

## Gas infrastructure companies present a European Hydrogen Backbone plan

17 July 2020

Today, a group of eleven European gas infrastructure companies from nine EU member states presents a plan for a dedicated hydrogen transport infrastructure. New research shows that existing gas infrastructure can be modified to transport hydrogen at an affordable cost.

The plan has been developed by Enagás, Energinet, Fluxys Belgium, Gasunie, GRTgaz, NET4GAS, OGE, ONTRAS, Snam, Swedegas and Teréga, supported by Guidehouse. The companies foresee a network gradually emerging from the mid-2020s onwards to an initial 6,800 km pipeline network by 2030, connecting 'hydrogen valleys'. By 2040, a hydrogen network of 23,000 km is foreseen, 75% of which will consist of converted natural gas pipelines, connected by new pipeline stretches (25%). Ultimately, two parallel gas transport networks will emerge: a dedicated hydrogen and a dedicated (bio)methane network. The hydrogen network can be used for large-scale hydrogen transport over longer distances in an energy efficient way, also taking into consideration hydrogen imports.

Creating this network has an estimated cost of €27 to €64 billion, which is relatively limited in the overall context of the European energy transition. The levelised cost is estimated to be between €0.09-0.17 per kg of hydrogen per 1000 km, allowing hydrogen to be transported cost-efficiently over long distances across Europe. The relatively wide range in the estimate is mainly due to uncertainties in (location dependent) compressor costs.

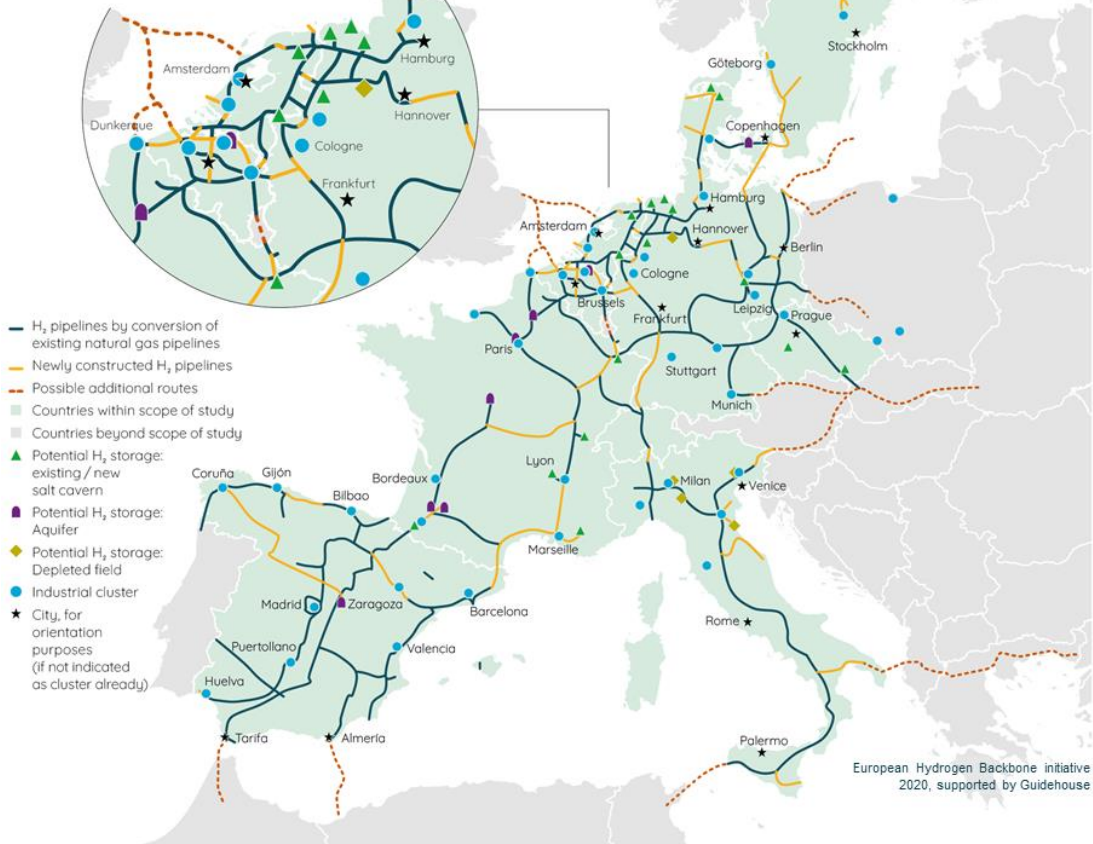
This announcement comes one week after the European Commission published its Hydrogen Strategy which highlights the need to create a dedicated hydrogen pipeline network.

"We are glad to see the European Commission's ambitious strategy to scale up hydrogen, already starting in this decade, and we think our initiative can play an important role in facilitating this. A European Hydrogen Backbone provides the opportunity to make large potential EU hydrogen supplies available to various demand sectors emerging during the energy transition. It is essential for a future EU hydrogen market. We recognise that the hydrogen backbone must become a truly European undertaking with strong links going towards eastern Member States," said Daniel Muthmann (OGE).

The group of gas infrastructure companies is convinced that the hydrogen backbone will eventually cover the entire EU. The group invites other European gas infrastructure companies to join in the thinking to further develop the backbone plan.

FIGURE 1

Mature European Hydrogen Backbone can be created by 2040.



The European Hydrogen Backbone vision paper can be accessed through the websites of all participating companies. For more information, please contact the participating companies:

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### **About Enagás**

Enagás is Spain's leading natural gas transmission company and the Technical Manager of the Gas System. With 50 years of experience, it operates in Spain approximately 12,000 kilometers of gas pipelines, three underground storage facilities and six regasification terminals. The company is certified as an independent Transmission System Operator (TSO) by the European Union. Enagás operates and has infrastructure in eight countries across the world.

In line with its commitment to achieving carbon neutrality by 2050, Enagás promotes and develops projects that contribute to the decarbonisation process and supports the development of initiatives in the field of renewable gases –green hydrogen and biomethane-. In addition, it contributes through its Corporate Entrepreneurship and Open Innovation Programme to provide key solutions for the Energy Transition.

### **About Energinet**

Energinet was founded in 2004 as an independent public enterprise owned by the Danish Ministry of Climate, Energy and Utilities. Energinet owns, operate and develop the transmission systems for both electricity and natural gas in Denmark. Through Gas Storage Denmark A/S, a fully owned subsidiary of Energinet, the company also owns and operates Denmark's two gas storage facilities. Energinet's aim is to enable a cost-effective transition of the energy system to 100 % renewable energy while maintaining the high level of security of supply. For more information, go to [www.energinet.dk](http://www.energinet.dk).

### **About Fluxys Belgium**

Fluxys Belgium is the independent operator of both the natural gas transmission grid and gas storage infrastructure in Belgium. Through its wholly owned subsidiary Fluxys LNG, the company also operates the Zeebrugge liquefied natural gas (LNG) terminal. Fluxys Belgium is a subsidiary of Fluxys, the gas infrastructure group based in Belgium and active across Europe.

We are committed to continue building a greener energy future for the generations to come. People, industry and societies all need energy to thrive and progress. Fluxys Belgium accommodates this need: we put energy in motion through our infrastructure. We move natural gas while paving the way to transport in our infrastructure hydrogen, biomethane or any other carbon-neutral energy carrier of the future.

### **About Gasunie**

Gasunie is a European energy infrastructure company. The company provides the transport of natural gas and green gas via its subsidiaries Gasunie Transport Services B.V. (GTS) in the Netherlands and Gasunie Deutschland in Germany. The company also offers other services in the energy infrastructure field, including hydrogen, heat, CCS, gas storage and LNG. Gasunie commits itself to accelerating the energy transition and to the realization of a climate neutral energy supply. For more information, go to [www.gasunie.nl](http://www.gasunie.nl).

### **About GRTgaz**

GRTgaz is a world expert in gas transmission networks and systems and a leading European gas transmission system operator. In France, GRTgaz owns and operates more than 35,000 km of buried pipes and 26 compression stations used to ship gas between suppliers and consumers. GRTgaz is committed to ensuring security of supply to consumers, connecting territories and communities with great care for the environment. GRTgaz delivers innovative and accessible solutions to accelerate and secure a successful energy transition by connecting the energies of tomorrow, driving the growth of renewables and new uses for gas while fostering synergy between electricity and gas systems. For more information, go to [www.grtgaz.com](http://www.grtgaz.com)

### **About NET4GAS**

NET4GAS, s.r.o. is the gas transmission system operator in the Czech Republic, securing the international transit of natural gas, domestic transmission and associated commercial and technical services. NET4GAS transports around 45 billion m<sup>3</sup> of natural gas per year and operates more than 3,800 km of pipelines, three border transfer stations, five compressor stations, and a hundred transfer stations at the interface with domestic gas distribution. The company is a member of the Czech Gas Association, the international organisations ENTSO, GIE, EASEE-gas, and the IGU and Marcogaz working groups.

### **About OGE**

With a gas transmission system spanning 12,000 kilometres, OGE, seated in Essen, is among Europe's leading transmission system operators. Two thirds of natural gas consumed in Germany flows through our pipeline system, comprising about 100 compressor units and about 1100 exit points. All over the country, our approximately 1,450 staff ensure safe, environmentally friendly and customer-oriented gas transmission. We also offer the technical and commercial services to go with it, and we provide commercial, technical and IT services for other companies on the basis of third-party arrangements. Moreover, we actively support the European gas market and work together with the European distribution network operators to create the prerequisites for transnational gas transportation and trading. For more information, go to <https://oge.net/en>.

### **About ONTRAS**

ONTRAS Gastransport GmbH is a German gas transmission system operator in the European gas transport system based in Leipzig. ONTRAS operates Germany's second-largest gas transmission system, with approximately 7,500 km of pipelines and about 450 interconnection points. The green side of ONTRAS has been at the heart of our company culture for many years. Our goal is to reach a 100% carbon-neutral gas supply by 2050. Two power-to-gas facilities are currently connected to the ONTRAS network converting electricity generated by wind turbines into hydrogen which is then injected into our grid. We work together with a variety of partners to examine the possible application of hydrogen and explore the massive potential of our own infrastructure for the transport of renewable energy. For more information, go to [www.ontras.com](http://www.ontras.com).

### **About Snam**

Snam is one of the world's leading energy infrastructure operators and one of the largest Italian listed companies in terms of market capitalization. Through its international subsidiaries, it operates in Albania, Austria, China, France, Greece, the UAE and UK. The company has the largest natural gas transmission network and storage capacity among European peers and is also one of the main operators in regasification.

As part of a €6.5 billion plan to 2023, Snam invests €1.4 bn in the SnamTec project, focused on innovation and new energy transition businesses, from sustainable mobility to biomethane and energy efficiency. Snam also aims to enable and promote the development of hydrogen to foster decarbonisation in the energy sector and industries. In 2019, it has been one of the first companies worldwide to experiment with hydrogen blending (up to 10%) in a gas transmission network.

Snam's business model is based on sustainable growth, transparency, the promotion of talent and diversity and the social development of regions through the initiatives of Fondazione Snam.

For more information, go to [www.snam.it](http://www.snam.it)

### **About Swedegas**

Swedegas owns and operates the gas grid in Sweden, which extends from Dragör in Denmark to Stenungsund in Sweden. Swedegas transports energy to distributors and customers with direct links. The gas grid supplies natural gas to 33 municipal areas and several combined heat and power plants. Natural gas is also used in 34,000 households and in the transport sector. Swedegas is the hub of the gas market. We assume full responsibility for the long-term development of the gas grid and for ensuring the market has safe, effective and assured access to gas. For more information, go to [www.swedegas.com](http://www.swedegas.com).

**About Teréga**

Established in South-West France, at the crossroads between major European gas flows, Teréga has shared exceptional know-how for over 75 years in the development of gas transport and storage infrastructure. Today, it continues to develop innovative solutions to overcome the major energy challenges facing France and Europe, while already injecting biomethane into its networks and planning for hydrogen and solutions as multi-energies smart energy grids.

A true accelerator of the energy transition, Teréga operates over 5,000 km of pipelines and 2 underground storage reservoirs representing 15,8% of the French gas transport network and 25,7% of national storage capacities. In 2019, the company generated revenues of €500 million and had more than 650 employees.