



SICHERHEIT COORDINATION
ERF/... SOL SERVICE PARTNERSCHAFT
NE... EVERYWHERE
VERAN... RTUNG BAUMGARTEN UMWELT
FAIR... KOMPETENZ GAS NATURAL
LEISTUNG UMWELT ENERGY SOL
TECHNOLOGY ENERGY EVERYWHERE ENTWICKLUNG ZUKUNFT
SICHERHEIT ENTWICKLUNG
ENTWICKLUNG LOGISTIC TECHNOLOGY
ZUKUNFT ENERGY EVERYWHERE WAG
ERFAHRUNG FAIRNESS PARTNERSCHAFT
COORDINATION WEITBLICK ZUKUNFT
SICHERHEIT ENERGY VERANTWORTUNG
WEITBLICK ERFAHRUNG LEISTUNG
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UMWELT SUPPORT
VERANTWORTUNG SUCCESS
NATURAL ENERGY ERFAHRUNG VERANTWORT



**GAS CONNECT
AUSTRIA**



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I AM MORE INTERESTED IN THE FUTURE
THAN IN THE PAST, BECAUSE THE
FUTURE IS WHERE I INTEND TO LIVE.”

ALBERT EINSTEIN

Gas is forward thinking – and is part of the solution

Natural gas dates back millions of years, but it is by no means outdated. On the contrary: with modern technologies and a powerful infrastructure, gas is here to stay in Europe's energy landscape. Indeed, in order to achieve the common goal of decarbonisation by 2050, gas will be needed as a strong, reliable and above all affordable partner – for the long term.

Natural Gas is

- storable
- efficient
- reliable
- available long term
- ecological

The European climate targets call for a reduction of CO₂ emissions of 80% by 2050. That much is certain. However, it is not mandatory how this targeted decarbonisation has to be achieved. While the traditional renewable energies such as wind, solar and hydropower are rightly considered the beacons of hope of the energy transition, gas also has a unique key role to play. As an already established energy source with a mature technology and highly developed infrastructure for transportation and storage, gas plays to its strengths especially in combination with renewable energies. Gas is far more than a mid-term bridge technology on the way to the sustainable energy transition. The Austrian energy and climate strategy, as well as the EU schedule for decarbonisation of the industry, both call for an increase in renewable energy sources. For example, if natural gas cars, Power to Gas technologies, synthetically produced methane and other gas-based technologies were given equal priority as traditional

renewable energy sources, these ambitious targets could be reached more efficiently and economically. The replacement of coal with gas should also be noted. Gas is not only more environmentally friendly, but also more efficient than coal with 60% efficiency in gas-fired power plants compared to 25% to 45% for coal-fired power plants. Bottom line: gas will be an essential part of our energy future, well beyond 2050. Because gas is forward thinking – and is part of the solution.

STRONG POTENTIAL

Why is natural gas an ideal partner for other energy sources? Because it is storable and compensates for the fluctuations of solar, wind and hydropower, thus relieving the electricity grids as well. Because it is efficient – for example, for heating it achieves an efficiency of 90%. Because it is reliable and flows for 24 hours, 7 days a week with high pressure through the high-performance European gas grid. Because it is available long term thanks to the substantial gas reserves in the underground storage facilities and moreover can be produced as renewable gas. Because it is ecological and when burnt produces no fine dust, little CO₂ and practically no other air pollutants. Because it is "green" – not only natural gas but also biogas, synthetic methane from surplus electricity or also hydrogen can be transported quickly, simply and economically via underground pipelines.



THE EXISTING GAS INFRASTRUCTURE IS FIT FOR THE FUTURE – UNTIL 2050 IT WON'T REQUIRE ANY MODIFICATIONS. INSTEAD IT CAN ALSO BE USED FOR NEW TECHNOLOGIES."

HARALD STINDL, MANAGING DIRECTOR, GAS CONNECT AUSTRIA



Photo: vege - stock.adobe.com

GAS HAS STRONG INFRASTRUCTURE

Thanks to the many years of investments into an efficient system, from production to the end user, the gas grid can transport large quantities of energy safely, securely and cost-effectively over long distances. It is unseen, practically fail-safe and in Austria alone has a storage capacity of 8.2 billion m³. This corresponds to roughly the annual demand for gas in our country. In comparison, the energy of the largest pumped storage plants would only be sufficient for the power supply of a single day. With an intelligent use of the existing systems – for example, the coupling of the electricity and gas grids – the energy transition can be achieved efficiently and without high adaptation costs.

8.2
billion
m³

= 91.8 TWh make up the natural gas storage capacity in Austria alone.

BUILDING BRIDGES –
CONNECTING PEOPLE –
STAYING INTERCONNECTED.

The European Gas Grid

The best connections across Europe

The first prerequisite for a secure supply is high-performance grids and clear conditions for their use. As one of 45 certified transmission system operators (TSOs) in Europe, we transport natural gas at the right time, to the right place – reliably, safely and securely. What’s more: we think in European dimensions and participate actively in shaping the processes across Europe.

A well-functioning grid needs committed experts. Approximately **305,000** people work in the natural gas sector throughout Europe.

Whenever you talk about gas, you also have to think about its transportation. In order to transport gas from the different decentralised production sites all over the world to the main consumption centres, you have to have a top-performing, cross-border transmission system. On the mainland, gas is transported safely, securely and silently in underground steel pipelines lying at a depth of between 1 and 1.2 metres – and running partly over several thousand kilometres. Gas transmission does not stop at the coast either: cooled down in special terminals to -161.5°C, natural gas becomes liquid, and as such needs 600 times less space than its gaseous state and thus can be transported as LNG (liquefied natural gas) safely and securely by tankers over long distances.



... certified TSOs – Transmission System Operators – such as Gas Connect Austria bring natural gas to the right place, at the right time.



Source: ENTSOG

More than
1 mill.
households
in Austria
are supplied
with
natural gas.

SECURITY OF SUPPLY, THANKS TO A HIGHLY DEVELOPED GRID

For the planning, construction and ongoing operation of a complex supply grid, it is necessary to have competent experts in your company with a great deal of know-how. In Europe we have a strong, high-performance transmission grid, which is operated by over 45 national transmission system operators (TSOs) – Gas Connect Austria is one of them. TSOs deliver gas efficiently and reliably to where it is needed. Step by step over the last 20 years, the EU has defined a framework for the use of the gas grid. These European guidelines prevent monopolies. Regulatory authorities and a mandatory unbundling of the grid operation from other business areas guarantee a regulated access to the grid and market transparency.

GAS IS AVAILABLE LONG TERM

Part of the natural gas needed in Europe is produced here, e.g. in the North Sea. For example in Norway: 123.2 billion m³, as well as in Austria: 1.2 billion m³ in 2017. The major portion

– 340 billion m³ or roughly 75% is imported – and this is an upward trend. Around 44% of the imports to Europe come from Russia, but gas is also imported from Qatar, Algeria and other countries. New sources are always appearing on the world market. This ensures that this economical energy source is and will be available readily and reliably, now and in the long term. Natural gas reserves will last for many decades. Together with renewable energy solutions such as Power to Gas technologies and various transport routes, such as maritime routes and LNG terminals located near the coasts, it has an indispensable potential for the future. In addition, nearly 70 storage system operators (SSOs) are responsible for the storage of gas in 25 European countries. Together they operate over 100 gas storage units and thus form the backbone of a fail-safe energy supply.

GAS CONNECT AUSTRIA: EXPERIENCED EUROPEAN EXPERT

Gas Connect Austria's grid is an important gas hub in Europe not only because of our central

geographical position, but also because our many years of experience make us an important player on the market. We contribute our expertise actively with EU institutions and independent lobbying groups in our common efforts to shape European gas logistics. Gas Connect Austria is a founding member of Gas Infrastructure Europe (GIE), an association of the European Infrastructure Operators in the fields of transmission, storage and LNG. Gas Connect Austria also played an active role in founding the European Network of Transmission System Operators for Gas (ENTSOG). ENTSOG laid the legal foundation for the cooperation between European Transmission System Operators. More than 40 member companies from 27 countries work together on the further development and harmonisation of the European gas supply in accordance with the EU energy targets. Together with other European TSOs, Gas Connect Austria participates in the central trading platform for transport capacities, PRISMA, which helps to optimise gas flows in Europe.



WHAT MAKES US A RELIABLE PLAYER ON THE EUROPEAN MARKET IS OUR MANY YEARS OF EXPERIENCE AND OUR COMPREHENSIVE EXPERT KNOWLEDGE.”

STEFAN WAGENHOFER,
MANAGING DIRECTOR, GAS CONNECT AUSTRIA



... is the share of natural gas in total primary energy consumption in Austria.



For the planning, expansion and continuous operation of the complex supply grid, competent experts with a high level of know-how are required.

What Gas Connect Austria stands for

BASED ON OUR MANY YEARS OF EXPERIENCE, GAS CONNECT AUSTRIA ENSURES A STABLE SUPPLY OF GAS FOR AUSTRIA AND EUROPE. OUR DAILY WORK IS CHARACTERISED BY THREE CORE VALUES, WHICH FOR US ARE MORE THAN JUST CATCHPHRASES.

We take RESPONSIBILITY.

Protecting people and nature in our work is very important to us. Our underground pipelines transport natural gas, hidden from view and silently – without harming local nature. We are ISO-certified and guarantee a stable supply of gas, today and for future generations – and on this you can rely. With our vast experience, our specialised knowledge and our professional project management, we ensure the highest level of technical operating safety and security, thus guaranteeing reliable and recognised cooperation with our partners.

We have VISION.

Because gas will continue to play a significant role in the future, our experts are always one step ahead. Gas Connect Austria thinks in an interconnected, networked way and works together with national and international partners on European energy solutions for tomorrow. For example, we are currently pursuing the topic “Greening the Gas” in order to explore in detail the potential of Power to Gas as an economic concept for the future. Through this and other kinds of further innovations, Gas Connect Austria is actively helping to shape the future of international gas logistics – always orienting ourselves to the market requirements of the future.

We live FAIRNESS.

Having an independent position on all fronts is as elementary for us in our business as is negotiating with our partners on an equal footing and with “handshake quality”. We involve local residents in our infrastructure projects early on and with full transparency and offer fair compensation payments in an unbureaucratic manner. Our capacity trading enables all customers to have transparent access to the market, free from any discrimination. We work in partnership with TSOs in neighbouring countries, collaborating in innovative projects.

238,000 auctions in 2017



At the right time, at the right place

As a centrally located European transmission and distribution systems operator (TSO and DSO), we at Gas Connect Austria ensure that gas gets to where it is needed – in Austria and in our neighbouring countries. We do that 365 days a year – 7 days a week – 24 hours a day. With approximately 280 employees we sell transport capacities and guarantee the smooth operation of a modern and high-performance gas grid. At the same time, we work actively to shape the future of the grid development and the market – for the long-term security of supply in Europe.

The team for our customers

- solution-oriented
- flexible
- reliable
- for Europe and Austria

FROM A TO B VIA AUSTRIA

Similar to an extensive railway network, the European high-pressure gas transmission grid is also extensive, thus enabling it to transport gas over long distances and across borders. As the transmission system operator, we do not sell gas but rather transport capacities. Gas Connect Austria makes these capacities available in a transparent and non-discriminatory manner at competitive prices via the auction and booking platforms such as PRISMA and RBP (Regional Booking Platform).

In direct and personal contact, we answer customer inquiries and process the business based on the transport contracts. In addition to international shippers, we also enable Austrian transport customers to have access to capacities for domestic supply. Our system connects the overriding infrastructure such as the major Austrian transmission pipelines as well as the storage and production plants with the regional distribution grids, which finally supply gas to consumers.

MARKET-ORIENTED PRODUCTS AND SERVICES

We follow the current market requirements and continue to develop new services and capacity products, i.e. contract options to use the grid. In this way we offer tailor-made solutions for a wide range of customer needs – comparable to the different tickets, schedules and classes in railway transportation. For example, our capacity products vary in duration, quality and flexibility and are also dependent on different technical conditions. Gas capacities are booked separately depending on the entry and exit points. This is how transport routes can be combined in a flexible manner. Our customer advisors think in a very market-oriented way and develop innovative transport solutions also via third-countries. This is the case with the Trading Region Upgrade (TRU) Service, which by the way is unique across Europe. In 2017 we sold a total of 150 billion m³ in natural gas transport capacities and delivered them reliably to the desired trading points.

NATURAL GAS IN THE FAST LANE – SAFE, SECURE AND ROUND THE CLOCK

All the booked capacities are continuously translated into optimised gas flows in the gas grid. This is done by the dispatching centre of Gas Connect Austria, which transports the gas quantities at the push of a button and controls, checks and writes reports on the real gas flows – and does that round the clock. A comprehensive quantity and quality report guarantees exact, by the hour trackability. In fact, transport customers can follow their movements in real time. The complex supply system of Gas Connect Austria comprises around 900 km of transmission and distribution pipelines, five compressor stations and more than 40 metering and off-take stations. Our teams of experts and five Competence Centres along the pipelines are responsible for the reliable checking and ongoing maintenance of the pipelines and stations. Special teams are on duty round the clock in order to take action in case of emergencies and interruptions. Moreover, we have continuous communication with local residents who have confidence in the spirit of open dialogue with us.



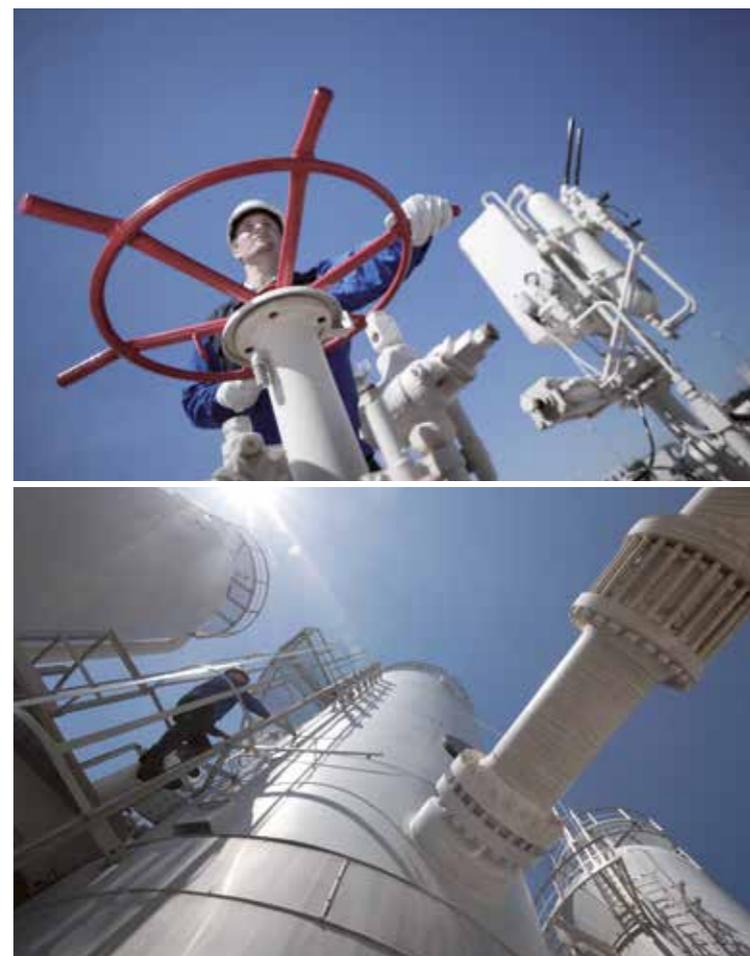
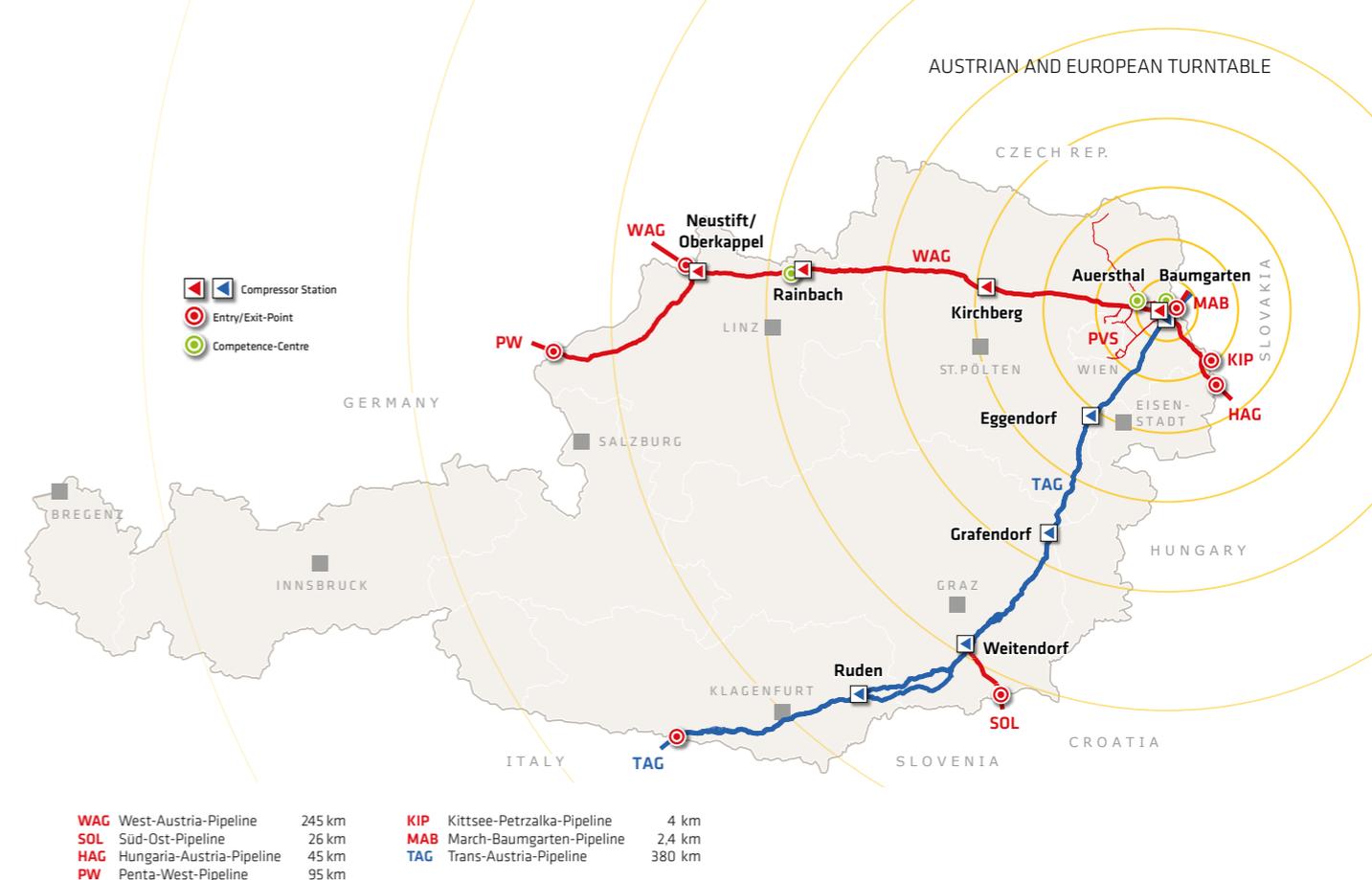
... employees at Gas Connect Austria are responsible for developing and maintaining the grid, operating gas flows and marketing capacities.





THE NATURAL GAS HUB BAUMGARTEN IS AND WILL BE OF GREAT STRATEGIC IMPORTANCE - NOW AND IN THE FUTURE. MOREOVER, PLANNED PIPELINES SUCH AS NORD STREAM 2 OR INFRASTRUCTURE PROJECTS IN GERMANY AND THE CZECH REPUBLIC CONSIDER BAUMGARTEN AN IMPORTANT POINT OF ARRIVAL."

HARALD STINDL, MANAGING DIRECTOR, GAS CONNECT AUSTRIA



GRID DEVELOPMENT FOR TOMORROW: CONNECTING EUROPE'S MARKETS

As a major infrastructure operator in Europe, we work actively with our partners in shaping the future of the grid. In doing so, we think long term and are forward looking and orient ourselves to the needs of the market. Indeed, we know these needs precisely because in our annual market survey all market participants inform us of their additional gas demand for the next ten years. At the same time the market area manager (MAM) works together with the transmission system operators to develop a capacity scenario. Gas Connect Austria then develops the appropriate projects for the network development plan – in cooperation with the neighbouring grid operators.

All the network development plans are compiled in a so-called Coordinated Network Development Plan for Austria and then become part of the European Ten-Year Network Development Plan (TYNDP). This involves numerous coordination activities, which all share a common goal: to maintain security of supply – long term and for all of Europe.

The Baumgarten gas hub

One of Europe's most important natural gas hubs is located in the Lower Austrian town of Baumgarten.

Since 1968, when the first gas from Russia was imported, this natural gas station has developed into the largest entry point and a major distribution hub for natural gas from Russia, Norway and other countries. After receiving it, around 50 employees are responsible for measuring, checking and compressing the imported gas from 50 to 70 bar for further transmission.

Starting from Baumgarten, three international transmission systems and one domestic distribution system run in different directions to consumption centres in Austria and other European countries such as Italy, Slovenia, Croatia, Hungary, Slovakia, Germany and France.

Approximately 45 billion m³ of natural gas flow physically through Baumgarten every

45 billion m³

= 503.6 TWh of gas flow physically every year via the Baumgarten hub.

year. In order to manage the huge amounts of transported gas, Gas Connect Austria operates one of Europe's most modern dispatching centres, which is in constant contact with other transmission system operators.



“
AS FOR THE FUTURE,
YOUR TASK IS
NOT TO FORESEE IT,
BUT TO ENABLE IT.”

ANTOINE DE SAINT-EXUPERY

Gas is here to stay

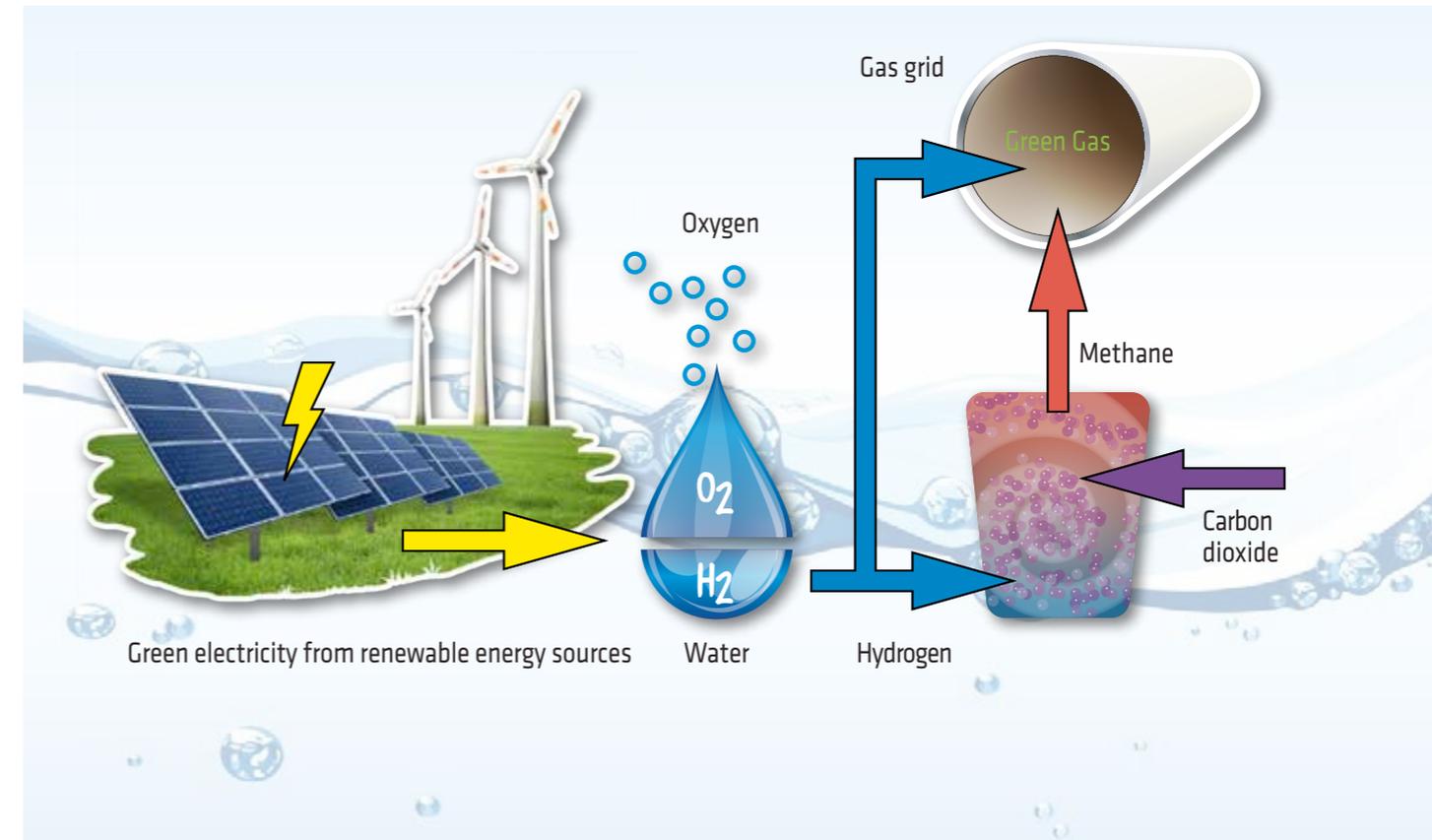
A safe, secure and clean energy for the future is not possible without gas and its highly developed infrastructure. Innovative technologies rely on the high potential partnership of natural gas and renewable energy sources – or make gas itself a renewable energy. The future-looking sector coupling between electricity and gas offers new opportunities for security of supply. Gas as an energy source can make an essential contribution to this because it is flexible, easily storable and available long term: the best prerequisites for a unique key role for gas in the energy industry of the future.

**400
bill.
Euro**

have already been invested in the gas infrastructure, which will also continue to be economically useful in the future.

Gas is fit for the future – right off the bat, in multiple ways: Gas is an important source of primary energy. Its high-performance, modern infrastructure and related new innovative technologies make gas indispensable for an energy industry with a long-term vision. In the energy scenarios of the future, electricity and gas are viewed together in a common strategy – because only with an appropriate sector coupling can the strengths of all the energy sources be used optimally. Thanks to this

approach, large amounts of energy – for example, electricity converted from renewable sources – can be stored and distributed economically via the highly interconnected gas infrastructure. This minimises necessary adaptation costs and uses existing investments in a sensible, cost-effective way. We are talking about 10 billion euros (the value of the gas infrastructure) in Austria, and in Europe as much as 400 billion euros.



GAS GOES GREEN!

Gas is not only the ideal long-term partner for renewable energy sources but it is also becoming a regenerative energy itself. Power to Gas technologies transform surplus electricity from renewable energy sources into hydrogen or methane. With little expense this “green gas” can be fed into the existing gas grid and then stored. With this sector coupling in future, electricity and gas grids will grow closer together, and modern technologies will compensate for the weaknesses of renewable energies and balance the fluctuations in the electricity grid.

Biomethane created from renewable raw materials, food waste and sewer sludge can also be transported via the existing gas infrastructure. Already more than 350 plants in Austria produce biogas, which is ready treated and either fed into the gas grid or used on the spot to produce electricity or heating. Feeding in biogas into the nationwide gas grids prevents drastic price increases and a devaluation of the infrastructure. This is also illustrated by a study by the Johannes Kepler University in Linz.

The idea of Power to Gas is to transform surplus renewable electricity into natural gas. The renewable gas can be stored directly in the gas grid, transported and used in different areas. The most important processes of the Power to Gas technology are electrolysis and methanisation.

Gas is fit for the future

- important primary energy
- uses existing infrastructure for the energy future
- innovative technologies




 In Austria there are around **11,500** CNG vehicles, and the trend is rising.

GAS MOBILITY TAKES OFF

There are many reasons for having natural gas in your tank: compressed natural gas (CNG) for cars is still not getting enough attention as a solution for the future. It is also available immediately. Natural gas burns without soot and particle emissions. The environment benefits from 25% less CO₂ and up to 95% less nitrogen-oxide, while the consumer profits from lower operating costs. Unlike electric-vehicles the gas mobility technology is already highly developed – many car manufacturers are expanding their offers to include attractive CNG hybrid-powered options. Furthermore, the total environmental balance of CNG cars – from production to operation to disposal – can compete with other fuels. If CNG were treated equally in terms of taxes and subsidies, it would also be possible to achieve the ambitious climate targets of decarbonisation more easily and economically.

In Austria around 11,500 natural gas cars are on the road, and the trend is rising. Throughout Austria there are 160 filling stations and several thousand all over Europe. Moreover, LNG (liquefied natural gas)-powered trucks are already commonplace, for example, in China and the US. In Europe they can already be driven along the LNG corridor with the necessary filling stations economically and sustainably.

ALTERNATIVE FUEL

The demand for LNG as an alternative to the conventional fuels is also rising in maritime transport. According to experts the ever-increasing environmental regulations in the sea industry will mean that LNG will offer a viable alternative fuel in the future despite the permanently low oil price.



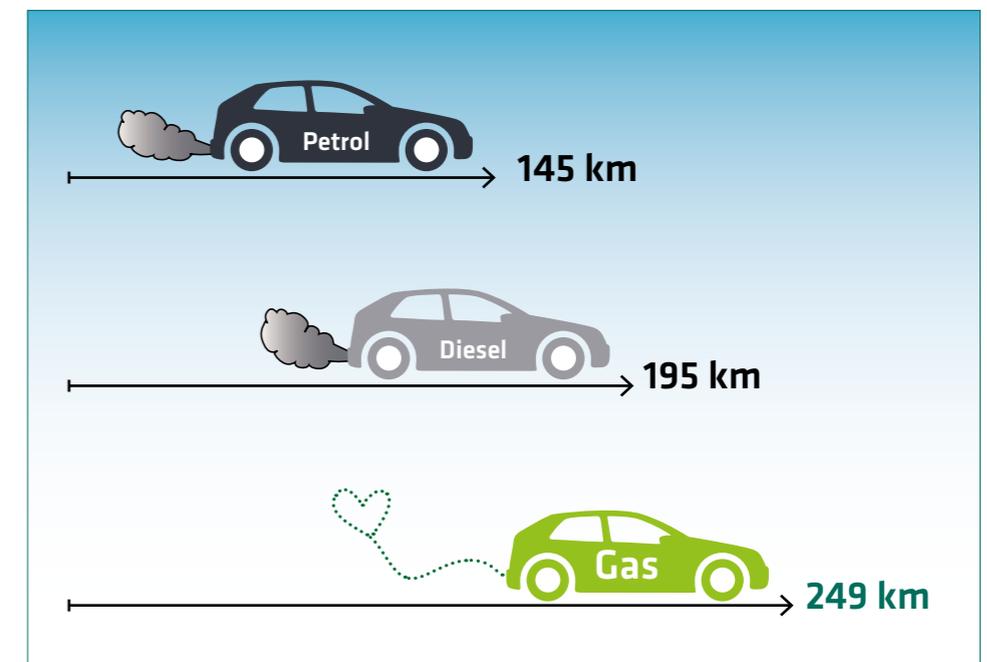
A LOT CAN BE SAID FOR USING NATURAL GAS IN YOUR TANK. CNG FOR CARS IS STILL AN UNDERESTIMATED SOLUTION FOR THE FUTURE AND IS AVAILABLE IMMEDIATELY.”

STEFAN WAGENHOFER,
 MANAGING DIRECTOR, GAS CONNECT AUSTRIA



... CO₂ and up to 95% less nitrogen are emitted to the environment when using CNG technologies as opposed to conventional fuels.

€10 distance comparison

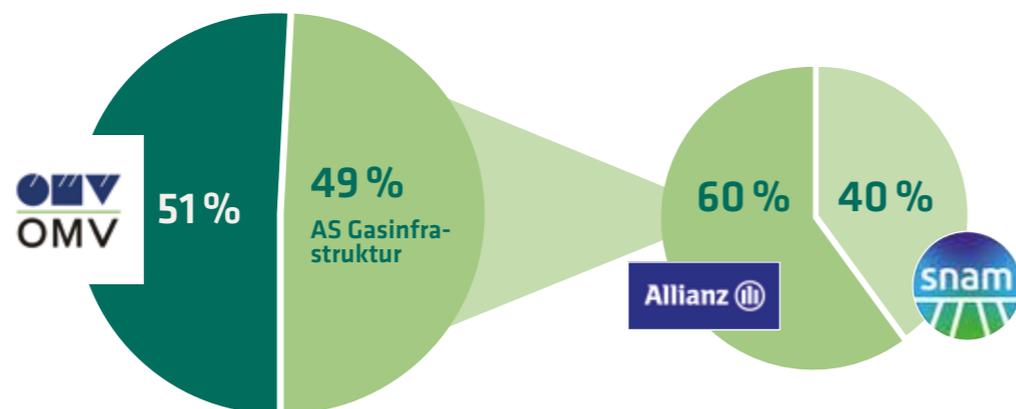


With €10 of natural gas in the tank, gas drivers can travel 30% further than with a comparative diesel model and 70% further than with a comparable petrol-driven vehicle.

Together for a safe and secure energy basis

Gas Connect Austria holds shares in important infrastructure companies. As a co-owner we contribute to shaping essential areas of the energy landscape and through these collaborations create lasting value. Our ownership structure is a stable basis for our success and that of our 280 employees – today and into the future.

Owner structure of Gas Connect Austria
 51% OMV Gas & Power GmbH
 49% AS Gasinfrastruktur GmbH (in a 60%/40% ratio of Allianz Capital Partners and SNAM)



PRISMA | 4%

PRISMA is a European online platform for gas transport capacities with currently (August 2018) 12 serviced participants and 24 owners from 16 countries. www.prisma-capacity.eu



TRANS AUSTRIA GASLEITUNG GMBH | 15.5%

TAG GMBH is the owner and operator of the Trans Austria Gaspipeline (TAG). OMV began construction of the largest transit pipeline in Austria in 1974. www.taggbh.at



AGCS GAS CLEARING AND SETTLEMENT AG | 23.13%

In the new market model, AGCS as the balance group coordinator is responsible for obtaining balancing energy and the central and independent clearing and settlement of balancing energy in the Eastern distribution area. www.agcs.at



AUSTRIAN GAS GRID MANAGEMENT AG | 51%

In the newly created market model, AGGM has the function of market area manager for the Eastern gas market area and the role of the distribution area manager for all of Austria. www.aggm.at



CISMO CLEARING INTEGRATED SERVICES AND MARKET OPERATIONS GMBH | 11.56%

CISMO is a service provider in the energy field that develops and carries out solutions for clearing, auction and risk management. www.cismo.com



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PARTNERSCHAFT LOGISTICS
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KIP
ENERGY EVERYWHERE FAIRNESS
MAINTENANCE
ERFAHRUNG
UMWELT
SUPPORT
ZUKUNFT
SERVICE SUPPORT ENTWICKLUNG STEUERUNG WEITBLICK LOGISTICS
KNOW-HOW SICHERHEIT ENERGY EVERYWHERE UMWELT
FAIRNESS PARTNERSCHAFT TECHNOLOGIE

SICHERHEIT
VERANTWORTUNG
TECHNOLOGY
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SICHERHEIT
LEISTUNG
GAS
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ENERGY EVERYWHERE
STEUERUNG LEISTUNG
ENERGY EVERYWHERE

