

## **Soviet and Russian Foreign Energy Policy: Comparative Analysis**

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The article offers a comparative description of Russia's energy policy during the Soviet period and afterwards. In this context, the emphasis is given to the foreign policy. A certain continuity of modern Russia's foreign policy course is considered. At the same time, attention is drawn to the development peculiarities of the energy sector as of the most important economic sphere during the post-Soviet period in terms of the changed political conditions and increased turbulence in the framework of international relations. The author attempts to draw comprehensive analysis of internal and external factors influencing Russia's energy policy. The article is based on various information sources, both Russian and foreign, including statistical data from international organizations. All of this helps to better understand the motivation behind Russia's political decisions in the energy sector, and therefore to facilitate the search for new potential forms and opportunities for international cooperation.

**Keywords:** energy policy, energy diplomacy, the USSR, Russia, world power industry

### **1. Introduction**

The energy factor's influence on geopolitics and geoeconomics is constantly growing. Hence the high interest in power industry manifested by specialists apart from economists and politicians. The international significance of Russia as a transit country of the world power industry is growing in line with the development of the resource base of the Central Asian region, the Caspian Sea and the exploration of the Arctic. Moreover, according to the researcher I.S. Zhukova, political considerations (regarding provision of security) have sometimes greater

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importance than economic ones [1]. In this connection, it is interesting to read the article by Adnan Vatansever, published in *Energy Policy*, titled *Is Russia building too many pipelines? Explaining Russia's oil and gas export strategy* [2]. The increasing competition in energy markets forces countries to establish closer contacts with each other.

## 2. Conceptual Framework of Energy Policy of the USSR and Post-Soviet Russia

The energy factor is most important for the development and performance of foreign policy, both in the USSR and Russia.

According to S.Z. Zhiznin, the goal of energy diplomacy is to create an energy security system based on the balance of interests among producing countries, consuming countries and transit countries [3]. In post-Soviet Russia, creation of a conceptual framework for energy policy and energy diplomacy dates back to the early 2000s. Important milestones here are *Russia's energy strategy for the period until 2020* [4] and its sequel, *Russia's energy strategy for the period until 2030* [5], which is an upgrade of the first document with a more innovative focus.

The innovation Energy Strategy document outlines main priorities: an increase in energy efficiency, reduction of impact on the environment, sustainable development, energy development and technological development, as well as improved effectiveness and competitiveness.

Energy reserves are shown in Table 1 [6]. Fossil fuels form the basis for the Russian energy sector.

**Table 1:** Estimated available energy sources

	Fossil fuels			Nuclear	Renewables	
	Solid**	Liquid	Gas	Uranium	Hydro	Other renewables
<b>Total amount in specific units*</b>	157.01	10.8	33.1	1,000,000	0.335	0.003
<b>Total amount in exajoule (EJ)</b>	4,789	503.3	1 274	157.6	105.6	0.95

\*Solid, Liquid: Million tons; Gas: Billion m<sup>3</sup>; Uranium: Metric tons; Hydro, Renewable: TW. Calculation of EJ equivalent for renewables is expressed for a period of 10 years.

\*\*Solids include both coal and lignite.

Sources: IAEA Energy and Economic Data Base; country information.

### 3. Energy Policy and Diplomacy of the USSR

In the 1920s, when the civil war was over and its consequences were solved, the Russian oil industry came back to the world markets. After the October Revolution, in April 1918, in his article *Sketch plan of scientific and technical works* [7], V.I. Lenin outlined the concept of the country's electrification.

In 1920, the State Electrification Commission of Russia drafted Russia's electrification plan (GOELRO), the first long-term program for the development of the national economy of the USSR [8], [9].

After World War II, the energy strategy of the USSR spread over to allied socialist countries. During that period, the ideological factor of the Soviet foreign policy largely prevailed over the considerations of economic expediency.

In the 1930-1950s the development of power industry was put to the service of industrialization. Coal was considered to be the basic energy resource. In 1945, the country managed to restore the pre-war indicators of power generation.

After the war, the Soviet power industry developed through construction of the world's largest thermal and hydroelectric power stations. Largely it was the basis helping to complete construction of the unified energy system of the European part of the USSR, integrating 600 power stations with a total capacity of 65 million kW by 1967. Relying on this experience, the Soviet government set the task to build ring networks of the Asian and East Siberian regions with further access to the unified energy system of the country [10].

Over the period from the 1950s to the mid-1960s the Druzhba oil pipeline was built, aimed at both political and economic goals. The volume of oil and oil product supplies from the USSR to several socialist countries of Eastern Europe is shown in Table 2.

**Table 2:** Oil and oil product supplies from the USSR to several socialist countries of Eastern Europe (RUB million)

Years	1950	1960	1970	1975	1976	1977	1978	1979	1980	1981
<b>Bulgaria</b>	5.3	24.6	102.8	395.6	445.2	587.4	751.0	920.2	1061.0	1310.9
<b>Hungary</b>	0.7	30.5	77.4	308.8	377.3	502.8	635.9	818.0	755.4	913.5
<b>GDR</b>	2.6	44.2	125.2	421.4	537.6	698.6	894.5	1036.6	1420.8	1744.5
<b>Poland</b>	4.8	57.3	143.0	524.3	591.5	802.4	961.8	1109.3	1277.9	1613.4
<b>Czechoslovakia</b>	4.2	58.7	167.9	492.5	587.3	741.4	912.8	1077.8	1162.7	1617.9

Source: Selected by the author from *Foreign Trade of the USSR in 1922-1981*, an anniversary statistical collection. – Moscow: Finance and Statistics Publishers, 1982. – pp. 118-119 [11].

Table 2 shows the high positive dynamics of oil and oil product supplies from the USSR to the socialist countries of Eastern Europe over the period from the 1950s to the early 1980s. Of the whole export volume of oil and oil products from the USSR, 54% was supplied to socialist countries, 43% to economically developed countries, and about 3% to developing countries.

Gas supplies from the USSR show a similar trend (see Table 3).

**Table 3:** Gas supplies from the USSR to the countries of Eastern Europe (RUB million)

Years	1950	1960	1970	1975	1976	1977	1978	1979	1980	1981
<b>Bulgaria</b>	-	-	-	34.8	74.4	105.6	130.3	156.5	230.0	326.4
<b>Hungary</b>	-	-	1.1	19.2	35.3	39.6	46.3	126.6	226.6	484.4
<b>GDR</b>	-	-	1.4	51.7	95.4	137.4	161.9	218.8	356.0	484.4
<b>Poland</b>	0.5	1.7	13.9	72.7	84.2	100.2	117.2	197.7	306.8	391.2
<b>Czechoslovakia</b>	-	-	19.8	94.1	148.0	177.9	228.7	335.0	445.9	590.5

Source: Selected by the author from *Foreign Trade of the USSR in 1922-1981*, an anniversary statistical collection. – Moscow: Finance and Statistics Publishers, 1982. – pp. 118-120 [11].

In 1983, the USSR was the world leader by the volume of natural gas production, thanks to the development of the gas fields of Western Siberia.

The volumes of Soviet electricity exports to several socialist countries and Finland are shown in Table 4.

**Table 4:** Soviet electricity exports to several socialist countries and Finland (billion kWh)

Years	1970	1975	1976	1977	1978	1979	1980	1981
<b>Bulgaria</b>	0.2	0.4	3.9	4.0	4.5	4.5	4.5	4.5
<b>Hungary</b>	2.9	4.2	4.4	4.5	4.4	6.0	7.5	8.0
<b>GDR</b>	0.3	0.9	0.8	0.8	0.8	1.5	1.8	1.8
<b>Poland</b>	0.3	0.4	0.3	0.4	0.3	0.4	0.3	0.3
<b>Finland</b>	0.4	0.6	0.6	0.6	0.6	0.7	2.3	1.7
<b>Czechoslovakia</b>	1.2	1.1	1.3	1.0	1.2	1.6	2.2	2.2

Source: Selected by the author from *Foreign Trade of the USSR in 1922-1981*, an anniversary statistical collection. – Moscow: Finance and Statistics Publishers, 1982. – pp. 120-121 [11].

In 1975-1989 the export of oil, oil products and gas brought the USSR RUB 100 billion of foreign exchange earnings (measured in the prices of that time) [9].

During the Soviet period, the largest gas pipeline projects Soyuz and Bratstvo (Brotherhood) were completed to supply gas to the countries of Eastern Europe (Poland, Hungary, the GDR and other CMEA members).

The period of the 1970-1980 was marked with significant scientific and technical achievements, e.g., the construction of the USSR-Poland and the USSR-Bulgaria power transmission lines.

Since up to 80% of the hydro resources are concentrated in Siberia, in the 1960s and 1970s power plant construction advanced to Siberia. One example is the construction of the Bratsk HPP on the Angara River with an installed capacity of 4,500 MW, which became the basis of the Bratsk-Ust-Ilimsk regional production complex and the unified energy system of Siberia. The Krasnoyarsk HPP with a capacity of 6,000 MW was built on the Yenisei River, and the Zeysk HPP with a capacity of 1,330 MW was set up in the Far East [12].

In the mid-1970s the Russian gas found its way to the markets of Western Europe and in the early 1980s the Soviet leaders developed the *Energy Strategy of the USSR*. The opportunities of centralized control over the coal and oil industries were used to the full extent.

The dynamics of oil production (including natural gas liquid) in the USSR in 1922-1990 is shown in Table 5.

**Table 5:** Dynamics of oil production (including natural gas liquid) in the USSR in 1922-1990 (million tons)

Year	million tons	Year	million tons
1922	4.1	1950	37.9
1940	31.1	1960	147.9
1941	33.0	1970	373.0
1942	22.0	1980	603
1943	18.0	1985	595
1944	18.3	1988	624
1945	19.4	1990	-

Source: M.M. Sudo, E.R. Kazankova. *Energy resources. Oil and natural gas. Outgoing century*, p. 3 [9].

Apart from oil and gas, the USSR actively exported coal, electricity, equipment and services of the fuel and energy sector, including those relating to nuclear power industry.

In the 1980s the USSR introduced a fundamentally new program for the development of nuclear power industry. While in 1980 the share of nuclear power plants in the total power generation volume took up 5.6%, in 1985 it went up to 10.8% [10]. The first industrial reactor was built for the Obninsk NPP. Moreover, in the 1970-80s the Soviet Union actively developed military, political and economic cooperation, including that in the fuel and energy sector, with a number of countries of Africa, the Middle East, and South Asia. One of the goals of erecting the Aswan Dam in Egypt in the 1960-1970s was uninterrupted supply of electricity to residential buildings and infrastructure facilities. The USSR primarily cooperated with countries sharing socialist views: Afghanistan, Ethiopia, etc.

Table 6 shows the year-by-year percentage of fuel and electricity in the structure of Soviet export (including re-export).

**Table 6:** Percentage of fuel and electricity in the structure of Soviet export (including re-export) (%)

Year	1940	1950	1965	1970	1975	1980	1981
<b>Export</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Fuel and electricity</b>	13.2	3.9	17.2	15.6	31.4	46.9	50.2

Source: Selected by the author from *National Economy of the USSR in 1922-1982*, p. 580 [12].

Fuel and electricity in the Soviet export had a very significant share and high dynamics, especially in the period from the 1970s until the beginning of the 1980s. The exception was the year 1950, when the country had large domestic needs for fuel and electricity, having to restore the national economy, seriously damaged during the war of 1941-1945.

The fuel and electricity export geography by year, the total volume and the share supplied to countries with market economy, is shown in Table 7.

**Table 7:** Fuel and electricity export geography (%)

Year	1980	1985	1986	1987	1988	1989	1990
<b>Total</b>	46.9	52.7	47.3	46.5	42.1	39.9	40.5
<b>Capitalist countries</b>	52.8	56.5	45.2	45.8	41.4	33.9	45.1

Source: Selected by the author from *National Economy of the USSR in 1922-1982*, p. 659 [13].

Table 7 shows that during the period of 1980-1989 the centralized economy of the USSR tried to reduce its dependence on fuel and electricity export, including that to countries with market economy. However, in 1990, shortly before the collapse of the USSR, when the country's domestic economic problems grew more acute, the share of fuel and electricity in the total volume of export, including that to capitalist countries, started growing again.

#### **4. Specifics of the Russian Energy Policy in the First Quarter of the 21st Century**

Overcoming the difficulties, since the beginning of the 2000s, Russia has been increasingly using various forms of relations with other countries to participate in the world energy markets, infrastructure projects, and investments abroad.

After 1991, finding itself in the changed social, economic and political conditions, the fuel and energy sector retained its leading role in Russia's economy. It became the basis for the market reforms, providing about half the total export volume. At the same time, the dependence of the Russian economy on raw material production increased. In 1992, the Russian government adopted one of the most important documents of that period, *The Main Provisions of Russia's Energy Strategy for the Period Until 2010* [14]. In particular, the document pointed out that Russia's energy policy should facilitate the following:

- mutually beneficial cooperation of the Russian Federation with the CIS countries;
- creation of legal and economic conditions to meet the obligations arising from international treaties signed by the Russian Federation;
- expansion of mutually beneficial cooperation between the Russian Federation and foreign countries in developing their fuel and energy resources and promoting Russian exporters to new energy markets [15].

The Russian oil and gas industry accounts for 1/3 of the consolidated budget and about a half of the federal budget. In contrast, metals total 11%, chemicals give 5%, and machine-building products account for only 3.2%. The fuel and energy sector covers at least 1/4 of Russia's industrial production volume [4].

Among many factors, both internal and external, affecting the energy policy of Russia at all stages of its history, the external ones have always played a very significant role. At the same time, one should not discount the significance of Russian domestic political and intraeconomic factors.



The main internal factors are intraeconomic, investment, demographic, technological and resource ones, as well as the security factor. External economic, geopolitical and environmental factors can be referred to external ones.

Noteworthy is the Russian state's high share in the capital of oil and gas enterprises. For example, the state controls over 50% of Gazprom shares. Rosneftgaz, the largest shareholder of Rosneft, is 100% federal property [16].

Industry actually accounts for 41.4% of the total energy consumption, which makes the industrial sector the leading energy consumer, with a small lead over the population (summing up the direct final use of energy by the population and that indirect through the social service sector and the utilities), which accounts for 39% of consumption. Agriculture and transport share integrated energy consumption for the total of 12% [17].

Currently, the goal of Russia's energy strategy until 2030 is to "maximize the efficient use of natural energy resources and the potential of the energy sector for sustainable economic growth, improve the quality of life of the country's population and help strengthen Russia's foreign economic positions" [5]. Draft Russia's Energy Strategy for the period until 2035 [18] has already been prepared [19].

The investment factor effectively influences formation of energy consumption levels and structure [20].

Gazprom and Rosneft, Russia's largest energy companies, require modernization and foreign investment.

Internal factors include Russia's scientific and technical achievements. The principal task in this sphere is to develop education in the field of oil and gas production. Russia requires highly skilled specialists in this sector for the successful development of energy exports. Particular attention should be paid to the security factor [17].

Let's list the main factors of the world energy policy and diplomacy, affecting the energy policy of Russia:

– the policy of major energy consuming countries;

- IEA countries and their influence on Russia's energy policy and diplomacy;
- activities of global and regional centers of multilateral energy diplomacy.

Among external factors, the foreign economic position takes a special place. In 2016, according to the Central Bank of Russia, oil, gas and oil product revenues amounted to USD 154 bln, which accounts for about half of Russia's export earnings of that year [22]. According to the Federal Customs Service (FTS) of the Russian Federation, oil export revenues in 2017 grew 26.6%, gas showed an increase of 22.1% [23].

A.M. Mastepanov, head of the Analytical Center for Energy Policy and Security of the Institute of Oil and Gas Problems of the Russian Academy of Sciences, said, "The prospects for Russian exports of energy resources depend on a number of factors: 1) the abilities of the Russian energy complex; 2) the level of other countries' energy demand; and 3) Russia's foreign currency demand" [24].

Considering that a large part of Russia's budget is made up of energy revenues (80% accounted for by oil and 20% by natural gas), the government can suffer significant losses from falling energy prices [25].

According to World Energy Outlook 2017, published November 13, 2017 by the International Energy Agency (IEA), over the period from 2017 through 2040 the global energy demand will increase 30%. Renewable energy sources will cover 40% of this growth in demand for primary sources. The coal demand growth will gradually decrease. Oil demand will grow, albeit at a decreasing rate. Gas demand will increase 45% by 2040 mainly due to the industrial sector needs. In recent years, there has been a downward trend in nuclear energy demand. After 2030, renewable energy sources will become the basis of power industry. In the final energy consumption volume the share of renewable sources will grow from 9 to 16%, to be used for heating and transport apart from the energy sector needs. By 2040, the final electricity consumption will increase 40%. To emphasize all the above trends, 2016 was the first year when investments in non-carbon energy exceeded investments in the oil and gas sectors [26].

Russia takes this forecast into account in developing its energy policy. The Energy Research Institute of the Russian Academy of Sciences (ERI RAS) has issued the *Forecast for the energy sector development in the world and Russia until 2040* [27].

This document notes that Russia is the world's 4th largest producer of energy resources (after OPEC, China and the US) and the 6th largest energy consumer (after China, the US, the EU, OPEC and India), accounting for 10% of global production and 5% of global consumption of energy resources. Russia is the world's biggest gas exporter and the second biggest oil exporter. Russia covers 16% of the world's interregional energy trade. Russia is an absolute world leader in the export of energy resources. At the same time, after 2020, the share of oil and oil products in the energy export is expected to decrease due to the increase in the share of gas, coal and electricity exports. Crude oil exports will decrease 30% by 2040, while natural gas exports will grow 40%. The share of Russian supplies to Russia's most important export market, Europe, in the total European electricity consumption is shown in Table 8.

**Table 8:** The share of Russian supplies to the European market in the total electricity consumption in Europe (%)

2010	2015	2020	2025	2030	2035	2040
0.41	0.40	0.36	0.36	0.35	0.33	0.32

Source: ERI RAS // *Forecast for the energy sector development in the world and Russia until 2040* [28].

One should seek the reasons for the decline in the share of Russian supplies to the European market not only in Russia's desire to diversify the sales markets of its energy products, but also in the European policies aimed at decreasing the energy dependence on Russia, as well as in the policy of anti-Russian sanctions.

Since oil and gas are traditionally the main energy resources of Russia, one should give special focus to the role of these resources in the country's energy strategy.

Table 9 shows the growth rate of primary energy consumption in Russia and the world.

**Table 9:** The growth rate of primary energy consumption in Russia and the world (%)

Years	2010-2020	2010-2030	2010-2040
<b>Russia</b>	0.9	0.8	0.7
<b>World</b>	1.6	1.4	1.3

Source: ERI RAS // *Forecast for the energy sector development in the world and Russia until 2040* [28].

Table 9 shows that energy consumption growth rates in Russia and the world are gradually decreasing due to the introduction of energy-saving technologies. In Russia, this trend is rather even.

By 2040, it is predicted that the share of each of the fossil fuels will equal (26% of oil, 24% of gas, and 26% of coal) with non-fossil fuels (24%). This plan illustrates the development of inter-fuel competition and the increase in the energy supply sustainability.

By 2040, the demand for oil products will increase by 20% compared with 2010. In general, the demand structure of oil products will not change significantly. Petrol and diesel fuel will demonstrate the biggest demand growth.

The dynamics of oil production in Russia and the world is shown in Table 10.

**Table 10:** Oil production dynamics in Russia and the world (million tons)

Year	2010	2015	2020	2025	2030	2035	2040
<b>Russia</b>	505	522	513	505	491	476	468
<b>World</b>	3978	4264	4487	4708	4834	4921	4964

Source: ERI RAS // *Forecast for the energy sector development in the world and Russia until 2040* [28].

Table 10 shows the declining dynamics of oil production in Russia, and the increasing world dynamics.

The baseline scenario for crude oil supply from Russia is shown in Table 11.

**Table 11:** Crude oil supply from Russia. Baseline scenario (million tons)

Year	2010	2015	2020	2025	2030	2035	2040
to the CIS	26	27	27	24	21	20	18
to Europe	182	160	152	124	108	90	83
to Asia-Pacific	40	53	65	79	80	85	86

Source: ERI RAS // *Forecast for the energy sector development in the world and Russia until 2040* [28].

Table 11 shows the declining volume of Russian crude exports to the CIS and Europe, with increasing volumes of Russian oil supplies to the Asia-Pacific region. By 2040, in comparison with 2010, consumption of primary energy resources by the developed countries of Asia may increase 0.3% with a decrease in the growth rates of oil (-0.2%) and coal (-0.6%) consumption. In the developing part of Asia primary energy resources will be consumed at a higher rate, + 2.2% with positive dynamics for all main types of energy.

Russia seeks to actively increase production and export of oil products, but the growing competition in these items of international trade can make it difficult to succeed. Deliveries of oil products along the basic routes are shown in Table 12.

**Table 12:** Deliveries of oil products along the basic routes (million tons)

Years	2010	2015	2020	2025	2030	2035	2040
to the CIS	6	6	6	5	5	3	4
to Europe	110	105	84	74	73	71	64
to Asia-Pacific	11	8	4	3	2	2	2

Source: ERI RAS // *Forecast for the energy sector development in the world and Russia until 2040* [28].

By 2040, the biggest part of Russian oil products will be exported to European countries, while the absolute volume of supplies will decrease.

At the same time, China's interest in the supply of Russian energy resources and electricity is growing, hence the growing share in China's consumption volume (Table 13).

**Table 13:** Share of Russian supplies in the total consumption of China (%)

Year	2010	2015	2020	2025	2030	2035	2040
Crude oil	5	9	10	12	11	11	10
Gas	0	0	2	6	5	7	7
Coal	1	1	1	1	1	1	1
Electricity	0,04	0,02	0,05	0,09	0,12	0,14	0,14

Source: ERI RAS // *Forecast for the energy sector development in the world and Russia until 2040* [28].

Table 13 shows that the share of Russian supplies to the Chinese market is growing, and further growth is predicted for such items as crude oil (until 2025), gas and electricity. Coal enjoys a stable share, given the gradually decreasing reserves in China itself. This corresponds to the Russian policy of "reorienting to the East" and meets the growing China's interest in the Russian resource base.

The export of energy resources continues to be the main source of Russia's foreign exchange earnings. The share of oil and gas revenues in the Russian federal budget in 2012-2016 is shown in Table 14.

**Table 14:** Share of oil and gas revenues in the Russian federal budget (%)

Year	2012	2013	2014	2015	2016
Oil and gas revenues	50.2	46.1	44.1	43.4	41.4

Source: RIA Novosti [29].

According to the forecast by Exxon Mobil Corp., world gas consumption over the next three decades can grow 60%. In 2030, our planet will need 35% more energy than in 2005. Of the three leading fuels, 32% energy will come from oil, 26% from gas and 21% from coal. The energy boom is predominantly forecasted for the developing countries. In addition, if the number of passenger cars driving on the roads of the world today totals 400 million, then in twenty years this will be 1.2 billion. Transition to

electric cars will be moderate. In 30 years, the share of alternative energy sources (biofuel, tides, sun, etc.) will only reach 14% of the total demand, another 8% will be catered by nuclear power [30].

Realizing that it is impractical to expect that alternative energy sources will significantly replace traditional ones in the foreseeable future, the leading circles of several countries and commercial structures have intensified diplomatic efforts to gain access to pipelines and energy distribution systems.

Despite the political difficulties, Russia's energy dialogues with several countries and international organizations on energy policy issues are continuing.

Currently, Russia's energy strategy priorities are the following: development of new markets, participation in the development of energy resources of other countries, strengthening the presence of Russian companies in their domestic energy markets, and raising foreign investment. Particular importance is given to the prospective development of oil and gas fields in Eastern Siberia and Yakutia, as well as the promotion of Russian hydrocarbons to the Asia-Pacific market. The need to develop the oil and gas industry is emphasized on the basis of increasing the utilization efficiency of oil raw materials. Further development plans of transport infrastructure of the oil complex are being studied.

According to the IEA forecast, by 2040, natural gas will account for 1/4 of the global energy demand [26], and Russia is one of the leaders in the world natural gas market. Therefore, by 2020, it is expected to increase Russian gas exports to 230-245 billion m<sup>3</sup>, which is 30% above the level of 2004 [31].

Gas production in Russia and the world is shown in Table 15.

**Table 15:** Gas production in Russia and the world (billion m<sup>3</sup>)

Year	2010	2015	2020	2025	2030	2035	2040	2010-2020	2010-2030	2010-2040
<b>Russia</b>	649	683	713	736	772	812	844	0.9%	0.9%	0.9%
<b>World</b>	3274	3633	3991	4311	4644	5010	5323	2.0%	1.8%	1.6%

Source: ERI RAS // *Forecast for the energy sector development in the world and Russia until 2040* [28].

Table 16 shows gas consumption in Russia and the world.

**Table 16:** Gas consumption in Russia and the world (billion m<sup>3</sup>)

Year	2010	2015	2020	2025	2030	2035	2040	2010-2020	2010-2030	2010-2040
<b>Russia</b>	459	469	506	528	546	557	572	1.0%	0.9%	0.7%
<b>World</b>	3295	3661	4010	4335	4670	5040	5358	2.0%	1.8%	1.6%

Source: ERI RAS // *Forecast for the energy sector development in the world and Russia until 2040* [28].

Table 16 shows that until 2040 gas consumption in Russia and the world will grow.

Forecasts announce growing demand for Russian coal from such countries as Germany, Britain, Spain, and Poland. The strategic task for Russia is to develop electricity exports, as it means promotion of high-tech science-intensive products to foreign markets. Prospects for Russia's cooperation in nuclear power with other countries are quite favorable as well.

Particularly significant are the Russian positions in the global hydrocarbon market. In recent years, Russia has been a leader in crude oil production, accounting for 12% of oil trade in the world. Over 4/5 of the



oil produced in Russia are exported to Europe. The European market is also the main export direction of Russian oil products.

Russia is the world leader by natural gas reserves (23% of the world reserves) and by the annual gas production, accounting for 25% of the world gas trade, dominating both the European and the CIS gas markets.

According to World Energy Outlook, Russia will increase gas production to 718 billion m<sup>3</sup> by 2025, and by 2040 gas production in Russia will reach 788 billion m<sup>3</sup> [26]. The forecast says that by 2025 Russia will be the second largest gas producer after the United States.

The IEA sees Russia as the leader in gas export, both in the medium and long-term scenarios. Net exports of Russian gas in 2016 totaled 188 billion m<sup>3</sup>, by 2025 it will increase to 265 billion m<sup>3</sup>, and by 2040 – up to 314 billion m<sup>3</sup>.

Accordingly, the share of Russian gas in world trade will reach 37% by 2025, and 40% by 2040.

As the IEA notes in its report, shale gas will be the main driver behind the global gas production growth. In the market of liquefied natural gas (LNG) there is a niche that can be occupied by 2035 by projects including those from Russia. This point was discussed at the meeting of the Energy Development Working Group of the State Commission for Arctic Development, held by A. Novak, head of the Ministry of Energy of Russia on January 12, 2018. The participants of the meeting discussed matters concerned with carrying out promising projects in the production, transportation, storage, and use of LNG in the Arctic zone. By 2020, Russia's offshore gas production may increase 3.2 times in comparison with 2011, while oil production can grow 1.7 times [32].

It is fundamentally important that the Arctic LNG 2 project, using the German liquefaction technology, will employ equipment created in Russia. The development of the LNG market opens a new window of opportunities for Russia. The share of LNG in international gas trade will grow from 34% in 2016 to 47% in 2035. The world LNG demand over the period from 2016 to 2035 can grow 121%, from 250 to 551 million tons.

Russia is carrying out projects in gas industry and it also holds a large resource base to supply gas by pipelines and in the form of LNG. The planned and currently operating LNG projects in Russia (Sakhalin 2, Yamal LNG, Arctic LNG, Baltic LNG, Pechora LNG, etc.) cover up to 66 million tons of fuel. An additional 40 million tons can be provided by new LNG projects, maximizing the use of Russia's resource potential and other competitive advantages. The Russian economy also receives several multiplicative effects, including those related to the development of the Northern Sea Route (NSR) [33]. A shipbuilding cluster has been created in the Far East, allowing for the construction of all classes of ships, including tankers and gas carriers, including those of ice class. Draft federal budget for 2018 and the plan period of 2019-2020 provides for investments in gas production in Russia in 2018-2020 in the amount of RUB 766.1 billion, and for another RUB 1.3 trillion of investments in transportation. By 2020, investments in gas production will grow 1% to the level of 2016 (in comparable prices). The principal medium-term projects in the main gas pipeline transport sector are the main gas lines (MGL) of Siberia, Nord Stream 2 and Turkish Stream. For 2018-2020 investments in gas transportation are estimated at RUB 1.3 trillion, and by 2020 investments in gas transportation will increase 9% to the level of 2016 (in comparable prices).

The share of oil and gas revenues in the Russian budget will total 33.7% in 2018, and 33.4% in 2020 [29]. According to the forecast of the Ministry of Finance of Russia, the share of oil and gas revenues in the Russian budget will decrease to 33% by 2020 [34].

In the total volume of gas consumption of the countries of foreign Europe (including Turkey, excluding the CIS countries) Russian gas accounts for about 30%. Possessing a unique gas transportation system, Russia also plays an important role in ensuring supplies of Central Asian gas to Europe and the CIS countries.

Russia has the second biggest coal reserves in the world (19% of the world reserves), the fifth largest annual coal production (5% of global production) and accounts for about 12% of the world trade in steam coal.

The Russian nuclear power industry accounts for 5% of the world nuclear power generation market, 15% of the world market for reactor construction, 45% of the world uranium enrichment market, 15% of the

world market for spent fuel conversion, and covers 8% of the world production of natural uranium.

Russia's energy strategy also provides for the diversification of the commodity structure of energy export by increasing the export share of energy products with high added value (oil products, liquefied natural gas, natural gas motor fuel, gas chemical and petrochemical products, and electricity).

During the implementation of the current strategy, the Russian economic dependence on the energy sector will decrease due to the outstripping development of innovative low-energy-intensive sectors of economy and unlocking the energy-saving technological potential. In particular, this will result in the reduction of share of fuel and energy resources in export by at least 1.7 times, and the reduction of share of fuel and energy resources in GDP by more than 3 times by 2030 as compared to the level of 2005 [34].

One of the main principles of Russia's Energy Strategy is to maintain stable relations with traditional consumers of Russian energy resources and to form equally stable relations in new energy markets.

## **5. The Future of the Russian Energy Policy in the Global Geo-Economic Space**

However, despite the sensible importance of the fuel and energy complex for the country's economy and policy, the energy intensity of the Russian economy is among the poorest in the world. Another very important problem of the Russian power industry is energy security.

Ensuring national energy security implies strengthening Russia's position in the world markets, and also its participation in the international energy security system through enhanced cooperation with both international and regional organizations (IEA, OPEC, GECCF, etc.). Russia's cooperation with such entities should be both bilateral and multilateral, as well as global, regional and country-specific. Currently, Russia participates in the meetings of OPEC countries as an observer when discussing the creation of new oil trade exchanges, currency settlements and other matters.

Russia needs to actively participate in carrying out global projects for the arrangement of the world energy system (Enernet), the world transport and communication system (Transnet) and others.

In the complex of geo-economic tasks, the rise of high-tech sectors of economy, including nuclear energy, should be the top priority. Russia is already fulfilling quite a lot of foreign orders for the construction of nuclear facilities with a modern security system. Agreements on cooperation in this sphere have been signed with Cuba, Turkey, Venezuela, China, Iran and several other countries.

Pipelines that could connect Russian, Central Asian and Caspian hydrocarbon fields with Europe and the Asia-Pacific region to form a single network, have enormous geo-economic potential. Particularly important is the development of pipeline transport to the East to ensure, among other things, the supply of liquefied natural gas (LNG) to China, Japan and other countries.

Despite the positive prospects for the development of the world energy sector, the urgent task for Russia is to move the gravity center of cooperation with the world economic system to the non-energy sector of economy.

Ensuring Russia's competitiveness in the geo-economic space largely depends on the outcome of the diplomatic struggle for the new energy transportation routes, some of which are bypassing and competing with Russia. It is extremely important to pursue a balanced energy policy, taking into account Russia's dualistic position: both as an exporter and as a transit country for energy resources. This makes the Russian diplomatic position unique. Today, more than ever it is important to seek a geo-economic balance of interests through participation in a global dialogue [35].

In an era of globalization, all resources, including energy, are becoming internationalized, and therefore countries require coordinate access to them. Nord Stream 2 and Turkish Stream, both in progress, confirm this idea. It is necessary to expand such a form of global dialogue as forums, involving representatives of various fields of knowledge and occupation so that points of agreement give greater stability to the common platform

of the global system of relations, so that political decisions are based on accord and rest on the reliable basis of common interests.

Russia could participate in the formation of innovative breakthrough concepts and technologies in the energy sector, in particular, in the development of offshore projects. In this regard, the Russian government plans to introduce considerable tax exemptions for companies involved in the development of the Arctic. It is planned to introduce a special taxation regime to significantly increase the economic feasibility of offshore projects in the Arctic and in the Caspian Sea, since this is particularly important according to the country's current energy strategy.

In the long term, the world energy markets will be restructured, the share of developing countries will grow, competition will increase and the degree of uncertainty and risks in the development of world markets will multiply. Oil and gas chemical markets appear to be promising.

Europe and the CIS will remain the major strategic markets for Russia. It will more actively develop the eastern direction, paying more attention to China, Japan, South Korea, India, and the Asia-Pacific countries. The share of oil and oil product exports to the East will substantially grow. The Eastern Siberia–Pacific Ocean (ESPO) project and the construction of a branch to Daqing, a local oil refinery center in China, appear to be very promising. Russian gas supplies to China are expected to grow. China will be allowed to participate in energy projects in Russia with the involvement of Chinese investments.

Apart from maintaining its position in the world energy market as the largest energy supplier, Russia should also qualitatively change its position through diversifying its commodity structure and directions of Russian energy export, actively developing new forms of international energy business and expanding the presence of Russian companies abroad. It is Russia's interest to ensure a further increase in the efficiency of production and export of all major types of energy resources and processed products, as well as the efficiency of competitively advantageous technologies of Russian power and industrial companies.

In its foreign policy and diplomatic activities, Russia should maintain a balance of state and corporate interests in both bilateral and multilateral contacts, as economically developed countries do. An important direction

in the development of Russia's relations with the western countries could be business convergence and creation of joint business structures.

The problems Russia is facing should be solved by providing diplomatic support in line with the interests of Russian fuel and energy companies abroad, as well as through the measures and mechanisms of state energy policy.

Therefore, the development and implementation of foreign energy policy should be based on the systematic principle, ensuring coherence of activities in the regional context and in relations with international organizations. It is extremely important to coordinate the actions of energy companies and the government, and provide for failure-free operation of monitoring and control mechanisms. This can be reached through dialogue, the balance of interests and a joint effort to preserve and multiply the positive results achieved by our civilization.

In the long term, Russia has a whole range of potential opportunities to expand its international specialization, apart from energy production, to the financial, space, military, technical, nanotechnological, environmental and other spheres.

Russian companies (both public and private, as well as of a mixed status) should take a more active part in the development of global geo-economic space with active political, financial and information support of the state. It is necessary to create a network of information centers of various specializations to serve the interests of Russian business, to lay the foundations of an innovative economy for the future.

## **6. Conclusion**

The Soviet and Russian energy policies have many features in common, only because modern Russia is the same country, although reduced in size, with a smaller economy and a changed socio-economic system. At the same time, it is a territory that in many respects does not resemble the USSR.

### **6.1. Similarities**

1. The USSR and Russia are the largest countries in the world having unique natural riches, including the biggest reserves of energy resources.
2. Both countries have a developed economy operating on their own energy base.
3. Energy resources are the principal source of foreign exchange revenues for the state budget.
4. The energy sphere is controlled and managed by the state.
5. Both countries are similar in their desire to play a significant geopolitical role, using the energy factor for this end.
6. Success of the foreign energy policy of both countries has always directly depended on the internal situation in the energy sector.
7. Energy policy has always been a component of both countries' foreign economic policy, and energy diplomacy is its important vehicle.
8. Modern Russia is not only the official successor to the USSR, it has also inherited the tradition of energy policy and energy diplomacy of the USSR.
9. Both the USSR and Russia have always viewed their power industry as a factor of national and international security.
10. The USSR and Russia have always used both traditional and specific methods of energy diplomacy to reach their national interests.
11. The continuing excessive dependence of the Russian economy on the energy factor, as Soviet experience has shown, is a serious risk for modern Russia.

## **6.2. Contrasts**

1. The USSR and modern Russia have different socio-economic systems: a centralized one in the USSR, and a market one in Russia.
2. The foreign policy of the USSR, including its energy component, had an excessive attachment to ideology. Therefore, the priority geographic directions of foreign energy policy were the socialist countries of Eastern Europe and the developing countries sharing socialist views, for example, Afghanistan, Egypt, and Ethiopia.
3. Modern Russia is a country with a more open economy than the USSR, free from ideological constraints, allowing it to build its foreign energy policy in a wider geographical range, primarily focusing on the commercial efficiency of foreign economic contacts.
4. The domestic base of savings in Russia is narrower than that in the USSR, and the foreign investment opportunities are politically limited.
5. The sanctions policy of the US, EU and Japan towards Russia is a factor hampering the development of Russia's foreign relations in the energy sphere and narrowing its range of foreign investment opportunities.
6. Russia is more active than the USSR in developing multilateral international energy sector cooperation through a number of global and regional organizations (WTO, IMF, IEA, OPEC, the CIS and others).
7. The USSR's priority partners in the energy markets were socialist and some of the developing countries sharing socialist views. For Russia, priority partners are the countries of Europe, the ex-USSR, as well as China and a number of other countries of the East.
8. Russia's strategic plans include promotion of its status as the largest exporting and transit country for energy resources and processed products; a bridge connecting the West and the East.
9. Russia actively seeks to develop the Arctic region, pursuing commercial, military and political interests.



10. Russia uses the opportunities of both official and corporate diplomacy to reach its energy goals.

11. Russia uses the experience gained by the Soviet diplomacy in ensuring the national interests in the energy sphere, with account of the modern world trends and the radical changes taking place in Russia itself, and increasingly focusing on the market component of its foreign economic policy.

The author hopes that this article helps Russia recognize the significant mistakes made by the USSR in carrying out its energy policy, in particular, excessive attachment to ideology and over-centralized management system, being, in the author's opinion, some of the reasons of its collapse, and avoid repeating them at the present time and in the future.

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