



Upstream activities: Focus on strategic partnerships and technological competence

- **Thorough evaluation of investment and exploration projects**
- **Optimization of costs structure and portfolio**
- **Selected collaborations, innovative technologies and responsible development and production**

Wintershall ensures its future competitive viability, even in times when oil and gas prices are low, with the continuous optimization of its costs structure and portfolio of oil and gas activities. To do so, Germany's largest internationally active crude oil and natural gas producer, with some 2,000 employees, is currently evaluating all investment and exploration projects as well as technology expenditure even more closely. "Generally speaking, our investment decisions and activities are based on a long-term assessment of the oil price, since there can be a good ten years between the discovery of a reservoir and the start of production," explains Mario Mehren, Chairman of the Board of Executive Directors of Wintershall, a wholly owned subsidiary of BASF.

In the future, crude oil and natural gas will continue to contribute significantly toward covering the rising energy demand of a growing world population. This is why Wintershall is continuing to invest in the exploration and production of oil and gas, primarily in its core regions Europe, North Africa, Russia and South America. The company also aims to establish the Middle East as another core region in its portfolio,

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while its domestic production activities in Germany remain at the center of its innovation and research.

“The results we have achieved in recent years show that focusing our company’s activities on core regions in combination with our proven partnerships and innovative technology is the right strategy,” explains Mario Mehren. “That applies, for example, to the Siberian permafrost, to the North Sea in Europe, as well as to the desert regions or the Tierra del Fuego in Argentina.” Technological expertise, operational excellence and longstanding cooperation in partnerships with national oil companies (NOCs) represent our strengths in the competition for global resources and are at the heart of Wintershall’s growth strategy, Mehren said.

Production at record high

Wintershall increased its oil and gas production in 2016 by 12 million barrels of oil equivalent (boe) to 165 million boe. “Furthermore, we will continue laying the groundwork for our future production growth,” Mehren explains. Wintershall plans to invest some 4.4 billion euros in expanding its oil and gas activities in the next five years, especially in Norway, Argentina and Russia. Nevertheless – in view of the current oil and gas prices – every decision has to be weighed up very carefully, Mehren explains.

With a discovery rate of almost 65 percent for exploration and appraisal wells, Wintershall has an excellent track record. In 2016 it completed 14 exploration and appraisal wells in total, and nine of these discovered oil or gas. The proven crude oil and natural gas reserves fell by seven percent to 1.622 million boe compared with the end of 2015. The volumes produced in 2016 were replaced at a rate of 26 percent. The reserves-to-production ratio, which is based on Wintershall’s share of production in 2016 and refers to the reserves at year end, is 10 years (2015: 11 years).

Third-party sales at Wintershall fell in 2016 compared with the previous year to 2,768 million euros (2015: 12,998) (volumes 3%, prices/currencies -3%, portfolio measures -79%). This was primarily attributable to the asset swap with Russia’s Gazprom executed at the end of September 2015; the consequence of which was the loss of contributions from the gas trading and storage business and from Wintershall Noordzee B.V. These activities contributed 10.1 billion euros to sales in 2015. The average price for one barrel of benchmark Brent oil was 44 US dollars in 2016 (2015: 52 US dollars). The gas prices on the European spot markets also suffered heavily, falling 29% on the previous year. However, both the oil and the gas prices

recovered significantly at the end of the year compared with the beginning of 2016.

Income from operations (EBIT) before special items declined as a result of decreasing sales to 517 million euros (2015: 1,366). The key reasons for this drop are the lower oil and gas prices as well as the divestment of the gas trading and storage business to Gazprom. The activities that were handed over to Gazprom had contributed around 260 million euros to EBIT before special items in 2015. In addition, the profit contribution from Wintershall's share in the Yuzhno Russkoye natural gas field was less than expected. The reason for this was the contractual agreement with its partner, Gazprom, which envisaged balancing out the supplementary volumes procured in the last few years in 2016. However, the extensive measures to optimize the exploration and technology portfolio as well as the successful implementation of operative measures to reduce costs had a positive impact. EBIT fell by 573 million euros to 499 million euros. The company's profits after taxes and minority interests decreased by 66 percent to 362 million euros (2015: 1,050 million euros).



Wintershall has been producing natural gas from the Yuzhno Russkoye field with Gazprom since 2007.

The foundations for the good result in 2016, despite the major fall in the oil and gas prices, was Wintershall's diversified portfolio with low production and reserve replacements costs, especially in Russia and Argentina. "This enables us to make a positive contribution to the earnings of the BASF Group, even with the low oil price," the Wintershall CEO explains.

Secure supply from Russian sources

The joint production in **Russia** and the continued field development with Wintershall's partner Gazprom in Western Siberia are important contributors to the company's production growth. The **Yuzhno Russkoye** field has been producing at a plateau of 25 billion cubic meters of natural gas per year since the middle of 2009. Wintershall has a 35% stake in the commercial success of the field via Severneftegazprom. This Western Siberian reservoir includes recoverable reserves of more than 600 billion cubic meters of natural gas. The first wells to develop the Turon horizon, another formation in this natural gas field, were drilled successfully. In the middle of 2016, accumulative natural gas production from the field reached 200 billion cubic meters.

Wintershall's second project, the development of section 1 a of the technically very complex Achimov formation in the Urengoy field, is also progressing successfully. This field's step-by-step development was continued: at the end of 2016, 78 wells were already producing. Up to

113 wells are planned by 2019 to raise production of the **Achimgaz** joint venture to an annual plateau level of about 8 billion cubic meters. Overall, up to 200 billion cubic meters of natural gas and 40 million tons of condensate are to be produced from this concession.

In addition, the asset swap with Gazprom completed at the end of September 2015 gives Wintershall a 25.01% share in Blocks 4 a and 5 a in the Achimov formation. Overall the two blocks contain hydrocarbon deposits amounting to 274 billion cubic meters of natural gas and 74 million tons of condensate, based on the development plan. Wintershall and Gazprom will develop the deposits together. In return, BASF/Wintershall transferred its share in the previously jointly operated natural gas trading and storage business to Gazprom – with retroactive economic effect as of 1 April 2013. Wintershall's Russian partner also acquired a 50 percent stake in Wintershall Noordzee B.V., which is active in oil and gas exploration in the southern North Sea.

In addition to its activities in Western Siberia, Wintershall is also active in the Volgograd region, where it has been producing crude oil for almost two decades in the Wolgodeminoil joint venture with the Russian company Lukoil.

Expansion of production activities in Norway

A key component of the increase in production in **Norway** in recent years is the partnership with the Norwegian company Statoil. As part of an asset swap in 2013, Wintershall received shares from Statoil in the three production fields Brage, Gjøa and Vega. Wintershall also assumed the operatorship of a large production platform for the first time in Norway when it took over **Brage** in October 2013.

In September 2014 the two companies agreed a further transaction. Wintershall acquired additional shares from Statoil in two producing fields: Gjøa (5 percent) and Vega (24.5 percent). Wintershall's total share is now 20 percent for Gjøa and 55.6 percent for Vega. In addition, in March 2015 the operatorship of the Vega field was transferred from Statoil to Wintershall Norge AS. **Vega** is the BASF subsidiary's first subsea production operatorship in Norway.

In addition, the company has also acquired shares in the **Aasta Hansteen** development project (24 percent), the Asterix discovery (19 percent), the Polarled pipeline project (13.3 percent) as well as in four exploration licenses in the Vøring Basin near Aasta Hansteen. The shares in the assets encompass reserves and resources (2P/2C) of around 170 million barrels of oil equivalent (boe). Through these



Gas treatment plant at Achimgaz, the German-Russian joint venture.



Production growth in the northern North Sea.

transactions Wintershall has further expanded its daily production in Norway.

With the start of production of the Ivar Aasen field in December 2016 Wintershall has further strengthened its position as one of the major oil and gas producers on the Norwegian Continental Shelf. This is an important milestone for Wintershall in bringing its own discoveries such as Maria and Skarfjell to production rapidly in the coming years. Alongside Knarr and Edvard Grieg, Ivar Aasen is the third Norwegian development project which Wintershall has been involved in taking into production since 2015. Together with the shares acquired from Statoil in Brage, Gjøa and Vega, Wintershall has successfully raised daily production in Norway to around 80,000 boe.

Alongside these partner-operated fields, Wintershall is concentrating on the projects where it is the operator, such as Maria and Skarfjell. The Wintershall-operated **Maria** discovery (Wintershall share: 50 percent), with a planned production start in the first half of 2018, has an estimated 180 million boe of technically recoverable resources. In March 2017 Wintershall achieved a further milestone: the “Deepsea Stavanger” rig commenced drilling activities. At the same time, the two subsea installations were connected to the nearby Kristin, Heidrun and Åsgard B platforms at a depth of 300 meters. Wintershall is using the existing infrastructure for its own production, which means investments in building a new platform are no longer necessary.

Wintershall also stepped up its activities in Norway with the awarding of five new exploration licenses by the Norwegian Energy Ministry in the 2016 APA licensing round. Wintershall is the operator for two of these licenses. All of the licenses are in Wintershall’s core regions: in the Norwegian North Sea and near the Aasta Hansteen development project in the Norwegian Sea.

Longstanding production in the southern North Sea

Around 50 percent of the natural gas required in the European Union is still produced in the North Sea and the countries bordering it. Our very own North Sea is therefore an important and secure source for Europe’s energy supply – up to and beyond 2020.

Wintershall is also one of the largest gas producers in the **Netherlands**, where it operates around 20 offshore platforms. In order to control the operations offshore efficiently, Wintershall controls the majority of these platforms from Den Helder with a high-tech, radio-controlled monitoring system. With the Wingate platform in the British North Sea, facilities in four different countries and more than 20 platforms are monitored by the

Center for Remote Controlled Operations (RCO): as well as the platforms in the Dutch North Sea, this includes one platform in the German, one in the Danish and the Wingate platform in the southern British North Sea. This reduces the number of flights for transport and supplies to the platforms by a third. The wholly owned BASF subsidiary has been active in the region since 1965.

Natural gas production in the Netherlands will increasingly be supplemented by crude oil production in future. A central element of this is the Rembrandt offshore discovery, which is situated 120 kilometers north of Den Helder within exploration license F17a. The Rembrandt reservoir is one of the largest oil discoveries in recent years in the southern North Sea; and a development concept for it is currently being drawn up.

With L6-B, an unmanned “minimum facility” platform, another platform began producing natural gas in the Dutch North Sea in 2015. The platform’s unique and minimal design has enabled it to be deployed in a restricted military area. The platform can produce commercial yields even with very small reserves. Production from the Kotter and Logger reservoirs, on the other hand, has ceased, since production of the limited remaining volumes was no longer commercially viable.

In October 2011, Wintershall commissioned its first company-operated natural gas production facility in the **UK** with the Wingate platform. Wingate currently produces an overall volume (100 percent) of about two million cubic meters of natural gas per day. Wintershall Noordzee holds a 49.5 percent share in the platform.

In addition, Wintershall is also exploring off the coast of **Denmark**. The company discovered crude oil with the Wintershall-operated Hibonite exploration well in the western part of the Danish North Sea in March 2013. The commercial viability of the Hibonite discovery as well as further upside potential are now being evaluated in the next phase of the project. Wintershall Noordzee is transferring the nearby Ravn field from the development to the production phase this year in stages with the help of a so-called “Appraisal through Development” concept. This will enable the crude oil to be transported from an unmanned production platform via a subsea pipeline to platform A6-A, which is 18 kilometers away in the German North Sea. From there it will be transported on to the Dutch coast via the existing infrastructure. Ravn is the first field in Denmark that Wintershall Noordzee is taking into production as operator (share: 63.6 percent). The Danish Energy Ministry awarded Wintershall

three new licenses in the Danish North Sea at the beginning of 2016. Wintershall is the operator in all three.

Greater upstream commitment in the MENA region

As a crude oil and natural gas company, Wintershall is increasingly active in the so-called MENA region (Middle East / North Africa) and intends to step up its activities there significantly. As well as the production in Libya, the company also intends to develop new natural gas and condensate reserves in the United Arab Emirates. “We have the know-how and the technology to be an attractive partner in this region,” explains Martin Bachman, the Wintershall Executive Board member responsible for exploration and production in Europe and the Middle East. Wintershall ceased its activities in Qatar at the end of May 2015 when the concession license expired. The Al Radeef natural gas discovery was unable to be developed further due to a lack of access to the local infrastructure.



Wintershall produces from eight oil fields in the Libyan Desert.

In **Abu Dhabi** Wintershall completed its first operated exploration well to develop the Shuwaihat sour gas and condensate field in 2015. The second offshore exploration well was launched in 2016 and successfully completed in the middle of 2017. The findings are currently being evaluated. In June 2012, the Abu Dhabi National Oil Company (ADNOC), Wintershall (operator) and OMV signed an agreement on the technical evaluation of Shuwaihat. Wintershall has been able to bring its technological expertise to bear in the project with its more than 40 years of experience in the safe development and production from sour gas (H₂S and CO₂) and oil fields. “Wintershall’s success is based on a combination of modern exploration techniques and innovative production processes to enhance the recovery rate from complex reservoirs. We want to harness this expertise for the further development of technically demanding fields in the region,” explains Wintershall Executive Board member Martin Bachmann. In addition, Wintershall further expanded its partnership with ADNOC in November 2015 when it signed a Memorandum of Understanding aimed at conducting joint research into Enhanced Oil Recovery (EOR) methods.

In April 2016 Wintershall signed a Memorandum of Understanding with the National Iranian Oil Company aimed at possible cooperation between the two companies.

In North Africa, Wintershall can look back on a particularly long history: the company has been active in exploration and production in the Libyan Desert since 1958. In addition to shares in the Al Jurf offshore field, eight onshore oil fields are operated in **Libya** in concessions 96 and 97.

Production is severely restricted, particularly as a result of the continuing blockade of the transport infrastructure. However, it has been possible to operate uninterrupted from the Al Jurf crude oil field off the coast of Libya.

Well positioned in Argentina for new resources

Wintershall has been producing hydrocarbons, especially natural gas, in **Argentina** for almost 40 years and is now the fourth-largest gas producer in the country. The company is active in the central Argentinean provinces of **Neuquén** and **Mendoza**, as well as in the south off the coast of **Tierra del Fuego**. The wholly owned subsidiary Wintershall Energía S.A currently holds working interests in 15 oil and gas fields and produces some 26 million barrels of oil equivalent (boe) annually.

Together with Total and Pan American South, in February 2016 Wintershall also successfully launched production in the new **Vega Pléyade** natural gas field in the Argentinean Sea off the coast of Tierra del Fuego. The Vega Pléyade platform has a daily production volume of 8.5 million cubic meters and will help to optimize deliveries to the gas processing facilities already in operation in the region.

Although Wintershall's activities in Argentina have previously mostly concentrated on production from conventional reservoirs, the company is now increasingly examining the potential of unconventional reservoirs. Argentina has the second-largest shale gas deposits in the world. The "Vaca Muerta" geological formation is particularly important: it lies in the Argentine province of Neuquén.

Wintershall has been active in the conventional production of natural gas and crude oil for more than 20 years in the province of Neuquén. So far more than 350 wells have been spudded in the **Aguada Pichana** block. Today natural gas is being produced from about 200 of these wells. In 2016, 7.4 million standard cubic meters of natural gas were produced daily from the block. And in 2014 a shale gas pilot project was launched: the twelve planned horizontal wells, with deviations of 1,000 to 1,500 meters, are aimed at verifying the existence of natural gas in the Vaca Muerta formation. At the moment 13 of the project's wells are delivering very promising results.

Aguada Pichana is now being partitioned into two separate blocks: Aguada Pichana Este (east) and Aguada Pichana Oeste (west). All the current facilities and the current Aguada Pichana production are situated in the 761 km² eastern part (for which Total Austral will be responsi-



San Roque gas production facility in Neuquén (Argentina).

ble). Wintershall will retain its original stake there (27.27%) in all projects involving conventional and tight gas. Wintershall will in future hold 22.5% of the shares in the shale gas projects in the Vaca Muerta formation (4.77% will be sold to TOTAL). Wintershall is selling its stake in Aguada Pichana Oeste to PAE, the future operator of this block.

The **San Roque** block (Wintershall 24.7 %, operator Total 24.7 %, YPF 34.1 %, PAE 16.5 %) extends over 1,040 square kilometers and lies north-east of Aguada Pichana. Up to 4.5 million cubic meters of gas are produced daily here from 50 wells.

In the south of Mendoza province Wintershall Energía holds the exploration license as operator for Block CN-V (50 percent Wintershall, 50 percent Geopark).

Since 2014, Wintershall has held a stake in the **Aguada Federal** block in the Neuquén province and is the operator there. In December 2015 its share was increased from 50 to 90 percent. Together with the local state-owned energy company, Gas y Petróleo del Neuquén S.A. (GyP), Wintershall plans to survey the concession and investigate the commercial development potential. Promising rock can also be found here in the Vaca Muerta formation. Following two vertical exploration wells, four horizontal wells were drilled in the so-called pilot phase that each run horizontally over about 1,000 meters. They are currently being tested and the results evaluated.

In addition, Wintershall has received a new block as operator (100 percent) with **Bandurria Norte** (new partitioning of the Bandurria concession). In the summer of 2017, Wintershall spudded the last of three planned pilot wells in the Vaca Muerta formation. The wells in the 107-square-kilometer block are targeting very promising shale there. The wells are scheduled to commence production early next year.

Domestic production as a center for innovation

In **Germany**, Wintershall has been making a key contribution to supply security for more than 85 years with its domestic production of crude oil and natural gas. “Due to the difficult geological conditions, production in Germany is technologically demanding and often only possible with considerable additional expenditure and special techniques,” explains Wintershall CEO, Mario Mehren. In its home country, Wintershall is showing how oil and gas can be produced successfully under challenging conditions. At the same time, the oil and gas production in Germany forms the basis for continuous innovation that also sets standards internationally. “Our work here in Germany under very



The Düste Z10 well near Barnstorf, Lower Saxony.

demanding geological and legal conditions also forms the basis for innovation and advanced technology with which we can prosper globally and forge international partnerships,” says the Wintershall CEO.

For the purpose of international cooperation, Wintershall can also harness the experience it has gained in Germany in the safe development and production of sour gas (H₂S and CO₂) and tight gas. Tight gas is trapped in deep rock strata made of dense sandstone and can only be recovered using hydraulic fracturing. The current Düste Z10 project in close proximity to the Barnstorf operations in Lower Saxony is believed to offer potentially recoverable reserves of about 10 billion cubic meters of natural gas. Wintershall has already been producing gas with this tried-and-tested technology for more than 30 years. Wintershall uses the tight gas technology from Germany not just for its domestic production but also in Russia, the Netherlands and Argentina.

One of the biggest crude oil fields on the Upper Rhine Plain is situated in Landau in the Pfalz region. Wintershall has been extracting crude oil here since the field was discovered in 1955. Overall, it produces up to 20,000 tons of crude oil per year in Landau. Wintershall has also been producing crude oil in Aitingen, near Augsburg, for almost 40 years. About 1.4 million tons of crude oil have been produced at the Bavarian site since production began. Overall, Wintershall produces more than 35,000 tons of crude oil per year in Aitingen.

The spirit of innovation at Wintershall is also associated with another operating site in Germany: Emlichheim in Lower Saxony. Wintershall has been producing crude oil at the German-Dutch border – at a constant level – for more than 70 years, an achievement that is unsurpassed worldwide. With the help of steam flooding, we have kept producing in Emlichheim for three times as long as originally planned. Wintershall currently produces about 150,000 tons of crude oil per year in Emlichheim. Production will continue in the coming decades. This long production period is due to another highly effective innovation, which is to combine horizontal drilling and steam flooding. In this process, the oil in the reservoir is heated with hot steam, which makes it thinner and easier to extract. Twelve new wells were launched in September 2016. They tap into the known crude oil reservoir, in the Bentheim sandstone, at a depth of 700 to 900 meters. Eight of the twelve wells will later be used for crude oil production, and four wells will be used to inject hot steam into the reservoir.

Wintershall has implemented internationally recognized, high environmental standards and applies them on a daily basis. The Mittelplate offshore field in the Wadden Sea in Schleswig-Holstein, in

which Wintershall and DEA (operator) each hold a 50 percent share, continues to be the cornerstone of oil production in Germany. Worldwide this field is considered a prime example of how to reconcile environmental and commercial interests successfully.

Wintershall. Shaping the future.

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Forward-looking statements and forecasts

This press release contains forward-looking statements. These statements are based on current estimates and projections of the Executive Board and currently available information. The forward-looking statements should not be considered to be guarantees of future developments and results. Rather, the future developments and results are dependent on a variety of factors; they include various risks and uncertainties and are based on assumptions that may prove to be not applicable. We accept no obligation to update the forward-looking statements made in this press release.