

Research centres and technoparks

SCIENTIFIC AND RESEARCH CENTRE

The Group relies on its own Scientific and Research Centre which provides analytical, methodological and R&D support to Upstream Division's key production and technical functions. The key competencies of Gazprom Neft Scientific and Research Centre include:

- > geological modelling;
- > advanced well drilling support;
- > integral and cost engineering;
- > expert review of projects;
- > development and implementation of digital solutions..

In 2018, the Scientific and Research Centre had more than 1,000 employees including five professors, seven Post-Doc fellows, and over 76 PhD fellows. It operates from St Petersburg and Tyumen.

The Scientific and Research Centre provides a rationale for substantiating the critical investment and management decisions of Gazprom Neft's Corporate Centre.

Gazprom Neft Scientific and Research Centre focuses on:

- > exploration planning and support;
- > asset evaluation;
- > comprehensive solutions for field development and infrastructure;
- > research and development support to drilling and downhole operations;
- > oil&gas production technologies and techniques;
- > engineering practices and standards;
- > engineering-related IT solutions;
- > research and development, pilot testing;
- > gathering, updating and disseminating know-how and best practices.

BAZHEN TECHNOLOGY CENTRE

2018 highlights:

- > 8 new Russian drilling technologies tested;
- > 10 advanced wells constructed;
- > 25% less time required to construct advanced wells (up to 35 days);
- > 40% lower cost per unit of oil produced;
- > 3 active projects (Bazhen, Domanic and Palaeozoic) containing an estimated 850+ mt in recoverable resources.

The Bazhen Technology Centre is Gazprom Neft's subsidiary established in 2018. It serves as an open industry platform set to unite efforts of oil and gas players, oilfield services companies, researchers, equipment manufacturers, investors, and the government. This platform will help its participants test new solutions and equipment, including drilling horizontal wells at the Bazhenov Formation, multi-frac techniques, thermal and chemical reservoir stimulation equipment, software solutions, logging tools, frac equipment, oil gathering and treatment equipment.

The Bazhen Technology Centre will focus on the Palyanovskaya area within the Krasnoleninskoye field located in the Khanty-Mansi Autonomous Area. This asset is well-explored and relatively small, while also boasting the required infrastructure and confirmed commercial inflows from the Bazhenov Formation.

In 2018, the Bazhen Technology Centre successfully tested a number of new Russian drilling and well intervention technologies. Gazprom Neft started using a ROST MGRP frac supporting software suite developed in collaboration with the Moscow Institute of Physics and Technology.

The Company's strategic goal is to create an economically viable technology for the Bazhenov Formation by 2025.

CENTRE FOR OFFSHORE COMPETENCIES

Gazprom Neft plans to concentrate its key offshore development competencies within Morneftegazproject's Centre for Offshore Competencies.

The Centre for Offshore Competencies focuses on:

- > effective goal setting for design and engineering firms engaged in offshore projects;
- > control over the work carried out by third-party contractors;
- > ownership of projects requiring high-level expertise; and
- > offshore know-how systematisation and management of related IP rights.

BITUMENS R&D FACILITY

In 2016, Gazprom Neft launched an in-house bitumens research and development facility (R&D Centre). Within the framework of Russian vertically integrated oil companies, it was the first platform to provide R&D support for bitumen production.

The R&D Centre focuses on developing technologies to produce bitumen materials that guarantee a significant increase in the road service life.

The facility boasts a unique laboratory that enables the full cycle of research not just on bitumen and its derivatives, but also on asphalt mixes. With its high level of expertise, in some regions the R&D Centre acts as an independent laboratory under the Safe and High-Quality Roads national project.

The facility's state-of-the-art equipment makes it possible to run the following models:

- > actual traffic load,
- > traffic intensity and patterns,
- > climate conditions in various regions.

Comprehensive research capabilities open up vast horizons for developing bitumen and asphalt formulations that are tailored to specific use scenarios and take into account local inert waste like gravel and sand.



Well-led innovation



Machine learning helps forecast oil production



Gazprom Neft Scientific and Research Centre won the best digital project contest in the oil&gas industry



Gazprom Neft builds new business models based on digital solutions

TECHNOPARK OF INDUSTRIAL AUTOMATION

The Technopark of Industrial Automation was established in Omsk as part of the Company's import substitution strategy. It is a unique platform for research and development, pilot testing and high-tech solutions for the automation of refineries.

It includes a number of functional clusters such as training, testing, R&D, a data processing centre, co-working space and a communications centre where working meetings and academic workshops are held.

The Technopark focuses on:

- > instrumentation and automation, including pressure and temperature sensors, analysers, etc.;
- > automated process control systems, including distributed control systems, accident prevention systems, software packages;
- > manufacturing execution systems (MES) for dispatching and scheduling, laboratory information management systems;
- > high-tech solutions, including process modelling and optimisation, monitoring and diagnostic systems, computer training systems.

TECHNOPARK OF CORPORATE INFORMATION TECHNOLOGIES

The Technopark of Corporate Information Technologies based in St Petersburg aims to establish direct interaction between developers and manufacturers of IT solutions for the oil and gas industry. Gazprom Neft provides its participants with a platform to evaluate and test prospective solutions and innovations. It regularly holds awareness sessions to update potential customers on new IT solutions that have proved efficient.

HOUSE OF INNOVATIONS

In late 2018, Gazprom Neft opened its House of Innovations, a unique cross-functional space for project work relying on end-to-end technologies and data. The House of Innovations brings together leading experts in machine learning, digital platforms, industrial Internet of things, blockchain technologies, augmented and virtual realities and other Industry 4.0 innovations. All these experts come from various branches and divisions of Gazprom Neft but have a common focus – digital technologies. This team spirit helps the business walk through the entire development life cycle from idea to implementation.

The ecosystem of mobile and comfortable shared workplaces coupled with a wide variety of multimedia and interactive working spaces and remote accessibility from anywhere globally provides opportunities for meaningful participation in sophisticated projects, which greatly enhances the efficiency of teamwork. Advanced communications facilitate and streamline interaction.

A winning combination of working spaces, teamwork areas and rest areas ensures a higher employee engagement.



House of Innovations opened