



Secure supply routes for Europe

In focus: Secure supplies need infrastructure

Securing Europe's energy supply is a long-term task. Supply security requires a diversification of the supply countries and transport routes. To ensure transportation that remains secure, environmentally sound and efficient in the long term, Europe – and Germany in particular – should utilize its geographical proximity to major natural gas sources, especially in Norway and Russia.

Wintershall has been involved in European pipeline construction for more than 25 years, not only responding to market developments in good time but also actively shaping the market and thus the competition.

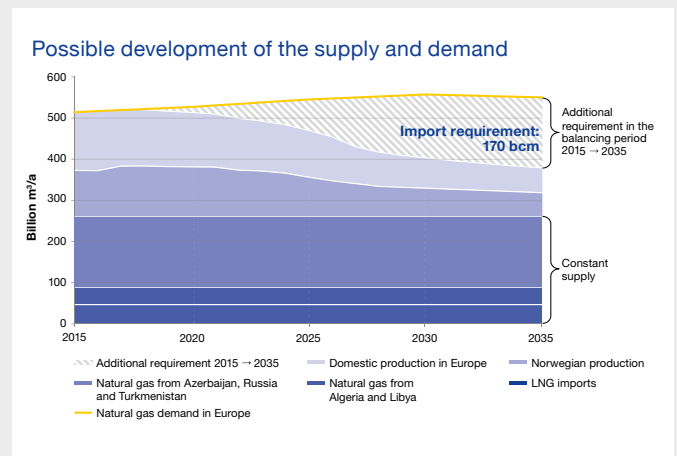
Wintershall, which has been driving forward the further development of the natural gas infrastructure since 1990, has already built more than 6,300 kilometers of pipelines in Germany and Europe with its European partners.

„With natural gas, we are utilizing a clean and affordable energy supply. Natural gas can be used in many different ways in industry, households or in the transport sector. Therefore it's not surprising that, according to data from the International Energy Agency, natural gas will continue to have a growing role in the European energy market,“ explains Thilo Wieland, the Wintershall Executive Board member responsible for gas transport projects.

Foreseeable development: EU's import demand is increasing

Local gas production still covers about half of the EU-wide consumption. However, European production volumes are declining. Over the years, it has been evident that natural gas producers in Europe are reaching their limits despite increasingly efficient technology.

The import requirement in Europe will increase as a result. By 2030, the EU will have to import more than 400 billion cubic meters of natural gas. „In addition to Norway, Russia is fundamental to Europe's security of supply. Russia has huge quantities of natural gas – in direct pipeline distance to Europe. Pipeline gas is commercially competitive and is significantly cheaper than, for example, LNG sources,“ says Executive Board member Thilo Wieland.



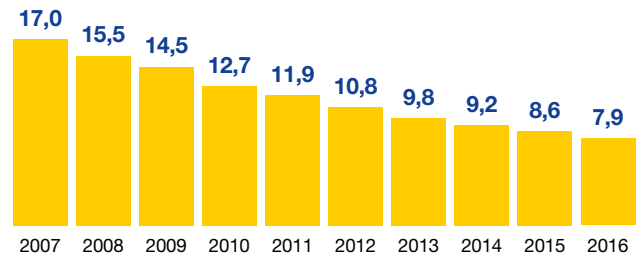
Source: Network Development Plan for Gas 2016 (draft) based on the transmission system operators and the Ten Year Network Development Plan (TYNDP)

Natural gas provision in Germany

In Germany, far less than half of the natural gas production volume from 2007 was produced in 2016: within just a decade, annual production has dropped from 17.0 billion cubic meters to 7.9 billion cubic meters of gas, whereby last year alone the gas consumption in Germany increased by 10 percent.

The domestic consumption and production of natural gas are continuing to diverge. As a result, Germany is not the only country facing an increasing import requirement for this primary energy. If no secure, competitive solutions can be found, supplies could be threatened by bottlenecks in the long term. The European Network of Transmission System Operators for Gas (ENTSOG) expects an additional import requirement of 170 billion cubic meters by 2035.

Natural gas production in Germany in billion m³



Source: German Federal Association of Natural Gas, Petroleum and Geoenergy (BVEG)

Investing in infrastructure to secure Europe's energy supply

Wintershall responded promptly to the growing demand for imports in Europe and already committed itself to achieving more efficient transport routes back in the 1990s. In view of the continued decline in domestic production throughout Europe, countries such as Germany will have to increasingly import natural

gas from outside the EU.

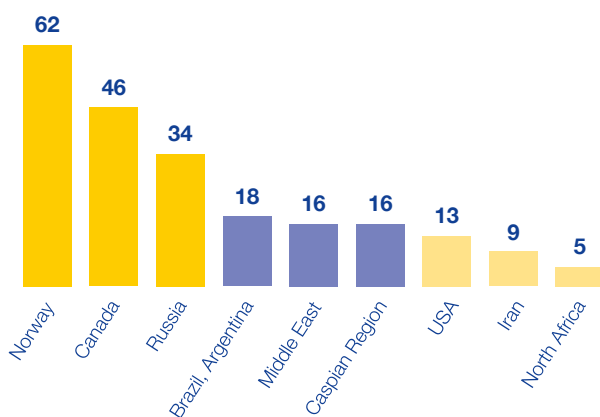
This is only possible with the corresponding infrastructure and additional natural gas connections. A secure, direct and efficient transport infrastructure is a prerequisite if natural gas is to actually arrive where it is needed.

Three preferred partner countries

Domestic production cannot cover the natural gas demand alone. Which supplier countries do the Germans trust? They consider Norway (62%), Canada (46%) and Russia (34%) to be particularly

reliable*. However, they have less confidence in other countries and regions, such as South America, the Middle East, but also the United States.

Reliable supplier countries**



* Nationwide Forsa survey conducted between 7 and 11 July 2017. 1,002 German citizens aged 18 and over were selected in the Federal Republic of Germany by means of random sampling.

** Multiple answers possible



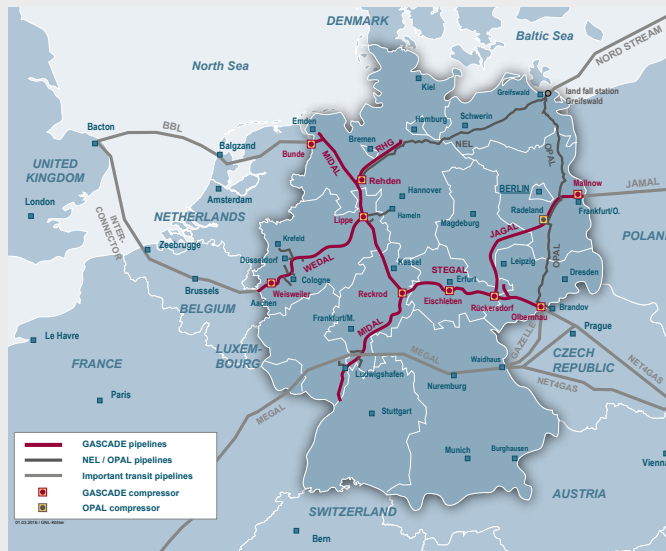
Wintershall – Together we take responsibility.

For us, securing the supply of natural gas is a European task and obligation.



First project in the 1990s: Yamal-Europe

An initial diversification of the transport routes was achieved in 1999 with the commissioning of Yamal-Europe. This created new transport capacities with which the markets in Northern and Western Europe were connected via the shortest and most efficient land route through Belarus and Poland to the large Yamal gas region in Russia.



In 1990, Wintershall and Gazprom joined forces to build East-West and North-South pipelines in Germany to strengthen the intra-European network.

The STEGAL (completed in 1992), MIDAL (1993), WEDAL (1998) and JAGAL (1999) gas pipelines are all now owned by Gascade, a joint subsidiary of Wintershall and Gazprom.

Together with European partners, Wintershall has continuously contributed to strengthening the network within Europe with the OPAL Baltic Sea Pipeline Link (2011) and the NEL North European Natural Gas Pipeline (2012). OPAL and NEL connect Nord Stream with the European transmission network over a total length of more than 900 kilometers.

Nord Stream: The safe transit route through the Baltic Sea

Wintershall joined forces with Gazprom and Western European partners to create another important piece of infrastructure, the Nord Stream Baltic Sea pipeline. The two pipeline strings, which are both 1,220 kilometers in length, connect the Siberian gas reserves directly with Germany. Together they are capable of transporting up to 55 billion cubic meters of natural gas per year.





Polarled. New connection capacities in Norway

Wintershall not only creates connections to the sources in Russia as well as within Germany and the EU, it is also a shareholder in the „Polarled“ pipeline project in Norway (formerly known as the Norwegian Sea Gas Infrastructure (NSGI) project). This 480-kilometer pipeline, which was completed on time and in budget in the autumn of 2015, enables natural gas to be transported onwards through existing sea pipelines directly to the UK and Germany.

Securing the energy future in Europe: Nord Stream 2 and the European Gas Pipeline Link (EUGAL)

The planned Nord Stream 2 pipeline and the European Gas Pipeline Link (EUGAL) will create additional supply routes that will make the European transport network even more robust and flexible in the future. With a total capacity of 55 billion cubic meters, the Nord Stream 2 gas pipeline is the safest, most efficient and most environmentally friendly route for Russian gas supplies, thus providing a further connection to European consumers. The recent results of an eco-efficiency analysis based on DIN standards for environmental values clearly showed that pipeline strands 3 and 4 have the best eco-balance when compared with alternative routes on land. The Nord Stream 2 project will provide even greater supply coverage for the continent. The project is strengthening both the competitiveness as well as the medium- and long-term energy security, especially in view of the expected decline in production in Europe. The pipeline is set to be completed by the end of 2019.

EUGAL, which is being constructed by the transmission system operator Gascade as the project developer, will also be completed in the same year. The roughly 485-kilometer-long natural gas pipeline will transport the natural gas from Nord Stream 2 efficiently and reliably within Germany, including to Poland but in particular to Southeast Europe.

