

## Air Liquide inaugurates new hydrogen refuelling station in Frechen

Today, Air Liquide inaugurated a new hydrogen (H<sub>2</sub>) refuelling station on the premises of an existing Mundorf Tank service station in Frechen near Cologne, Germany, and therewith achieved another important milestone in the establishment of a nationwide hydrogen infrastructure. This H<sub>2</sub> station, which was built as part of the SWARM project (\*), has been partly financed by the European Fuel Cells and Hydrogen Joint Undertaking fund, a public-private partnership aiming to support the development of applications involving hydrogen energy.

As a member of the Clean Energy Partnership (CEP)\* and founding shareholder of the H<sub>2</sub> MOBILITY Deutschland\*\* joint venture, Air Liquide is one of the key players for the build-up of a comprehensive hydrogen infrastructure in Germany.

After Düsseldorf-Höherweg, Offenbach am Main, Kamen, Limburg an der Lahn, Mülheim an der Ruhr, Bad Rappenau, Wolfsburg, Coblenz, and Hirschberg, Frechen is the **tenth hydrogen station invested by Air Liquide in Germany since 2012**. In addition, six other stations throughout the country are equipped with Air Liquide hydrogen technology. Worldwide, some 100 H<sub>2</sub> stations have already been designed and built by the Group.

The hydrogen station in Frechen, located directly at the Cologne-West motorway junction, is state-of-the-art, with intuitive handling and a refuelling process similar to that of conventional vehicles: Drivers of fuel-cell electric vehicles can refuel in just **three to five minutes**, and the average range of the refuelled vehicles **exceeds 500 km**.

Hydrogen-based electric mobility **causes neither pollutants nor CO<sub>2</sub> emissions locally**. In contrast to battery-powered cars, H<sub>2</sub> vehicles generate their own on-board power by reacting hydrogen with air in the fuel cell, thereby generating the electricity that drives the car.

The expansion of the hydrogen infrastructure in Germany is progressing well. The network now already comprises 51 refuelling stations, eight thereof are located in the Federal State of North Rhine-Westphalia. The H<sub>2</sub> MOBILITY joint venture which will also take over the operation of the station in Frechen will expand the existing network of H<sub>2</sub> stations in Germany to **up to 400**. 100 stations will be built by 2019.

### **Markus Schewitza, Managing Director, Air Liquide Advanced Technologies GmbH:**

"We need to face the challenges of energy transition now. And hydrogen is today one of our best solutions to achieve the objectives of the Paris Agreement. Hydrogen has notably the potential to efficiently decarbonize the transport sector which is one of the major source of pollution in our cities, but it requires a dedicated infrastructure to achieve this goal. Air Liquide is proud to contribute, together with the key private and public players, to the building of the biggest hydrogen infrastructure in Europe, and thus enable the deployment of FCEVs on the territory."

### **Enrique Girón, SWARM Project Manager, European Fuel Cells and Hydrogen Joint Undertaking:**

"I am very happy to witness the outcome of the long efforts of the SWARM consortium and would like to congratulate them in this great success in opening this HRS. Projects such as SWARM demonstrate the potential of hydrogen-fuelled road transport as a pan-European solution to the need for viable and competitive alternatives to fossil fuels. With every hydrogen refuelling station opened, we are expanding the European infrastructure and tackling the remaining pre-commercial barriers to the implementation of this clean transport technology."

**Stefan Leuchten, Ministry for Economic Affairs, Innovation, Digitalisation and Energy of the State of North Rhine-Westphalia:**

"Particularly in the transport sector, considerable efforts are still needed to achieve the objectives of the Paris Agreement. We consider hydrogen-powered fuel cell vehicles as an important building block for future climate-friendly mobility. A decisive factor for the market ramp-up of this technology will be the development of a nationwide refuelling infrastructure. We therefore welcome the opening of the hydrogen refuelling station here in Frechen."

**Susanne Stupp, Mayor of the City of Frechen:**

"We all know the climate and environmental challenges of our time. Pollutant load is increasing, even in Frechen. Climate change is perceptible, and we have recently been experiencing an accumulation of weather extremes. A long time ago already, we in Frechen started addressing the climate change issue. For example, we regularly take part in the European Mobility Week and, over the past few months, we have implemented all kinds of measures that are good for our climate and people's health: For instance, we have put into operation charging stations for electric cars and pedelecs. Also here in Frechen, e-bikes experienced a veritable boom in recent years. The opening of the hydrogen station perfectly fits into a whole package of measures to protect our climate."

**Fabio Mundorf, Managing Director, Mundorf Mineralölhandels GmbH und Co. KG:**

"I am delighted to be here today for the inauguration and I congratulate Air Liquide on the opening of the hydrogen refuelling station at our site here in Frechen. We are honoured to be involved in the roll-out of this new refuelling technology. We are happy about the cooperation and look forward to the next projects."

(\*) SWARM: Small 4-Wheel fuel cell passenger vehicle Applications in Regional and Municipal transport. These activities have received funding from the European Union's Seventh Framework Programme (FP7-2007-2013) through the Fuel Cells and Hydrogen Joint Undertaking under grant agreement number 303485.

**\*Air Liquide, member of the Clean Energy Partnership**

Air Liquide has been a member of the Clean Energy Partnership (CEP) since 2011. With its "50 Refuelling Stations" programme, funded by the German Federal Ministry of Transport and Digital Infrastructure (BMVI) within the framework of the National Innovation Programme Hydrogen and Fuel Cell Technology (NIP), CEP initiated the construction and operation of a nationwide H2 refuelling infrastructure for passenger cars. Air Liquide contributed ten stations.

Today, the CEP partners (Air Liquide, Audi, BMW, Daimler, H2 MOBILITY, Honda, Hyundai, Linde, OMV, Shell, Total, Toyota, and Westfalen) are working on the market establishment and systems compatibility of hydrogen and fuel cell mobility, in the interests of a sustainable energy shift. The industry partnership is opening itself to new modes of transport, accelerating interconnection between sectors, and developing business models for H2 production using renewable energy.

**\*\*Air Liquide, shareholder of H2 MOBILITY Deutschland**

In 2015, Air Liquide joined forces together with its partners Daimler, Linde, OMV, Shell and Total and founded the joint venture H2 MOBILITY Deutschland GmbH & Co. KG. Its mission: establishing a nationwide hydrogen infrastructure to supply cars with fuel-cell drives in Germany. Or in other words: building a mobile future of rapid refuelling, long ranges, clean and quiet mobility. In order to dovetail progress as closely as possible with the automotive industry, BMW, Honda, Hyundai, Toyota, and Volkswagen are on board as associated partners.

H2 MOBILITY will expand the existing network of hydrogen stations in Germany to up to 400. First interim goal is to operate 100 H2 stations in metropolitan areas and along the connecting arterial roads and motorways by 2019. This will be followed by another 300 as the vehicle numbers are ramped up.

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The world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with approximately 65,000 employees and serves more than 3.5 million customers and patients. Oxygen, nitrogen and hydrogen are essential small molecules for life, matter and energy. They embody Air Liquide's scientific territory and have been at the core of the company's activities since its creation in 1902.

Air Liquide's ambition is to lead its industry, deliver long term performance and contribute to sustainability. The company's customer-centric transformation strategy aims at profitable growth over the long term. It relies on operational excellence, selective investments, open innovation and a network organization implemented by the Group worldwide. Through the commitment and inventiveness of its people, Air Liquide leverages energy and environment transition, changes in healthcare and digitization, and delivers greater value to all its stakeholders.

Air Liquide's revenue amounted to 20.3 billion euros in 2017 and its solutions that protect life and the environment represented more than 40% of sales. Air Liquide is listed on the Euronext Paris stock exchange (compartment A) and belongs to the CAC 40, EURO STOXX 50 and FTSE4Good indexes.