Subsidy for EV

2012 budget	\ 44.4 billion

For vehicle: 1/2 of the price gap between EV and correspondent IEC vehicle
- -EV
- -PHEV
- -Clean Diesel

For charging station: 1/2 of the price

EV

Plug-in Hybrid vehicle

Clean Diesel vehicle

Charging station

Quick charger

Normal charger

Subsidy to promote introduction of clean energy vehicles

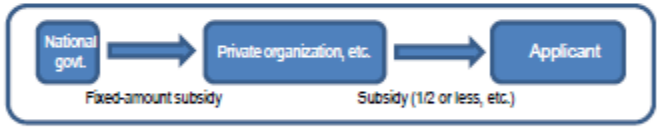
○ In FY2011, the amount of subsidies provided to support the purchase of electric vehicles, plug-in hybrid vehicles, and charging facilities was expanded significantly to 26.7 billion yen.

Scheme details

Scheme outline and objective

○ To subsidize the introduction of electric vehicles and plug-in hybrid vehicles that will enter the market on a full-scale basis and the installation of charging facilities in order to promote their penetration in society.

Eligibility requirements (eligible persons, eligible activities, subsidy rates, etc.)



(1) Eligible persons
- a) Vehicle: Private business, local government body, etc.
- b) Charging facility: Private business, local government body, etc.

(2) Applicable vehicles, etc.
- a) Vehicle: Electric vehicle, plug-in hybrid vehicle
- b) Charging facility: Quick charger or other charging device

(3) Subsidy rates
- a) Vehicle: 1/2 or less of cost difference with conventional vehicle
- b) Charging facility: Quick charger: 1/2 or less
  Other charger: 1/2 or less

○ Subsidy to promote introduction of clean energy vehicles (EV & PHV, etc.)

FY2011 Budget amount 29.2 bil. yen
FY2012 Total operation amount including carry-overs 44.4 bil. yen

Scheme concept

Electric vehicle

Charging facility

(Quick charger)

(Charger)

Plug-in hybrid vehicle

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Incentives to install charging facilities

- ○ Some EV & PHV Towns subsidize the installation of charging facilities. This is to promote their installation by reducing related costs.
- ○ In some cases, EV & PHV Towns subsidize construction expenses not covered by national subsidies or strategically narrow down locations that are eligible for subsidies.

Charger introduction subsidies in EV & PHV Towns

	Kanagawa	Kyoto	Tokyo	Nagasaki	Niigata	Fukui	Osaka	Okayama	Gifu	Saitama	Saga	Tochigi	Tottori
Quick chargers	◎		◎	□	◎		◎	◎	◎	◎	○	◎	◎
Normal **chargers**		□			◎	○	◎	◎	○	◎	○		◎

Explanation: Provided in both FY2010 and FY2011: ◎ Started in FY2011: ○ Provided up to FY2010: □
***Subsidy applicability may be limited in some cases**

Scope of subsidies

Includes construction expense:	Kanagawa, Tochigi, Tottori, etc.
Only underdeveloped or priority development regions are eligible:	Niigata (in FY2011: quick chargers)
Higher maximum amount for installation in hotels and Japanese-style inns:	Okayama (in FY2011: ordinary chargers)

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Targets of EV Charger installation: How we deploy the charging infrastructure?

Targets for 2020

Normal Chargers (NC): 2 Million

Quick Chargers (QC): 5,000

- EVs should basically be charged by NC at night.
- A certain number of QC should also be installed as a "safety net".

How do we start?

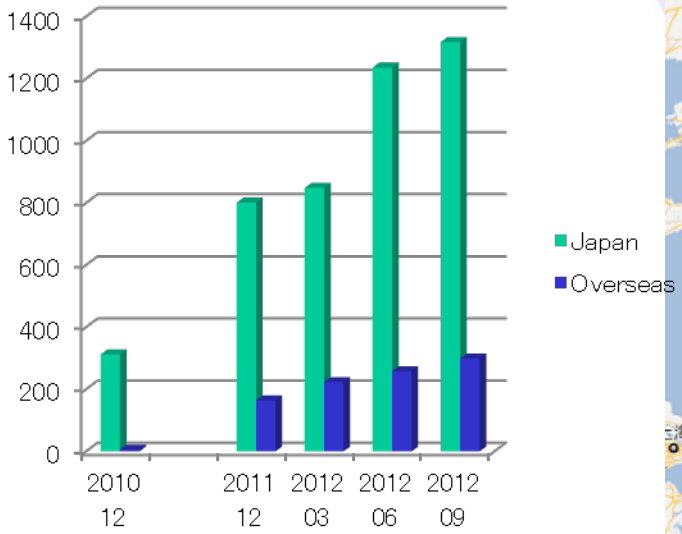
At the Market Preparation Stage, we build infrastructure intensively and systematically mainly in EV/PHV towns

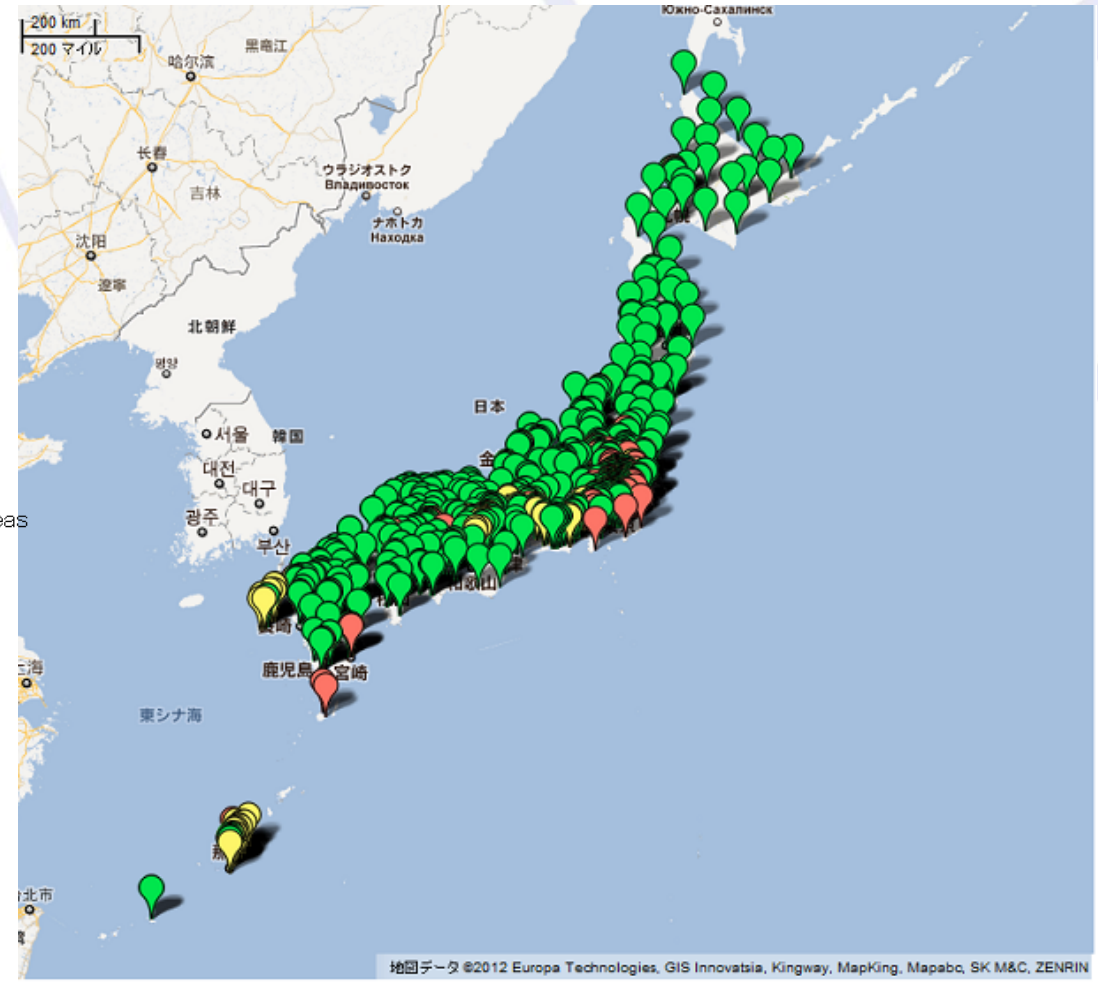
- Establish infrastructure development guidelines
- Compile EV/PHV town best practice handbook (including business models)

→ **Pave the way for the Diffusion Stage**

There are now over 1300 fast chargers in Japan, and 4800 normal chargers available to the public

Fast charger growth






Washington
Montana
North Dakota
Minnesota
Montreal
Oregon
South Dakota
Wisconsin
Michigan
Toronto
Idaho
Wyoming
New York
Nebraska
Iowa
Illinois
Pennsylvania
Ohio
Nevada
United States
Utah
Colorado
Indiana
New York
Kansas
Missouri
West Virginia
California
Virginia
Los Angeles
Oklahoma
Arkansas
North Carolina
Maryland
New Mexico
Mississippi
South Carolina
Phoenix
San Diego
Alabama
District of Columbia
Texas
Georgia
Louisiana
Houston
San Antonio
Florida
Gulf of California
Gulf of

CHAdeMO compatible EV

Subaru:
Plug-in Stella

Mistubishi Motors:
i-MiEV

Nissan: LEAF

Protoscar: LAMPO2

Peugeot: iON

Citroen: C-ZERO

Toyota: iQ based EV

THINK: City

Micro-Vett: Fiorino

Standardization status

IEC Under review.
Japan is presidency holder for DC charge PT（61851-23,24, 62196-3). Japan proposal: CHAdeMO. U.S. and Germany proposal: Combo system with PLC (with different AC connector). China proposal: DC normal charge for battery swap. These 4 systems will be regulated in IEC.

CHAdeMO connector

U.S. Under review.
U.S. OEM proposed combo system against Japanese proposal (CHAdeMO). U.S. and German OEMs are seeking for future scalability with high-speed PLC, but this attitude induces the anxiety that EV diffusion could be delayed. Now, competition procedure is under discussion.

Combo connector (DE)

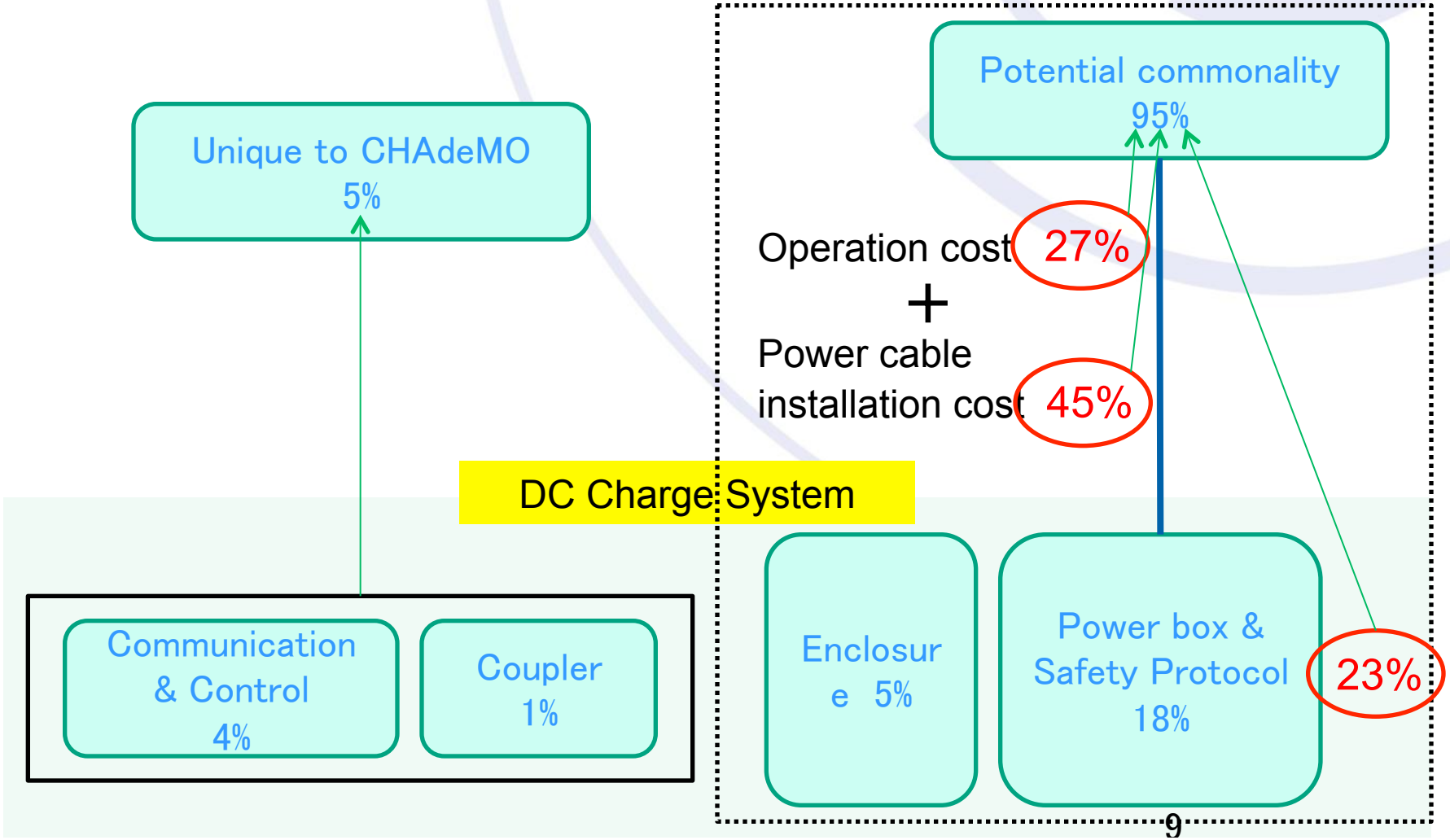
EU EC instructed CEN/CENELEC to present a recommendation for EV charging infrastructure because IEC discussion seems to proceed slowly. EC recognizes that CHAdeMO can be one candidate of short-term standard, and recommends industries to standardize original European standard based on CHAdeMO.

China China State Grid proposed battery swapping system. This is because EV spreading speed is much faster than that of power grid construction. Chinese proposal to IEC seemed to be the same DC quick charging as CHAdeMO, but it's officially announced that Chinese standard is for DC normal charging.

Combo connector (SAE)

Reference :

- 72% of Quick Charger installation costs are common regardless of the charging system. (CHAdeMO or Combo).
- 95% of the total cost can possibly be shared if further engineering is pursued (23%).



Conclusion:

EV / PHEV market is an emerging market.
What is important is not to discourage its growth.

◆ What we have to consider now are…

① "User first" policy

- Ensuring compatibility of devices
- respecting for the differences of each market situation

② Constructive cooperation of all the stakeholders for the common goal of EV/PHEV diffusion

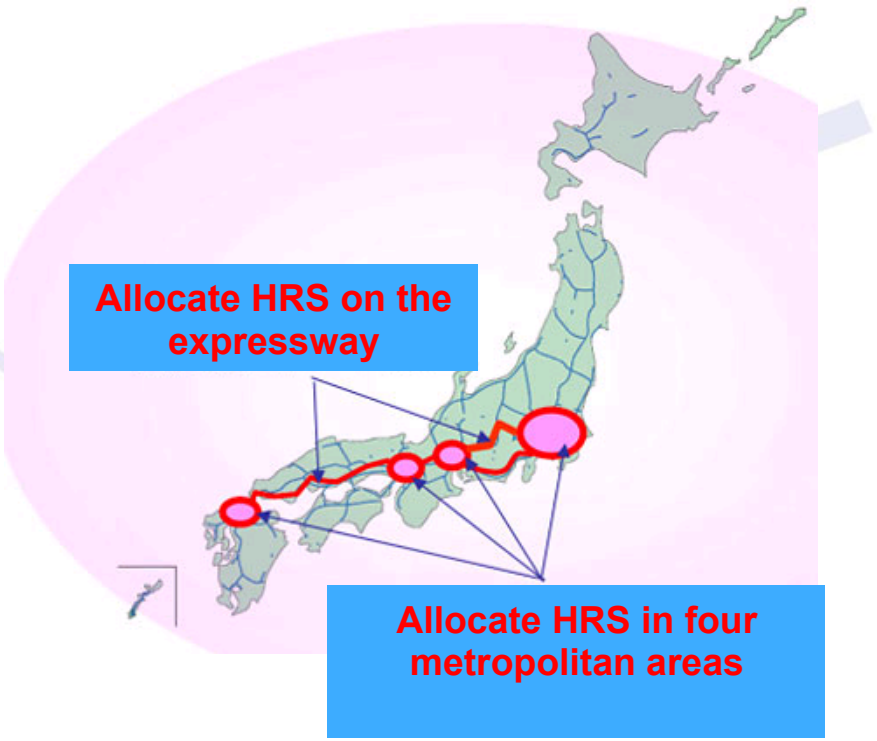
Fuel Cell Vehicles

Industry Trends for FCVs and H2 Stations

Joint Announcement in March 2011

- Thirteen Japanese companies jointly announced the following related to mass-produced FCVs and a hydrogen infrastructure.

1. Automakers are aiming to launch FCVs in the Japanese market—mainly in the country's four major metropolitan areas in 2015.
2. Hydrogen fuel suppliers are aiming to construct approximately 100 hydrogen refueling stations (HRS) by 2015.
3. Automakers and hydrogen fuel suppliers will work together to expand the introduction of FCVs and develop a hydrogen supply network throughout Japan.



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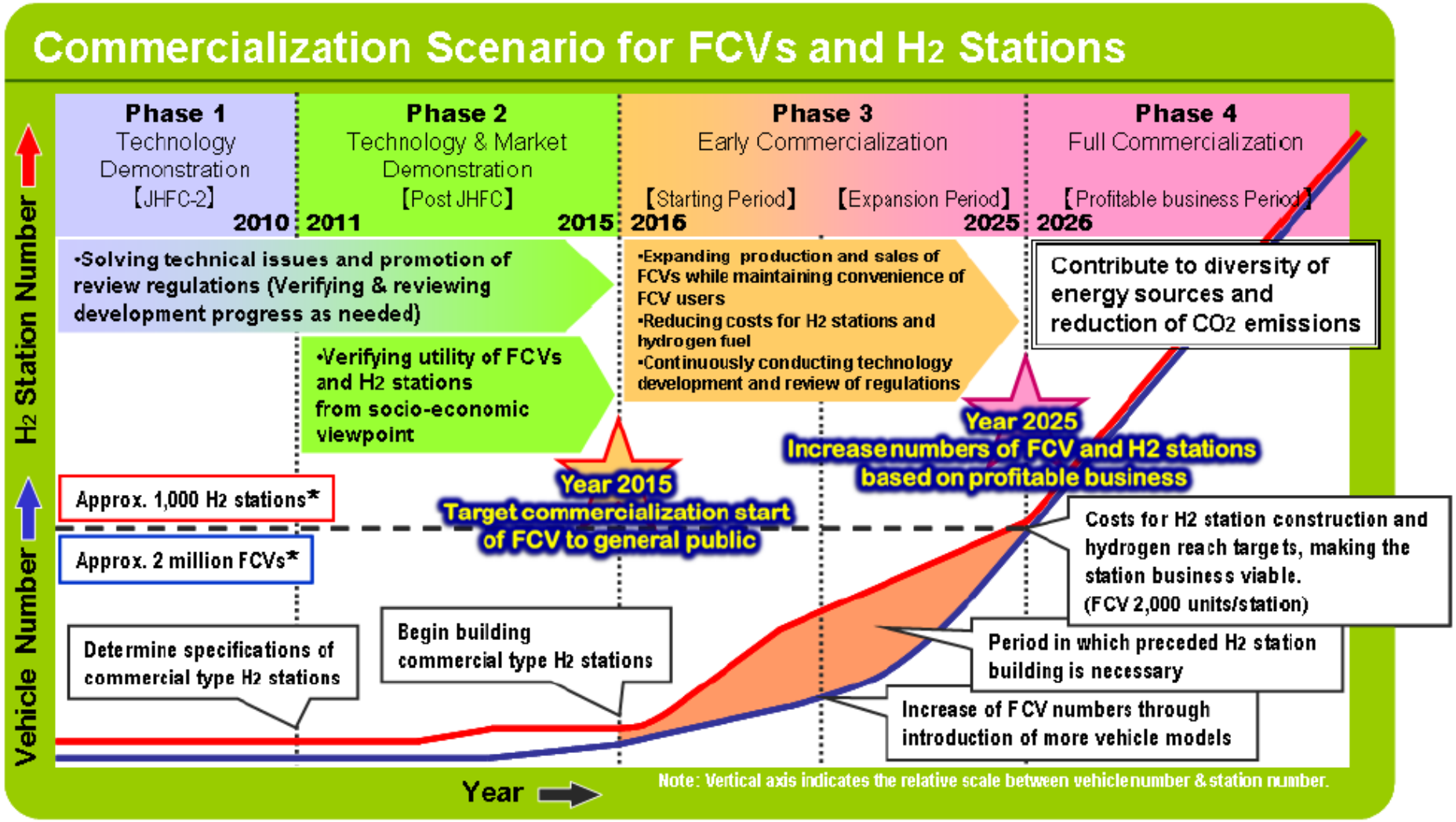
Commercialization Scenario for FCVs and H2 Stations



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

Source : Fuel Cell Commercialization Conference of Japan (FCCJ)

Hydrogen Stations used for the Demonstration Program


Yokohama-Daikoku (70/35MPa, Off-site)


Tokyo-Suginami (35MPa, Off-site)


Nikko (35MPa, Off-site)


Senju (70/35MPa, On-site)


Yokohama-Asahi (70/35MPa, On-site)

○ JHFC3
2) Regional Demonstration Project

Yamanashi (35MPa, Off-site)


Narita (35MPa, Off-site)

Kitakyushu (35MPa, Off-site)

Kyushu-Univ. (35MPa, On-site)


Osaka (35MPa, On-site))

Tosu (35MPa, On-site)


Kasumigaseki (70/35MPa, Off-site)


Kansai-airport (35MPa, Off-site)


Centrair (35MPa, On-site)


Haneda (35MPa, On-site)

Ariake (70*/35MPa, Off-site)
*Scheduled

FCVs and FC Buses used for the Demonstration Program

FCVs prepared for the program

FCHV-adv (Toyota)

X-TRAIL FCV (Nissan)

FCX CLARITY (Honda)

Other FCVs leased from automakers

Fleet Demonstration

Manzaki Transport Co., Ltd.

FCHV-adv (Toyota)
FCX CLARITY (Honda)
ANA Welcome-home Taxi Service

Airport Transport Service Co., Ltd.

FCHV-BUS (Toyota, Hino)
Airport Limousine

Eastern Airport Motors Co., Ltd

X-TRAIL FCV (Nissan)
Airport Taxi

ANA CHUBU AIRPORT CO., LTD.

FCHV-BUS (Toyota, Hino)
Ramp Bus

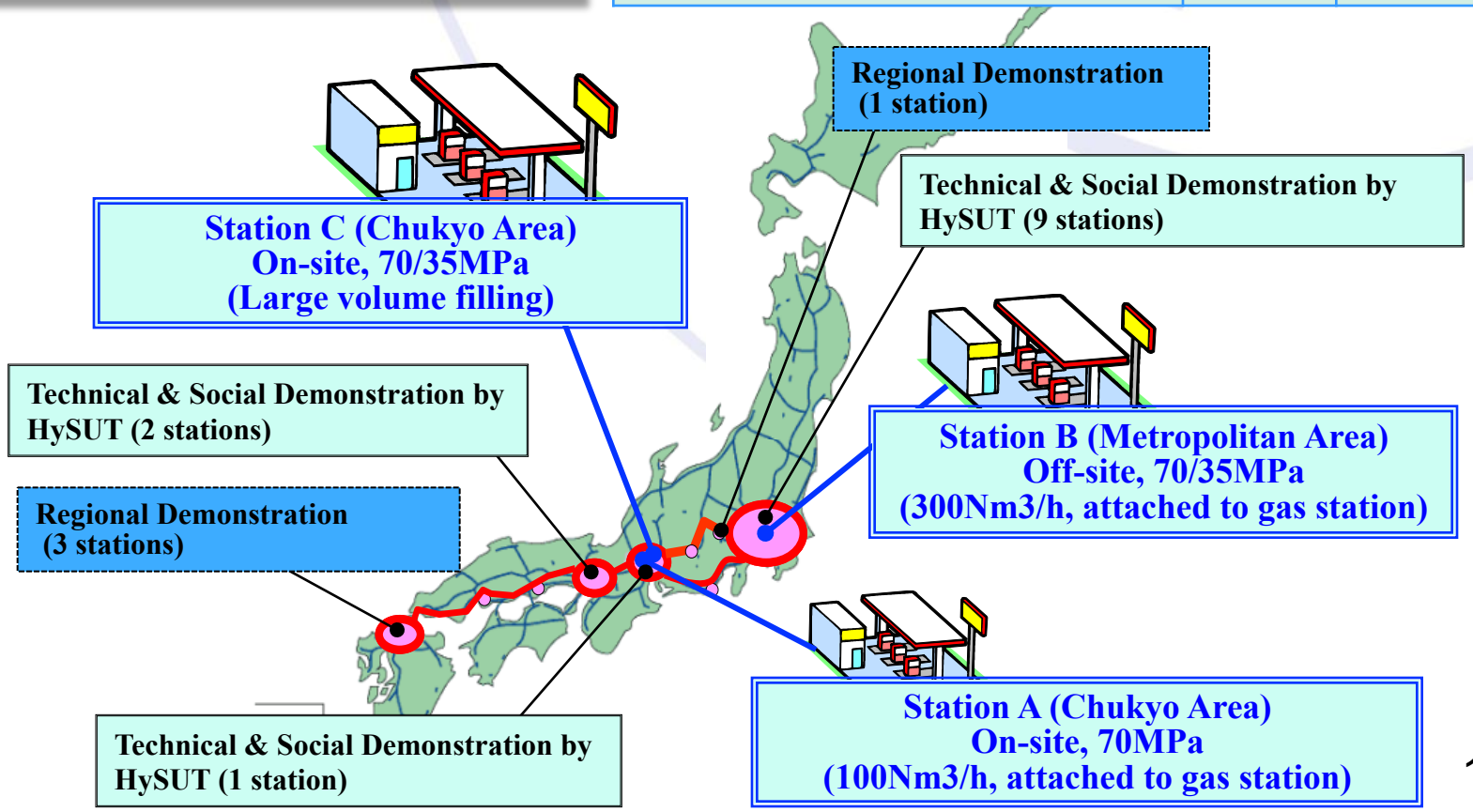
Plans for FY2012

➢Demonstration of the commercial model station

3 Commercial model stations are planed to be constructed in FY2012.

Number of Public Accessible Hydrogen Stations in Japan

	FY2011	FY2012
Technical & Social Demonstration by HySUT	**12**	**15**
Regional Demonstration	4	4
Total	**16**	**19**



NEDO and green transportation related projects

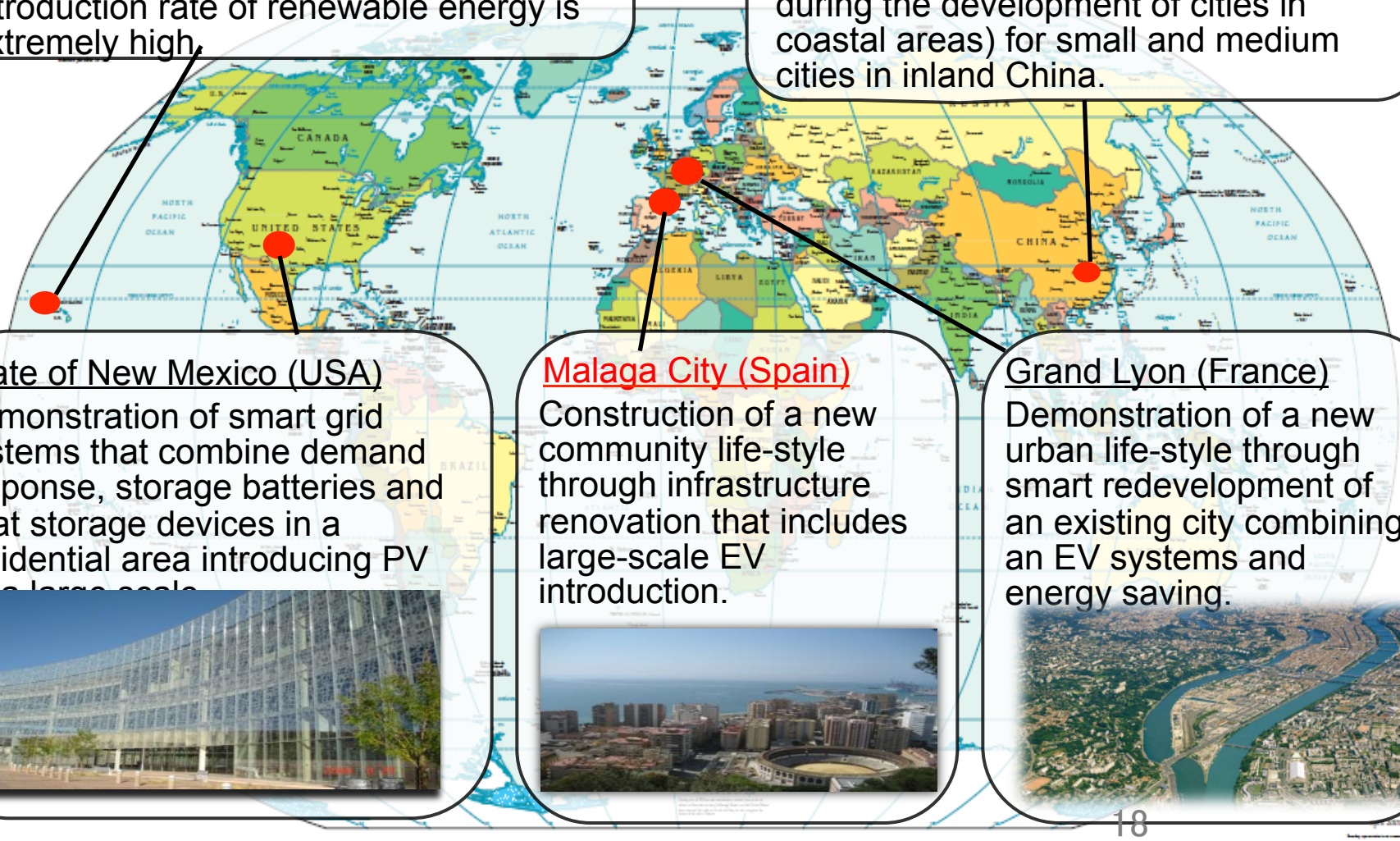
NEDO's Global Projects

Maui Island, State of Hawai'i (USA)

Construction of a low-carbon model city for remote islands using an EV charging control system on the Maui, where the introduction rate of renewable energy is extremely high.

Gongqingcheng City, Jiangxi Province (China)

Exhibition of a new model (to avoid urban growth problems that occurred during the development of cities in coastal areas) for small and medium cities in inland China.



State of New Mexico (USA)

Demonstration of smart grid systems that combine demand response, storage batteries and heat storage devices in a residential area introducing PV on a large scale

Malaga City (Spain)

Construction of a new community life-style through infrastructure renovation that includes large-scale EV introduction.

Grand Lyon (France)

Demonstration of a new urban life-style through smart redevelopment of an existing city combining an EV systems and energy saving.

Japan US Island Grid Project in Maui

- More renewable energy in the power sector, greening the transport sector is key to achievement of Hawaii Clean Energy Goals.
- The State of Hawaii and NEDO signed an MOU to implement a smart grid project on Maui in November 2011.
- US and Japan are collaborating to develop and demonstrate advanced technology for the control of electric vehicle (EV) charging to manage Distributed Energy Resources.
- NEDO will cover 37million US dollars

Hawaii aims to realize a low carbon society (70% reduction of CO2 by 2030).

Large-scale renewable energy introduction has lead to the following.

■ Issues

- ***Surplus power***
- ***Influence on frequency***

In addition, as PV systems have been steadily installed at residential houses, the ***influence on distribution line voltage*** also needs to be considered.

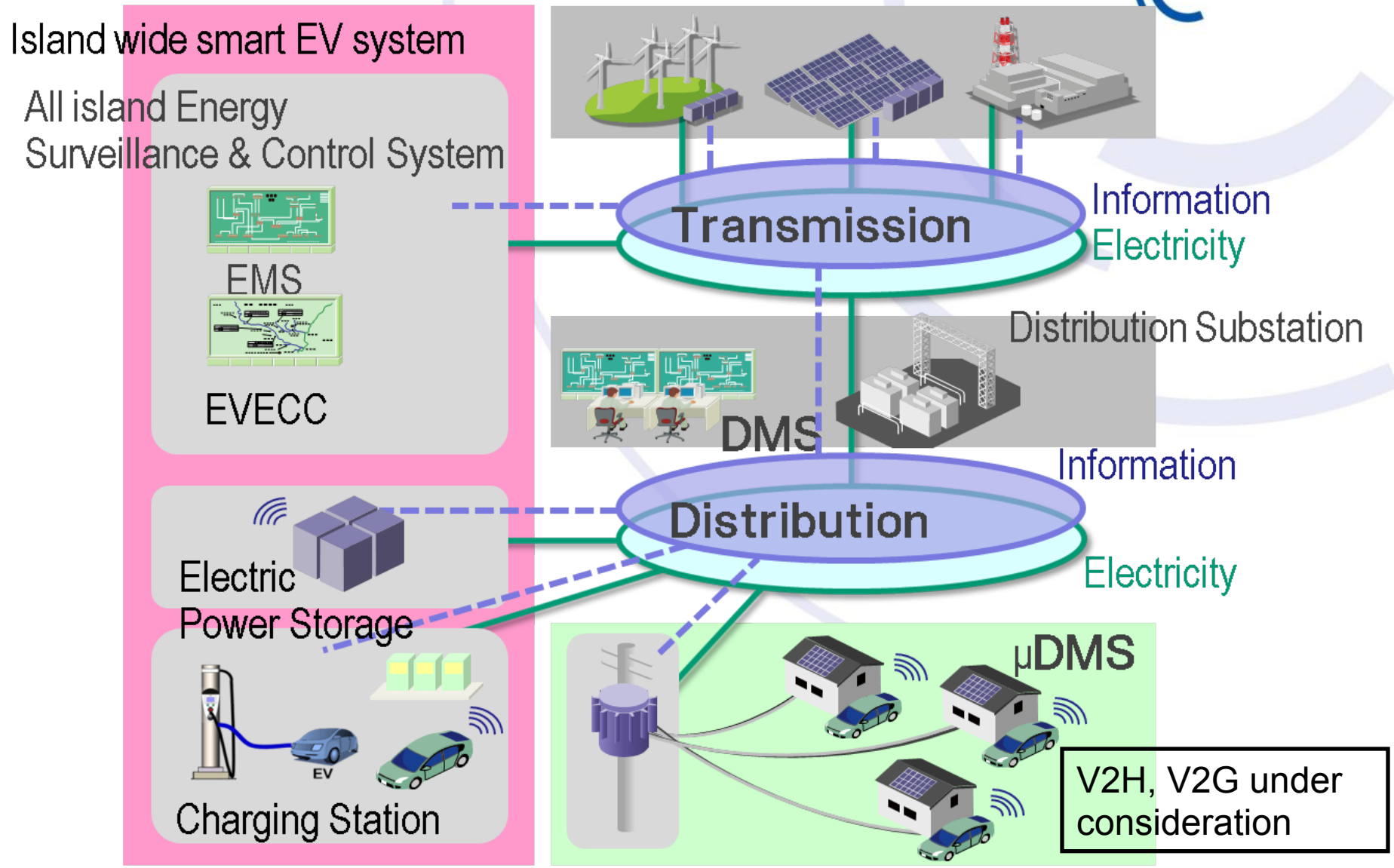
This demonstration project is designed to address a growing number of issues due to the high penetration of renewable energy by means of the effective use of technology elements.

■ Technological elements

Smart PCS for PV systems
EV and PHEV charging control
Electricity storage battery control
PV generation forecast
Demand response
Information and communications technologies

Project Image

Japan US Island Grid Project



200 Evs and Normal Chargers & 5 Quick Chargers

Smart home/community in Kihei