



GASCADE

THE GAS COMPRESSOR STATION BUNDE

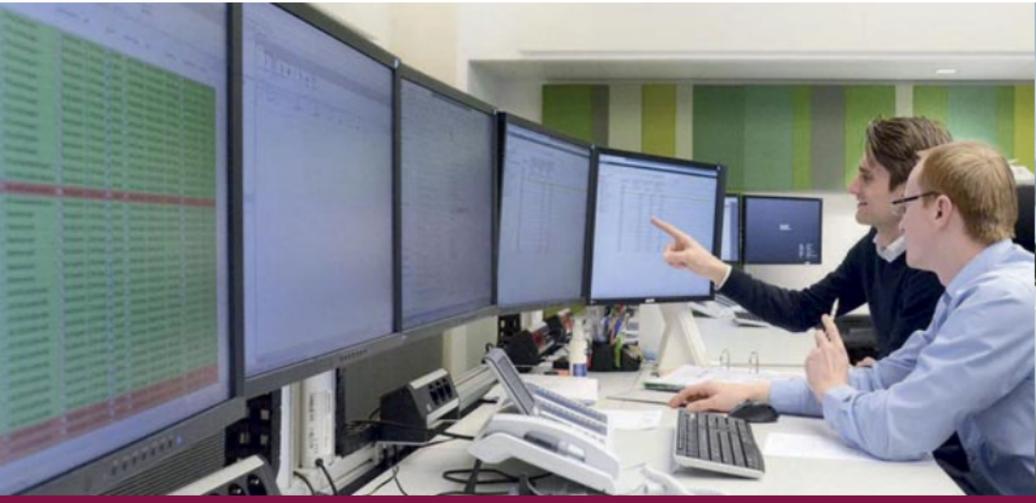


GAS FOR EUROPE



On the path to climate-neutral supply with renewable energies, the gas market is changing: Declining natural gas production within Europe, the diversification of supply sources, and the development of new sources such as hydrogen and climate-neutral gases are issues that also concern GASCADE. In line with the climate targets, we are already developing approaches to make our pipeline network in the middle of Europe fit for the energy future. We take natural gas and climate-neutral gases to where they are needed. Our system receives the gas from transit pipelines at Germany's borders and transports it reliably to consumers in Germany and Europe. We directly connect a total of five European countries, thus making a significant contribution to supply security, both now and in the future.

PRESSURIZING GAS



From the source to where it's used, the gas travels many thousands of kilometers in pipelines measuring up to 1.4 meters in diameter. During this journey it loses pressure as the molecules rub against each other and the inside of the pipe.

To keep the density and hence the transport speed of the gas constant, it is compressed in the gas compressors.

These are the core of the eleven GASCADE compressor stations that are spaced at around 250 kilometers apart in the pipeline network.

What happens in the compressor?

Several impellers are securely arranged behind each other on a rotating, cylindrical shaft in a steel casing and rotate at a speed of up to 3,600 and 10,300 revolutions per minute. This spins the molecules of the inflowing gas outward, thus compressing them more densely together. The compressors are driven by gas or electric motors located in enclosures in compressor houses for the purpose of noise control. The gas' volume is reduced when it is compressed. That means more energy can be transported through the pipeline. The pipeline's capacity increases – and so does supply security for customers.

BUNDE COMPRESSOR STATION



GASCADE compresses gas for North Germany right by the Wadden Sea in Lower Saxony, close to the city of Leer and the Dutch border. The station in Bunde is located on the 702-kilometer MIDAL pipeline (Central German Pipeline Link).

The gas is processed here as it heads north-west. Up to 1.2 million cubic meters of gas per hour can stream through the Bunde station. By comparison: The average European household uses around 2,700 cubic meters per year.

The GASCADE employees have already been ensuring the right density, a continuous flow, and secure operation in Bunde since October 1993. The station was expanded in October 2012 and now has a gas metering station and two electric motors. The maximum operating pressure is 90 bar. The site also includes a utility and an operations building, as well as a workshop and a warehouse. In addition to the entire station, the employees look after an around 80-kilometer-long pipeline section.

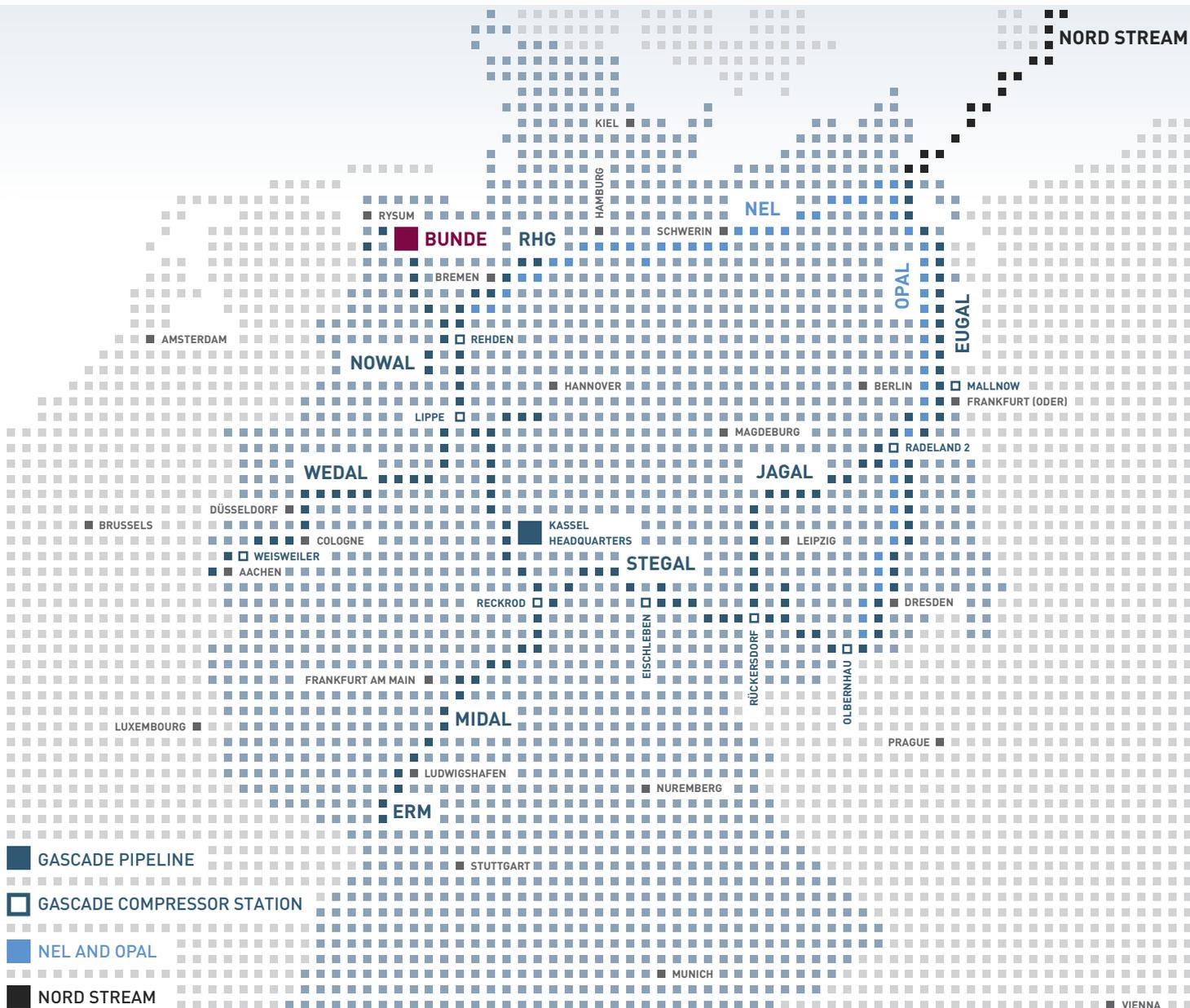
TECHNICAL INFORMATION



- 1 Operations building and workshop
- 2 Compressor building
- 3 Quantity measurement building
- 4 Gas coolers

TECHNICAL DATA	
Compressor output	12.8 megawatts (2 x 6.4 MW)
Number of compressors	2
Type of drive	Electric motor
Max. operating pressure	90 bar
Capacity (m ³ /h at normal conditions)	1.2 million
Commissioned in	10/93, 10/12

GASCADE'S PIPELINE NETWORK



- GASCADE PIPELINE
- GASCADE COMPRESSOR STATION
- NEL AND OPAL
- NORD STREAM

CONTACT

GASCADE Gastransport GmbH

Headquarters

Kölnische Straße 108-112

34119 Kassel, Germany

Phone +49 561 934 0

Fax +49 561 934 1208

Bunde Compressor Station

Heerenweg

26831 Bunde, Germany

Phone +49 4953 9188 2501

www.gascade.de