



RUSSIA'S ENERGY STRATEGY-2035

Struggling to Remain Relevant

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Abstract

Russia's Energy Strategy to 2035 (ES-2035) enters, finally, the home stretch. The Ministry of Energy submitted its version of the document to the Russian Government in early October 2019. Once approved (this is expected before year's end), ES-2035 will become the best available indication of Russian energy policymakers' plans. It therefore merits careful consideration. This paper reviews the key goals, scenarios and indicative ranges for output and consumption contained in ES-2035. It thus contributes to understanding the strategic compromises that Russia might be ready to take, as well as those that are unlikely to be acceptable. Our review of the draft ES-2035 suggests that it provides general guidelines to the future evolution of Russia's energy sectors, but struggles to remain relevant amid fast-paced changes in the global markets. Several crucial but politically sensitive energy issues still need further clarification of policies: the future fiscal regime for oil and gas that could incentivize output and prevent production declines; industrial and technological policy; the choice of the future model for Russia's gas industry and whether it is going to develop under continued state regulation or in the market environment; climate policy and the strategy to promote (or not) renewables and other technologies of energy transition; and the future of competition in wholesale and retail power markets.

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Introduction

The economic models of many countries involve varying degrees of strategic planning. At one extreme lies the rigid planning under the administrative command system, which sets production and consumption targets and allocates resources via directives flowing top down. At the other end of the spectrum, there are examples of indicative planning that aim at early identification of oversupply, bottlenecks and shortages in economies. This planning includes significant state sectors, so that state investment behavior can be quickly modified to reduce market externalities and sustain stable growth. Post-Soviet Russia has gone a long way from the rigid Soviet-time Gosplan targets to its current system of indicative strategic plans, which encompass the economy at large as well as different sectoral strategies. Russia's Energy Strategy must have a prominent place in this set, owing to the decisive role that energy plays in the country's gross domestic product (GDP), budget and exports.

Yet, paradoxically, the latest version of this document, "Russia's Energy Strategy to 2035" (ES-2035 hereinafter), which Russia's Energy Ministry developed and submitted to the Russian government in 2015, has not been approved after more than four years. The previous version, "Russia's Energy Strategy to 2030", was adopted by the government at the end of 2009 and then passed by the State Duma as federal law. This law further stipulates that the energy strategy must be updated every five years, with the corresponding extension of its time-frame. The absence of an up-to-date strategy thus creates a legal loophole in the regulatory framework that governs Russia's energy sector. In early October 2019, Russia's Ministry of Energy updated the text of ES-2035 and submitted it to the government. It is expected that the review of the document will proceed quickly, to allow Russia to finally approve the new ES-2035. The impasse over the bureaucratic procedure might be over, but the relevance and usefulness of ES-2035 remain questionable. This situation is related to a continuing lack of consensus, between and among key government and industry players, about the basic direction of energy policy in the years ahead. In broader terms, these contradictions reflect a debate over what path of economic development Russia should choose, and what role the energy sector should play in this. The "great divide" is about a choice between returning to state control and allowing market forces to work.

Unfortunately, the international sanctions against Russia have reinforced internal trends toward a greater role of the state in the Russian economy at the expense of openness and market behavior. The problem is

being exacerbated by the tectonic structural shifts in the global oil and gas markets, which have greatly increased risks and uncertainties, and made many recent forecasts and outlooks obsolete. It is no surprise, therefore, that the Russian government policies in 2015-2018 have taken the form of short-term reactive adaptation to market developments rather than long-term proactive strategic behavior.

At the same time, some key energy policy decisions not envisioned either by the previous energy strategies or the latest draft have been taken in the past five years. Among the most important of these, the deal between Russia and the Organization of the Petroleum Exporting Countries (OPEC) on regulating global oil supply has become a new policy and a new challenge for Russia's oil industry. Russia, traditionally an oil price-taker, decided to change course and regulate its oil supply to influence global oil prices. This further strengthens the role of the state in setting targets for Russia's oil output.

On the natural gas side, Russia's active support of Novatek's LNG projects have effectively become an export strategy of promoting two national champions: Gazprom as a pipeline gas exporter, and Novatek as an LNG exporter. This definitely means a new strategy for gas exports, though ES-2035 does not make any focus on it. The international sanctions against Russia have led to a drive for self-sufficiency and import substitution with regard to oil and gas technologies and equipment. This is another example of a new strategic development that Russia's new energy strategy needs to address.

Key Challenges for Russia's Energy Key Sectors—Oil, Gas and Power

Russia's most important sectors—oil, gas and electric power—have faced multiple difficult trade-offs between conflicting goals over the past decade.

The oil industry, having experienced major decentralization and transition to market prices in the 1990s, has reverted to greater state control over the past ten years. Rosneft, the national oil champion, now accounts for 35 percent of oil output. Moreover, the Russian state directly controls about half of Russia's oil production via its ownership interests in Rosneft, Bashneft and Gazpromneft.

The share of independent oil producers, which usually represent the driving force for experimentation and innovation in the industry, has been steadily declining and barely represented nine percent of Russia's oil production in 2018. This rising production reached 11.3 million barrels per day in September 2019, but its longer-term prospects are uncertain. Sustaining high levels of oil output is likely to require extensive tax cuts, putting the industry agenda on a collision course with the state fiscal targets. After many years of price deregulation, the government has been increasingly intervening more frequently in the domestic gasoline prices formation.

Russia's gas industry has been transitioning from its legacy production base in Western Siberia to the new giant gas province of the Yamal peninsula in Russia's Arctic. It has created a new generation of high-pressure domestic and export trunk pipelines that connect new production sites with their target markets. This transition aims at ensuring sustainability of Russia's gas output in the 21st century and is now entering its final stage.

Russia has also started the long-overdue geographical diversification of its gas exports with plans to deliver pipeline gas to China and LNG to Asia-Pacific. While Gazprom remains the national leader in the gas pipeline business, Novatek has emerged as a leading force behind the drive to establish Russia as one of the main global LNG players in the next decade along with Qatar, Australia and the US. Russia's gas industry has

demonstrated a lot of ingenuity in overcoming tough technological and engineering challenges, by successfully completing the challenging projects in the harsh Arctic environment and building high-diameter subsea pipelines at record depth. But relatively little change has occurred with respect to introducing competition and letting market forces work in the domestic gas market. Gazprom's ownership of the Gas Transportation System (GTS) and its monopoly on gas pipeline exports out of Russia deny the other players a level playing field and create multiple economic distortions. Russian domestic gas prices and transportation tariffs remain regulated at levels that result in significant cross-subsidization and lost value for the economy.

Russia's power sector is the only part of the country's energy sector that went through restructuring reforms explicitly designed to develop a comprehensive power market. It has not been living up to the high expectations formed during the preparation for the reforms of 2002–2008. These reforms resulted in the unbundling of the vertically integrated state power monopoly Unified Energy System (RAO UES) and the introduction of the competitive wholesale and retail power market. However, Russia's end-user power prices have rapidly grown since the introduction of market-based reforms, despite lackluster power demand, indicating a price disconnect from supply and demand fundamentals. Several components that make up the final power costs were to blame for rising power costs. Chief among the growth drivers have been growing grid costs (transmission and distribution), huge volumes of must-run generation, and increasing volumes of non-competitive Capacity Supply Agreement (so-called "DPM")—a type of formal obligation placed on generation companies to build new power generation units requested by the government.

In return, the companies were given compensation above the regular capacity market prices for the new capacity supplied, at a level that would cover their investment, plus a certain rate of return on invested capital. The Russian government decided to follow this direct administrative approach rather than using a market mechanism.¹ In fact, during the last few years, the electricity market has gradually become again the area of state regulation. The recent DPM-2 decision on modernizing thermal power plants further freezes the status quo for the next couple of decades, as it envisages investments in replacing old, inefficient equipment with material of the same kind—with no improvements in efficiency, specific fuel

1. A. Khokhlov, Y. Melnikov, "Market Liberalization and Decarbonization of the Russian Electricity Industry: Perpetuum Pendulum", Oxford Institute for Energy Studies, May 2018, www.oxfordenergy.org.

consumption and emissions. At the same time, closure of older power plants, which was one of the drivers for DPM-1, is not actually taking place; many of them apply for must-run status or argue that their heat supply component cannot be replaced and therefore they should keep functioning.

ES-2035: Important but incomplete “road map”

Although lacking official approval, ES-2035 remains the best available indication of Russian energy policymakers' plans and therefore merits careful consideration. The key goals, scenarios and indicative ranges for output and consumption contained in the ES-2035 help us to understand the strategic compromises that Russia might be ready to take, as well as those that are unlikely to be acceptable.

Moreover, we can identify some components of the latest ES-2035 that are consistently implemented by the authorities; each of these will be analyzed in this paper. The analyses will be built on the official goals of the “Russian Energy Strategy Up to 2035”.²

The key goals of ES-2035 include:

- Sustaining Russia's position in global energy markets
- Diversifying energy exports towards Asian markets
- Ensuring energy availability and affordability for domestic consumers
- Reducing energy intensity and emissions
- Developing renewable energy systems (RES)

Key targets and forecasts of Russia's energy balance in ES-2035 (under two scenarios, Optimistic and Pessimistic) are presented in Table 1.

2. “Proekt Energostrategii Rossijskoj Federacii na period do 2035 goda” [Draft of the Energy Strategy of the Russian Federation for the period up to 2035], Ministry of Energy of Russian Federation, October 2019.

Table 1. Russia's energy strategy to 2035: key parameters of the outlook for fuel and energy balance

	Units	2018 (actual)	Outlook				2035 over 2018, %	
			2024		2035		low	high
			low	high	low	high		
Total Resources	Million toe	2087,4	2175,2	2226,6	2245	2499	107,6	119,7
Production	Million toe	2048,2	2146,8	2198,9	2224,6	2482	108,6	121,2
Coal – production	Million ton	440,1	490	510	550	670	125	152,2
resources	-"	400,7	436,1	454	489,7	596,7	122,2	148,9
	Million toe	262,9	286,1	297,8	321,3	391,4	122,2	148,9
Crude oil – production	Million ton	555,7	556	560	490	555	88,2	99,9
resources	-"	552,4	552,7	556,6	487,1	551,7	88,2	99,9
	Million toe	789,9	790,3	796	696,5	788,9	88,2	99,9
Natural gas – production	Bcm	727,6	795,1	820,6	906,6	982,9	124,6	135,1
resources	-"	727,6	795,1	820,6	906,6	982,9	124,6	135,1
	Million toe	836,7	914,4	943,7	1042,6	1130,4	124,6	135,1
Electric power – Hydro supply to network	Billion kWh	193,7	179,2	194,9	190	194	98,1	100,2
	-"	193,1	178,7	194,3	189,4	193,4	98,1	100,2
	Million toe	66,5	61,6	67	65,3	66,6	98,1	100,2
Electric power – Nuclear supply to network	Billion kWh	204,3	201,5	201,5	227	245	111,1	119,9
	-"	187,9	185,4	185,4	208,8	225,4	111,1	119,9
	Million toe	64,7	63,9	63,9	71,9	77,7	111,1	119,9
Electric power – solar and wind supply to network	Billion kWh	1,4	10,5	10,5	46,4	52,2	3303,3	3716,2
	-"	1,4	10,5	10,5	46,4	52,2	3303,3	3716,2
	Million toe	0,48	3,62	3,62	16	18	3303,3	3716,2
Other	Million toe	27	27	27	27	27	100	100
Imports – total	Million toe	29,9	20,5	19,8	20,5	17,1	68,6	57,2
Coal	Million ton	24,3	20	19	20	15	82,3	61,7
	Million toe	16,5	13,6	12,9	13,6	10,2	82,3	61,7
Crude oil	Million ton	0,5	0,7	0,7	0,7	0,7	140	140
	Million toe	0,7	1	1	1	1	140	140
Natural gas	Bcm	9,4	4,8	4,8	4,8	4,8	51,1	51,1
	Million toe	10,8	5,5	5,5	5,5	5,5	51,1	51,1

Electric power	Billion kWh	5	1,1	1,1	1,1	1,1	22,2	22,2
	Million toe	1,7	0,4	0,4	0,4	0,4	22,2	22,2
Other	Million toe	9,3	7,9	7,9			0	0
Distribution-total	Million toe	2087,4	2175,3	2226,9	2315,8	2529,3	110,9	121,2
Consumption	Million toe	1063,5	1041,9	1060,5	1127,3	1173,8	106	110,4
Coal	Million ton	202,6	208,4	208,3	208	208	102,7	102,7
	Million toe	127,5	130,6	130,2	130,4	130,4	102,3	102,3
Natural gas	Bcm	494,2	498,5	512,2	519,5	543,5	105,1	110
	Million toe	557,2	548,4	561,9	597,4	625	107,2	112,2
Automotive gasoline	Million ton	35,2	36,2	36,6	41,2	44,8	117,2	127,4
	Million toe	52,4	54	54,5	61,4	66,8	117,2	127,4
Diesel fuel	Million ton	38,3	40,3	41,4	41,7	44	108,8	114,8
	Million toe	55,6	58,5	60	60,5	63,8	108,8	114,8
Fuel oil	Million ton	18,4	9	9	7,5	8	40,7	43,4
	Million toe	25,2	12,3	12,3	10,3	11	40,7	43,4
Crude oil and other refined products	Million ton	57,3	54,1	52,7	57	57	99,5	99,5
	Million toe	92,2	87	85,1	91,6	92	99,3	99,8
Electric power	Billion kWh	366,9	360,4	376,1	431,8	458,2	117,7	124,9
	Million toe	126,4	124,2	129,6	148,8	157,8	117,7	124,9
Other	Million toe	27	27	27	27	27	100	100
Exports – total	Million toe	1023,9	1133,4	1166,4	1188,5	1355,6	116,1	132,4
Coal and products of coal processing	Million ton	213	247,7	264,7	283,8	316,4	133,2	148,5
	Million toe	145,5	169,2	180,8	193,8	216,1	133,2	148,5
Crude oil	Million ton	260,6	267,2	269,2	243,7	251,9	93,5	96,7
	Million toe	372,6	382,1	385	348,5	360,2	93,5	96,7
Natural gas-pipeline	Bcm	220,6	243,9	250,4	284,2	319,5	128,8	144,8
	Million toe	253,7	280,5	288	326,8	367,4	128,8	144,8
LNG	Bcm	26,9	59,8	65,1	110	127	408,9	472,1
	Million toe	42,2	93,9	102,2	172,7	199,4	408,9	472,1
Automotive gasoline	Million ton	4,2	9	9,7	13,4	12,2	318,3	289,8
	Million toe	6,3	13,4	14,4	20	18,2	318,3	289,8
Diesel fuel	Million ton	39,1	41,8	43,9	62,6	73	160,2	186,9
	Million toe	56,6	60,6	63,7	90,8	105,9	160,2	186,9

Fuel oil	Million ton	30,7	25,5	25	11,5	15,3	37,5	49,9
	Million toe	42	34,9	34,3	15,8	21	37,5	49,9
Other refined products	Million ton	76,3	73,8	73,4	12,1	49,5	15,9	64,9
	Million toe	97,9	93,6	92,8	15,4	62,6	15,7	64
Electric power	Billion kWh	20,5	15,3	15,3	14	14	68,2	68,2
	Million toe	7,1	5,3	5,3	4,8	4,8	68,2	68,2

Source: Draft ES-2035 as of October 2019

For the Russian energy decision-makers, it seems, the relative importance of the five targets of ES-2035 is not the same. Moreover, their simultaneous realization means difficult trade-offs. Sustaining export revenues and maintaining social stability by reining in domestic energy prices appear critical for the stability of the regime. Diversification of export markets and improving ties with Asia is very important, but less critical. The efforts to increase energy efficiency contain a bonus of significant energy savings in the longer term, but these programs cannot compete in visibility and immediate political impact with the first three. Finally, the renewable sector receives the usual lip service: the climate agenda is last and least in the order of priorities, as Russia can comfortably meet the Paris Agreement targets without major new investments.³ To be sure, when RES development received some state support and guaranteed cash-flow, it immediately attracted business interests that wanted to get a piece of the “renewable pie”.

These are, among others, the most significant priorities and forecasts contained in ES-2035:

- Increase in production of primary energy resources by 4.8 to 7.4 percent by 2024 and by 8.6 to 21.2 by 2035 (from the base level of 2048 million ton of oil equivalent in 2018)
- Decrease in overall energy consumption by 2 to 0.3 percent by 2024 but subsequent increase by 6 to 10.4 percent by 2035
- Robust growth of energy exports, by 10.7 to 13.9 by 2024 and by 16.1 to 32.4 percent by 2035
- Significant change in the overall Russian primary fuel mix: the share of natural gas goes up from 41 percent in 2018 to 46-47 percent in 2035, share of crude oil declines from 39 percent in 2018 to 31-32 percent

3. Russia signed the Paris Agreement in 2016, with voluntary obligations to limit anthropogenic greenhouse-gas emissions to 70-75% of 1990 emissions by 2030, provided that the role of forests is taken into account as much as possible. This is actually a very low target, which is guaranteed. Russia ratified the agreement in September 2019.

in 2035, share of coal increases slightly, from 13 percent in 2018 to 14-16 percent in 2035, and non-fossil fuels, mostly hydro and nuclear, remain stable at less than 8 percent

The goal of increasing energy exports and revenues clearly dominates the policy agenda for the Russian government. Russia produces only three percent of the world's GDP and has only two percent of the world's total population, but is the third-largest world producer of energy resources after China and the United States and the fourth-largest world energy consumer after China, the US, and India.⁴ Russia consistently takes first place in world gas exports, first or second place in oil exports, and third place in coal exports.⁵ In other words, it is energy that makes Russia's economy relevant for the world.

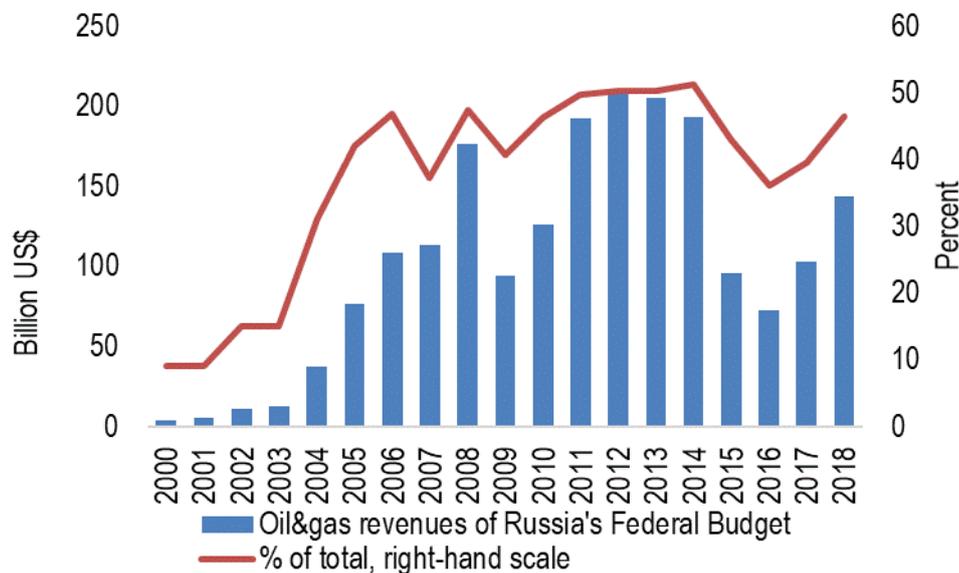
4. *Global and Russian Energy Outlook up to 2040*, Moscow, ERI RAS, ACRF, 2016, www.eriras.ru, accessed 28 October 2018.

5. *Ibid.*

Russia's Energy Sector and State Revenues

All these efforts are central to Russia's energy policy for a simple reason: the country remains strongly dependent on hydrocarbon revenues. In 2017 and 2018, they provided 40 and 46 percent of federal budget revenues (see Figure 1). That proportion is significantly lower than the amount seen in 2011-2014, which was about 50 percent, but is still much higher than it was in the early 2000s, when hydrocarbon revenues contributed less than 10 percent of the federal budget. Moreover, the energy sector makes up more than 65 percent of total export revenues and 25 percent of the country's GDP.⁶

Figure 1. Oil and gas revenues in Russia's federal budget



Source: Authors, Ministry of Finance of the Russian Federation

6. Trading Economics, Russia GDP Growth Rate, 2018, <https://tradingeconomics.com>, accessed 28 October 2018.

Russia's energy exports have delivered robust growth since the early 2000s. Global demand, driven by quickly-rising Chinese energy consumption, spiked and brought about dramatic increases in oil and gas prices. Russia managed to respond to this demand surge with increased supply, owing to the investments made in the late 1990s and early 2000s by the private companies of Russia's oil and gas sectors, and the availability of new technologies. From 2000 through 2005, exports grew by an unprecedented 56 percent, exceeding the total energy exports of the USSR (Figure 2),⁷ providing an incredible boost to the national economy, and strengthening the country's position in the international arena as an "energy superpower". However, when the global financial and economic crisis struck in 2008, energy exports stopped growing.⁸ The post-crisis years of 2011-2014 saw very high oil prices but stagnant export volumes, and the lack of petrodollar revenues resulted in GDP stagnation, a sign of deep, structural economic problems.⁹

In 2014, Russia faced a confluence of serious challenges: a collapse of oil prices, international sanctions, and a stagnating economy. The stress test of low oil prices in export markets has had the most significant impact on state revenues from exports of Russian oil and gas. It has reduced the safety cushion of low-cost legacy production and sunk infrastructural costs in Russia's oil and gas industries. Russia's overall anti-crisis policies in 2015-2017 followed the path of state dirigisme tested during the previous oil price slump in 2009. It came along with some elements of neo-liberal macroeconomic policies, especially with regard to exchange-rate policies and efforts to control inflation. But the implementation of this strategy proved much more difficult than in 2009, owing to the duration of the low phase in the oil price cycle and the overall negative international environment.

After falling 3.7 percent in 2015, Russia's GDP remained in negative territory in 2016 as well, declining by 0.2 percent. A return to positive growth of 1.5 percent occurred in 2017, but the big worry for the near future is the low percentage growth for Russia as compared to the average world economic growth and to the rates of growth among the advanced world economies and peer emerging market and developing economies. This means that, in the absence of high global commodity prices during the next few years, Russia will be falling behind its key international

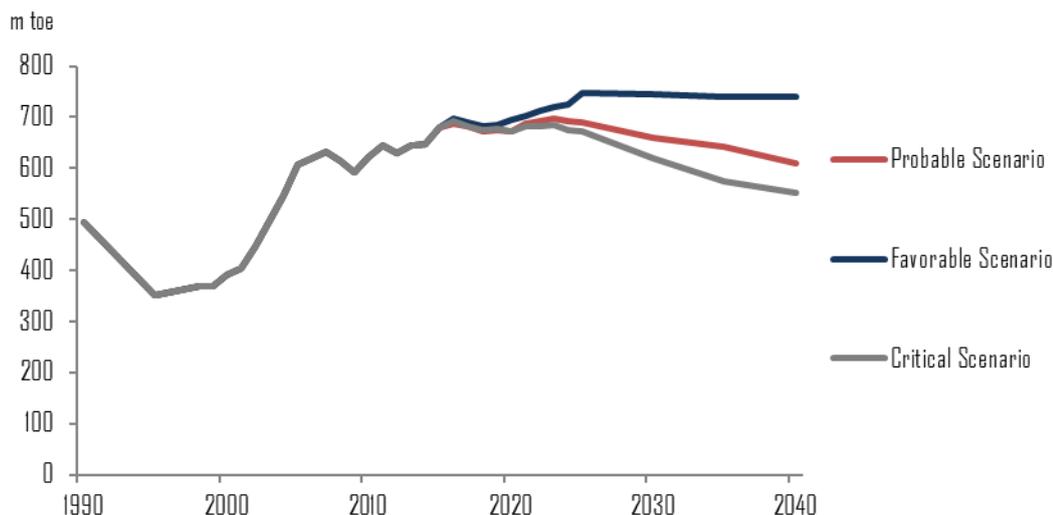
7. *Global and Russian Energy Outlook up to 2040*, ERI RAS, *op. cit.*

8. "Russian Federation Energy Balance", IEA, 2015, www.iea.org, accessed 28 October 2018.

9. "Russia: Gross domestic product (GDP) in current prices from 2012 to 2022 (in billion U.S. dollars)", Statista, 2018, www.statista.com, accessed 28 October 2018.

competitors in economic development, and its share of the world GDP will shrink.¹⁰

Figure 2. Total Russian energy exports, 1991–2030, million ton of oil equivalent



Source: *Global and Russian Energy Outlook-2016, ERI RAS-AC.*

Russia's default anti-crisis policy responses focused on managing the budget deficit through sharp depreciation of the ruble. This allowed the government not only to balance the budget, but also to improve the competitiveness of Russia's energy exporters, as 70–80 percent of their costs are fixed in rubles. This sudden booster shot helped all Russian commodity exporters and resulted in another round of impressive energy exports increases in 2015-2017.

Even oil exports, which had been declining for a decade, have ramped up, showing a seven percent increase over the past three years.¹¹ Natural gas exports reached a historical record in 2017, showing 30 percent growth in the past three years.¹² Obviously, higher export volumes had to compensate for lower prices; the picture was therefore less positive in

10. "Country Data-Russian Federation", World Bank, 2017 <https://data.worldbank.org>, accessed 28 October 2018.

11. "Statistics", Ministry of Energy of Russian Federation, <https://minenergo.gov.ru>, accessed 28 October 2018.

12. A. Toporkov, "'Gazprom' ustanovil absoliutnyj rekord eksporta gaza" [Gazprom set an absolute record in gas exports], *Vedomosti*, 8 January 2018, www.vedomosti.ru.

terms of revenues. But the Russian energy sector fulfilled the most important strategic task: the budget received the required revenues.¹³

The November 2016 agreement between OPEC and Russia on managing global crude oil output became one of the most remarkable recent developments on the global energy landscape.¹⁴ The prospect of close cooperation between Russia and Saudi Arabia, the decisive force in OPEC, seemed doubtful at first, but difficult times make strange bedfellows.¹⁵ During 2016, the countries' energy ministers, Khalid Al-Falih and Alexander Novak, had multiple meetings at ministerial level and established a platform to discuss technical cooperation. The deal apparently was based on an understanding that the Saudis would ensure compliance among OPEC members, and Russia would manage the compliance of its oil-producing companies, in implementing the agreed production cuts. The collective action of the producers was a major shift from a two-year price war towards a return to the managed market. The key goal behind the deal was to start the process of eroding the record levels of crude oil inventories and pushing the futures curve from contango to backwardation. But OPEC+ has also started to develop a vision for longer-term cooperation among producers, based on revenue maximization rather than on destructive battles for market share.

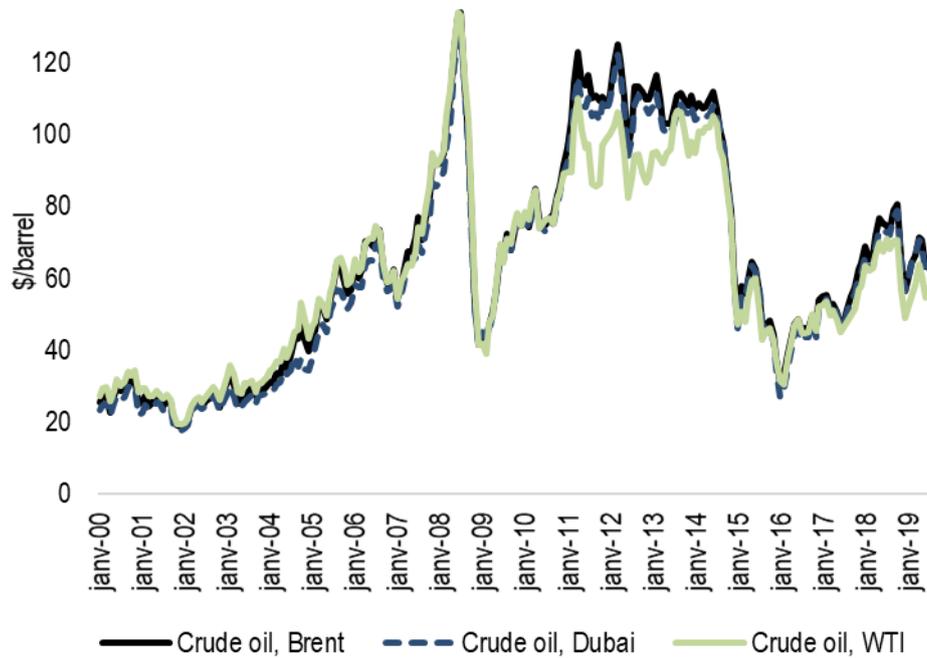
Until November 2018, the OPEC+ deal worked relatively well. It helped accelerate oil market rebalancing and brought about recovery in oil prices. But at the end of 2018 global oil prices collapsed. Despite the 40 percent drop in November-December, the average annual price for 2018 was \$70 per barrel for Brent. There were several factors in play behind the price correction: the ramp-up of production by OPEC+ in expectation of a sharp reduction in Iranian exports was premature; the new confidence of US oil producers in expansion on the back of rising prices, and massive speculative games on the paper market that were feeding on the temporary inventory buildup (Figure 3). In 2019, oil prices recovered somewhat, with Brent trading at over \$60 per barrel.

13. D. Korsunskaja, Andrei Ostroukh, "Russia Eyes Budget Surplus for First Time since 2011", Reuters, 11 May 2018, www.reuters.com.

14. V. Soldatkin, R. El Gamal, A Lawler, "Opec, Non-Opec Agree First Global Oil Pact Since 2001", Reuters, 9 December 2016, www.reuters.com.

15. C. Potter, "Are Russia and Saudi Arabia Becoming Friends?", The Gate, 8 November 2017, <http://uchicagagate.com>.

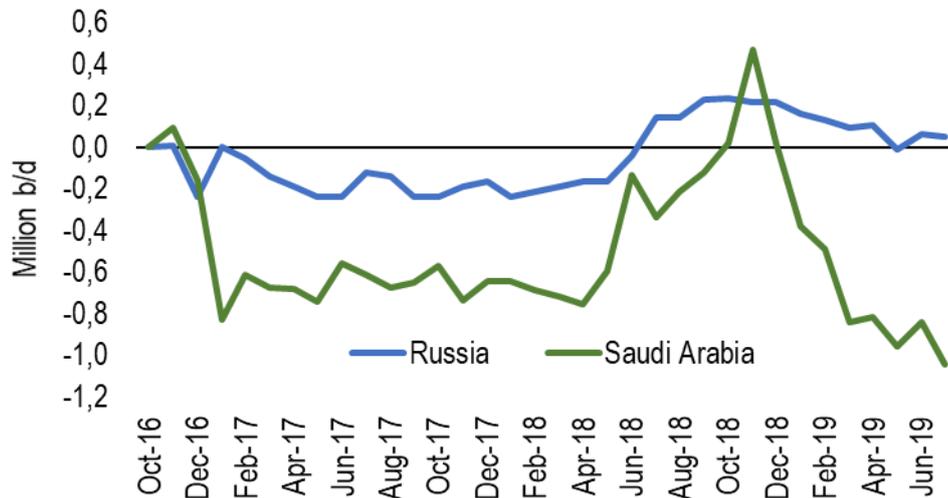
Figure 3. Oil prices



Source : Authors, World Bank

Moreover, the participants of the deal benefited not only from the price upside, but also managed to bring their production to the pre-agreement levels initially (Figure 4). This happened because of the rapidly deteriorating situation regarding oil production in Venezuela and the resumption of US sanctions against Iran, which led to a rapid decline in international orders for Iranian crude oil. In 2019, however, Saudi Arabia had to carry the balancing burden and reduce its output again, amid growing US oil production and deteriorating prices.

Figure 4. Incremental change in production from the start of OPEC+ deal

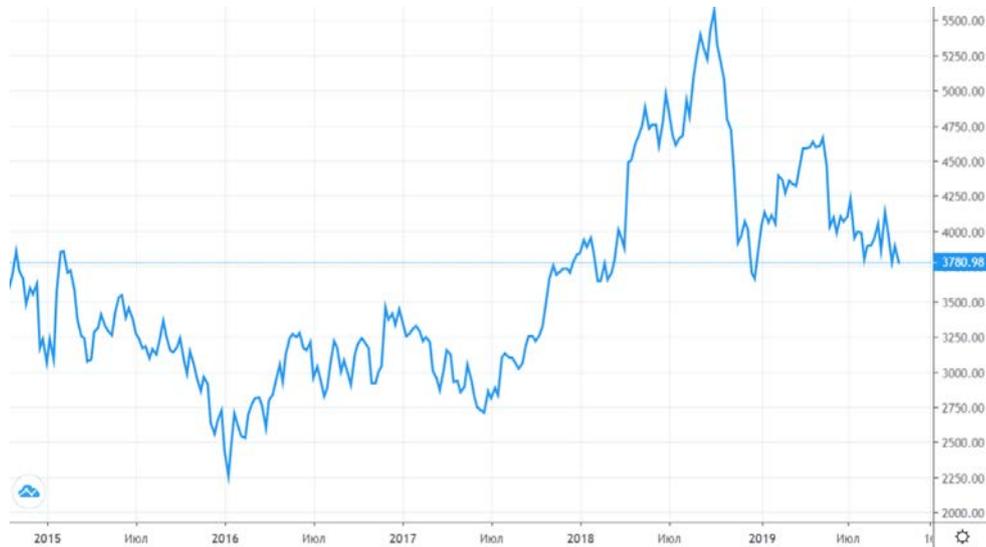


Source: Authors, data JODI.

For Russia, the weak ruble added another bonus. Given the ruble depreciation, in 2018 Russia earned more rubles per barrel of oil than at any point in its history (Figure 5). Record nominal prices per barrel in the national currency help repair fiscal and external deficits and rebuild foreign currency reserves. Moreover, Russia's authorities have continued to support weak ruble policy despite the recent rebound of oil prices, seeking to extend the depreciation dividends for the Russian economy.¹⁶

16. S. Johnson, "Oil Price Touches Record High in Russian Rouble Terms", Trending News Worldwide, 19 January 2018, www.newshunters.club.

Figure 5. Oil prices in rubles



Source: *Kursovoy Monitor*, <https://kurs2015.ru>.

Despite this adaptation, recent changes to Russia's main export markets have led to stabilization. After 2023-2025, these mutations could even lead to a decline in absolute volumes of total energy exports, particularly oil product exports to foreign markets. This is due primarily to the influence of domestic factors (the stabilization and subsequent fall in production, against a background of rising domestic demand for liquid fuels), as well as negative signals from the European market, with its declining demand for liquid fuels.

Russia's Oil Production and ES-2035 Scenarios

Russia's oil output strategy, as it has been formulated in ES-2035, sets the upper limit of production at a relatively flat level of 560 million tons per annum from 2024 to 2035, in the optimistic scenario. In 2018, Russia's oil output amounted to 555.7 million tons, capped by the OPEC+ agreement. However, in the pessimistic scenario of ES-2035, Russia's oil output slips from plateau into steady decline, to 490 million tons by 2035. This view contrasts sharply with the industry's recent history. The government's relatively gloomy outlook reflects an assessment that the West Siberian "miracle" is fundamentally unsustainable beyond the near term and that the recent surge in crude output is basically the result of oil company policies designed to "skim the cream", to the detriment of longer-term resource recoverability.

Indeed, oil production in Russian brownfields (oil fields that have operated for some time) was down by five percent in 2012-2016. The share of production in Western Siberia, Russia's main oil production region, was also noticeably down, from 62 percent to 56 percent of the total.¹⁷ Production dynamics in brownfields demonstrates that they have entered the stage of declining output; even a 22 percent increase in the drilling rate over the last five years has not been able to compensate for this reduction.¹⁸

The decrease in brownfield production is forcing producers to move toward greenfields (new oil fields that just started their operation). Usually, these are remote and technically complex oil fields, and most require tax exemptions to be developed profitably.¹⁹ In recent years, the commission of new fields ensured overall growth in production, which has increased by 77 percent in the last five years.

It is expected that oil production will continue to grow in 2020 as in previous years, ensured by production growth at newly commissioned

17. T. Mitrova, E. Grushevenko, and A. Malov, "The Future of Oil Production in Russia: Life Under Sanctions", Moscow, Energy Centre SKOLKOVO Business School, May 2018, <https://energy.skolkovo.ru>.

18. *Ibid.*

19. A. Topalov, E. Karpenko, "Iz trudnoj nefti otkachaiut nalog" [Tax will be pumped out of hard-to-recover oil], Gazeta.ru, 30 April 2013, www.gazeta.ru.

fields—though it could be affected by the new OPEC+ arrangements. After 2025, companies in Russia will increasingly struggle to maintain the same level of oil production, primarily due to the decrease in reserve quality.²⁰ In principle, oil production in Russia could be supported by:

- ▀ Development of new conventional deposits
- ▀ In-depth development of existing conventional oil fields using oil production intensification methods
- ▀ Development of offshore fields (including on the Arctic shelf)
- ▀ Development of non-conventional oil reserves

However, Russian companies lack their own technologies and equipment for the development of unconventional and offshore oil reserves, and the imposed sanctions place a tight limit on access to foreign technologies. Import replacement measures aimed at tackling this issue were adopted back in 2014 but have yet to show any significant results. These are easily measured by the share of domestically produced equipment in the total fleet (still zero fracking fleets produced in Russia, zero offshore platforms, no software; Russia still has 99% import dependency on the critically important equipment).

Hydraulic fracturing equipment is the most critical technology for maintaining Russian oil production. It is capable of both maintaining output at existing fields and ensuring output growth at prospective non-conventional oil deposits. In the current conditions, the domestic manufacturing of hydraulic fracturing fleets and personnel training must become a technological priority for oil companies and regulators.

Because of the double impact of the deteriorating reserve base and technological and financial sanctions, Russian oil production might enter a decline phase by 2030.

By 2025, oil production is expected to drop to 540 million tons.²¹ In the case of intensified sanctions, which seems to be increasingly possible in the current geopolitical environment, it will peak as early as 2019 due to the cancellation of major projects, and will total 505 million tons by 2025.²² The possibility of further sanctions applied to the oil sector is the major challenge for the Russian energy strategy and the sustainability of oil revenues. The difference in production between the two scenarios—with or without new sanctions—is projected to reach 35 million tons

20. T. Mitrova, E. Grushevenko, and A. Malov, "The Future of Oil Production in Russia: Life Under Sanctions", *op.cit.*

21. *Ibid.*

22. *Ibid.*

by 2025,²³ not only because of the cancellation of several new projects, but also due to faster decline in production at existing fields.²⁴ By 2030, these processes will likely be exacerbated.

Managing the decline in Russia's brownfields will be vital for the industry, as they account for around 85 percent of Russia's overall production. In the past, the use of Western technological and financial resources helped keep the decline rates under control, but the key question going forward is how Russia will go alone. Russia's transition strategy has been focused on providing tax incentives to oil producers through a variety of instruments, which are supposed to ensure that total production does not decline. The consistent growth of production since 2000 suggests that the Russian government has a fairly successful history of making ad hoc adjustments to the tax regime to encourage the maintenance of crude output.²⁵

The Russian government is currently considering a shift in tax strategy, which, on the one hand, would transfer the tax burden from upstream to downstream through reforming the export duty regime and, on the other, would introduce elements of profit-based taxation in Russia's production taxes, which for many years have been revenue-based. The marginal export tax rate for crude oil was lowered from 65 percent in 2010 to 30 percent in 2018. At the same time, the export tax rate for dark refined products (fuel oil) has been increased. From January 2019 the final stage of the so-called tax maneuver takes effect, with export tax on crude gradually phased out by 2024. At the same time, the rates of oil extraction tax will go up. For new oil, the companies will be able to use taxes based on profits rather than gross revenues. These measures combined will provide greater incentives to invest in new greenfield projects, as well as more expensive enhanced recovery techniques at brownfield sites—if the Financial Ministry allows spending part of current growing budget revenues to support this strategic industry. But so far it resists.

23. *Ibid.*

24. *Ibid.*

25. J. Henderson, "Key Determinants for the Future of Russian Oil Production and Exports", Oxford, Oxford Institute for Energy Studies, 2015.

Russia's Natural Gas Scenarios of ES-2035

One of the most striking features of the gas section of the new energy strategy is the larger role the government has designed for Russia's gas industry. Gazprom regains its dominant position in production and exports of pipeline gas. Novatek becomes a leader in producing and exporting LNG. Natural gas production (pipeline gas) increases from 727.6 bcm in 2018 to 907 bcm (low case) or 983 bcm by 2035. This growth is primarily driven by exports: pipeline exports are in the range of 284-320 bcm in 2035 compared to 220.6 bcm in 2018, while LNG exports skyrocket to 110-127 bcm by 2035 compared to 26.9 bcm in 2018. Domestic gross gas consumption also increases to 520-544 bcm by 2035 compared to 494 bcm in 2018. The previous versions of the Energy Strategy envisioned the expansion of the share of gas produced by the oil companies (both free and associated gas) and other non-Gazprom producers. This time, the drafters of the gas section of ES-2035 have aligned their vision with a scenario that is more in favor of Gazprom's and Novatek's plans.

For the past 20 years, gas supply in Eurasia has relied largely on production from a handful of supergiant legacy fields developed in the Soviet period, producing mostly dry Cenomanian gas. These fields, however, are now in terminal decline. The transition strategy for Russia was to keep the rate of decline under control, bringing into production a handful of smaller new fields that would bridge the gap in the supply/demand balance, while preparing for "the grand offensive"—the development of new supergiants on the Yamal Peninsula. The shift was finally accomplished with the launch of production at the Bovanenkovo field on the Yamal Peninsula in October 2012. Another notable event was reaching, in 2012, one trillion cubic meters in cumulative production at the Zapolyarnoye field, the new Russian gas "workhorse" field in the traditional Nadym-Pur-Taz (NPT) gas-producing province of West Siberia. The field has been in operation since 2001, producing gas from Cenomanian layers. In 2011, Gazprom started production from the field's deeper Valanginian layers, which helped bring the productive capacity to 120 bcm/year in 2013. Actual production that year amounted to 118 bcm. This made Zapolyarnoye Russia's single largest producing gas field. Bovanenkovo, the most important new-generation gas field in Gazprom's

portfolio, is ramping up after some initial delays. Gazprom's original development plan for the field envisioned production of as much as 115 bcm in 2017, but it is unlikely that this target will be reached before 2020. Production at Bovanenkovo amounted to 67.4 bcm in 2016 and 84.6 bcm in 2017. Bovanenkovo gas is needed to fill the new trunk gas pipelines that lead from Yamal to Ukhta and then on to Vyborg and Greifswald in Germany (via Nord Stream).

Russia's gas production is fundamentally demand-driven. Therefore, when gas demand in Europe fell sharply in 2012-2014, Gazprom ended up assuming the role of a swing supplier. It held back its own production and absorbed most of the decline in Russian gas production. While the burden of a swing producer was carried solely by Gazprom, Russia's independents and oil companies managed to maintain or even increase their natural gas output despite the difficult market conditions. They are not allowed to export gas, but they have steadily expanded their position in the domestic market by securing long-term contracts with the most attractive customers in the power and other industrial sectors. Additionally, oil companies' associated gas production (along with access to the pipeline network for the resulting processed gas) has moved up to the top of the domestic merit order as part of the regulatory effort to reduce flaring. As a result, Gazprom's share of Russian gas production in 2010 dipped below 80%, compared with almost 90% in 2000. The continued fight for the domestic market between Gazprom and independents continued, and as of 2016 Gazprom's share of total Russian gas production fell to 69%.

However, Gazprom is now striking back. The rebound of European gas consumption in 2015-2018 and decline of indigenous European gas production have resulted in the rising call on Russian pipeline gas. Spare productive and pipeline capacity and the legacy of the existing long-term contracts, with the possibility of significant upside nominations, allowed Gazprom to respond to the rising demand, ramp up its pipeline deliveries to Europe, and expand its market share in Europe (to 35-40 percent of European—i.e. EU-28 plus Turkey—gas consumption). Russia's overall gas export volumes (both pipeline and LNG) increased from 181 bcm in 2014 to 248 bcm in 2018.

Gazprom's apparent success in "conquering" Yamal, expanding its positions in the European gas markets and finalizing the construction of the Power of Siberia pipeline, aimed at supplying gas to China, are reflected in the latest version of the Energy Strategy. Overall, the new strategy largely mirrors the view of the "Russian gas future" that has been gradually crystallizing inside Gazprom's headquarters and that can be characterized as follows:

- ▀ *Enthusiastic assessment of Russia's gas production potential:* In the optimistic scenario, the upper limit of natural gas output is set at 983 bcm, which is 35 percent higher than gas production in 2018. One of the key reasons for these higher numbers is a belief that decline of gas production in West Siberia—most notably at the so-called Big Three fields—will be more than offset by rising gas volumes from the fields in Yamal and Eastern Siberia. Another reason is an optimistic view on the prospects perspectives of the Russian new LNG projects.
- ▀ *Rapid development of East Siberia and the Russian Far East resources,* primarily for exports to the Asia Pacific region: The foundation for this new area of growth will be the Chayandinskoye gas field in Sakha and the Kovykta gas field in Irkutsk, which form the resource base for pipeline deliveries to China, the deposits of the (central) Krasnoyarsk region and, finally, the Sakhalin shelf, which can provide volumes for both pipeline and LNG deliveries to Asia.
- ▀ *The preservation of Gazprom's central role in the industry:* Although this is not explicitly mentioned in the document, the tone clearly suggests that the Russian government continues to view Gazprom as the most important actor in the sector for the future. The text of ES-2035 never mentions the possibility of Gazprom's unbundling and the separation of the gas transportation network or going away with the concept of the single export channel for pipeline gas. Instead, the text offers better third-party access rules and greater financial transparency as part of transportation tariff setting.
- ▀ *Continued relative marginalization of independent gas production in Russia:* Independent gas producers are clearly not seen by the Russian government as the primary answer to the challenge of increasing Russia's gas output in the future. Gazprom remains the dominant producer throughout the time-frame of the study, in all scenarios.
- ▀ *No real commitments with regard to structural reforms in the sector:* Although the strategy pays lip service to the development of a real market for natural gas in Russia, which would include a gradually expanding unregulated tier of the market, full third-party access for all producers, and equal transportation tariff for all, no real schedule for these changes is established. Furthermore, there is no mention whatsoever of Gazprom reform or restructuring. The neutral stance is clearly a reflection of the impasse between Gazprom and the government on the issue. Although both sides agree on the end—the need to develop a real market for natural gas in Russia—the means are

still being vigorously debated, like the issue of a possible separation of Gazprom's production and transportation units.

The gas scenarios of ES-2035 show that the government believes in relatively modest growth of domestic gas consumption and sees the upside potential in export demand. The latter is responsible for the relatively wide range in the production outlook to 2035. But the continued growth in domestic gas use runs against another key goal set by the authors of the strategy: the "rationalization" of the use of gas in the Russian economy. Higher domestic gas prices and reform of the gas market could allow for energy savings and more effective competition between gas and other fuel sources. But this possibility has been discounted in ES-2035. Acknowledging that natural gas will continue to play a leading role in Russia's energy consumption, the strategy sees the share of gas in the national energy mix staying at 46 percent by 2035.

Russia's LNG Ambitions: The Big Bet

LNG development seems to be another of the Russian authorities' big bets. Until last year, Russia, the largest pipeline exporter in the world, had only one operational LNG terminal: the Sakhalin 2 project in the country's Far East.²⁶ Gazprom's plans for its flagship Shtokman LNG project were halted and they have been postponed indefinitely, because its main market in North America is closed for imports, due to the surge in domestic shale gas output. Another project, Vladivostok LNG, intended to supply the Asia-Pacific region, has also been put on the back-burner after management prioritized the development of the Power of Siberia gas pipeline project to China. Meanwhile, the competition from new LNG projects in Australia and the US is going to get tougher; many US projects are being prepared for launch. In 2018, however, Yamal LNG was launched on time and on budget, increasing Russia's LNG export capacity (Figure 6).

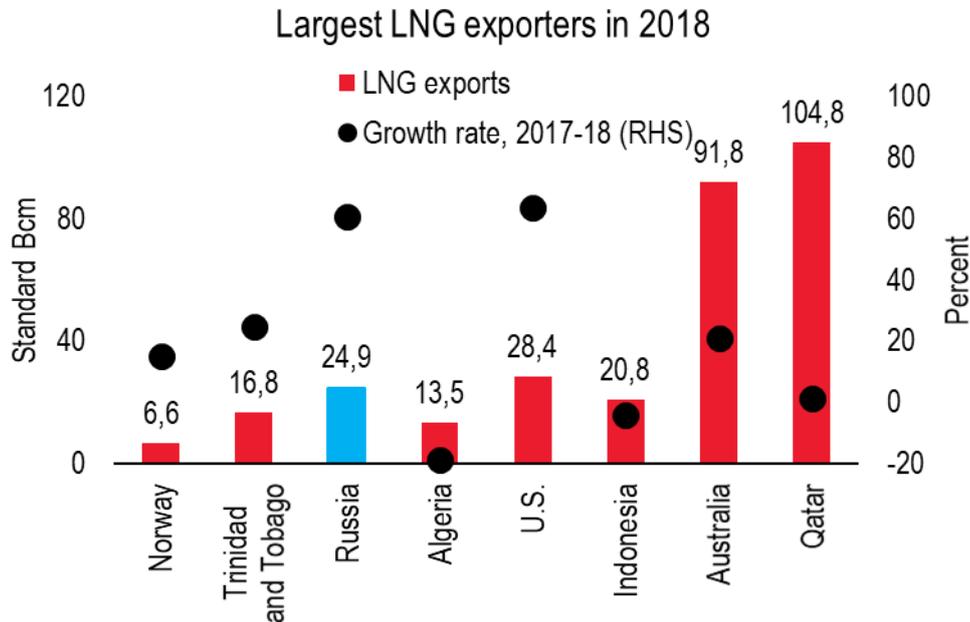
Ultimately, there are likely to be four big LNG players capable of producing close to 100 million tons of LNG each by 2035: Qatar, the US, Russia, and Australia. Current LNG volumes for Russia are relatively small, but the country's LNG fortunes started to change at the end of 2017, when the Yamal LNG terminal opened commercial operations in the Russian Arctic. Thanks to the combination of Chinese financing and European technology, Novatek managed to complete the project on time and on budget, despite the harsh operating environment in the Yamal Peninsula and tough US sanctions against the company.²⁷ Novatek is already planning several new LNG megaprojects in the vicinity of its first plant, with the ultimate aim of creating a "major LNG production center in the Russian Arctic zone that will rival Qatar, Australia, and the United States", according to the company's CFO.²⁸ The Russian state strongly supports development of LNG production in its Arctic territory and is providing tax breaks and other regulatory support.

26. T. Boersma, T. Mitrova and A. Losz, "A Changing Global Gas Order 2.0", Columbia Center on Global Energy Policy, April 2018, <https://energypolicy.columbia.edu>.

27. H. Foy, "China Signs up for More Arctic Gas from Russia's Novatek", *Financial Times*, 1 November 2017, www.ft.com.

28. H. Foy, "Novatek Commits up to \$47.6bn on Arctic LNG Projects", *Financial Times*, 12 December 2017, www.ft.com.

Figure 6. Largest LNG exporters in 2018



Source: Authors, BP Statistical Review, 2019

The global pricing environment for LNG has been supportive of Russia's projects. In 2015-2016, there were serious worries that LNG markets would have to go through an extended period of low prices, undermining the economics of many projects, as well as new ones. Fortunately for the suppliers, these fears turned out to be short-lived, as the extremely high LNG imports by China and other Asian economies in 2016-2018 cleared the glut and boosted prices. Positive price developments are going to help Novatek's expansion plans. It intends to bring its total LNG production to over 80 million tons by 2035.

Russia's Power Sector Scenarios in ES-2035

The power sector is the only part of Russia's energy industry that went through comprehensive restructuring reforms recently. The unbundling of the RAO UES and formation of a number of private generating companies were supposed to increase competition. However, as the rules of the game were not fixed properly and the state did not want to lose the possibility of determining investment priorities in this critically important area, a very strange regulatory regime finally arose, with approximately 20 percent of electricity prices defined by the market and the rest being the result of various state interventions. Hence, it seems that the state plans to keep the status quo.

For example, it is difficult to see how an aggressive program for expanding nuclear power (while replacing capacity that is now starting to approach the end of its life span) could be achieved without substantial government intervention. With options for additional coal-fired generation also limited (and contingent on investments in transmission from East Siberia), a decrease in the share of gas-fired power in the Russian power sector will be a difficult task to achieve in the coming years. The bottom line is that the multiple goals embedded in the strategy of significantly upgrading the generation park, reducing gas in the fuel mix of the power sector, keeping power tariffs at a modest level and moving toward a real market for electricity, may prove to be contradictory.

Although the government has been largely preoccupied with the tasks of resetting power sector goals during the period out to 2035 and finetuning power market mechanisms, rising power sector non-payments remain a thorny issue, which requires a more cohesive policy response.

ES-2035 predicts a significant increase in production of electricity in Russia by 2035, which is going to be met by higher production by thermal power plants and, to a lesser extent, by nuclear and hydro. The share of renewables excluding hydro (power plants) remains negligible despite strong percentage growth owing to an extremely low base. In 2018 solar and wind accounted for 1.4 billion GWh or mere 0.02% of the total energy output. According to ES-2035 targets this share would only reach 46-52 billion GWh or 0.7% of the total energy output by 2035.

Conclusion

The draft ES-2035 does not yet constitute a reliable guide to the future evolution of Russia's energy sectors. The Russian government has so far sidestepped or delayed the difficult task of formulating policies on several crucial but politically sensitive energy issues: the future fiscal policies for oil and gas that are needed to incentivize output and prevent production declines; industrial and technological policy; the choice of the future model for Russia's gas industry and whether it is going to develop under continued state regulation or in the market environment; climate and decarbonization policy, given that Russia has finally joined Paris Agreement and the strategy to promote (or not) renewables and other technologies of energy transition; and the future of competition in the wholesale and retail power markets.

The Ministry of Energy submitted its version of the document to the Russian government in early October 2019. Once approved (expected before the end of 2019), ES-2035 will become the best available indication of Russian energy policymakers' plans. It therefore merits careful consideration. However, it is already clear that it is unlikely to address several fundamental issues:

- How Russia with its huge dependency on hydrocarbon exports plans to compete in the global energy market, which is undergoing profound transformation
- Whether the country wants to join the energy transition pattern, supporting renewables, energy efficiency and other new technologies, or prefers to maintain the traditional reliance on fossil fuels and on cheaper old technologies
- Whether it is ready to increase competition in the energy sector and allow markets to rule, or plans to go for further centralization and state control in the sector

One cannot reasonably expect a strategy document to run ahead of the decision-makers, who remain paralyzed over these fundamental issues. Under any scenario, Russia is going to remain an energy powerhouse and one of the largest world energy exporters. But the exact shape of this future is still unknown.

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