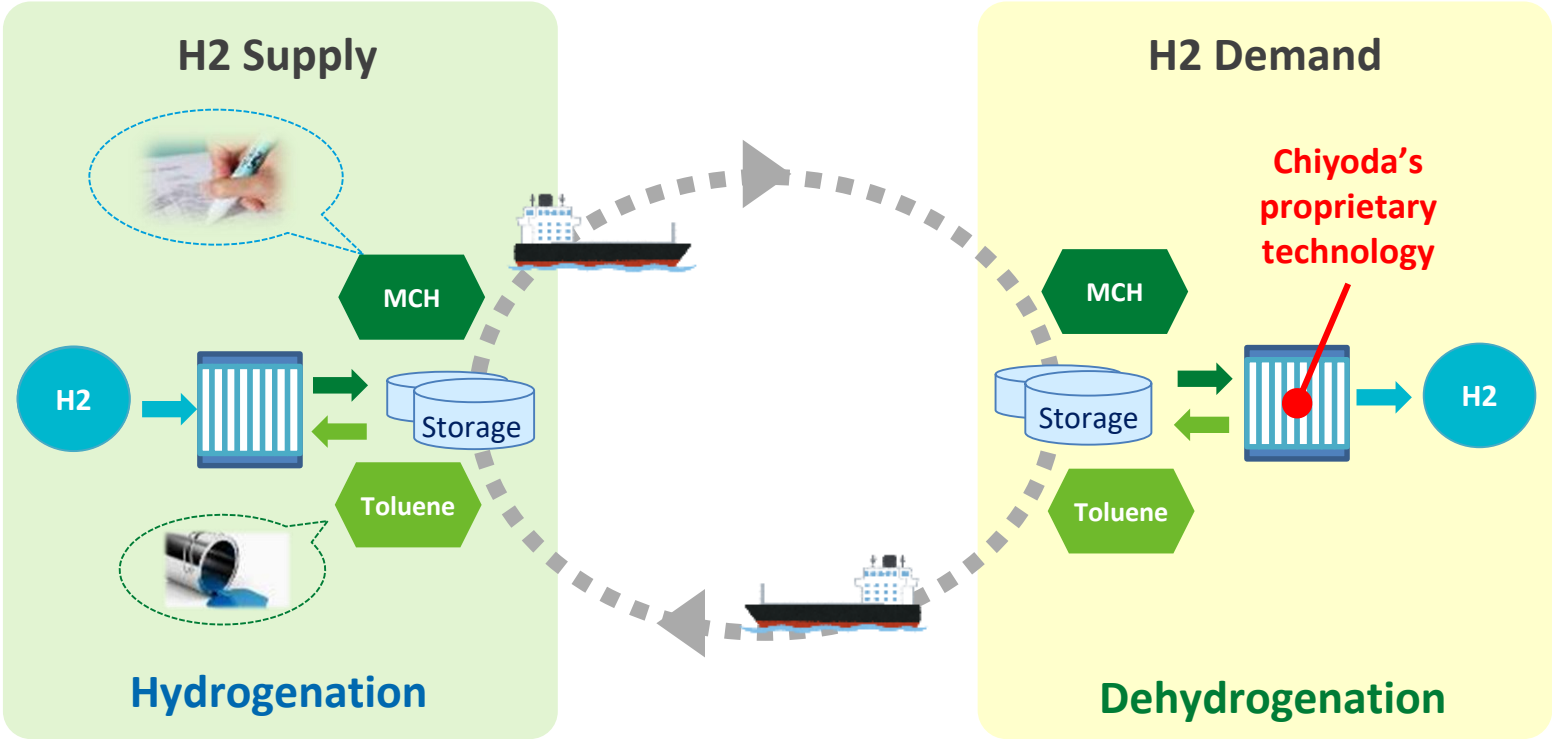
LOHC-MCH Technology (SPERA Hydrogen™) at a Glance

Chiyoda's SPERA Hydrogen technology uses MCH as the hydrogen carrier in a LOHC (*) system, enabling the safe, efficient and commercially viable storage and transportation of hydrogen on a global scale.

LOHC：Liquid Organic Hydrogen Carrier



* MCH： Methylcyclohexane

Key Features

1. **Easy to Handle**: LOHC-MCH, a stable liquid at ambient temperature and pressure, is as easy to handle as petroleum, and suitable for long term storage and long distance transportation.
2. **Existing Infrastructure:** Possible to repurpose, utilize existing petroleum transportation and storage facility (tanks, tanker, pipeline, tank lorry, etc.), standard and regulation, to minimize investment for H2 infrastructure.
3. **Safe with Lower risk:** Safe transportation and storage that is equivalent level to petroleum products, that has already been managed in the society for long term.

Global Hydrogen Supply Chain Demonstration

In December 2020, AHEAD successfully completed the worlds first ‘Global Hydrogen Supply Chain Demonstration Project’, an important milestone for the construction of an international hydrogen supply chain.

Description	
Scale	210 tons/year at facility scale (Maximum)
Duration	2020
Hydrogen Supply	Brunei Darussalam (Hydrogen production)
Hydrogen Demand	Kawasaki City, Japan (Fuel for gas turbine power plant)
Transportation	ISO tank containers (Container ship/truck)
Business Scheme	Established by AHEAD Funded project by NEDO**

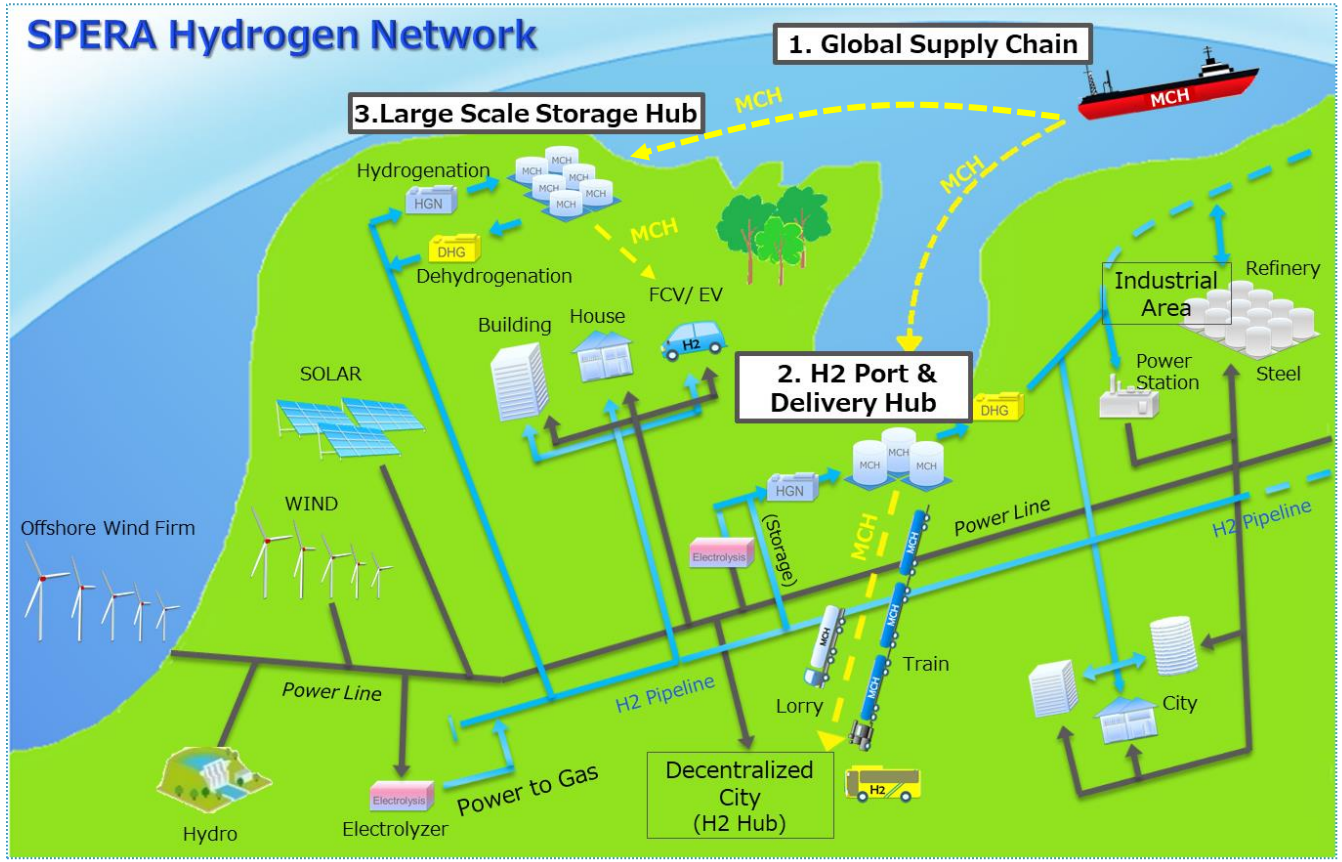
* Advanced Hydrogen Energy Chain Association for Technology Development

** New Energy and Industrial Technology Development Organization : National research and development agency that creates innovation by promoting technological development necessary for realization of a sustainable society

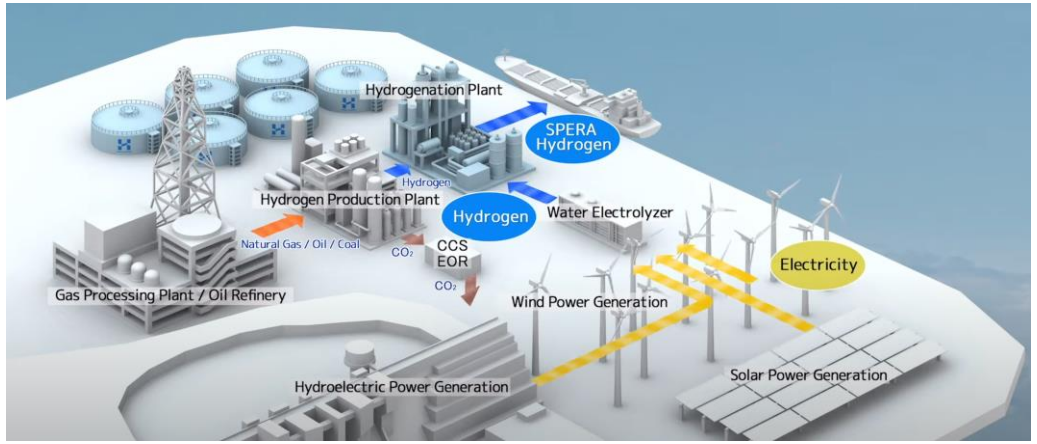
Broader Use Case of MCH

There are 3 major use cases (Global Supply Chain / H2 Port & Delivery Hub / Large Scale Storage) by using MCH Technology, to seamlessly link between global hydrogen supply chain, storage and domestic distribution.

SPERA Hydrogen Use Case



Global Hydrogen Supply Chain Concept



SPERA Hydrogen™ Global H2 Supply Chain Projects

Global supply chain is a fundamental use case for SPERA Hydrogen. Several studies / discussions are ongoing to identify cost-competitive and feasible H2 supply / logistics to demand countries (i.e. Europe, Singapore, Japan)