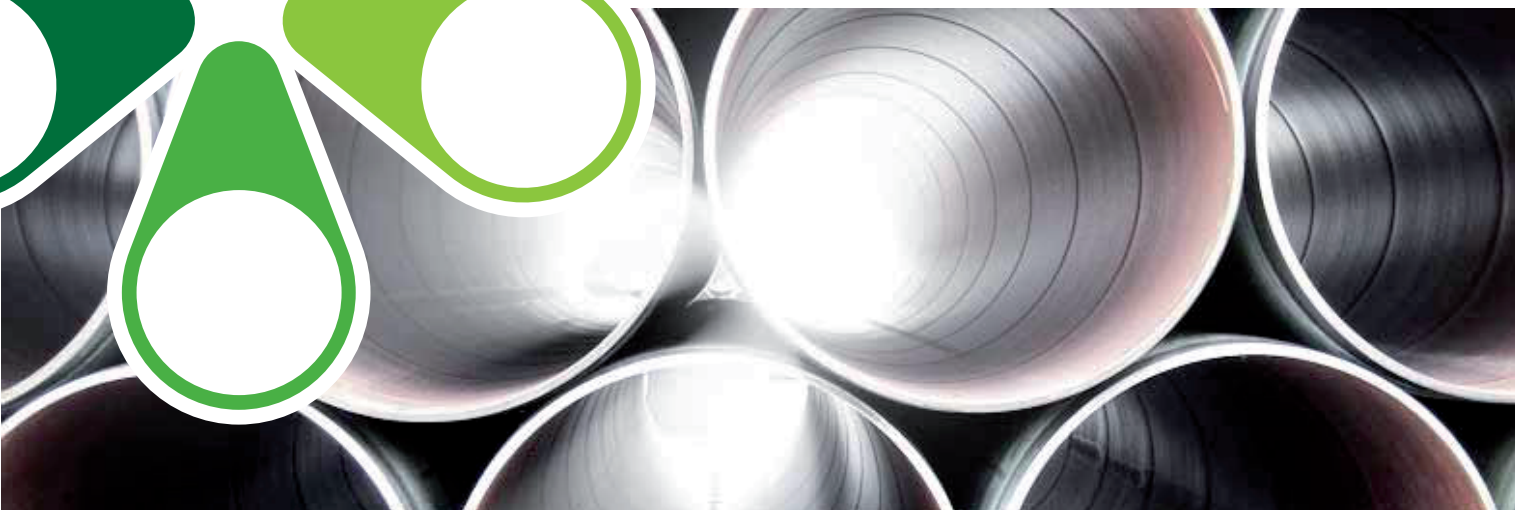




FACTSHEET

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Gas Connect Austria – transporting gas for Europe

As a transmission system and distribution system operator, Gas Connect Austria plays an important part in the Austrian and European gas supply network. With around 280 employees, the company is responsible for marketing transportation capacity and for the smooth operation of a high-performance, modern high-pressure gas pipeline network. In order to safeguard supply security, our gas infrastructure is regularly inspected, maintained and modernised. Thanks to state-of-the-art electric compressors, natural gas transportation is now even more efficient and eco-friendly than ever before.

In July 2012 the national energy regulator E-Control certified Gas Connect Austria as an independent transmission operator (ITO).

Gas Connect Austria is one of the country's leading gas transporters, and is responsible for operating a 900-km gas transmission and distribution pipeline system. This powerful high-pressure network conveys gas quickly, quietly and

environmentally friendly within Austria, and to Croatia, France, Germany, Hungary and Slovenia. With marketed entry/exit capacity of 152 billion cubic metres (bn cu m) per year, Gas Connect Austria plays a key role in supplying Austria and Europe. Gas is carried to domestic and foreign energy companies via the large transit pipelines (the WAG, SOL, HAG and PW) and the primary distribution system. From April 2012 until May 2017 Gas Connect Austria performed as Austrian Market Area Manager (MAM) for the eastern market area. During this period Gas Connect Austria built up the function of the Market Area Manager and met its statutory responsibilities in an objective, independent and customer-oriented way. As of June 2017 the function has been passed on to AGGM, which assumes the responsibilities of the MAM in addition to its duties as Distribution Area Manager.

Gas transportation – fast and eco-friendly

Natural gas is carried quickly and invisibly to consumers along pipelines. With the ex-

ception of Siberia, where they are constructed above ground due to the permafrost, pipelines run normally underground or along the seabed, so they are a highly environmentally friendly way of transport. The large transit lines can be up to 1,400 millimetres in diameter, while the small gas lines that connect households to the grid have a diameter of just 200 mm. For the gas in large pipelines to maintain an average speed of around eight metres per second (30 kph) over long distances, compressor stations are necessary. These are situated at regular intervals along the pipeline. Gas-fired compressors are driven by turbines, similar to jet engines, which raise the gas pressure to over 70 bar. Today, electric compressors, featuring high-speed electric drives supported by magnetic bearings, are increasingly being used. This state-of-the-art technology stands out for its increased efficiency and eco-friendliness. Gas withdrawals and friction losses during transport cause the pressure to drop, so it must be restored by a compressor station every 150-200 km.

The Austrian transmission pipeline grid

Baumgarten gas hub

The gas reception and distribution point at Baumgarten an der March, Lower Austria, is Austria's largest, and one of the most important gas hubs in Europe due to its central location. The facility was commissioned in 1959 and took its first gas shipment from Russia in 1968. Natural gas from Siberia takes about six days to make the 4,000 km journey to Baumgarten. The incoming gas is measured, cleaned, dried and finally compressed for dispatch. Gas from Baumgarten is delivered within Austria, as well as to, Germany, France, Hungary, Italy, Slovenia and Croatia.

West-Austria-Gasleitung (WAG)

The 245-km WAG has a capacity of 13.1 bn cu m/year, and runs west from Baumgarten to Oberkappel on the Austrian border with Germany. It supplies the domestic market, and is an important east-west link that serves France and Germany. It also carries gas eastwards to Central Europe. The WAG has compressor stations at Baumgarten and Rainbach, and has bidirectional capability (i.e. it is operated in both directions).

Süd-Ost-Leitung (SOL)

The SOL branches off from the TAG at

Weitendorf, south of Graz, and from there continues to Slovenia and on to Croatia. Its main function is supplying gas to the latter two countries.

Hungaria-Austria-Gasleitung (HAG)

The HAG passes along Austria's borders with Hungary and Slovakia, linking the Baumgarten hub with the Hungarian high-pressure gas grid. The pipeline is used to convey gas from Austria to Hungary.

Penta-West (PW)

The PW runs from Oberkappel through Upper Austria's Innviertel region to Burghausen in Bavaria. This system, served by a new compressor station in Neustift, provides an additional, high-capacity link between the WAG and the Bavarian high-pressure gas grid.

Trans-Austria-Gasleitung (TAG)

The 383-km TAG runs south from the Baumgarten gas hub to Arnoldstein on the border between Austria and Italy. It has three parallel pipelines, four compressor stations, and numerous entry/exit points. With a capacity of 44.3bn cu m/year, it is the largest gas pipeline in Austria. The TAG supplies Austria, as well as Croatia, Italy and Slovenia. The TAG is owned and operated by Austrian transmission system operator Trans Austria Gasleitung GmbH.

Gas Connect Austria's safety performance

The safety of Gas Connect Austria's pipelines and those it operates for third parties is underpinned by a wide range of measures. The fact that the pipelines are underground is a major safety factor in itself. They are given polyethylene insulation and cathodic protection to guard against corrosion. Regular cleaning and inspections are carried out using "pigs". "Smart pigs" are devices equipped with electronic sensors that are inserted into a pipeline and carried along it by the gas flow. The sensors monitor surface condition and pipeline wall thickness, and the data they collect is analysed for signs of structural weakness. In addition, pipeline routes are regularly inspected on foot and from the air to be sure that the pipeline itself and the surface easement strip are in good condition. On average, there is a shut-off valve every 15 km along each pipeline. These prevent large amounts of gas from escaping if a leak occurs. Gas pipeline systems are fully automated. Information on their operational status is constantly relayed via fibre optic cables and radio links to the dispatching centre. From there, all the installations throughout the network can be remotely monitored and controlled. Gas Connect Austria's infrastructure is continuously inspected and maintained. Standby teams are on call 24 hours a day, ensuring a rapid emergency response and manual intervention on the ground if ne-



Kontakt:

GAS CONNECT AUSTRIA GmbH | Communications | 1210 Vienna, Floridsdorfer Hauptstraße 1 | Tel.: +43 1 27500-88052

www.gasconnect.at | communications@gasconnect.at