



Joint Press Release
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Uniper, Hydrogenious of Germany and JERA Americas to Partner with ADNOC to Explore Hydrogen Opportunities

- **Companies to jointly study hydrogen transportation between the United Arab Emirates (UAE) and Germany using Hydrogenious' proprietary LOHC technology**
- **Germany emerging as a key growth market for UAE hydrogen exports and a leader in decarbonization in Europe**
- **Agreement announced during the visit to the UAE of Robert Habeck, German Federal Minister for Economic Affairs and Climate Action to the UAE, between ADNOC and the three partners, Uniper, Hydrogenious LOHC from Germany and JERA Americas**

Uniper, Hydrogenious LOHC of Germany and JERA Americas together with the Abu Dhabi National Oil Company (ADNOC) announced today a joint study agreement (JSA) to explore hydrogen transportation between the UAE and Germany using Hydrogenious' Liquid Organic Hydrogen Carrier (LOHC) technology. Under the agreement, which was announced during the visit to the UAE of Robert Habeck, German Federal Minister for Economic Affairs and Climate Action, the parties will explore the opportunity to scale up existing LOHC technology to help meet growing global demand for the transportation of hydrogen.

Hydrogen is recognized as an important clean energy source, with the potential to provide a significant portion of the world's growing energy needs. However, it is a very light element, which makes it difficult to transport over large distances. Hydrogenious' LOHC technology provides a safe, low cost means of bulk hydrogen storage and transportation, bonding hydrogen molecules to a non-flammable liquid, making it suitable and safer for transportation and distribution.

Niek den Hollander, Chief Commercial Officer at Uniper comments: "Uniper is already actively involved in large scale hydrogen projects in the Middle East with a view to exporting hydrogen to Europe and Asian markets. Our team of experts is constantly evaluating technologies that will support the large scale, commercial transport of hydrogen through carrier products to our markets. Working with our partners ADNOC, Hydrogenious and JERA we hope to find the best possible solution to support these ambitions."

Hydrogenious' CEO and founder Dr. Daniel Teichmann comments: "Europe targets the import of carbon free energy in the form of green hydrogen. LOHC can be an enabler to realize the demand at scale in a safe and cost-efficient manner. We could not imagine a better project consortium that can cover the entire value chain from source to consumption. The synergy of ADNOC's energy sources, Uniper's offtaking and JERA Americas' energy trading experience will create a seamless value chain in order to bring clean energy into the European market."

Steven C. Winn, Chief Executive Officer of JERA Americas, said: "This partnership will allow hydrogen produced in the UAE to be transported to Germany using the Hydrogenious technology and help decarbonize Europe. We see promise in exploring the potential of replicating the decarbonization enabled by the LOHC value chain between the UAE and Asia and also the United States and Asia."

Hydrogenious' LOHC technology is based on the proprietary carrier material benzyl toluene (BT) When stored within the BT, no hydrogen losses occur, allowing long storage durations and storage of large volumes. It offers easy handling characteristics under ambient pressure and temperatures, even in cold conditions, allowing for its handling within the existing fuel logistics infrastructure. Its energy density is highly favorable as a transportation vessel can store approximately five times more energy compared to compressed hydrogen. BT is widely used in industry and thus commercially available in large quantities. Moreover, it can be loaded and unloaded with hydrogen many hundreds of times and is recyclable. For



large-scale harbour-to harbour supply chains, LOHC has potential as an alternative to ammonia or liquid hydrogen.

The UAE's competitive hydrogen production is enabled by its abundant and low-cost access to both renewable energy and hydrocarbons and its existing large-scale hydrogen production infrastructure. ADNOC plans to leverage its hydrogen production, infrastructure and partnership base to lead Abu Dhabi and the UAE's hydrogen activities, with the aim to become one of the world's leading producers of hydrogen and its carrier fuels.

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About Hydrogenious LOHC

Hydrogenious LOHC adds the missing link to high-performing hydrogen value chains globally. Based on its proprietary and proven Liquid Organic Hydrogen Carrier (LOHC) technology with benzyl toluene as carrier medium, Hydrogenious LOHC allows for superior, flexible hydrogen supply to consumers in industry and mobility across the globe, utilizing conventional liquid-fuel infrastructure. Founded in 2013, the portfolio of the market-leading pioneer and its joint venture companies today includes stationary and mobile (on-board) LOHC-based applications: Hydrogenious LOHC Technologies, headquartered in Erlangen/Germany, offers – within an EPC partnership with Bilfinger – (de-)hydrogenation turnkey plants, Operation & Maintenance and LOHC logistics services – ensuring safe, easy and efficient hydrogen storage, transport and distribution. Hydrogenious LOHC Emirates, based in the United Arab Emirates and a joint venture with Emirates Specialized Contracting & Oilfield Services (ESCO), acts as the regional spearhead in the Middle East since the end of 2021. Hydrogenious LOHC Maritime, established in 2021 jointly with Østensjø Group and located in Norway, develops an emission-free onboard propulsion system with a promising LOHC/fuel cell solution for the global shipping industry. With its >130 staff members and investors AP Ventures, Royal Vopak, Winkelmann Group, Mitsubishi Corporation, Covestro, JERA Americas, Temasek, Hyundai Motor Company, Chevron Technology Ventures and Pavilion Capital, Hydrogenious LOHC is a major enabler and accelerator for the energy transition.

www.hydrogenious.net | www.hydrogenious-emirates.ae | www.hydrogenious-maritime.net

About JERA Americas



A subsidiary of Tokyo-based JERA Co. that produces about 30% of all electricity in Japan, JERA Americas is supporting an energy transition in an environmentally and socially responsible manner. JERA, which stands for Japan's Energy for a New Era, has been working to eliminate CO2 emissions from its domestic and overseas businesses by 2050 and is contributing to the development of a sustainable society. For more information (US): PR@jeraamericas.com | www.jera.co.jp/english/

About ADNOC

ADNOC is a leading diversified energy and petrochemicals group wholly owned by the Emirate of Abu Dhabi. ADNOC's objective is to maximize the value of the Emirate's vast hydrocarbon reserves through responsible and sustainable exploration and production to support the United Arab Emirates' economic growth and diversification.

To find out more, visit: www.adnoc.ae

About Uniper

Uniper is a leading international energy company, has around 11,500 employees, and operates in more than 40 countries. The company plans for its power generation business in Europe to be carbon-neutral by 2035. Uniper's roughly 33 GW of installed generation capacity make it one of the world's largest electricity producers. The company's core activities include power generation in Europe and Russia as well as global energy trading and a broad gas portfolio, which makes Uniper one of Europe's leading gas companies. In addition, Uniper is a reliable partner for communities, municipal utilities, and industrial enterprises for planning and implementing innovative, lower-carbon solutions on their decarbonization journey. Uniper is a hydrogen pioneer, is active worldwide along the entire hydrogen value chain, and is conducting projects to make hydrogen a mainstay of the energy supply.

The company is based in Düsseldorf and is currently Germany's third-largest publicly listed energy supply company. Together with its main shareholder Fortum, Uniper is also Europe's third-largest producer of zero-carbon energy.

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