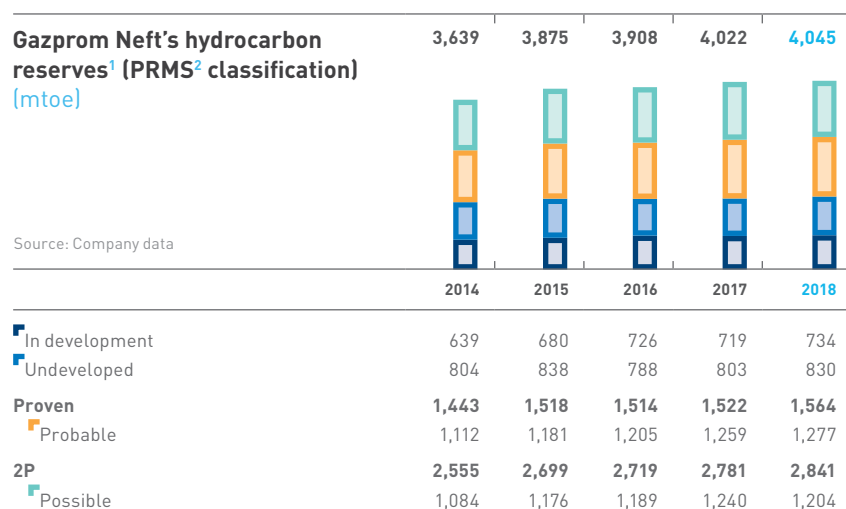


# RESOURCE BASE AND PRODUCTION

## Resource base



“Experience we are gaining from the Pirazlomnaya offshore platform is invaluable. In the spring of 2018, the platform faced the harshest ice conditions ever, and we had to use a powerful icebreaker to escort tankers to it. This was a chance for Gazprom Neft to practise how to deal with ice formations. Lessons learnt will be integrated into our ice management system that will enable the Company to safely and efficiently deliver its projects in ice prone seas.”

Andrey Patrushev  
Deputy CEO for Offshore Development  
Gazprom Neft

## 2018 MILESTONES:

- > The Company continues expanding its partnerships:
  - Deal was closed to sell a stake in Gazpromneft-Vostok to establish a joint venture between Gazprom Neft (51%), Mubadala Petroleum (44%) and RDIF (5%).
  - Share of Gazprom Neft in Arcticgas, its joint venture with NOVATEK, increased to 50.0%.
- > The Company strengthens its leadership in the Arctic and Russian offshore waters:
  - Two icebreakers – Alexander Sannikov and Andrey Vilkitsky – were put into operation.
  - Development potential was confirmed for 26 mt of recoverable oil reserves on the Zapadno-Messoyakhsky licence block.
  - Triton deposit was discovered offshore the Sea of Okhotsk.
- > Middle East projects are about to be commissioned.
- > The Company is looking for new growth opportunities in the development of unconventional reserves:
  - Gazprom Neft invests in proprietary technology and equipment for the development of Bazhenov formation as part of the national project.
  - Industry's first digital model was built for the Achimov Formation.

Hydrocarbon production: see p. 64

Unparalleled offshore competencies: see p. 68

Digital field model: see p. 68

Project management office: see p. 69

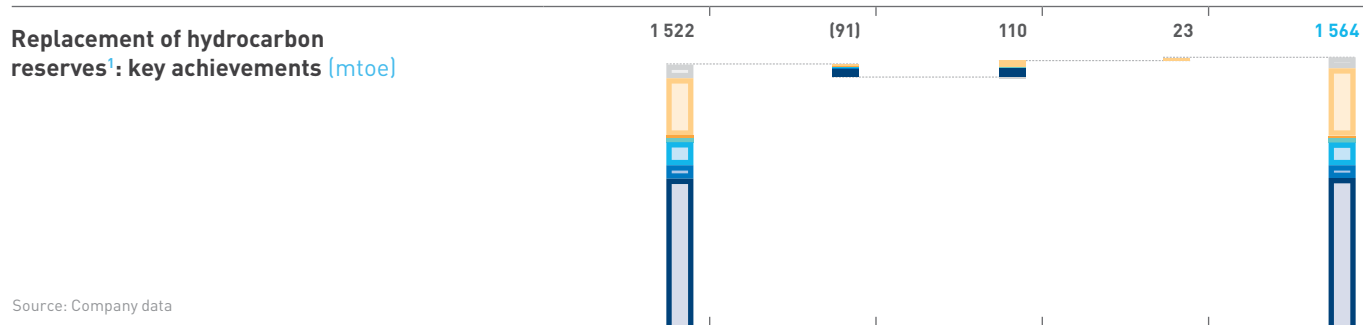
<sup>1</sup> Excluding NIS reserves.

<sup>2</sup> Petroleum Resources Management System.

“We are a different company today, whether measured by reserves and production or by complexity of the projects we deliver. To make another step forward, our business processes should evolve. We want to become a global leader in technology, efficiency and safety, and a model for others to follow. To make it happen, we also should change.”

Vadim Yakovlev  
 First Deputy CEO Gazprom Neft

### Replacement of hydrocarbon reserves<sup>1</sup>: key achievements (mtoe)



Source: Company data

	2017	Hydrocarbon production	Exploration and revision of prior estimates	Licences acquired/sold	2018
Gazprom Neft	869	-56	60	-	873
Tomskneft <sup>3</sup>	77	-5	1	-	73
Slavneft <sup>3</sup>	132	-7	5	-	130
Salym Petroleum Development <sup>3</sup>	24	-3	2	-	23
Messoyakhaneftegaz <sup>3</sup>	13	-2	5	-	16
Arcticgas <sup>3</sup>	329	-15	49	23	386
Northgas <sup>3</sup>	78	-3	-12	-	63

The structure of the Company’s remaining commercial reserves has changed to worse as most deposits entered the maturity phase. Commercial production at mature fields is maintained with advanced drilling and tertiary (enhanced) recovery techniques<sup>4</sup>. Gazprom Neft also expands its resource base through exploration and acquisition of new assets.

Reserves of the Company are audited in accordance with PRMS standards and more conservative SEC<sup>5</sup> standards.

Based on the Independent Reserves Assessment Report prepared by DeGolyer and MacNaughton<sup>6</sup> as at 31 December 2018, its aggregate proven and probable reserves (including the Company’s share in subsidiaries’ reserves accounted for by the equity method) estimated in accordance with PRMS standards were 2,841 mtoe (1,868 mt of oil and 1,212 bcm of gas), excluding NIS reserves. In 2018, reserves increased 2.2% y-o-y.

Gazprom Neft’s ratio of proven reserves to production (PRMS classification) is 17 years. The ratio of hydrocarbons produced in 2018 to new reserves (including new acquisitions) is 163%.

Bazhen Technology Centre: see p. 119  
 Digital model of the Achimov Formation: see p. 57

<sup>3</sup> Gazprom Neft’s share in the company.

<sup>4</sup> Tertiary recovery techniques are techniques used to enhance oil recovery from a mature field and recovery rates by injecting gas, chemicals, steam or other substances into oil bearing rocks.

<sup>5</sup> Securities and Exchange Commission.

<sup>6</sup> Petroleum consulting company.

4

NEW FIELDS

27

DEPOSITS

discovered in 2018

Expansion of the Group's resource base in 2018 was supported by the improved exploration and production drilling technology and introduction of advanced non-seismic exploration techniques. Key drivers behind an increase in current reserves are successful prospecting surveys at the Alexander Zhagrin field and fields operated by Messoyakhaneftgaz, Salym Petroleum Development and Arcticgas; step-by-step development of the Tazovskoye, Orenburgskoye and Novoportovskoye fields, and an increase of Gazprom Neft's share in Arcticgas to 50%.

In 2018, a new field named Triton and containing an estimated 137 mtoe in reserves was discovered offshore the Sea of Okhotsk. The Neptune field discovered there a year before has 415.8 mt of oil reserves according to an updated estimate. Gazprom Neft continues exploration offshore Sakhalin, with the possibility of increasing reserves in the region.

A total of 4 new fields and 27 hydrocarbon deposits were discovered on Gazprom Neft's licence blocks (Ayashsky, Zapadno-Messoyakhsky and others) and placed on the Russian State Register of Mineral Reserves in 2018. The Company started prospecting surveys in four new exploration areas in the Yamal Peninsula, Orenburg Region, Khanty-Mansi Autonomous Area – Yugra, and a north-western part of the Gydan Peninsula.

In 2018, Gazprom Neft acquired a 100% stake in Enerkom holding a licence for the Solnechny licence block in the Orenburg Region. The asset will be part of the Company's Orenburg production cluster.

A joint venture was established by Gazprom Neft and Spain's Repsol to explore Karabashsky 10 located in the Khanty-Mansi Autonomous Area – Yugra. The block adjoins other Karabashsky licence blocks operated by Evrotek-Yugra, another joint venture of Gazprom Neft and Repsol. Exploration activities on the block are planned to begin in 2019.

## Licences obtained and acquired in 2018

Source: Company data

Licence block	Region
Osenny	Yamal-Nenets Autonomous Area
Karabashsky 17	Khanty-Mansi Autonomous Area – Yugra
Karabashsky 18	Khanty-Mansi Autonomous Area – Yugra
Karabashsky 19	Khanty-Mansi Autonomous Area – Yugra
Karabashsky 25	Khanty-Mansi Autonomous Area – Yugra
Karabashsky 26	Khanty-Mansi Autonomous Area – Yugra
Karabashsky 27	Khanty-Mansi Autonomous Area – Yugra
Savitsky	Orenburg Region
Pokhvistnevsky	Orenburg Region
Novozarinsky	Orenburg Region
Solnechny	Orenburg Region
Karabashsky 10	Khanty-Mansi Autonomous Area – Yugra
Surovy	Yamal-Nenets Autonomous Area
Yuzhno-Novoportovskoy	Yamal-Nenets Autonomous Area
Yuzhno-Yugansky 1	Khanty-Mansi Autonomous Area – Yugra
Leskinsky	Krasnoyarsk Territory

In 2018, the Company obtained over 20 licences by way of licence auctions, exploration applications, and mergers and acquisitions. Out of this number, 16 licences were obtained by Gazprom Neft (including its subsidiaries and JVs) in 2018, with the rest issued in early 2019. The total number of licences held by the Company (including its subsidiaries and JVs) in Russia reached 187, including six licences for offshore areas. Gazprom Neft plans to obtain more than ten new licences in 2019.

## Exploration and development

Projects forming large clusters are developed by the Company in the Yamal Peninsula, Orenburg Region, Eastern and Western Siberia and as joint ventures with foreign partners.

In 2018, the Management Board of the Company approved a new approach to exploration and decided to establish Gazpromneft-GEO, a competence centre for large-scale exploration projects. Its task is to provide end-to-end project management services and ensure continuous replacement of the Company's economic reserves to maximise the efficiency of equity financing.

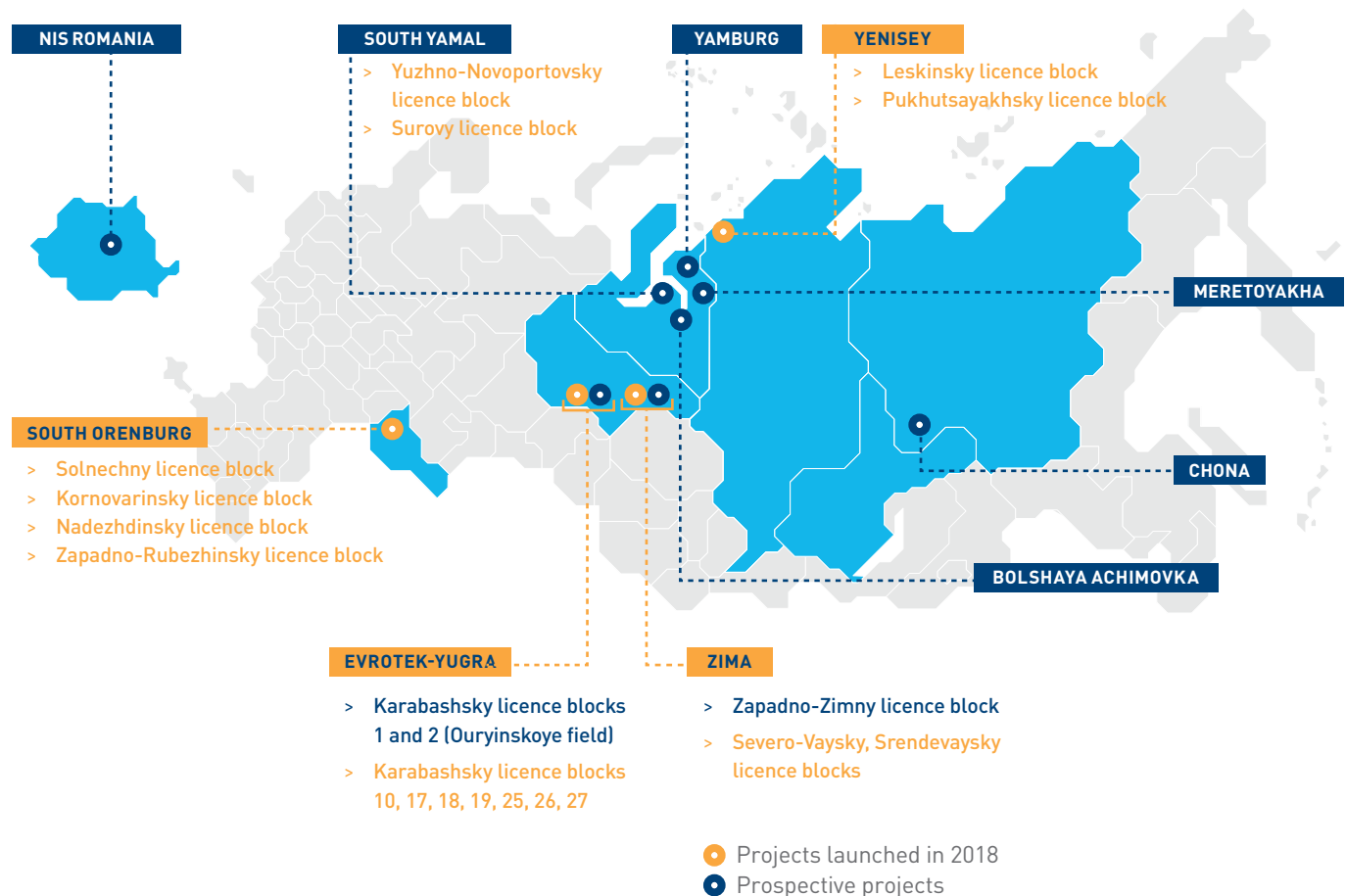
The new approach to exploration relies on:

- > project portfolio management methodology;
- > concentration of financial and managerial exploration resources in a single centre;
- > business case transfer optimisation for subsequent processing;
- > assessment of each project's geology, ROI, logistics, infrastructure and technological complexity.



About  
 Gazpromneft-GEO

### Ongoing exploration projects



In 2018, Gazprom Neft expanded its resource base primarily through organic growth at its existing assets. With 43 exploration wells drilled for that purpose, the total depth drilled in 2018 reached 180,600 m, up 82% y-o-y. The success rate of exploration drilling stood at 85.7%, according to Russian assessment standards.

2D seismic surveys covered 5,436 line km, including 5,123 line km offshore, in 2018. 3D seismic surveys covered 4,573 sq km (down 48% y-o-y), including 1,481 sq m offshore.

Gazprom Neft's technology strategy focuses on new hydrocarbon exploration and production techniques. One of its priorities is an electronic asset development (EAD) system that covers all key activities and processes, such as exploration, prospecting, drilling, development, production

and site infrastructure, and over 30 individual projects. The EAD system is designed to create new technology for commercial exploration and production.

Gazprom Neft Scientific and Research Centre and Information Technology Service Company (ITSK) build a unique EAD digital framework capable of suggesting optimal well logging techniques. It factors in all data on each well's purpose, geology and specifications. It is expected to save over 450 m on capital and operating costs in ten years.

## Transformation

### Contractor safety

Introduction of the Etalon Operations Management System by Gazprom Neft's Upstream Division started with component 6 (Supplier and Contractor Management) since contractors do most of the upstream work, including well drilling, construction, repairs, prospecting surveys, power supply, and logistics. New developments might involve up to several thousands of contractor employees,

so the key task is to ensure contractor safety on the site with no compromise on performance. Experience shows that the mere inclusion of safety provisions into the agreement does not guarantee that they will be met by contractors. It was decided to set up joint customer and contractor teams to monitor how they meet contractual obligations. These teams control the compliance with safety requirements, solve arising issues and make the on-site conditions transparent.

"Exploration is the most cost intensive and complex development phase. It usually takes around 18 months on the average to go the full distance from seismic surveys to a geological model. This is when we obtain most of the data and create most of the value. And this is where there are enormous opportunities to be more cost efficient with digital technology. Who will open up these opportunities? Who will change the industry rules of the game? I am sure that changes will begin with exploration teams like ours."

Alexei Vashkevich

Head of Geological Exploration and Resource Base Development Directorate  
Gazprom Neft

Technology

## Digital model of the Achimov Formation

1.5+

**M SQ KM**  
surveyed

3.8+

**THOUSAND**  
wells drilled

34.4

**BTOE**  
potential resources

The Achimov Formation is a petroleum play underlying the Bazhenov Formation in the central part of the West Siberian basin. Its complex structure calls for innovative exploration and production techniques.

In 2018, Gazprom Neft built the industry's first digital model of the Achimov Formation across the entire territory of Western Siberia. New algorithms for big data analytics were used to process a vast array of geological data. The resulting digital twin of the Achimov Formation will be used by the Company to create its development

strategy. Five priority areas have been selected by now at the Achimov Formation to begin local prospecting surveys.

A pilot programme was developed in association with Halliburton to test a high performance hydraulic fracturing system to maximise well productivity. In September 2018, the Company created an expert system for selecting off-the-shelf technology solutions for exploration and development of the Achimov Formation.



How Artificial Intelligence Finds Deposits



The Now and The Future of Exploration



Prospects of Bazhenov Formation Beyond Doubt