

Establishment of advanced evaluation method for fatigue properties in presence of hydrogen and development of novel metallic materials with excellent resistance to hydrogen embrittlement

Issues on hydrogen-related components

- ✓ Only expensive materials with lower strength are authorized to use for hydrogen-related components.
- ✓ Expensive and difficult-to-handle high-pressure hydrogen-gas testers prevent the expansion of hydrogen compatible materials.

Prices of domestic hydrogen-related components

	Current	Target
Hydrogen station	450 million yen	2.5 million yen
Fuel cell electric vehicles	7 million yen	Same level as ordinary passenger cars

Expanding manufacturers related to hydrogen industry is prevented.

R&D towards accelerated development of hydrogen compatible materials

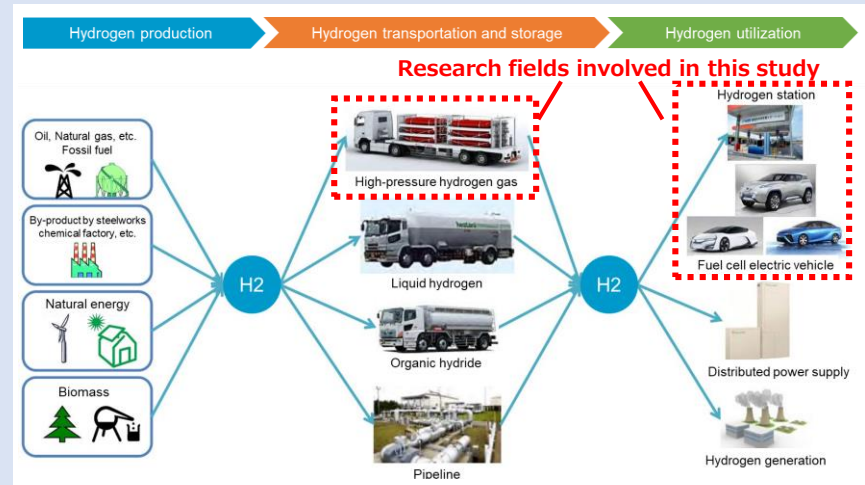
Establishment of inexpensive and easy-to-handle evaluation method

Increase in hydrogen compatible materials with lower cost and higher strength

These R&Ds enable the efficient development of low-cost hydrogen-related components, without using expensive and difficult-to-handle testers and expensive materials with lower strength.

- ✓ Promoting manufacturers related to hydrogen industry
- ✓ Creation of virtuous circle of promotion of manufacturers ~ improvement of competitiveness ~ development of low-cost materials

Hydrogen utilization



- ✓ Hydrogen can be produced from diverse resources.
- ✓ It can be stored, transported and utilized in various fields.

It is expected that hydrogen utilization may solve various problems such as CO₂ reduction, global warming, and energy self-sufficiency rate.

Future outlook

- ✓ Dramatic acceleration of development speed via virtuous circle
- ✓ Creation of innovation related to hydrogen energy via promotion of manufacturers

Proposal of new technologies from Fukuoka University

*** METI: Hydrogen production, transportation and storage**

https://www.meti.go.jp/committee/kenkyukai/energy/suiso_nenryodenchi/suiso_nenryodenchi_wg/pdf/005_02_00.pdf