

— FACT SHEET

ASTORA – WE STORE NATURAL GAS

 **astora**
Part of Gazprom Germania Group

 **GAZPROM
GERMANIA**

astora GmbH & Co. KG, based in Kassel, is one of the largest natural gas storage operators in Europe. When expanding the scope of its activities in the European natural gas market, the company prioritises safe gas storage for its customers. astora has underground natural gas storage capacities of more than 6 billion cubic metres. The company holds approximately 25 per cent of the total natural gas storage capacities in Germany.



REHDEN UGS

- Type: underground reservoir storage
- Working gas volume: 3.9 billion m³
- Area: 8 km²
- Depth: 1,900 – 2,100 m
- Connection: MIDAL



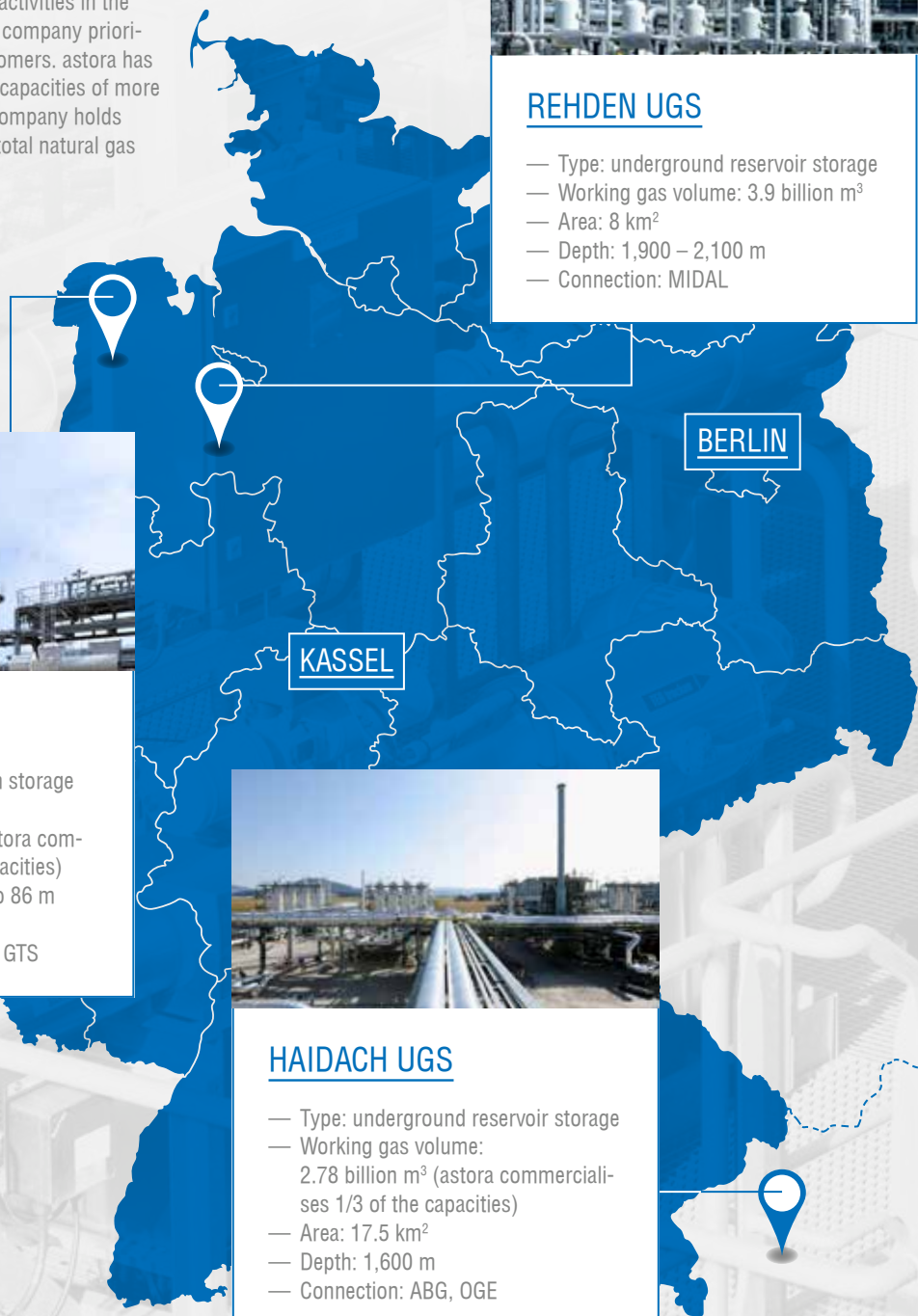
JEMGUM UGS

- Type: underground cavern storage
- Working gas volume: 900 to 950 million m³ (astora commercialises 5/6 of the capacities)
- Diameter of caverns: up to 86 m
- Depth: 950 – 1,500 m
- Connection: MIDAL, NEL, GTS



HAI DACH UGS

- Type: underground reservoir storage
- Working gas volume: 2.78 billion m³ (astora commercialises 1/3 of the capacities)
- Area: 17.5 km²
- Depth: 1,600 m
- Connection: ABG, OGE



OVER 25 YEARS OF EXPERIENCE

astora is part of the GAZPROM Germania Group and has many years of experience in the planning, construction and operation of underground gas storage facilities (UGS) as well as in dispatching and selling of energy products. In 2012, the company was legally and

- 1990 – 1991: Planning and start of construction on the Rehden UGS in a pore reservoir
- 1993: Commissioning of stage 1 of the Rehden UGS
- 1999: End of construction on the Rehden UGS
- 2005: Start of construction on the Haidach reservoir storage facility
- 2006: Creation of an underground gas storage department in WINGAS
- 2007: Commissioning of stage 1 of the Haidach UGS
- 2008: Start of construction on the Jemgum cavern storage facility
- 2011: End of construction on the Haidach UGS

organisationally separated from WINGAS (a joint venture of Wintershall and Gazprom) after the European Union's Third Energy Package went into effect.

- 2012: Establishment of the company operating astora's underground gas storage facilities as part of execution of the new version of the Energy Law
- 2013: Commissioning of stage 1 of the Jemgum UGS
- 2015: Asset swap between Gazprom and Wintershall; astora becomes a subsidiary of GAZPROM Germania Group
- 2017: Change in company's management
- 2018: Complete transfer of UGS operations to astora along with the reporting duty to the Mining Authority

UGS AS A RELIABLE BACKBONE OF THE EUROPEAN ENERGY SUPPLY

Gas storage facilities are an important element in providing reliable energy supply. By maintaining a balance between natural gas production and consumption, they guarantee access to large volumes of gas. During periods of peak consumption, extra volumes of gas are fed from storage facilities into the gas transmission network, and during low demand, excess volumes are injected into the storage facilities. Therefore, gas storage facilities help to balance out not only seasonal fluctuations in gas production and consumption but also provide

support to renewable energy sources. For example, if the wind is not blowing and the sun is not shining, natural gas can be used to generate electricity. The main advantages of natural gas are cost efficiency, eco-friendliness and versatility of use for receiving energy. Gas storage facilities offer flexible and effective solutions in a situation where the level of natural gas production in Europe falls and the demand for its import rises.

PRIORITIES: HEALTH, ENVIRONMENTAL PROTECTION AND SAFETY

Safe, reliable and efficient operations of facilities are essential components for our economic success. Therefore, the principles of health, environmental protection and safety are the main elements of our corporate culture and determine the principles of our work. Constant improvement in the safety and operational readiness of our facilities is achieved through a unique system of managing measures on health, environmental protection and safety. astora is one of the first companies in the German UGS market to be certified by the international company DEKRA Certification.

astora's underground gas storage facilities combine high operational readiness and the safest environmentally-oriented management. Centralised management from the control centre in Kassel makes it possible to factor in the maximum number of environmental aspects and pay special attention to safety when planning and optimising production processes.

Aerial view: Jemgum Natural Gas Storage Facility.



astora GmbH & Co. KG, located in Kassel, is one of Europe's largest operators of underground gas storage facilities and is a subsidiary of the GAZPROM Germania Group. astora operates the capacities of the Rehden and Jemgum UGS and commercialises the capacities of the Haidach UGS. The company manages underground gas storage capacities with a total volume of more than 6 billion cubic metres. It holds approximately 25% of the total natural gas storage capacities in Germany.

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