FACT SHEET

The advantages of natural gas

An essential component of the energy mix today and in the future

The decision to phase out coal-fired power and nuclear energy in Germany is a done deal. This means that the energy transition towards more renewable energy must be accelerated, especially in electricity and heat generation. At present, it is not foreseeable that renewable energies will be able to close the emerging supply gap. The challenge is to achieve the goals of **climate friendliness, security of supply and affordability** at the same time. In this context, natural gas has the potential to play a key role alongside renewable energy sources in the **realisation of an intelligent energy mix**.

How to accelerate the transition?

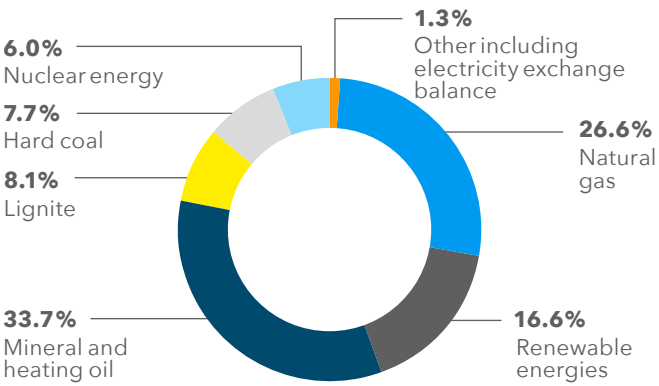
Natural gas is efficient and the conventional fuel with the lowest carbon content. This is reflected by the so-called **upstream chain emissions** that occur during the production, processing, transport, and storage of the fuel. In direct comparison with hard coal, the climate advantage of natural gas is at almost 50 percent. In addition, it is evident comparing the so-called **combustion emissions** as natural gas emits less CO_2 than hard coal and lignite.[1]

Natural gas secures the energy supply

A look at the structure of Germany's primary energy consumption shows how important natural gas is for the energy supply. In 2020, the share of natural gas was more than a quarter (26.6 percent) of the total consumption.[2]

With the expansion of renewable energies, natural gas is becoming a **guarantee for security of supply**. Whether during periods of windless weather, prolonged darkness or the energy-intensive cold season, natural gas can compensate the fluctuations of renewable energies. The basis of supply security is a 500,000-kilometre-long and highly integrated natural gas network.[3]

Structure of primary energy consumption in Germany 2020

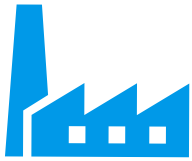


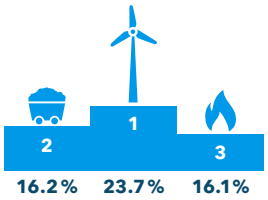
Natural gas is H_2-ready

Many experts agree that the future of the energy industry belongs to hydrogen. In this regard, the most discussed topic is the **economic viability to ensure competitiveness**. However, renewable energies can only cover part of the demand, for instance when wind and solar energy generate surplus electricity. Producing hydrogen in the required quantities from renewable energies does not seem realistic in the near future. Natural gas is already available today as a source material for low-cost and climate-neutral hydrogen. For example, hydrogen can be produced without CO_2 emissions through **methane pyrolysis** („turquoise" hydrogen).[4] In addition to hydrogen, solid carbon is also produced in this process, which can be used for industrial applications, for example.

Natural gas is versatile: an overview

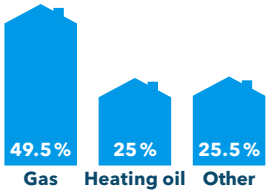
Industry: This sector **has the highest demand for natural gas** in Germany. In 2020, industrial natural gas sales amounted to 338 billion kWh, or 36 percent of total demand (939 billion kWh).[5] In industry, natural gas is used as a **fuel** for combined heat and power plants and gas heat pumps as well as for electricity generation. As an **elementary raw material**, natural gas can also be used in different ways through various processing steps – e.g. for the chemical industry.





Electricity: Natural gas is irreplaceable for the nationwide electricity supply. This is shown by a look at gross electricity generation in Germany. **At 16.1 percent, natural gas ranks third** (after wind power and lignite).[6] The high efficiencies of gas-fired power plants reduce CO_2 emissions in electricity generation by up to 70 percent compared to coal-fired power plants, so that natural gas can form a sensible pillar **in the medium-term mix** in German electricity generation.

Heating: In 2020, natural gas was the most used heating energy in Germany. Around **50 percent of households met their heating needs with natural gas** so with low emissions. Compared to heat generation from oil or coal, natural gas has the **lowest carbon content**. In addition, the modernisation of old heating systems and simultaneous conversion of the energy source to natural gas could enable annual CO_2 savings of 30 million tonnes.[7]



Mobility: In the field of mobility and transport, natural gas is a cost-effective and more sustainable alternative. Gas powered vehicles emit less CO_2 than petrol or diesel vehicles and when biogas is used, even CO_2-neutral locomotion is possible. In addition, liquefied natural gas (LNG) offers an attractive solution with a promising future, especially in heavy goods traffic and shipping.[8]

Conclusion

If the energy transition is to succeed in a socially acceptable way without jeopardising Germany as a business location, there is no way around natural gas in many areas. Natural gas ensures **security of supply**, can be used **across sectors** and accelerates the way towards an environmental friendly future. Against this background, natural gas plays a decisive role in energy supply – today and in the future.

Sources:
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[2] AGEB: Structure of primary energy consumption in Germany 2020 (03/2021): www.ag-energiebilanzen.de/21-0-Infografik.html
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[4] Federal Ministry of Education and Research: A little hydrogen colour theory (06/2020): www.bmbf.de/de/eine-kleine-wasserstoff-farben-lehre-10879.html
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