

## Air Liquide, Khalifa University and Al-Futtaim Toyota release a study on Hydrogen Mobility in the UAE

Air Liquide, Khalifa University of Science and Technology and Al-Futtaim Toyota released a joint study, during Abu Dhabi Sustainability Week, on the “Medium to Long Term development of Hydrogen Mobility in the UAE”. This collaborative study outlines the contribution of hydrogen to the energy transition and demonstrates the favourable prospects for hydrogen mobility in the UAE.

The study demonstrates that **hydrogen mobility** in the UAE has a **substantial potential** to develop into a major economy for the country, and can contribute to the achievement of its clean energy goals, in line with the UAE’s Vision 2021.

The study reiterates the UAE’s commitment to diversifying the energy sources, and calls for the pivotal collaboration of the various public and private players for a successful deployment of hydrogen mobility. It also demonstrates the requirement for an initial **focus on fleet vehicles**, such as buses, trucks and taxis, which would generate enough hydrogen need for an optimized **production scale**. The use of local sources of hydrogen in addition to **excess hydrogen** produced in various industries, such as refining, can also contribute to very competitive costs of hydrogen for commercialization.

Air Liquide is **leading the hydrogen supply for the Hydrogen Mobility market in the UAE**, with ongoing projects to develop the hydrogen infrastructure, connecting hydrogen production sources and utilization routes.

Hydrogen is an alternative to fossil fuels in addressing the **clean transportation** challenge while improving air quality. Used within a fuel cell, hydrogen combines with oxygen from the air, to produce electricity, with water as the only byproduct. The **fuel cell** on board of the vehicle is used to convert hydrogen into energy to run an electric motor in vehicles known as **Fuel Cell Electric Vehicles (FCEV)**. FCEVs are considered alternative to Battery Electric Vehicles (BEV), especially in large fleets of vehicles, in heavy duty vehicles and in providing greater autonomy in extreme climates, where BEVs are less efficient. A FCEV can be refueled as quickly as petrol engine vehicle, hence allowing for optimum flexibility of use.

Hydrogen as a transportation fuel has gained momentum globally for its **emission-free property and its ease of use**. The deployment of hydrogen powered vehicles is already in progress and expanding in the United States, Europe, Japan and Korea, and is now being introduced in the UAE.

Air Liquide and Al-Futtaim Toyota inaugurated the Middle East’s first hydrogen station in Dubai, in October 2017, to support the deployment of the FCEVs in the UAE. Once deployed on a larger scale, the Fuel Cell Electric technology has the potential to significantly **reduce the UAE’s dependence on oil and lower car-generated pollution levels**.

### **Air Liquide in the United Arab Emirates**

Air Liquide in United Arab Emirates Air Liquide Emirates for Industrial Gases (ALEMIR) started to operate in 2008, and today serves a wide variety of customers throughout the Gulf region in numerous industries, including food & beverage, pharmaceuticals, shipyards, construction, glass, steel, and laboratories, with production facilities in Abu Dhabi, Dubai and Sharjah.

### **Air Liquide’s commitment to hydrogen energy**

In the past 50 years, Air Liquide has developed unique expertise enabling it to master the entire hydrogen supply chain, from production and storage to distribution and the development of applications for end users, thus contributing to the widespread use of hydrogen as a clean energy source, for mobility in particular. Air Liquide has designed and installed more than 120 stations around the world to date

Air Liquide is a founding member of the Hydrogen Council, a global initiative aimed at positioning hydrogen among the key solutions for the energy transition.

### **Khalifa University of Science and Technology**

Khalifa University of Science and Technology is a research university dedicated to the advancement of learning through teaching and research and to the discovery and application of knowledge. Khalifa University merges Masdar Institute of Science and Technology, Khalifa University of Science, Technology and Research and the Petroleum Institute into one world-class, research-intensive institution, producing world leaders and critical thinkers in applied science and engineering. The University endeavors to be a catalyst to the growth of Abu Dhabi and the UAE's rapidly developing knowledge economy as an education destination of choice and a global leader among research intensive universities. As a leading research-based institution in the region focused on providing cutting edge technologies in clean energy and sustainability, Khalifa University, through Masdar Institute, remains committed to providing solutions for carbon mitigation and climate change especially through innovations in CO2 capture, biofuel, waste-to-energy, energy storage, desalination and solar power.

### **About Al-Futtaim Toyota**

Toyota, a Japanese automotive manufacturer founded in 1937, is the world's market leader in sales of hybrid electric vehicles. Toyota is exclusively distributed in the UAE by the Al-Futtaim Automotive Division, part of Al-Futtaim Group, for over 6 decades, and has been leading the sustainable mobility movement since 2008. In addition to the large line-up of vehicles ranging from SUV, compact, sedan, coupe, MPV and LCV options, Al-Futtaim Toyota introduced Camry Electric Hybrid Vehicle (HEV) in 2008 to taxi operator fleets, in an effort to actively contribute to a lower carbon footprint in the UAE. In 2016, Prius, the world's most popular HEV for over 20 years was launched in the country, in order to actively support UAE Vision 2021's environmental targets. 2017 saw the introduction of the zero-emission hydrogen-powered Fuel Cell Electric Vehicle (FCEV) Toyota Mirai, in a pilot aiming at studying the possibilities of establishing a hydrogen-based, carbon-free society. As part of the program, the Mirai is being showcased to a number of key government stakeholders and is taking part in a number of events to give the public an understanding of what the future of zero-emissions motoring could look like. For more information and to book a test drive of the latest Toyota models please visit [www.toyota.ae](http://www.toyota.ae); Social Media Handles: ToyotaUAE.

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A 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 be a leader in 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.