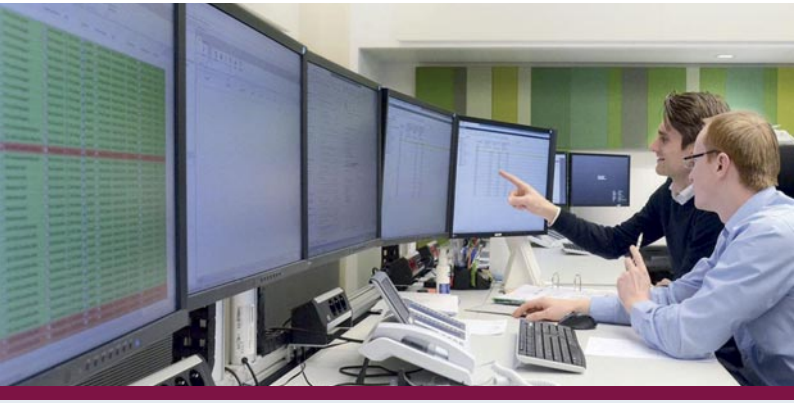
GASCADE

THE GAS COMPRESSOR STATION REHDEN

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 gas compressors.
These are the core of 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.

REHDEN COMPRESSOR STATION

Five of Germany's most important gas pipelines converge in Rehden, Lower Saxony, south of Bremen:
– NEL (Northern European Gas Pipeline)
– RHG (Rehden-Hamburg Gas Pipeline)
– MIDAL Central and North (Central German Pipeline Link)
– NOWAL (North-West Pipeline Link)
– NOWEGA pipeline network.
Here, at GASCADE's biggest pipeline node, three compressors compress the gas for its onward journey. The maximum pressure is then more than 90 bar. In total, up to 3.6 million cubic meters of gas an hour can flow through the station and be transported onward in any direction. By comparison: The average European household uses around 2,700 cubic meters per year.

Safe on site

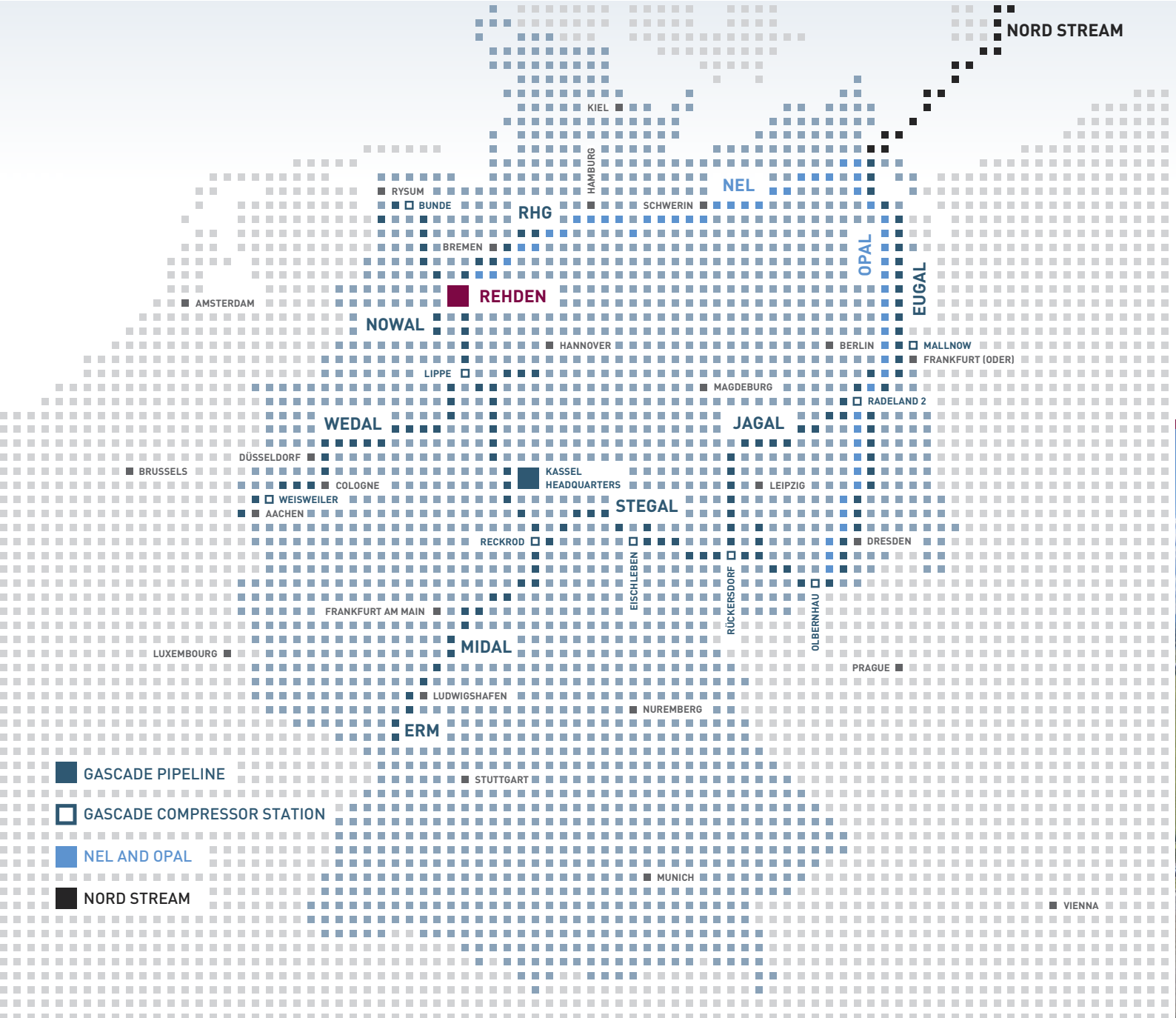
Since 2012, GASCADE employees in Rehden have been ensuring the right gas density, continuous flow and safe operation. In 2016, the company added an additional compressor unit with a gas turbine to the station. On the approximately ten-hectare area, GASCADE employees take care of various facilities. They also monitor and look after one of the longest pipeline sections in the GASCADE network.

TECHNICAL INFORMATION

1 Fuel gas conditioning and warehouse
2 Operations building and workshop
3 Gas pressure control and measurement system
4 Compressor buildings
5 Gas coolers

TECHNICAL DATA	
Compressor output	28.9 megawatts (2 x 11 MW, 1 x 6.9 MW)
Number of compressors	3
Type of drive	Electric motor and gas turbine
Max. operating pressure	100 bar
Capacity (m^3/h at normal conditions)	3.6 million
Commissioned in	11/2012, expanded in 2018

GASCADE'S PIPELINE NETWORK



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