

- World's first international transport of hydrogen-  
Foreign-produced hydrogen has arrived in Japan for the first time from Brunei Darussalam

December 18, 2019

Advanced Hydrogen Energy Chain Association for Technology Development (AHEAD\*1)

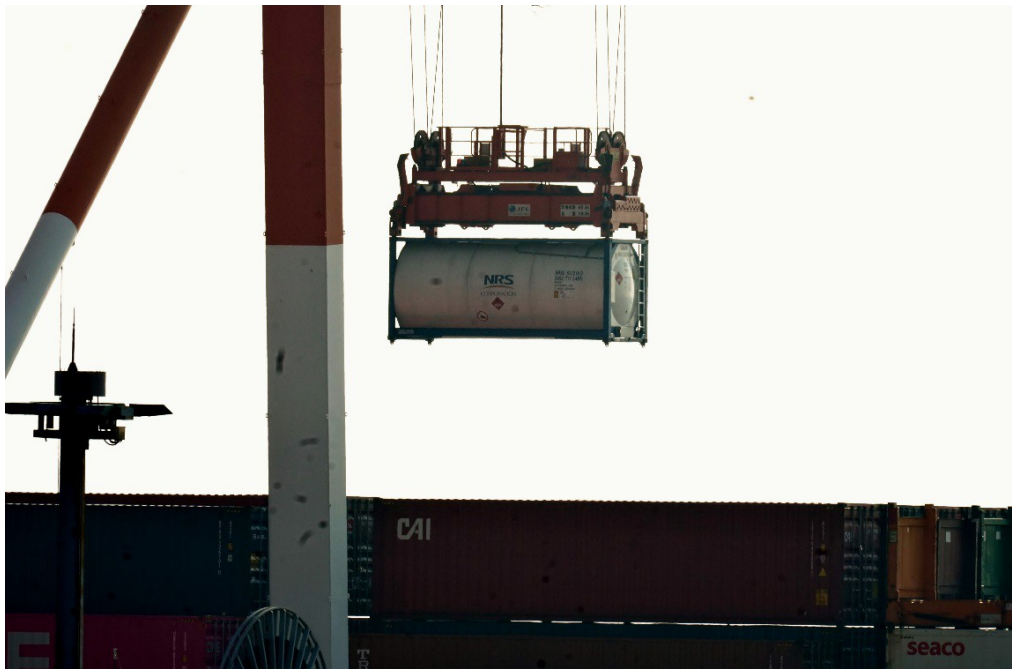
AHEAD, with funding from the New Energy and Industrial Technology Development Organization (NEDO), is continuing with a demonstration project for an unused energy-derived hydrogen supply chain utilizing the organic chemical hydride method<sup>2</sup>. Hydrogen (methylcyclohexane (MCH)) produced through this project at a hydrogenation plant constructed in Brunei Darussalam arrived in Japan on December 18 for the first time.

Going forward, hydrogen will be extracted from the MCH at a dehydrogenation plant constructed in Kawasaki that is currently undergoing preparations for commissioning. This hydrogen will in turn be supplied as fuel to the adjacent power plant. During this demonstration project, after the hydrogen is extracted, the toluene will be transported back to Brunei Darussalam for repeated use as a hydrogen transportation medium.

This hydrogen supply chain demonstration project was started in 2015. AHEAD member companies Chiyoda Corporation, Mitsubishi Corporation, Mitsui & Co., Ltd., and Nippon Yusen Kabushiki Kaisha are working together in preparation of full-scale operations that are set to begin at the end of January 2020. AHEAD will continue its work on this demonstration project with the support of all concerned parties as it makes progress toward commercialization of the hydrogen supply chain.

[An ISO tank container filled with MCH being unloaded from a container ship]





[An ISO tank container used to transport toluene and MCH]



### **(\*1) Overview of AHEAD**

Company name: Advanced Hydrogen Energy Chain Association for Technology Development

Location: 4-6-2 Minatomirai, Nishi-ku, Yokohama

President: Hideki Endo (Director/Assistant Operations Director, Global Environment & Green Energy Project Operations Division, Chiyoda Corporation)

Members: Chiyoda Corporation, Mitsubishi Corporation, Mitsui & Co., Ltd., Nippon Yusen Kabushiki Kaisha

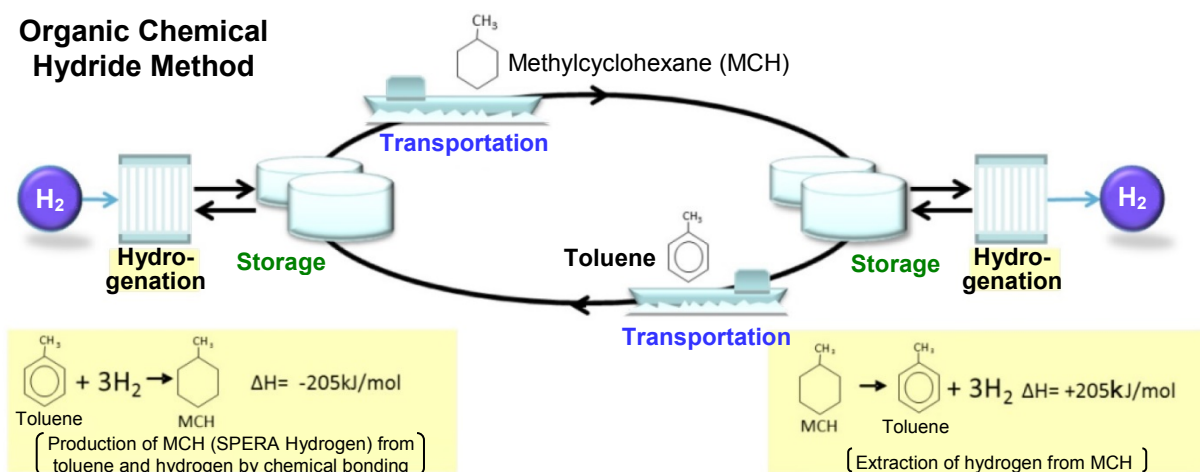
Established: July 3, 2017

Research partners: Mitsubishi Hitachi Power Systems, Ltd., Development Bank of Japan Inc.

## (\*2) Organic Chemical Hydride Method

Hydrogen and toluene procured from resource-rich countries are converted through a chemical reaction (hydrogenation) into methylcyclohexane (MCH), which remains in liquid state at room temperature and normal pressure. The MCH is stored and transported to a hydrogen consumer country, where it is separated into toluene and hydrogen (dehydrogenated). The hydrogen is then supplied as a gas to customers.

### Organic Chemical Hydride Method



### Inquiry Contact Details

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