Country Update of Japan

Current Status of H_2 and Fuel Cell Programs of Japan

IPHE 19th SC, London

23 May 2013

New Energy and Industrial Technology development Organization (NEDO)

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1. Government Policies / Current Topics

Strong Promotion to install & disseminate H_2 Station

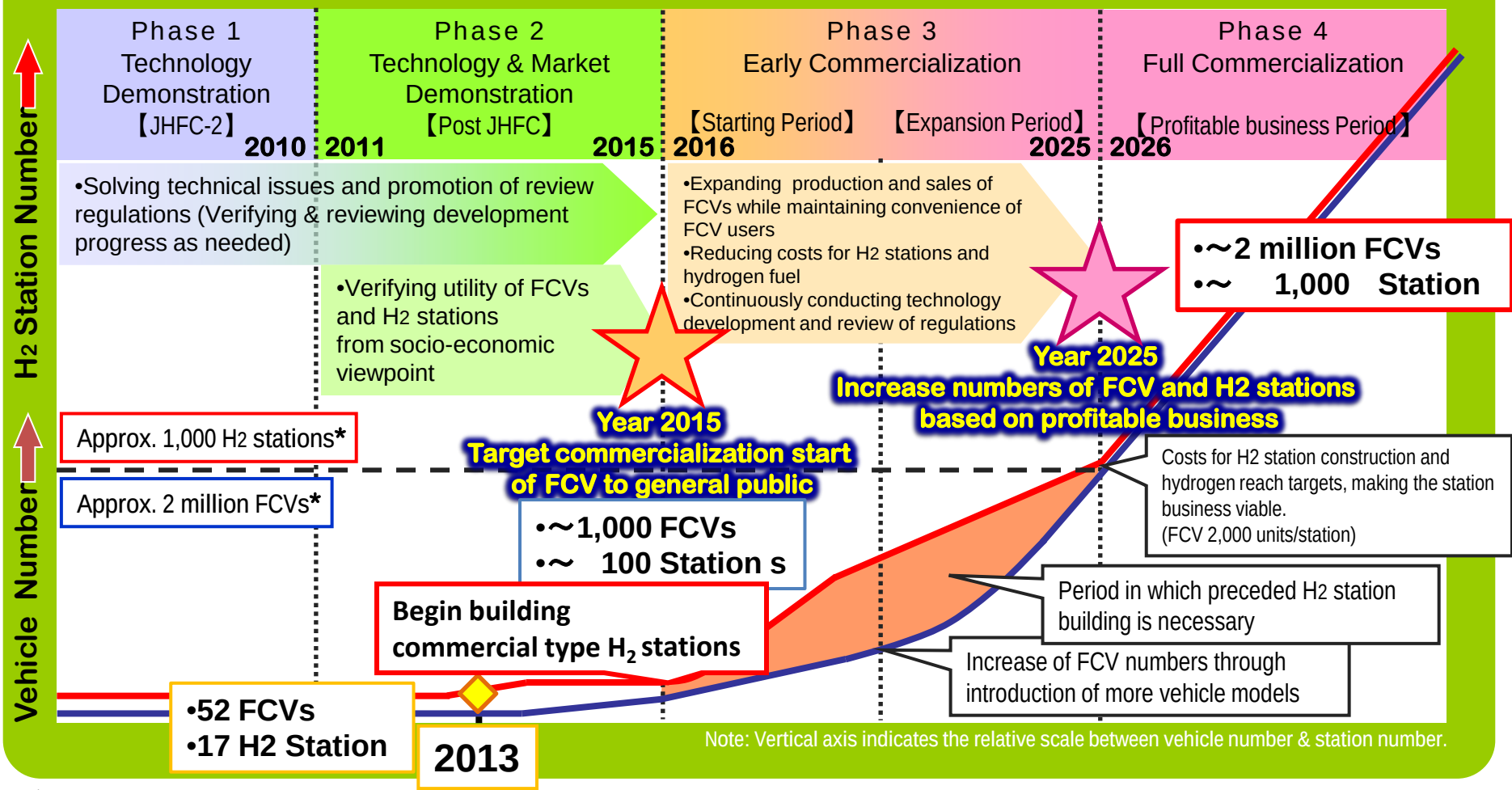
- New subsidy scheme for installation of H_2 Station (4,600 M JPY in 2013 FY)
- Encourage streamlining regulation for H_2 Station and FCV

Continuous enhanced R&D activity for Fuel Cell

- R&D activity for cost reduction of FC and new application (Micro FC/ Middle & Large scale FC power generator)
- Rapid estimation method for SOFC durability

2. Roadmap and Milestone - FCV & H_2 Station -

Commercialization Scenario for FCVs and H_2 Stations



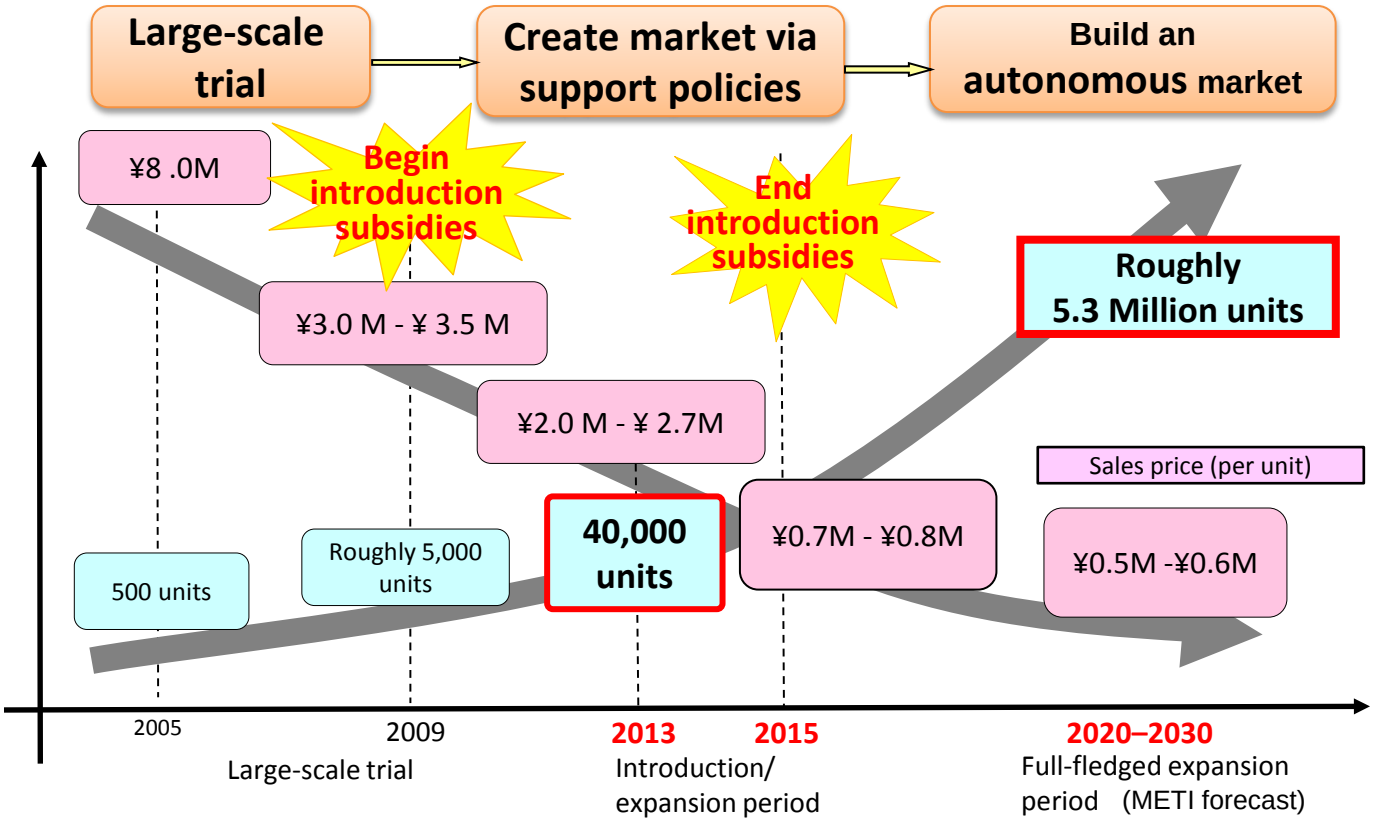
* **Precondition: Benefit for FCV users (price/convenience etc.) are secured, and FCVs are widely and smoothly deployed**

Source: Fuel Cell Commercialization of Japan (FCCJ)

2. Roadmap and Milestone - Residential FC -

- In 2009, ahead of the rest of the world, Japan was successful in commercializing the Residential Fuel Cell(ENE-FARM).
- As of May 2013, operating base of 40,000 units.
- The solid oxide fuel cell (SOFC) was commercialized in 2011.

Residential Fuel Cell expansion scenario



家庭用燃料電池コージェネレーションシステム
ENE·FARM
エネファーム

*0.7kW-1.0kW per unit

3. RD&D Budgets for H_2 & FC in 2012 & 2013

Million JPY

		JFY 2012	JFY 2013
R&D Activities: NEDO			
	Development of PEFC technologies	3,500	3,190
	Development of SOFC technologies	1,520	1,240
	Hydrogen Utilization Technology Development	2,300	2,000
	FCV and H_2 station demonstration project	3,000	750
Support to Installation: METI			
	Subsidy: installation of H_2 Station	---	4,600
	Subsidy: installation of ENE・FARM	10,090	25,050*

**: Started in Dec. 2012*

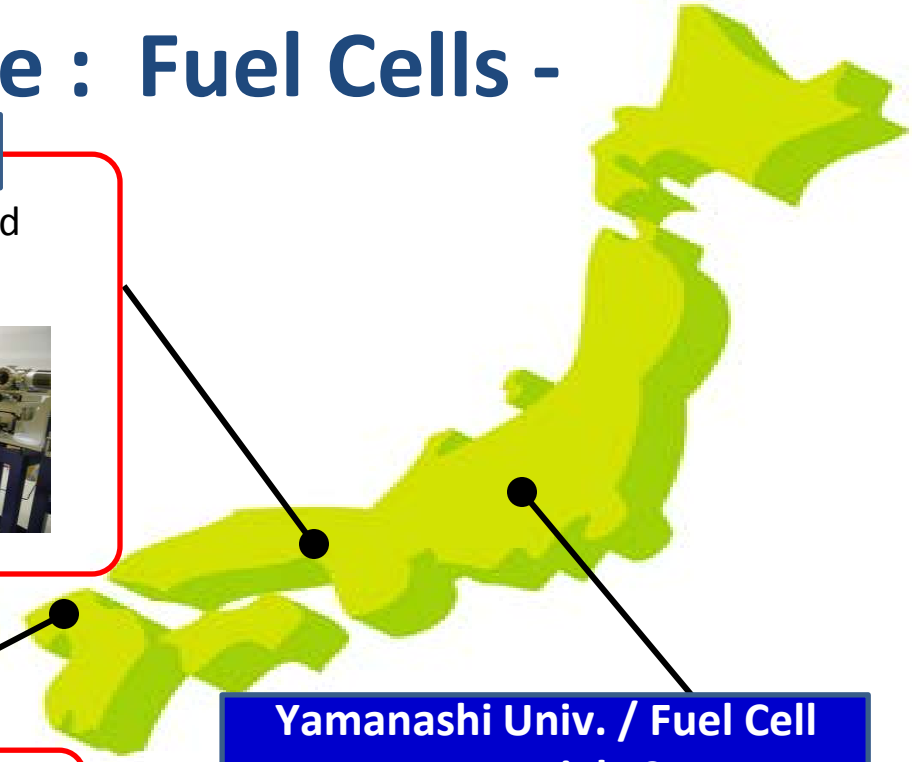
[Other Topics]
- Support for Installation pressure testing facility @ HyTReC (2,940 Million JPY in 2012)
- Grand opening of the Next-Generation Fuel Cell Research Center (NEXT-FC) in June 2013 (supported by METI)

4. RD&D Activity - NEDO Project -

	2010	2011	2012	2013	2014	2015	2016	2017
PEFC	Development of PEFC technologies for commercialization promotion							
SOFC	Development of system and elemental Technology on SOFC				Development of SOFC technologies for commercialization promotion			
	Demonstrative research on SOFC			Elemental technology development of large-scale SOFC power generation				
Hydrogen supply & utilization technologies	Development of technologies for hydrogen production, delivery and storage systems				Hydrogen utilization technology development			
	Fundamental research on advanced hydrogen science							
	Advanced fundamental research on hydrogen storage materials							
	FCV and H_2 station demonstration project							

New NEDO projects start from 2013 FY.

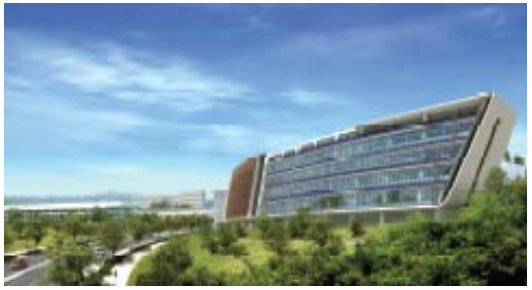
4. R&D Activity
- Center of Excellence : Fuel Cells -



SPring-8 Exclusive New Beam Line

- Highest time and spatial resolution in the world
- Analyze catalysis reactions of FC

Kyushu Univ. / NEXT-FC

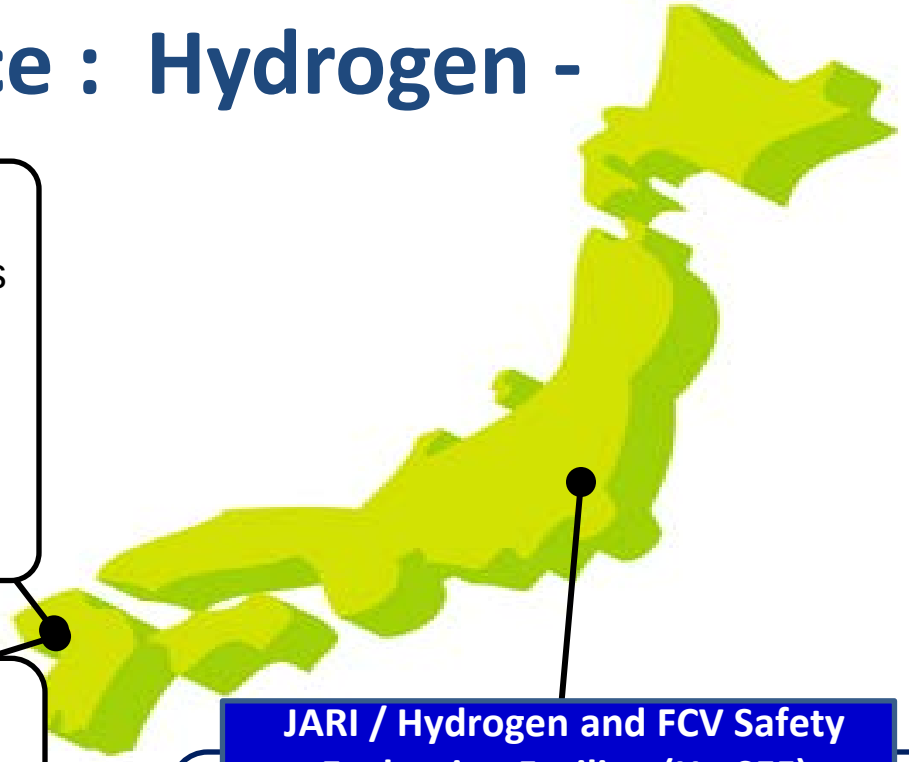


R&D for SOFC

Yamanashi Univ. / Fuel Cell Nano materials Center

R&D for PEFC

4. R&D Activity
- Center of Excellence : Hydrogen -



Kyushu Univ. / HYDROGENIUS
(Research Center for Hydrogen Industrial Use and Storage)

Research of Hydrogen influences for Materials

HyTReC
(Hydrogen Energy Test and Research Center)

NEW facility is under construction
: Pressure testing equipment of H_2 tank for station

JARI / Hydrogen and FCV Safety Evaluation Facility (Hy-SEF)

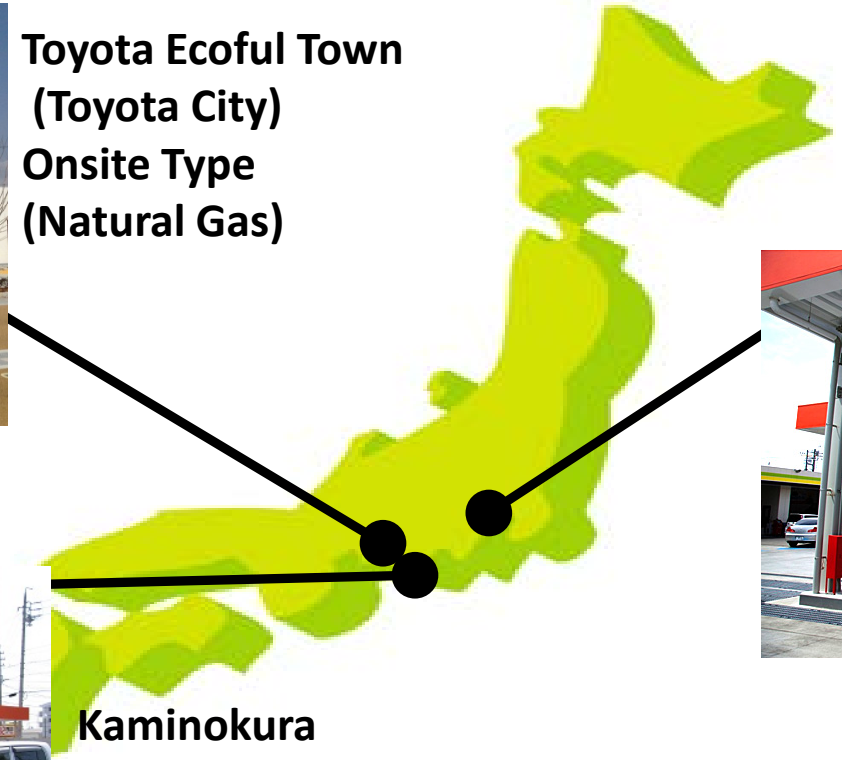
Test for FCV and Fuel Cell

Explosion Resistant Fire Test

Vehicle scale

5. Commercialization Activity
- Latest Hydrogen Station in Japan -

Toyota Ecoful Town
(Toyota City)
Onsite Type
(Natural Gas)



Ebina
(Ebina City)
Offsite Type

Kaminokura
(Nagoya City)
Onsite Type
(LPG)

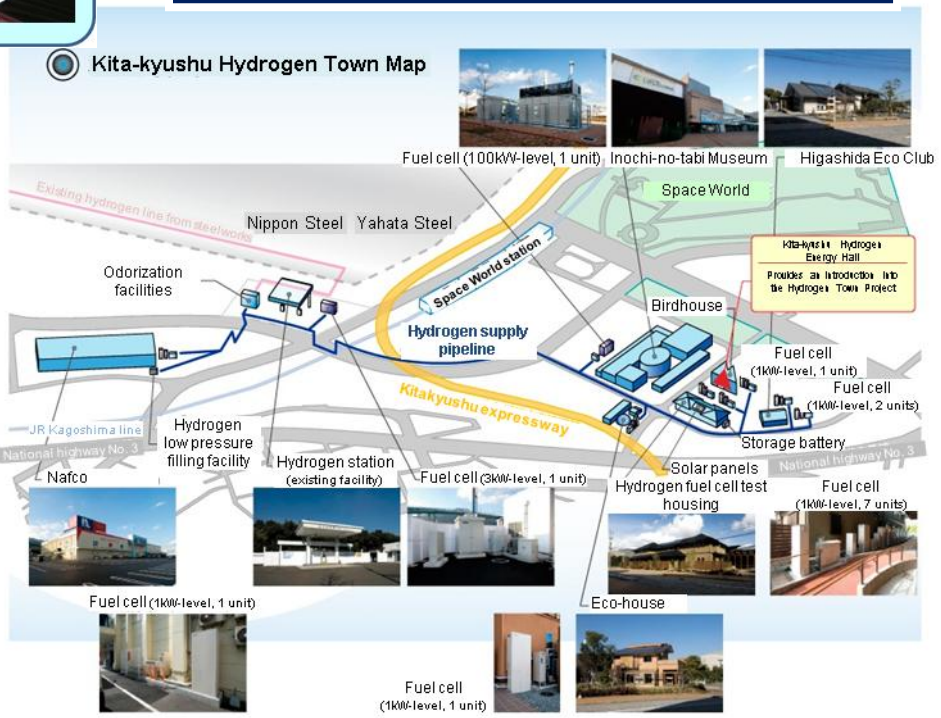
3 Commercial Scale Station open in 2013 April / May

6. Education / Public Acceptability

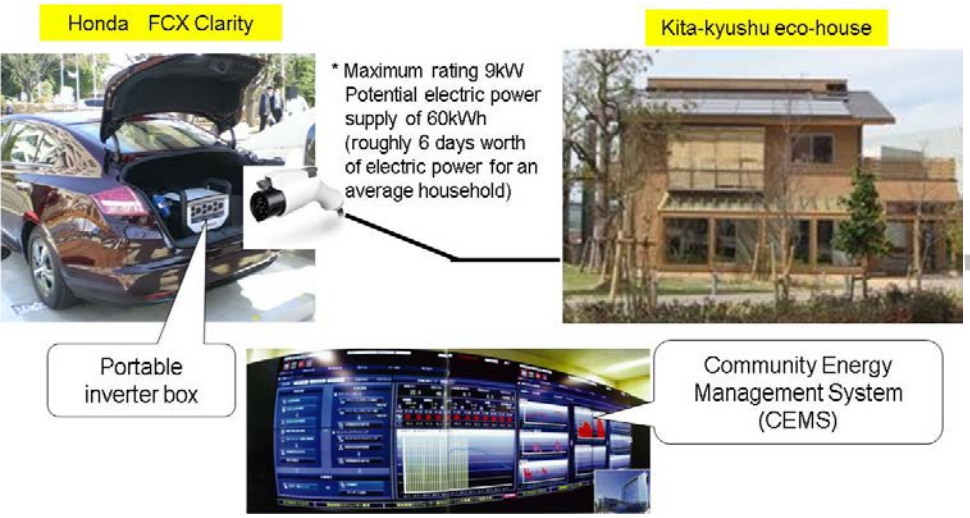
Improvement the public acceptability of Hydrogen
- Environmental education in school -

Interactive activity for Hydrogen Society

Hydrogen town project



FCV2H test



Thank you
for your attention !!