

Long-term commitment in Russia

Securing supplies by engaging directly at the source

Russia is among the world's most richly endowed countries when it comes to natural resources: about one fifth of all known natural gas reserves are situated in Russia. The country therefore has the second largest gas reserves worldwide. Russia also lies in sixth place in the world oil rankings with 103 billion barrels of proven oil reserves. Russia is the biggest supplier of natural gas to the European Union, and Germany covers around a third of its fossil fuel demand with imports from Russia. For Wintershall, Germany's largest internationally active natural gas and crude oil producer, Russia is therefore an important core region.

Wintershall is currently involved in several joint projects concerned with the exploration and production of hydrocarbons in Western Siberia and southern Russia. Together with our Russian partners, we are focusing on stable and long-term collaboration. Thanks to our ongoing exchange of experience and know-how, a model of collaboration has emerged that has been supplying Europe with energy for over 25 years.

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Successful collaboration in exploration & production

Achimgaz, a joint venture between Gazprom subsidiary OOO Gazprom Dobycha Urengoy (50%) and the wholly owned BASF subsidiary Wintershall (50%), produces natural gas and condensate from the complex Achimov formation in the Urengoy field (Block 1A) in Novy Urengoy, which situated in Western Siberia about 3,500 kilometers northeast of Moscow.

Following the launch of six pilot wells in 2008, commercial development and production began in 2011. Until January 2017, Achimgaz had brought 80 wells into operation and also operates a large-scale facility for separating natural gas and condensate, which now has five processing lines. Over eighteen million cubic meters of natural gas are currently produced per day. In the coming years, 110 wells in total are planned to increase production to an annual level of over eight billion cubic meters of natural gas. By 2016, the Russian-German joint venture was able to post an overall production amounting to 22 billion cubic meters of natural gas. In 2016 alone, Achimgaz raised the natural gas production by almost 30 percent over the previous year to around 6 billion cubic meters of natural gas. Condensate production reached around 10 million tons. In the next 30 years, Achimgaz plans to produce up to 230 billion cubic meters of natural gas and 70 million tons of condensate.

In addition, the asset swap with Gazprom completed in October 2015 has given Wintershall a 25.01% share in Blocks 4 and 5 of the Achimov Formation. Based on the development plans, the two blocks contain hydrocarbon reservoirs amounting to 274 billion cubic meters of natural gas and 74 million tons of condensate. Wintershall and Gazprom will develop the reservoirs in Western Siberia together. The first production operations are planned for 2020.

The **Yuzhno Russkoye** natural gas field is another major natural gas production project shared by Gazprom and Wintershall in Siberia. The natural gas reservoir was commissioned in 2007. Wintershall has a 35% share in the commercial success of the field through OAO Severneftegazprom. The field already reached a plateau production of 25 billion cubic meters of natural gas per year in the middle of 2009. More than 140 production wells are in operation. Around 70 million cubic meters of natural gas are produced there every day. The cumulative natural gas production reached 200 billion cubic meters by the middle of



The Achimgaz joint venture produces some 18 million cubic meters of natural gas per day.



Siberia's cold weather is a major challenge for the people and technology.

2016. The field, which was discovered in 1969, has recoverable reserves of about 600 billion cubic meters of natural gas.

The comprehensive production of natural gas from the Turonian formation in the Yuzhno Russkoye gas field is currently being tested. Several Turonian wells with depths between 810 and 840 meters are currently in test operation, from which more than 500 million cubic meters of gas have so far been recovered. Compared with the deeper Cenomanian layer that has been developed so far, production from the Turonian formation is considered difficult. The reservoirs are subject to low temperatures, which mean that measures have to be taken to prevent hydrates from forming. In addition, the reservoir rock has low permeability. Severneftegazprom has taken on a pioneering role in developing the Turonian formation, for which little practical experience has been gained in Russia to date. Combining the technological competence and expertise of the partners is crucial for the successful development and realization of the project. Severneftegazprom is planning to produce gas commercially from the Turonian formation by 2021.

In addition, sandstone formations up to 4,000 meters deep in the Yuzhno Russkoye license area, which date from the Lower Cretaceous and Jurassic periods, have been undergoing testing since April 2014.

The third joint project in Russia is the German-Russian joint venture OOO **Wolgodeminoil**. The company, which produces crude oil and natural gas, is operated by Wintershall together with RITEK, a subsidiary of the Russian crude oil producer PAO LUKOIL (50:50). This year Wolgodeminoil celebrates its 25th anniversary, which makes it the longest-running joint venture between a Russian company and a western European partner aimed at producing hydrocarbons. Today the joint venture operates in three license areas in the Wolgograd region covering a surface area of around 13,000 square kilometers, and is conducting extensive surveys there to find new reservoirs. Wolgodeminoil produces crude oil and natural gas from eleven fields. Other fields are being developed or prepared for development. Around 5.3 million barrels of oil equivalent were produced in 2016.



Germany's largest crude oil and natural gas producer extracts about 5 million boe from eleven fields in southern Russia.

Infrastructure projects

The **Nord Stream** Baltic Sea pipeline was built between April 2010 and October 2012, and has been fully operational since the beginning of October 2012. It connects the Siberian gas reserves directly with Germany via two parallel pipelines stretching over 1,220 km. The two strands of the pipeline have a combined transport capacity of up to 55 billion cubic meters of natural gas per year. Wintershall has a 15.5% share in the project.

Nord Stream is connected to the existing European natural gas pipeline network via the connecting pipelines OPAL (Ostsee-Pipeline-Anbindungs-Leitung – Baltic Sea Pipeline Link) and NEL (Nordeuropäische Erdgasleitung – North European Gas Pipeline). The 480-km OPAL pipeline runs from where Nord Stream comes on land at Lubmin near Greifswald to the Czech Republic, while the 440-km NEL pipeline runs from Mecklenburg-Western Pomerania to Lower Saxony.

OPAL has an annual transport capacity of 36 billion cubic meters and NEL around 20 billion cubic meters of natural gas.

A role model for cooperation

The “**Scientific and Technical Cooperation**” (STC) has been setting standards in Russian-German relations for 25 years. The joint project set up by Wintershall and Gazprom promotes the exchange of experience and know-how between the two companies. Employees from Wintershall, Gazprom and BASF are developing innovative solutions and new strategies in fields such as energy savings, the development of gas and gas condensate reservoirs, improving efficiency in planning, the implementation of infrastructure projects as well as environmental protection and safety. At the end of 2016, a new STC agreement was drawn up that provides for joint projects from 2017 to 2019 and also secures efficient co-operation in the future.

In addition, Wintershall also runs the successful training program for Gazprom executives, which also recently celebrated its 25th anniversary.

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