing the following profound changes, according to the Strategy: (1) diversification of the national energy structure in most countries through increased use of non-carbon renewable energy sources and local fuels; (2) transformation of regulation of world energy markets, including by strengthening the position of consumers; (3) a slowing growth in energy demand through the introduction of new energy technologies and improved energy efficiency; (4) the increasing competitiveness of renewable energy; (5) expansion of the resource base of hydrocarbons, including through unconventional sources; (6) the emergence of new energy exporters, including in the Gulf region, Latin America, Australia and Central Asia (MERF, 2014).

It is assumed that energy consumption in European countries (the main consumers of traditional energy resources from Russia) will stabilize due to the increase of energy efficiency. But in the future, imports of European countries will increase due to the depletion of their own deposits and the fall in domestic production. At the same time, European countries are expected to continue to diversify their sources of supply and increase the share of renewable energy in the energy balance. The main consumer demand for energy is expected in the countries of the Asia-Pacific region (APR), and

1 More about investments in the fuel and energy complex of Russia: (Boute, 2012), (Kozlova and Collan, 2016), (Zhang, 2011).

2 The Government of Russia has adopted a strategy of advanced development of a number of regions of Russia (Government of Russia, 2014; Medvedev, 2018).

3 Some additional research on this topic, supporting the provisions of the Strategy: (Makarov et al., 2014); (Belogorev et al., 2011); (Makarov, et al., 2012).



then in Africa. This can open up new opportunities for the Russian fuel and energy complex, but large investments are required to develop appropriate transport infrastructure

As a result of the implementation of the refining modernization program and the reduction of transportation costs during the expansion of the oil product pipelines in the northern and southern directions,<sup>4</sup> the competitiveness of Russian oil products on the world market is expected to increase due to an increase in their quality. However, due to the resulting surplus of refining capacity in the countries, competition in this regional market for petroleum products is expected intensify.

The Strategy states that prospects for the export of Russian coal to the European market will be narrowed due to growing environmental restrictions. Although, the high quality of Russian coal makes it possible to maintain supplies in the Atlantic direction, both by displacing competitors and redirecting supplies to countries in the Middle East and North Africa. Basically, the volume of coal supplies will grow in the Asia-Pacific countries, including India, Malaysia, and Vietnam. The competitiveness of Russian coal depends not only on its quality, but also on transportation costs.

A fundamental role in shaping the future of global energy belongs to the development of fundamentally new technologies, including unconventional technologies ("shale revolution," LNG), new energy technologies based on renewable energy sources, distributed generation, intellectualization, the introduction of energy-saving and energy-efficient technologies in industry, utilities and transport.<sup>5</sup> Technology development of reserves of methane hydrates and source rocks hydrocarbons can cause significant changes in the balance of power in the global energy markets.<sup>6</sup> The development of these technologies will increase competition in traditional and potential energy markets.

The Strategy states that for the period up to 2035, most of the forecasts indicate the preservation of predominantly carbon energy with the dominance of hydrocarbons in the world. In the indicated perspective, despite the active development of distributed (decentralized) generation, the existing centralized power supply systems based on large thermal power plants, nuclear power plants, hydropower plants or based on renewable energy sources (wind and solar power networks) will continue to form the basis of the power industry in most countries. Further technological development of the traditional power industry is possible only with a steady increase in the energy efficiency and environmental friendliness of its facilities (MERF, 2014).

### 3.3. Development Scenarios

There are two forecasts that form the basis of this Strategy: conservative and optimistic. Both scenarios determine the range of possible changes in the parameters of the fuel and energy balance and the main indicators of the development of the fuel

and energy industries. Going beyond this range may require a review of the strategic guidelines for the development of the fuel and energy complex.

Common points in both scenarios are: (1) Preservation of the total population of Russia is not below the level of 2015; (2) restricting the access of Russian energy companies to the global capital market, the latest technologies and equipment due to the long-term nature of sanctions imposed on Russia by a number of countries after the events of 2014; (3) implementation of the "roadmap" to improve the energy efficiency of buildings and structures approved September 1, 2016 by the Government of the Russian Federation (Government of Russia, 2016); (4) the evolutionary nature of world technological development.

The basic prerequisites for the implementation of both scenarios are: (1) The GDP growth from 2015 to 2035 is annually an average of 2% in the conservative scenario, and by 3% in the optimistic; (2) the growth of electricity consumption in 1.3-1.35 times (up to 1370-1420 billion kWh) by 2035, respectively, in conservative and optimistic scenarios; (3) an increase in the total energy demand by 13-16%, while curbing its growth through the use of energy saving and energy efficiency technologies; (4) an increase in consumption of motor gasoline and diesel fuel in the period up to 2025 due to an increase in the total car fleet. In the future, a slowdown in the growth of their consumption with an increase in the share of vehicles using electricity and gas-engine fuel; (5) maintaining the level of world prices for Urals oil in the range of \$40 to \$50-65 per barrel (in 2014 dollars) until 2020 and a subsequent rise to \$80-\$100 per barrel by 2035 (MERF, 2014). Thus, the conservative scenario reflects the current trends and sectoral proportions of the development of the Russian economy and provides for a moderate economic growth rate based on the modernization of the fuel and energy and commodity sectors of the economy and the relatively slow development of the processing industries.

The optimistic scenario assumes a more complete use of the potential of the Russian energy sector to accelerate economic growth and increase the well-being of the population, relying on a more optimistic forecast of world demand and energy prices. This forecast assumes the following: (1) The growth in the share of non-energy-intensive manufacturing, construction and services sectors in GDP; (2) higher rates of socio-economic development, especially in the regions of the Far East and Eastern Siberia, and the growth in demand for energy resources (due to the implementation of more than 100 investment projects); (3) a phased transition of the Russian energy industries to the principles of best available technologies (BAT)<sup>7</sup> and the introduction of promising technologies that reduce the specific consumption of resources and reduce the negative impact on the environment; (4) an accelerated import substitution, providing the necessary technological level of the oil and gas sector and an increased multiplicative effect (MERF, 2014).

More than that, the scenarios took into account the development and distribution of new energy technologies: (1) A possible

4 (Government of Russia, 2011).

5 A very informative paper on the energy technology foresight up to 2030: (Proskuryakova and Filippov, 2015).

6 More on benefits of such energy sources: (Yin and Linga, 2019).

7 Additional research on the best available technologies: (Letschert et al., 2013), (Milone, et al., 2015).

increase in the consumption of gas engine fuel in transport by 3-4 times by 2020 and 7-9 times by 2035; (2) electrification of the Russian energy consumption, including the spread of electric vehicles and an increase in their share up to 5% by 2035 in the optimistic scenario; (3) developing the storage at the expense of new pumped storage power plant GAES, storage at solar and wind power plants, system storage, storage at consumers and electric cars (up to 20 GW by 2035 in the optimistic scenario).

It is also worth noting that the Strategy does not take into account scenarios that are stressful in terms of world prices and demand for Russian energy, since they are very unlikely at this stage, but they are considered as part of the annual monitoring of the implementation of the Strategy.

### 3.4. Purpose, Objectives, Priorities, and Implementation Stages

After taking into consideration all the aforementioned challenges and opportunities, we can proceed to the purpose and objectives of the Strategy. The goal of this strategy is the structural transformation of the Russian energy sector to ensure its qualitatively new state, as much as possible contributing to the dynamic socio-economic development of the country.

The structural transformation of the fuel and energy complex, which is economically sound, suggests a number of steps: (1) In order to update the fixed assets, increase the technological level of production, qualifications and material well-being of the fuel and energy complex workers, an increase in investment in R&D and innovation, modernization of production, creation of high-performance jobs and growth of economic and energy efficiency is assumed; (2) increasing market competition; (3) increasing the share of hydrocarbons produced using secondary and tertiary methods with increased recovery rates and from unconventional resources; (4) increasing the share of downstream products in the structure of production, domestic consumption and export of energy resources; (5) Increasing the share of distributed generation in total generation (depending on the structure and concentration of load in regional energy systems); (6) Growth in consumption of higher quality and environmentally friendly energy products; (7) In order to reduce the dependence of the Russian energy sector on imports, a significant increase in the share of domestic equipment, goods and services in the procurement of economic entities of the fuel and energy complex is observed (MERF, 2014).

These structural changes should increase the attractiveness and efficiency of investments in the fuel and energy sector and be a decisive factor in increasing energy efficiency of production and consumption, reducing the energy intensity of GDP and reducing greenhouse gas emissions, as assumed by the Strategy.

By 2035, in addition to structural changes, the Strategy sets the following qualitative parameters for the development of the energy sector: (1) A high level of competitiveness of the fuel and energy industries, ensuring retention of politically and economically viable positions in the global energy markets; (2) energy availability for the mass domestic consumer both in terms of availability and connection time, and price; (3) significantly lower energy intensity

and electrical intensity of GDP; (4) ensuring reduction of specific indicators of environmental pollution by energy companies to the technological and economic limit; (5) diversification of energy export flows with a high share of supplies to the APR countries; (6) a sufficiently high level of investment in the development and use of renewable energy; (7) a full provision of energy industry enterprises with qualified personnel (MERF, 2014).

## 4. DISCUSSION

Thus, the Energy Strategy of the Russian Federation in the Period until 2035 provides a long-term vision on the development of the Russian fuel and energy complex in the context of internal problems and opportunities, taking into account the influence of various external factors.

However, after conducting a critical review of the Strategy, we would like to point out to some aspect that give rise to certain questions. First of all, in our perspective, the Strategy still supports the export-oriented model of energy development in Russia. In our perspective, the key idea behind ensuring the advanced development of the Russian fuel and energy complex is to focus on the resource-innovative development, according to which the Russian energy sources are the basis for its innovative development. And in this case, the Strategy does not only support the model of Russia as a world supplier, but it is more about using the rich energy resources for ensuring Russia's sustainable and socially-oriented development. It is already clear that the export-oriented model will not be in demand in the future, as indicated in numerous studies (Goodrich and Lanthemann, 2013; Gromov, 2014; Zakharova, 2015; Kapustin and Grushevenko, 2018). More than that, the federal budget of Russia should, in turn, reduce its dependence on oil and gas revenues.

Second, there is no comprehensive strategy of working on the European energy market and the markets of the Asia-Pacific region. In particular, the strategy states that there would be an increasing demand on Russia's traditional energy resources; therefore, the country should not only support the current level of exports, but even plan to increase it. However, the current research speaks in favor of the decreasing trend in the use of traditional energy resources in Europe (Koytsoumpa et al., 2016; Connolly et al., 2014; Kalmykova et al., 2016; Kousoulidou and Lonza, 2016; Schanes et al., 2019; Mikova et al., 2019), and this tendency should be also applied to the countries of the Asia-Pacific region. In such conditions, Russia might not be able to increase its oil and natural gas exports.

Third, other energy strategy documents, such as the Doctrine of Energy Security of the Russian Federation (President of Russia, 2019), emphasize the decreasing role of the carbon economy. However, it seems like the Strategy focuses exclusively on the issues of the Russian carbon economy, and the development of carbon resources is strongly emphasized. The strategy does not have a vision of a decarbonized economy, and a clear picture of the development of renewable resources in Russia is not presented at all. In addition, the contemporary scholarship also discusses the insufficient place of renewable energy sources in Russia's

energy policy (Boute and Willems, 2012; Lanshina et al., 2018; Proskuryakova and Ermolenko, 2019; Matraeva, 2019).

Fourth, we have some concerns regarding the ambition plans of technological modernization of the refinery sector. According to the Strategy, the main part of technological modernization conducted by the enterprises working in the oil and natural gas sectors should be finished by 2025. However, given the current technological level in Russia, as well as the technological sanctions imposed on Russia, this deadline appears quite optimistic. Also, the proclaimed policy of technological import substitution in Russia () also would take too many years before receiving some actual results. In our perspective, the government should focus on creating appropriate conditions for stimulating the implementation of enterprises' plans of technological modernization, and there should be a set of long-term measures. We also would like to note that our concerns are shared by a number of researchers (Proskuryakova and Filippov, 2015; Nikulina and Kruk, 2016; Proskuryakova, 2017; Kazantsev, 2018; Kapustin and Grushevenko, 2018; Karamyan et al., 2015).

## 5. CONCLUSION

Given the leading positions of Russia as a world energy supplier and the critical role of the fuel and energy complex in the economy of Russia, this paper critically reviews one of the key strategic documents in energy development – the Energy Strategy of the Russian Federation in the Period until 2035. Our analysis clearly demonstrates that the strategy adequately addresses both international and domestic processes leading to the current state of the Russian fuel and energy complex.

The Strategy proposes two forecast scenarios (“conservative” and “optimistic”), outlines the main directions in the development of the key industries of the fuel and energy complex, and develops the mechanisms and indicators for the implementation of the relevant energy policies by the Federal Government of Russia and regional governments. At the same time, the authors notes that the Strategy has a number of shortcomings: (1) It does not adequately address the issues of energy saving and energy efficiency in the country; (2) there is no comprehensive strategy of working on the European energy market and the markets of the Asia-Pacific region, and the proposed scenarios do not take into account the shrinking export demand; (3) it primarily focuses on the carbon resources, not providing sufficient attention to the increasing role of renewable energy; (4) the outlined ambitious plans of technological modernization of the refinery sector appear hard to implement in the current conditions of protracted technological development and technological sanctions.

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