

## Air Liquide Global E&C Solutions announces gas-to-gasoline technology offer: G2G™

Air Liquide Global E&C Solutions, the Engineering and Construction activity of Air Liquide Group, announces it has entered into a global technology licensing agreement with ExxonMobil Research and Engineering. Under the terms of the agreement, Air Liquide will market and license its proven Lurgi MegaMethanol™ technology combined with ExxonMobil's proprietary methanol-to-gasoline (MTG) technology to transform natural gas into ultra-low sulfur gasoline. The combination of technologies will be marketed under the trademark G2G™.

The G2G™ technology transforms natural gas, as well as other feedstocks, into motor gasoline containing virtually no sulfur and low in benzene content. The integration of both Air Liquide Global E&C Solutions and ExxonMobil technologies into one combined solution will minimize project interfaces, off sites and logistics complexities, as well as overall investment for synthetic fuel production. The G2G™ technology offer will be licensed as **an integrated solution and will be deployed globally through Air Liquide Global E&C Solutions' network.**

As a leading technology licensor for world-scale methanol units, Air Liquide Global E&C Solutions has signed nearly 20 licenses for its Lurgi MegaMethanol™ technology since the year 2000, with acceleration over the last 18 months, notably in the United States where natural gas prices are advantageous.

ExxonMobil has the proven technology to produce quality gasoline from methanol as a feedstock. The MTG technology selectively converts methanol to ultra-low sulfur gasoline. ExxonMobil's first plant using the methanol-to-gasoline technology operated in New Zealand from 1985 until 1995. A second facility using Exxon's technology has been in operation in China since 2009, and a third facility is currently under construction, also in China.

**Cristiano Tortelli**, Vice President and Chairman, Air Liquide Global E&C Solutions, stated: ***"Methanol has become a promising energy carrier enabling the market to fully utilize the potential of lower-cost energy sources into low-sulfur transportation fuels. This technology licensing agreement will further enhance Air Liquide Global E&C Solutions' technology portfolio, in line with Air Liquide Group's mission to create value over the long term by delivering high-quality solutions to customers."***

### **Air Liquide Global E&C Solutions**

Air Liquide Global E&C Solutions, the Engineering and Construction activity of Air Liquide, builds the Group's production units – mainly air separation units (ASUs) and hydrogen / carbon monoxide production units – and provides plants for external clients.

### **About Lurgi MegaMethanol™**

Air Liquide Global E&C Solutions' Lurgi MegaMethanol™ technology combines steam reforming and oxygen-fed autothermal reforming with a steam-raising multitubular methanol synthesis reactor, which possesses excellent heat-removal properties for optimum conversion levels as well as a gas-cooled methanol reactor (GCR), being a standard arrangement in all world-scale plants based on Air Liquide Global E&C Solutions' technology. The natural gas feedstock (or any feedstock combination) is converted to synthesis gas (syngas), which is then converted to methanol.

### **About the methanol-to-gasoline process**

ExxonMobil's methanol-to-gasoline (MTG) process is a catalytic process for converting methanol to higher hydrocarbon. MTG uses a fixed bed reactor that is simple to operate and can be scaled to the desired size. The process uses a proprietary zeolite catalyst.

## CONTACTS

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World leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with more than 50,000 employees and serves more than 2 million customers and patients. Oxygen, nitrogen and hydrogen have been at the core of the company's activities since its creation in 1902. Air Liquide's ambition is to be the leader in its industry, delivering long-term performance and acting responsibly.

Air Liquide ideas create value over the long term. At the core of the company's development are the commitment and constant inventiveness of its people.

Air Liquide anticipates the challenges of its markets, invests locally and globally, and delivers high-quality solutions to its customers and patients, and the scientific community.

The company relies on competitiveness in its operations, targeted investments in growing markets and innovation to deliver profitable growth over the long-term.

Air Liquide's revenues amounted to € 15.4 billion in 2014, and its solutions that protect life and the environment represented more than 40% of sales. Air Liquide is listed on the Paris Euronext stock exchange (compartment A) and is a member of the CAC 40 and Dow Jones Euro Stoxx 50 indexes.