Hydrogen Cluster in Japan

- Regional Activities to Promote Hydrogen -

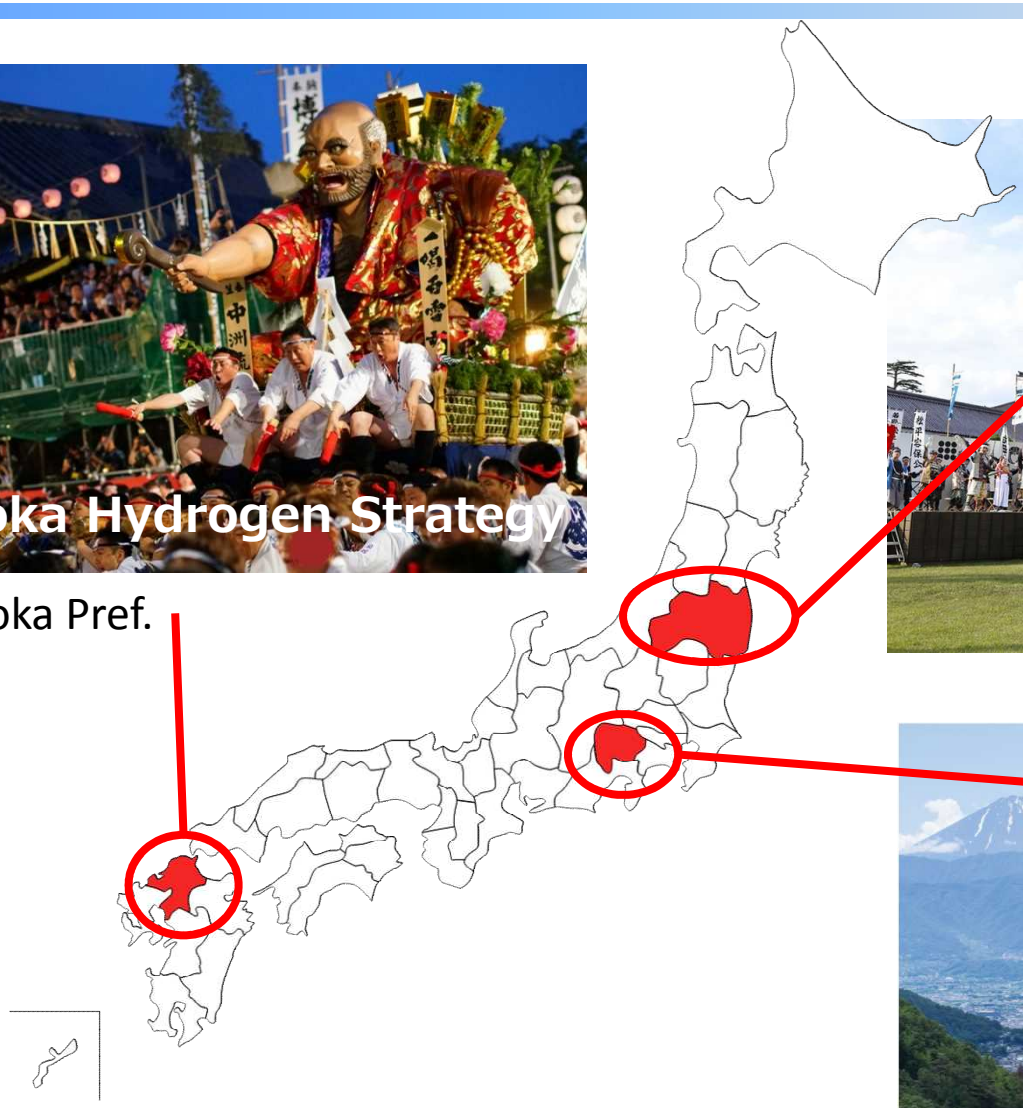
26 March, 2019

Eiji Ohira

**New Energy and Industrial Techno
logy Development Organization (NEDO)**

Two Major H_2 Cluster in Japan

Fukuoka Pref.



Fukushima Pref.

Yamanashi Pref.

Key characteristics of “Fukuoka Hydrogen Strategy”

Hy-Life Project

Key characteristics of “Fukuoka Hydrogen Strategy”

2004.4: Hydrogen Technology Research Center
2006.7: Research Center for Hydrogen Industrial Use and Storage “HYDROGENIUS”
2010.12: International Institute for Carbon-Neutral Energy Research “I^2CNER”
2012.1: Next-Generation Fuel Cell Research Center “NEXT-FC”

2009.3:Hydrogen Energy Test and Research Center “HyTReC”

Current Status / Topics

(1) Research and Development:
- Long life, anti-high pressure hydrogen seal, joint and equipment.
- Database: Character of material under high pressure

(2) Demonstration project
- Conducting several demonstration project such as;
  Kitakyushu Hydrogen Town (H2 supply through pipeline)
  Energy interchange sing fuel cell in apartment house
  Renewable energy derived hydrogen utilization project in automobile factory
  Hydrogen production from sewage sludge

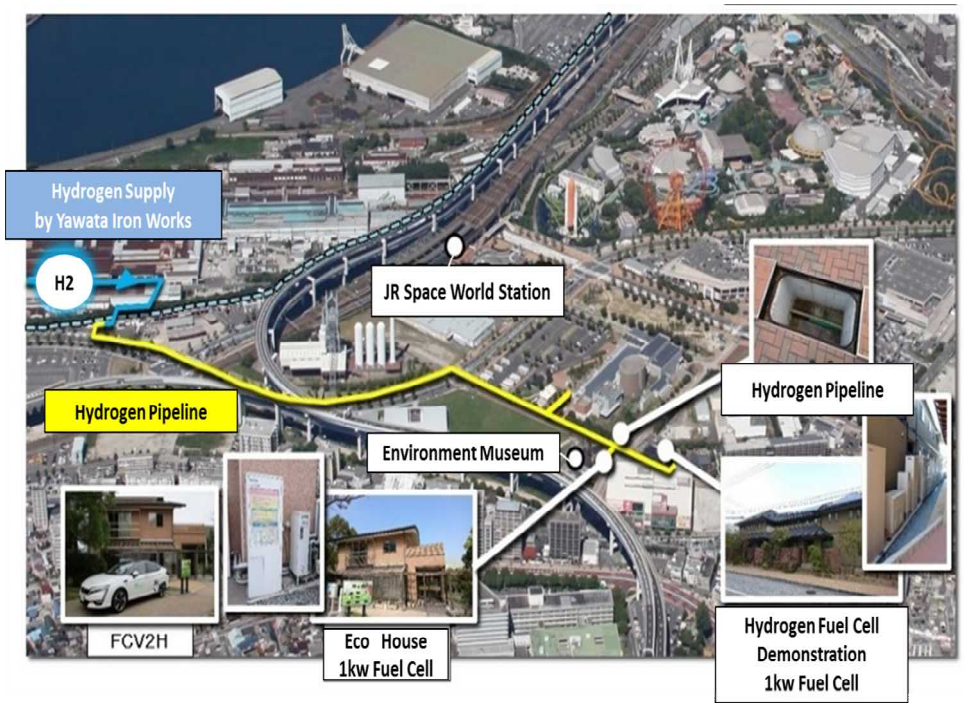
(3) Human resource development:
- More than 1,200 people since 2005

(4) Development of new industries:
- Support local company product development (Hydrogen visualization sheet, stainless steel packing, hydrogen gas impurity analyzer, O-ring, etc.)

(5) Others: FCV, HRS
- FCV: 109, 10 Hydrogen Refueling Stations

Current Status / Topics

Demonstration project utilizing “local” hydrogen



From Steel mill

From Sewage

Key characteristics of “Yamanashi Fuel Cell Valley”

Yamanashi Hydrogen Energy Society Realization Roadmap

Efforts making the best use of Yamanashi’s characteristics such as the highest solar power potential in Japan, cluster of research institutes on hydrogen and fuel cells, through following three approaches;

- Expansion of use of hydrogen energy

Shown Yamanashi’s own introduction target
1,300 FCV, 10 FC-Bus, +2 HRS, 34,000 Enefarm (in 2030)

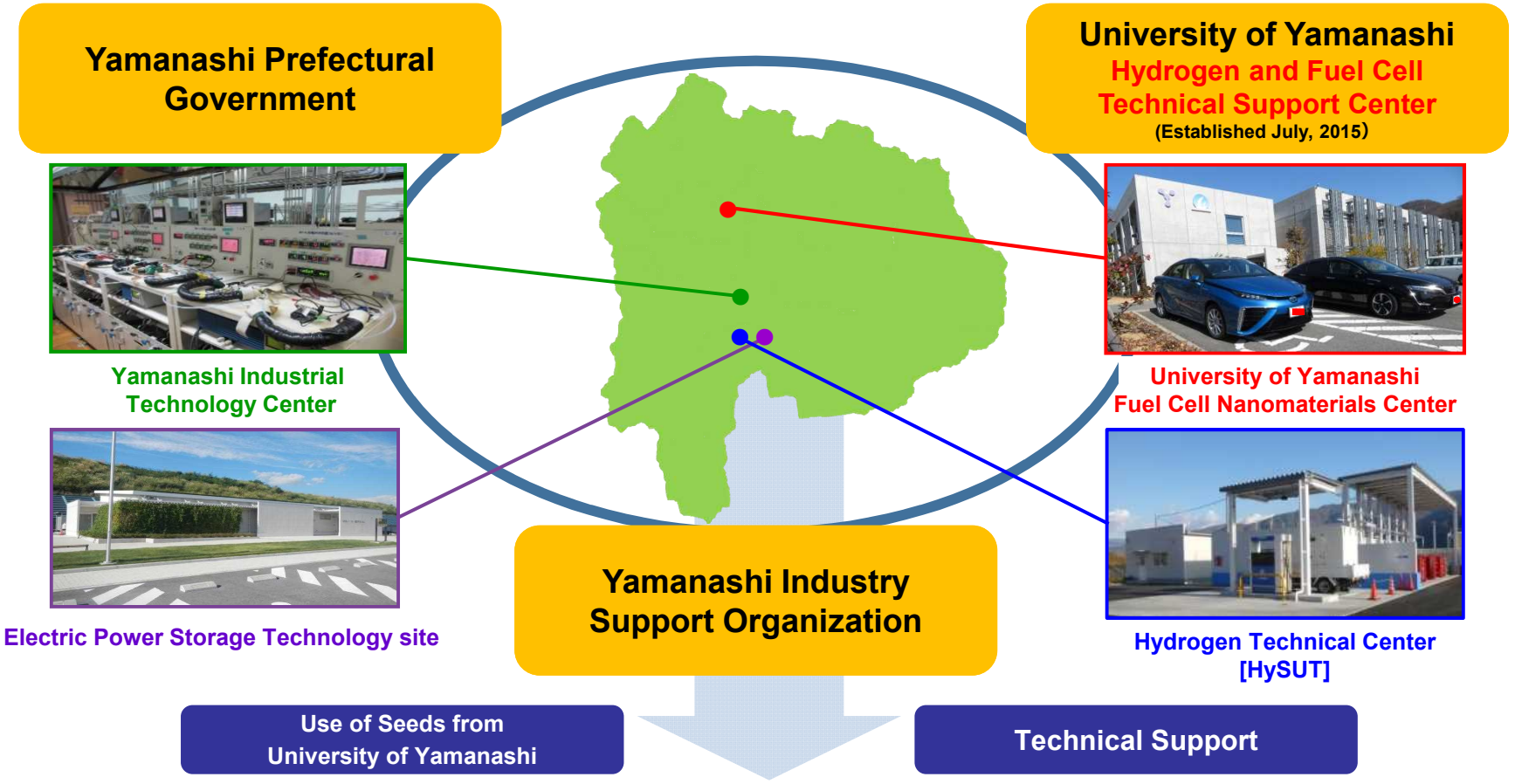
- CO2 free hydrogen supply chain construction

Promotion of PtG utilizing PV

- Promotion of hydrogen and fuel cell related industries

Yamanashi “hydrogen fuel cell valley strategy”

Key characteristics of “Yamanashi Fuel Cell Valley”



Contribute to the promotion of the hydrogen and fuel cell related industries !

(Expected outcome in 2030)
Sales amount 100 billion yen, 200 enterprises entering, 5,000 employees

Key characteristics of “Yamanashi Fuel Cell Valley”

2001.4: Clean Energy Research Center
2008.4: Fuel Cell Nanomaterials Center

2016.4:Fuel Cell Evaluation / Testing Facility
at Yamanashi Industrial Tech Center
2017.12: Hydrogen Technology Center for HRS

Current Status / Topics

(1) Research and Development:
- Improving R&D on analyzing / evaluation for PEFC
- New materials for PEFC (low-PGM catalyst, membrane, etc)

(2) Demonstration project
- Start new Power to Gas project (with 1.5 MW PEM electrolysis)

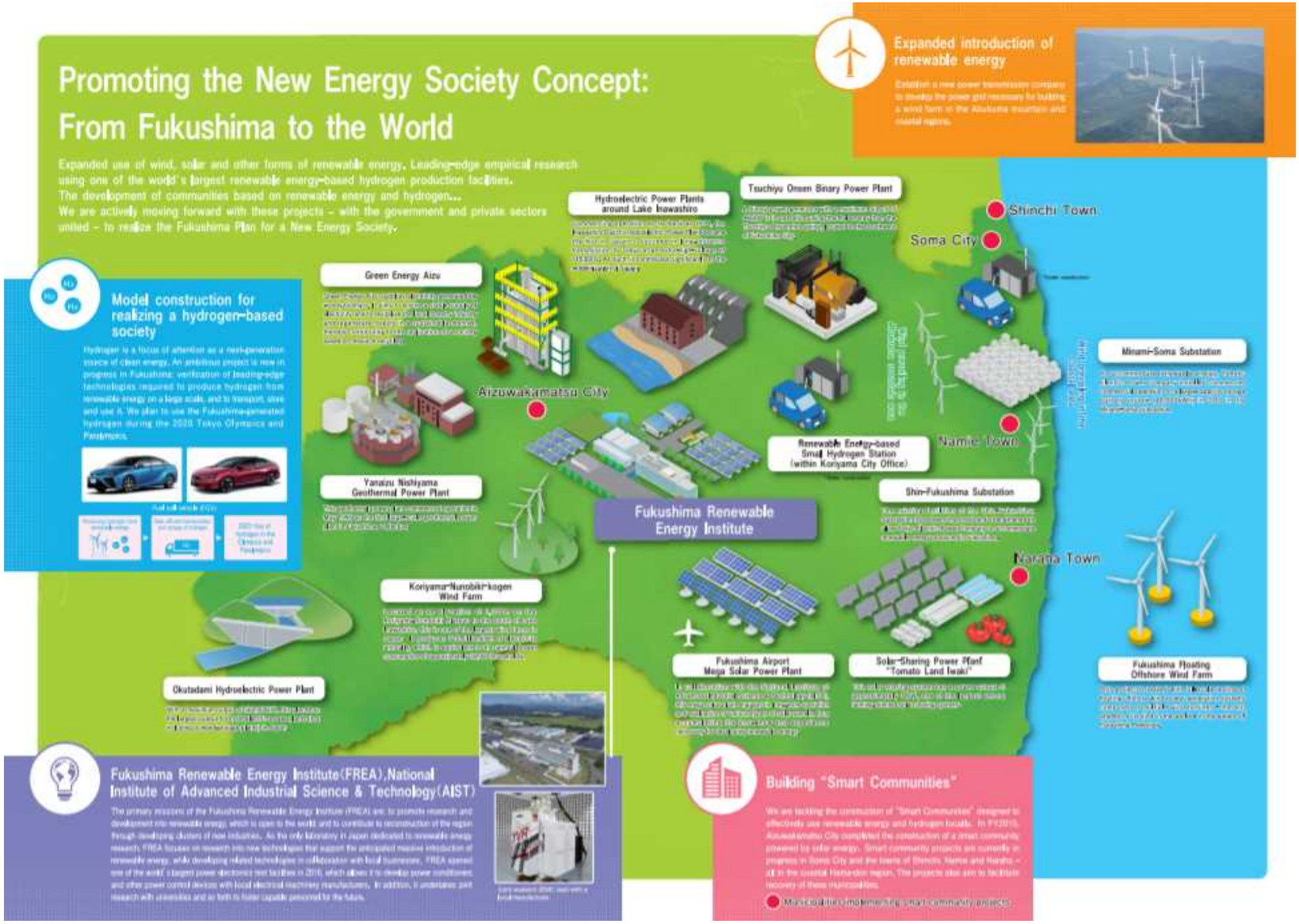
(3) Development of new industries:
- Small fuel cell power supply system, metal separator integrated with GDL, CCM production process, etc.

(4) FCV, HRS, Stationary Fuel cell
- FCV:22, 1 Hydrogen Refueling Stations, 582 Ene-Farm, etc.

Current Status / Topics

PtG demonstration site

Key characteristics of “Fukushima Plan for a New Energy Society”



Current Status / Topics

(1) R&D and Demonstration
- FREA: R&D on MCH for hydrogen storage and transport.
- FH2R: Power to Gas with 10MW electrolysis and 20MW PV .

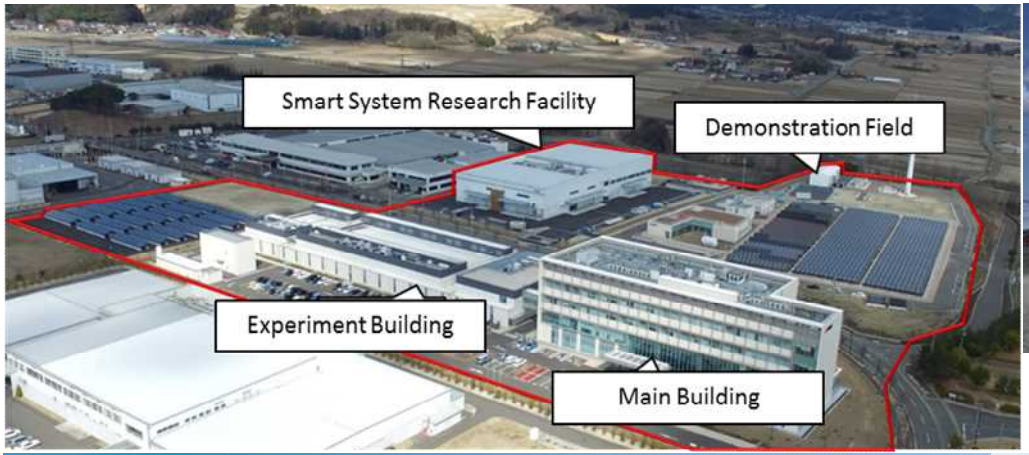
(2) Human Resource Development
- FREA has been conducting training course (on HRS)

(3) Establish network with industry, government and academia

(4) Industry accumulation
- REIF Fukushima has led to new businesses and contracts between exhibitors and visitors.

(5) Current status of hydrogen usage in the prefecture
- FCV:35 vehicles, HRS:3 stations

Current Status / Topics



Conclusion

➢ *Motivation*

- Economic impact to local area
(developing new industry, human resources, etc.)

➢ *Make the most of the regional features*

- Center of excellence with unique research(Institute, University)
- Utilizing local resource to produce hydrogen

➢ *Collaboration*

- Local / central government, industry / academia
under implementing body

Seeing is believing…

7 June, 2019 (excursion during WHTC 2019)　Limited!!

Thank you!