CDTI-NEDO online Joint Workshop on Hydrogen Technology
- Green Hydrogen Production & Mobility -

For H2 Society to Come
Building Global Supply Chain

Ryuichi HIROTANI

General Manager

Hydrogen Hydrogen Refueling Station Construction Dept.

Iwatani Corporation

MINISTERIO DE CIENCIA E INNOVACIÓN

CDTI

@CDTIoficial

NEDO

AeH2 ASOCIACIÓN ESPAÑOLA DEL HIDRÓGENO

Our Business

Core business “Gas & Energy”

Energy Division

・LPG ・Electric power sales and city gas safety service ・Gas equipment and lifestyle products
・Portable gas cooking stoves and cassette gas canisters

Industrial Gases & Machinery Division

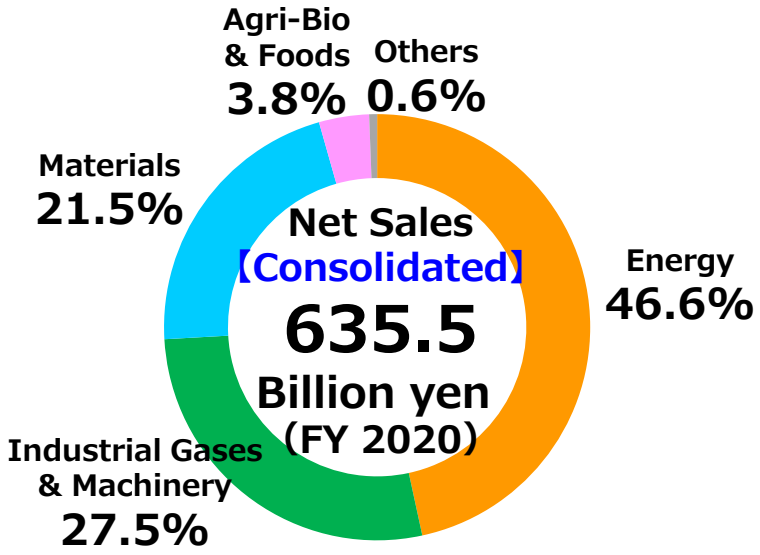
・Industrial gasses ・Gas facilities and industrial machinery

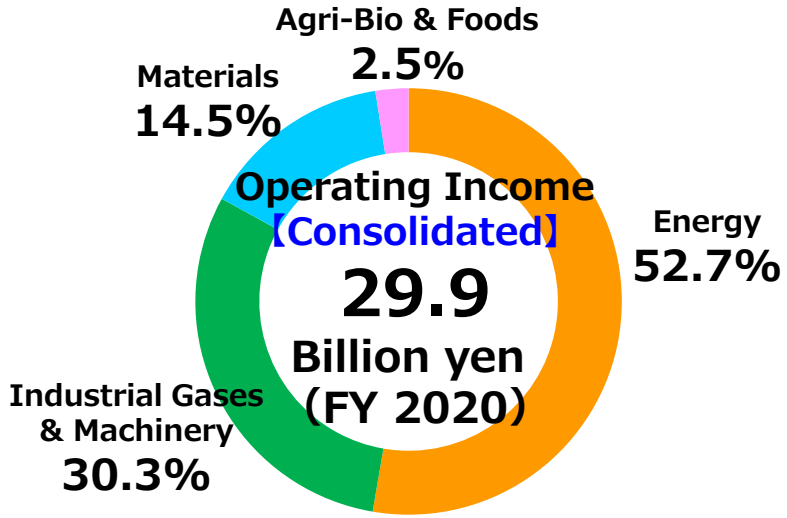
Materials Division

・Functional plastic products
・Resources and advanced materials
・Metals ・Electronic Materials

Agri-Bio & Foods Division

・Frozen foods
・Equipment for Agriculture
・Seed pigs and equipment for livestock





Note) Others and adjustments are excluded.

Our Hydrogen Business

1941 Started hydrogen business

1958 Established Osaka Hydrogen industries (Now Iwatani industrial gasses corporation)

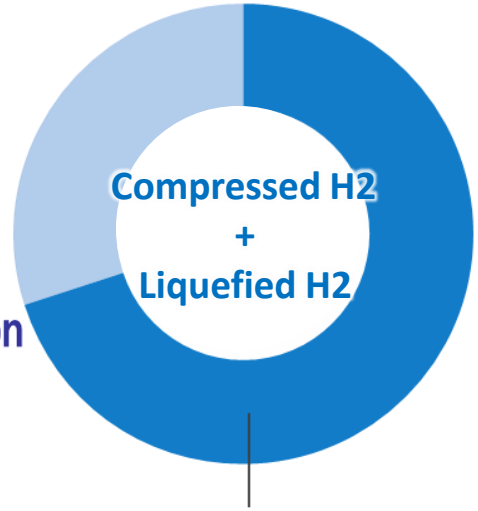
1978 Constructed Japan's first liquefied hydrogen commercial plant

2006 Launched largest liquefied hydrogen production plant in Japan "Hydro Edge" in Osaka

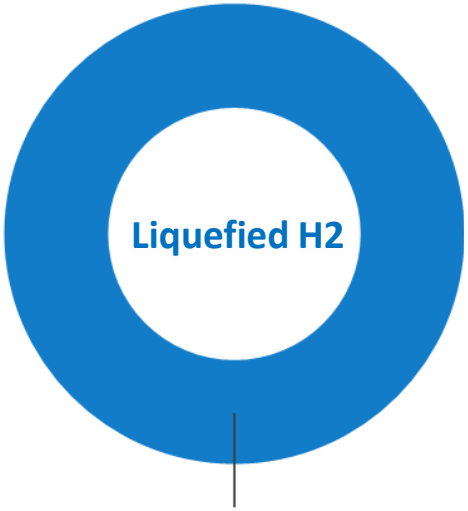
2014 Opened the country's first commercial hydrogen refueling station

2019 Entered the hydrogen station business in the United States

Market Share (JAPAN)



Iwatani 70%



Iwatani 100%

80 Year Experience for Safety

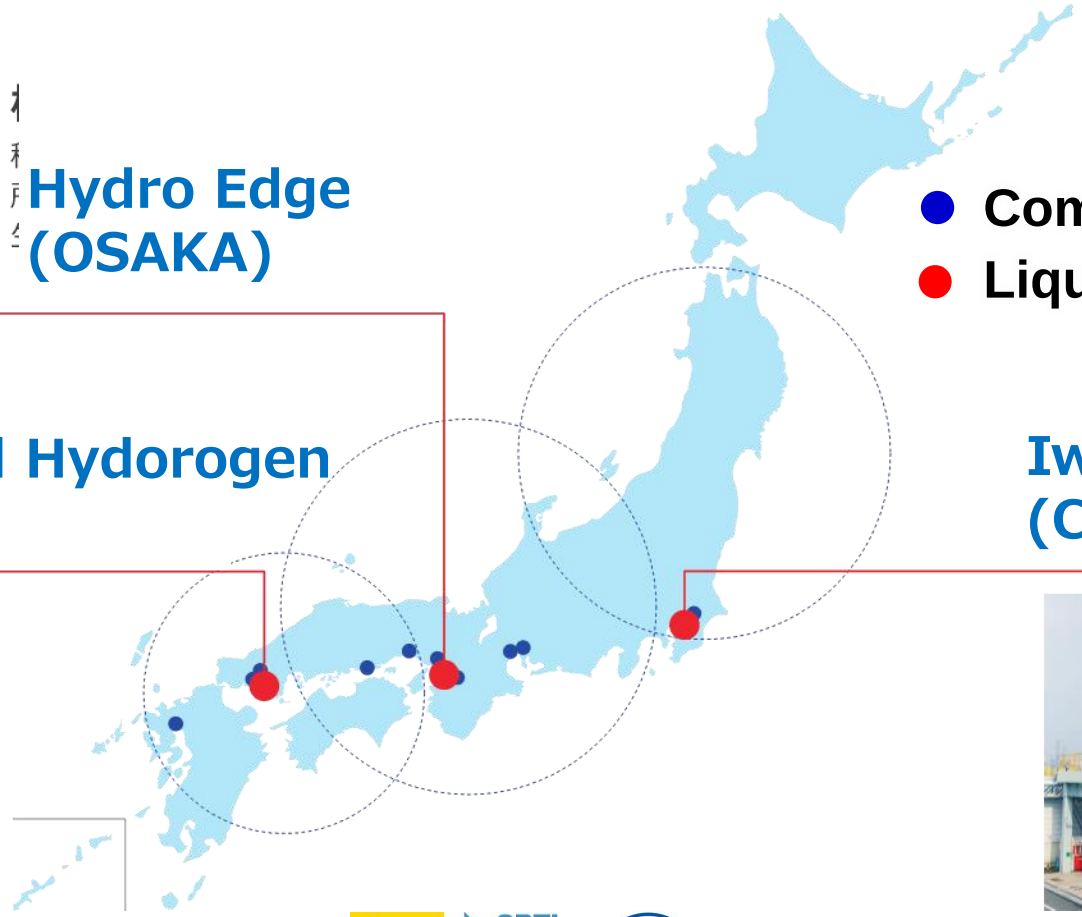
Dominant Market Share in Japan

LH2 Supply Chain in Japan

Iwatani has 3 plants of LH2 in Japan.

Total Supply Capacity: 30ton/d

Hydro Edge (OSAKA)



- Compressed H2 Plant
- Liquefied H2 Plant

Yamaguchi Liquid Hydorogen (YAMAGUCHI)

Iwatani Gas Chiba (CHIBA)

Future Hydrogen Supply Chain

Hydrogen sources

Initiative: Acquire large amounts of inexpensive, CO_2-free hydrogen sources

CO_2-free

Overseas

New

- Lignite + CCS
- Natural gas+ CCS
- Renewable energy

Japan

- Renewable energy

Japan

- Caustic soda
- LNG

Hydrogen import terminal

Initiative: Shift from production to import/storage functions

LH_2

New

LH_2 terminals

Provided by Hystra

Electrolysis using surplus power

Refinement of by-product gases

Reforming / Modification

LH_2 production in Japan

Initiative: Produce hydrogen to adjust surplus energy

Hydrogen use

Initiative: Create hydrogen energy demands

New

Energy conversion at industrial complexes

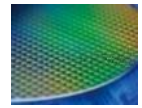
- Power plants (co-firing)

Provided by Kawasaki Heavy Industries,Ltd.

- Industrial energy

- Hydrogen reduction / Desulfurization

- Industrial applications



- Hydrogen stations

Grobal Supply Chain (HySTRA)

CO_2-free Hydrogen Energy Supply-chain Technology Research Association

Aiming for commercialization in 2030

NEDO HySTRA Iwatani Kawasaki Shell J-POWER Marubeni ENEOS K LINE

Brown Coal → **LH2+CCS** → **In Australia** | **LH2 Vessel** → **Transportation** | **LH2 Terminal** → **In Japan**

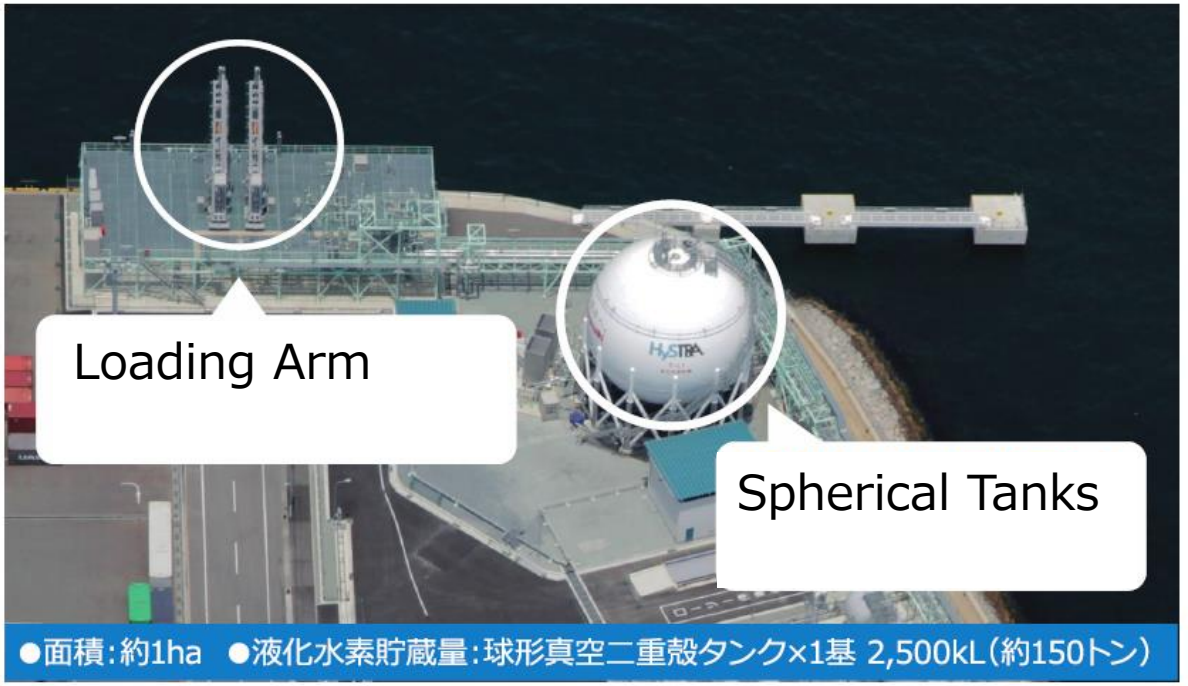
Grobal Supply Chain (HySTRA)

■ Demonstration for LH2 Carrier and Storage

LH2 Carrier

提供:川崎重工業

LH2 Storage（ Kobe Airport Island ）



提供:HySTRA

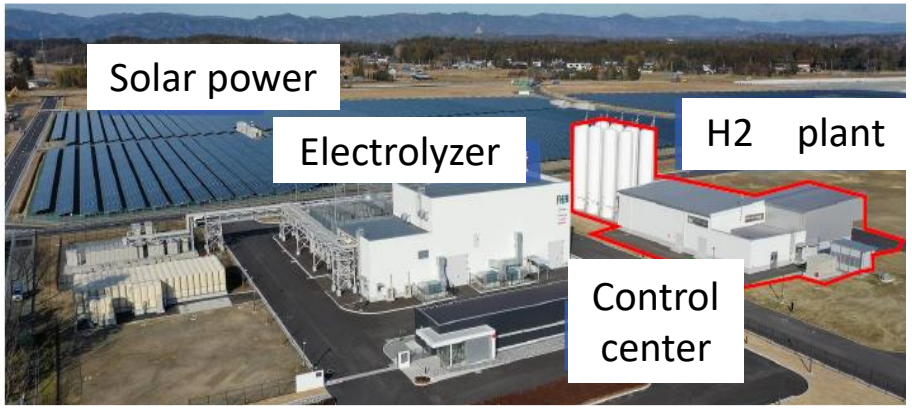
	Ship	Tank
Demonstration	1,250kL/ship	2,500kL/tank
Commercialization	40,000kL×4tanks/ship	50,000kL×4tanks

Grobal Supply Chain (Domestic Source)

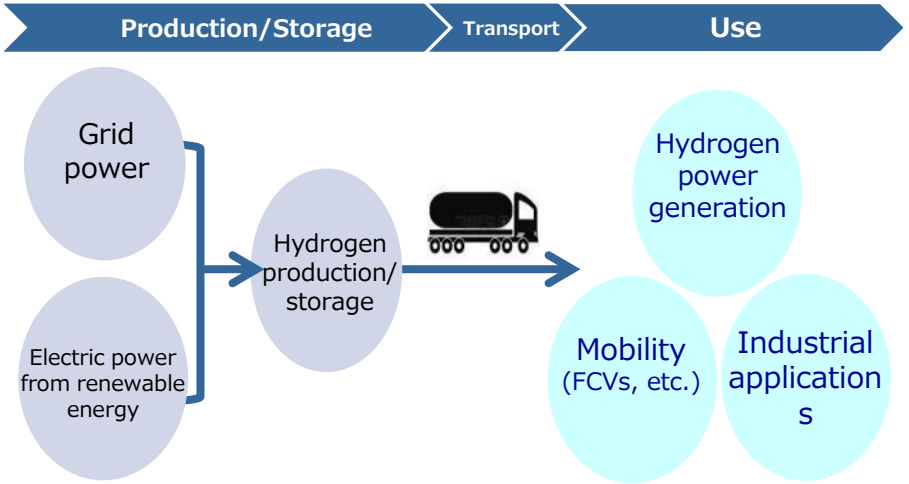
■ Fukushima Hydrogen Energy Research Field（FH2R)

・Demonstration operation of one of the world's largest (10,000kW) Hydrogen systems using renewable energy

Member : NEDO TOSHIBA 東北電力 Iwatani



CO_2-free hydrogen production using renewable energy



Establishing a global supply chain (Domestic Source)

Establishment and operation of 53 Hydrogen stations in Japan

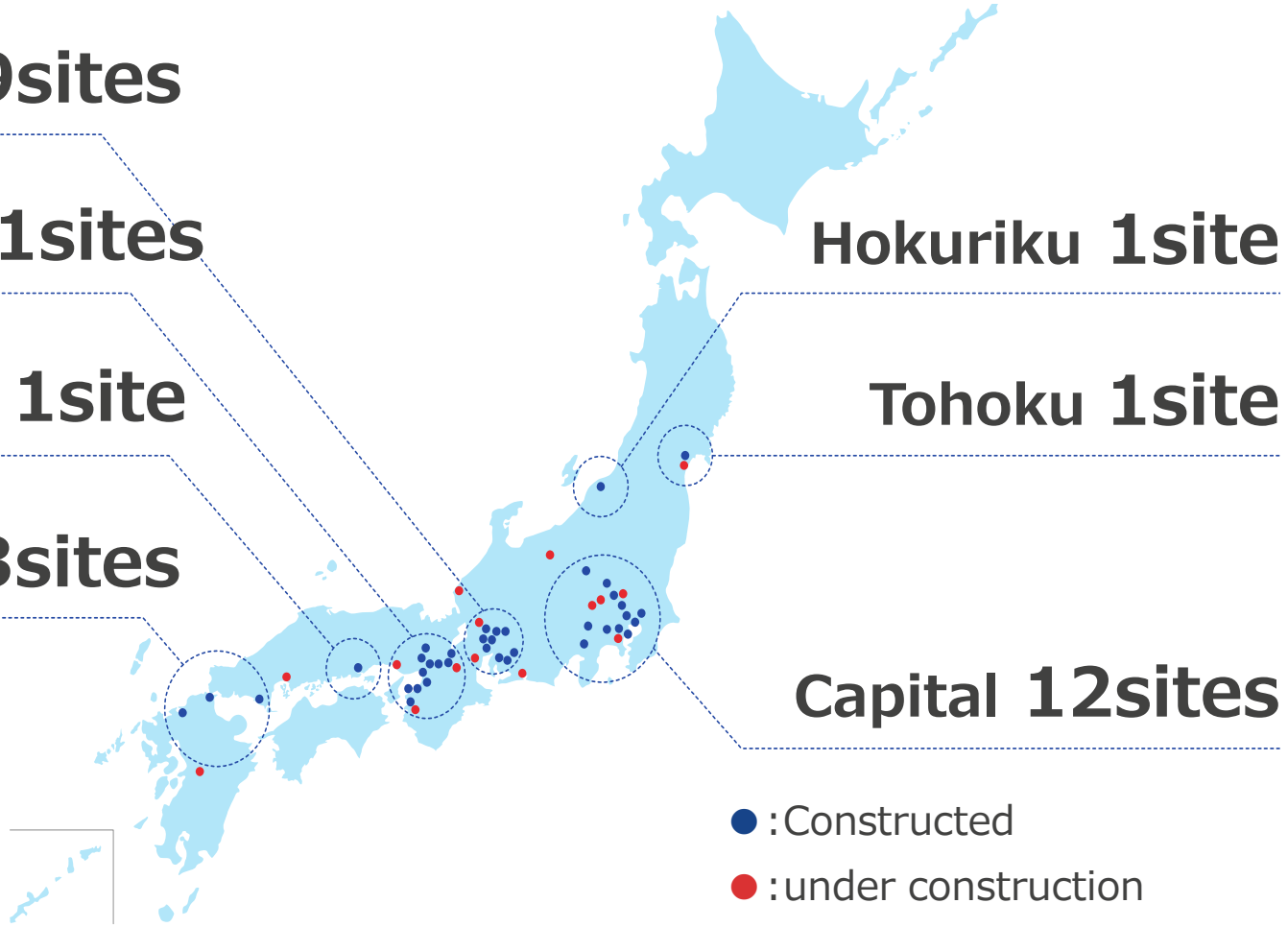
(15 sites are under construction)

Iwatani

38sites

2021

53sites



Establishing a global supply chain (demand creation)

- Total 83 (+30) H2 Refueling Stations by 2023
- Focus more on Mid-Heavy Duty Stations by collaboration with Logistic and FC Truck manufacturers.

A Factory

Highway SA

B Warehouse

Utilize delivery routes by convenience stores

Logistic Center

Near the logistic center

Grobal Supply Chain (HySTRA)

■ Fuel Cell Ship for OSAKA,KANSAI EXPO 2025

Fuel Cell Ship（design）

Course

Overview

・Total tonnage : 60～100 ton
・Capacity : 100～150 people
・Output : 400kW
・Speed : 10kt
・Maximum sailing distance : 70km

Operate around the Expo2025

Grobal Supply Chain (HySTRA)

Japan Hydrogen Association（JH2A）

- Aim to realize the Hydrogen world by involving a lot of companies interested Hydrogen from production to consumer entry in this association

Make the Hydrogen Society to Come

Iwatani will

1 Create New Hydrogen Markets & Demand

2 Build Large Scale Supply Chain of Low Price CO2-Free H2

Make the Hydrogen Society to Come