

Residential Fuel Cell Certification and Insurance in Japan

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**Engineering Advancement
Association (ENAA) of Japan**

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1. Outline of Residential Fuel Cells (FC)
Demonstration Project in Japan

General Milestones of the PEFC Development in Japan

Target: Fuel Cell Vehicles

2020 5M
2030 15M



Target: Stationary PEFC

2020 10.0GW
2030 12.5GW



2002

2005

2010

2020

R&D stage

Introduction stage

Diffusion stage

Full-Scale
Diffusion stage

Infra-
structure

Demonstration
Projects

Step-by-step
Introduction

Market Growth
without Support

Organic Growth

Codes

Review and Modification of Regulations
Standardization for IEC/JIS

R&D

R&D on
FC and H₂

Further R&D for Higher Performance
and Lower Cost

(Residential FC)

Demonstration
study

2002→2004

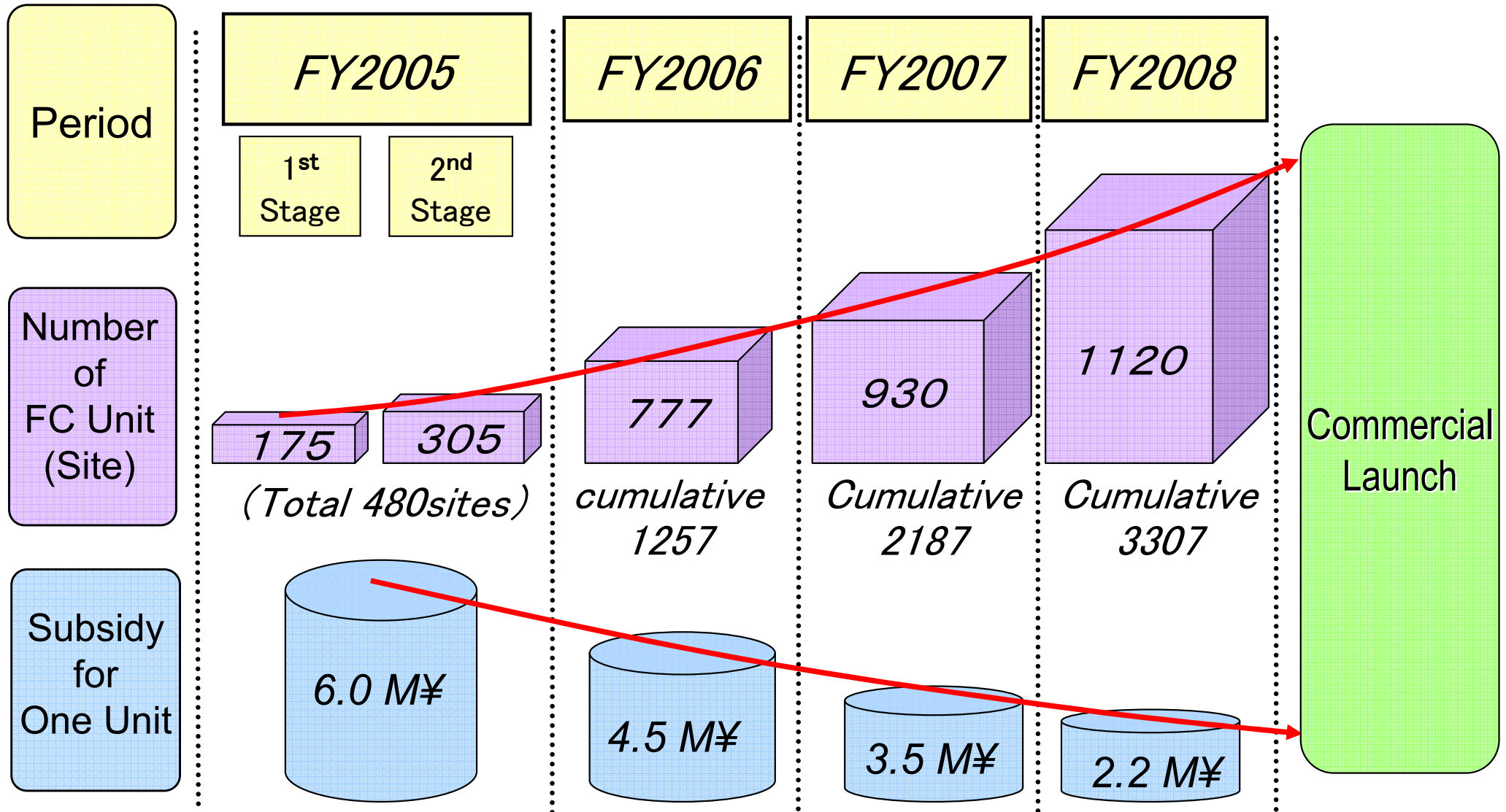
Extensive
Demonstration

2005→2008

Commercial
Launch

2009 →

Number of the Fuel Cell Units and Subsidy for Installation

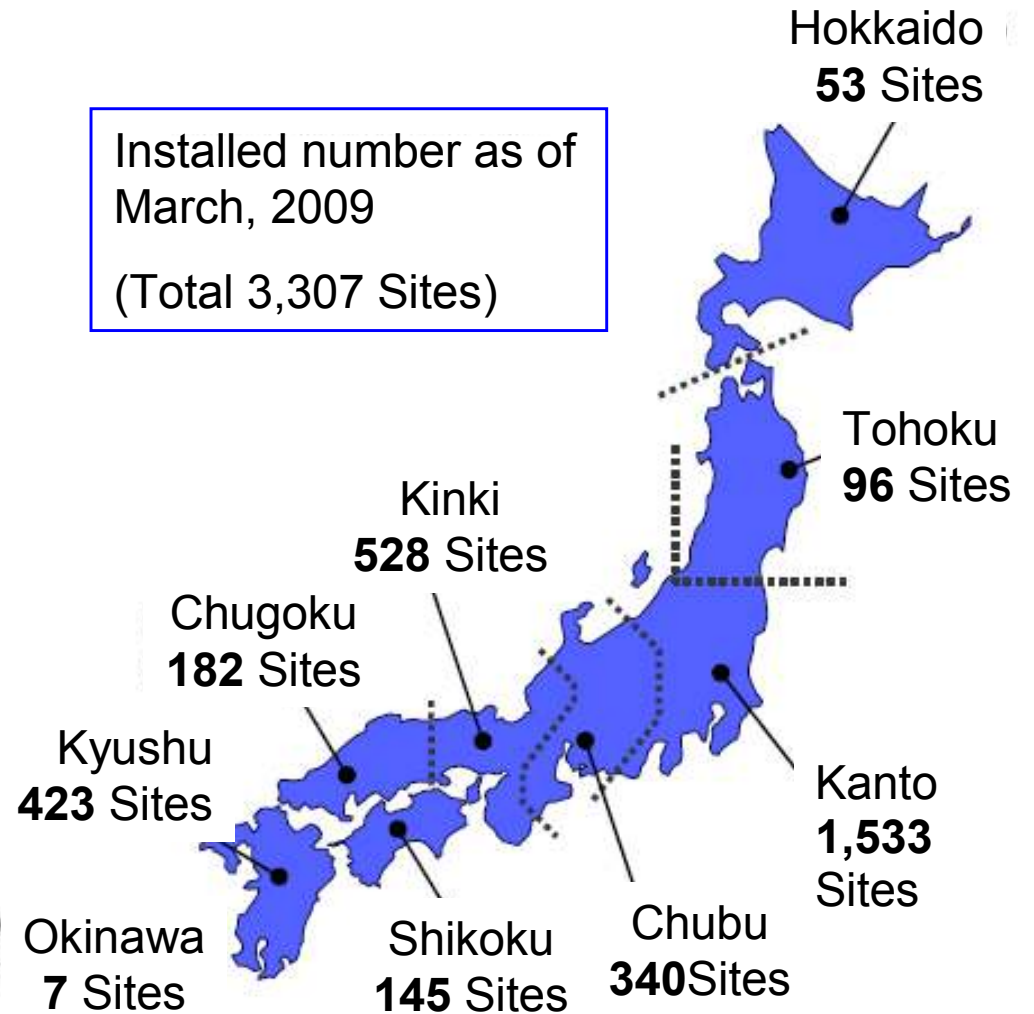


Subsidy for the installation of one unit has been reduced every year, in correlation with the progress of the cost reduction.

Source: NEF (New Energy Foundation) Japan

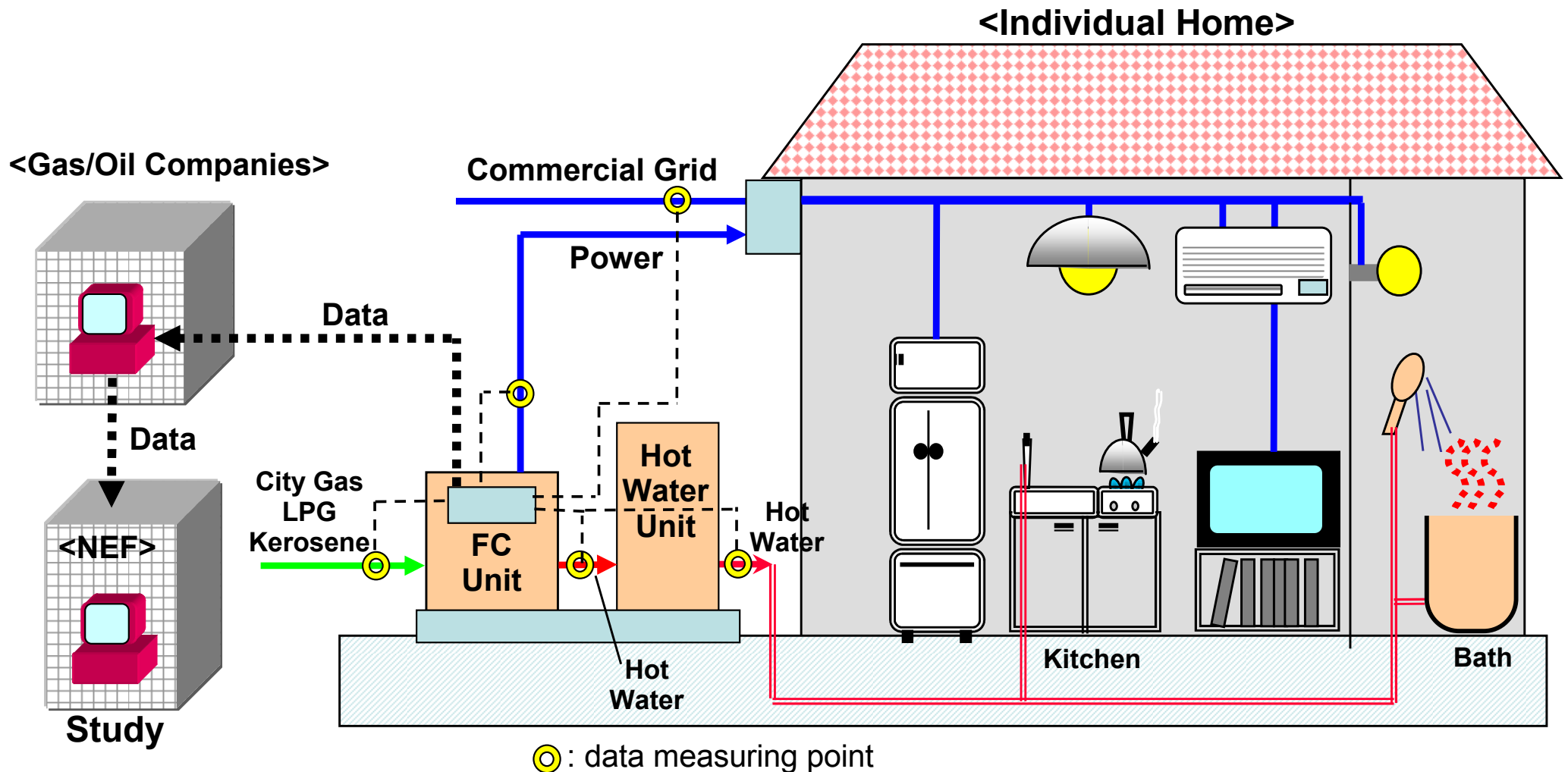
Number of Units Installed in the Demonstration Project

Energy Supplier	units				
	FY2005	FY2006	FY2007	FY2008	Total
Tokyo Gas	150	160	210	276	796
Osaka Gas	63	80	81	141	365
Toho Gas	12	40	38	34	124
Saibu Gas	10	10	13	10	43
Hokkaido Gas	-	10	10	5	25
Nippon Gas	-	10	10	10	30
Nippon Oil	134	301	396	497	1328
Idemitsu Kosan	33	40	50	28	151
Japan Energy	30	40	34	40	144
Iwatani Int'l	10	34	29	10	83
Cosmo Oil	10	19	19	18	66
Taiyo Oil	8	13	18	11	50
Kyusyu Oil	8	10	12	10	40
Showa Shell Sekiyu	6	10	10	10	36
Lemon Gas	6	-	-	-	6
Eneurge	-	-	-	10	10
Saisan	-	-	-	10	10
Total	480	777	930	1120	3307



Most of the major gas and oil companies have been participating in the project. From FY2005 to FY2008, total 3,307 FC systems have been installed and are operating under real conditions at single family homes at a variety of locations.

Outline of PEFC Installation and Data Collection



Power output of the FC system is controlled by the electrical load change at each home. Since the house is also grid-connected, when the electricity demand exceeds the FC rated power, the balance is compensated by grid electricity.

PEFC systems Provided for the Project



TOSHIBA
Leading Innovation >>>



ENEOS CELLTECH
Your Choice of Energy



EBARA BALLARD



Panasonic
ideas for life



TOYOTA

Manufacturer	Unit Number
ENEOS Celltech	1253
Toshiba FCP	748
Ebara	710
Matsushita	520
Toyota	76
Total	3307

Five manufacturers have been participating in the project.

A variety of common fuels, such as city gas (natural gas), LPG (propane), and kerosene have been used to run the FC systems.

Fuel	Unit Number
LPG (Propane)	1618
City Gas	1375
Kerosene	314
Total	3307



2. Certification System for Residential Fuel Cells in Japan

Small Fuel Cell Certification System in Japan

The Small Fuel Cell Certification System was launched in December 2004.

Subject:

- PEFC and SOFC with less than 10 kW in power output and less than 0.1 MPa in maximum operating pressure

Outcome:

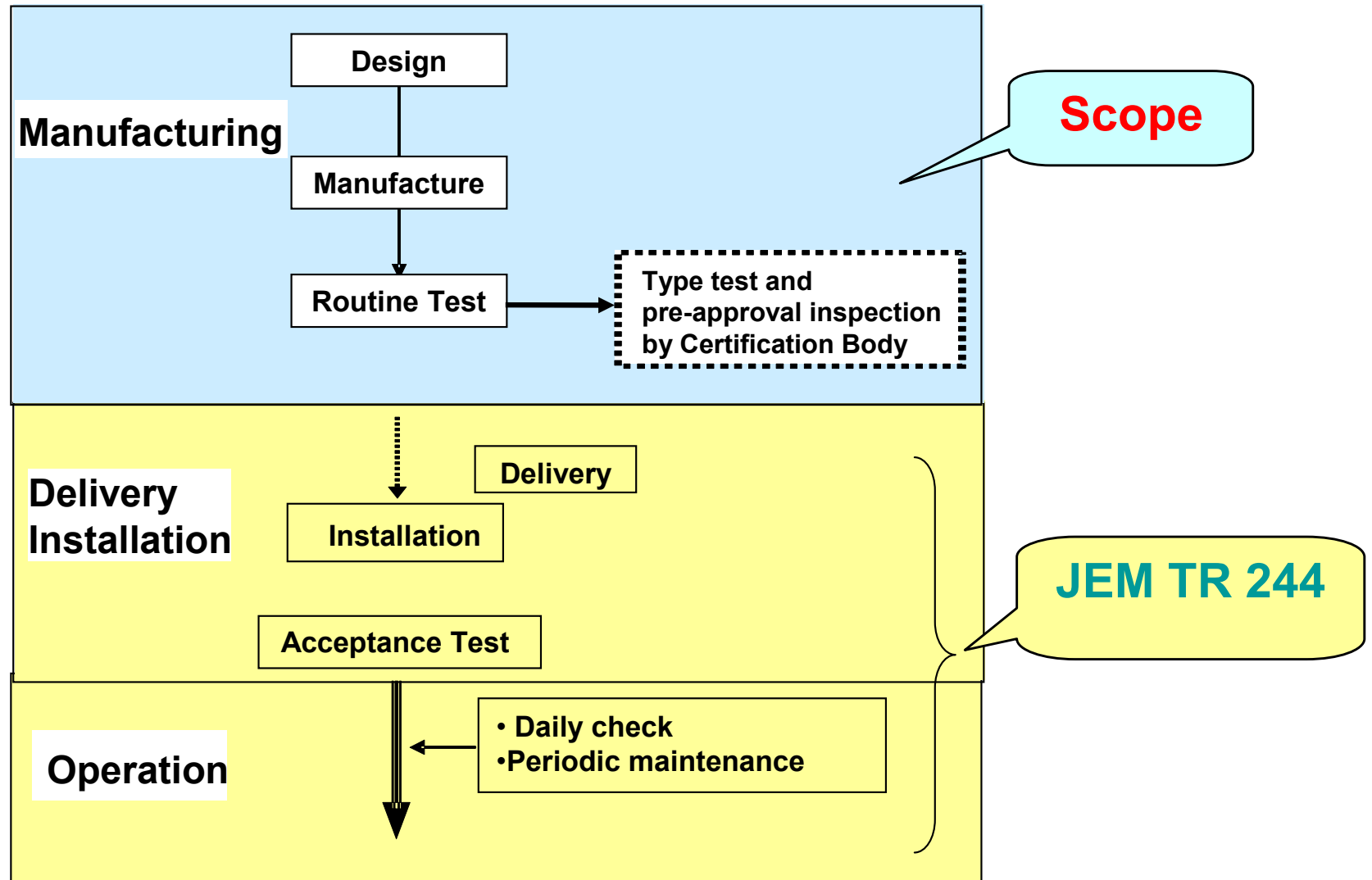
1. Established a one-stop certification system open to any certification bodies.
2. Provides standard test methods for certification.

Review and updates by the Certification System Study Committee for Residential PEFC in JEMA has been on-going.

updating them.

3. SOFC included in 2008

Scope of Certification System for Residential PEFC



JEM-TR 244 : Guidelines of installation, delivery, maintenance, and inspection for small polymer electrolyte fuel cell systems



3. Insurance for Residential Fuel Cells in Japan

Present Status of Insurance for Residential Fuel Cells in Japan

Category	Liability Insurance for 3 rd Party	Property Insurance for FC Unit
Manufactures	<p>Yes</p> <p>A : Covers Products Liability (PL) Insurance only.</p> <p>B : Covers PL under Umbrella Ins. (including Installation, contracting job)</p>	None
Energy Suppliers	None*	None*
Consumers	None	None*

*From FY2005 to FY2008, total 3,307 FC units have been demonstrated under the government's subsidy and Insurance is covered by the manufactures only against Products Liability Insurance. The FC units have been owned by the Energy Suppliers and rent to the consumers under the leasing contract. Each consumer has the general fire insurance that covers its properties (except for FC unit).

Future's Scope of Insurance for Residential Fuel Cells in Japan

Category	Liability Insurance for 3 rd Party	Property Insurance for FC Unit
Manufactures	<p style="text-align: center;">Yes</p> <p>A : Covers Products Liability (PL) Insurance only. B : Covers PL under Umbrella Ins. (including Installation, contracting job)</p>	<p style="text-align: center;">Yes*</p> <p>*Will cover the general property insurance.</p>
Energy Suppliers	<p style="text-align: center;">Yes*</p> <p>*Will cover liability insurance under Umbrella Ins. (Installation, contracting job)</p>	<p style="text-align: center;">Yes*</p> <p>*Will cover the general property insurance.</p>
Consumers	<p style="text-align: center;">None</p>	<p style="text-align: center;">Yes*</p> <p>*Will cover the general fire insurance including property and FC unit.</p>

*From FY2009, this Project will be launched on a commercial basis and FC units are to be purchased by the consumer (with a government's subsidy) and all such Insurance as Liability and Property are to be covered by the manufactures, Operator (Energy Suppliers) and consumers appropriately.

4. Summary

- From FY2005 to FY2008, residential Fuel Cells demonstration project was conducted and up to FY2008, 3037 FC units have been installed and demonstrated under the assistance by 17 Energy Suppliers and 5 Makers with government's funding/subsidy.
- From FY2009, this Project will be launched on a commercial basis and FC units are to be purchased by the consumer (with a government's subsidy).
- As to Certification System for the Small Fuel Cells was launched in December, 2004 and will be kept running.
- As to Insurance for Residential Fuel Cells in Japan, at present, due to demonstration purpose up to FY2008, it is not yet established completely covering only manufactures' Products Liability (PL) Insurance for 3rd Parties.
- In the near future (after being launched on commercial basis), all such Insurance as Liability and Property are to be covered by the manufactures, Operator (Energy Suppliers) and consumers appropriately.

Thank you for your attention!

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