

OICA Round Table
“The World Auto Industry: Situation and Trends”
Subject 1-Global Markets: Situation and Forecasts
Domestic Market/Production Trends

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Seoul, October 23, 2014

1.1 Summary of Current Status of Japan's Economy

Following the inauguration of Prime Minister Shinzo Abe's cabinet in December 2012, the Japanese economy has shown a sustained favorable turn as a result of the administration's "Abenomics" policies which comprise three areas ("three arrows") of dynamic monetary, fiscal and other economic initiatives.

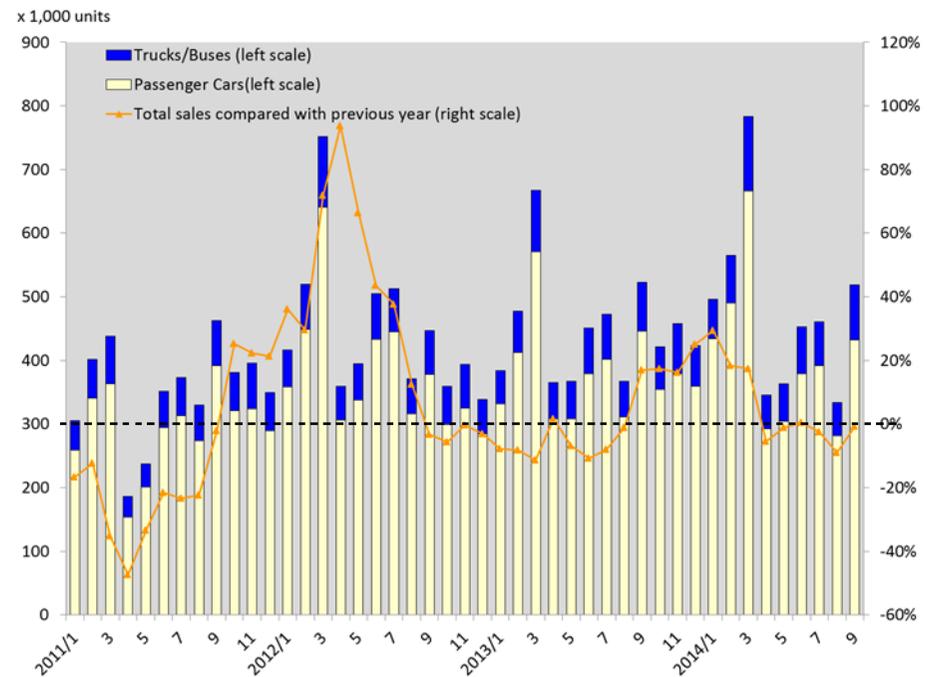
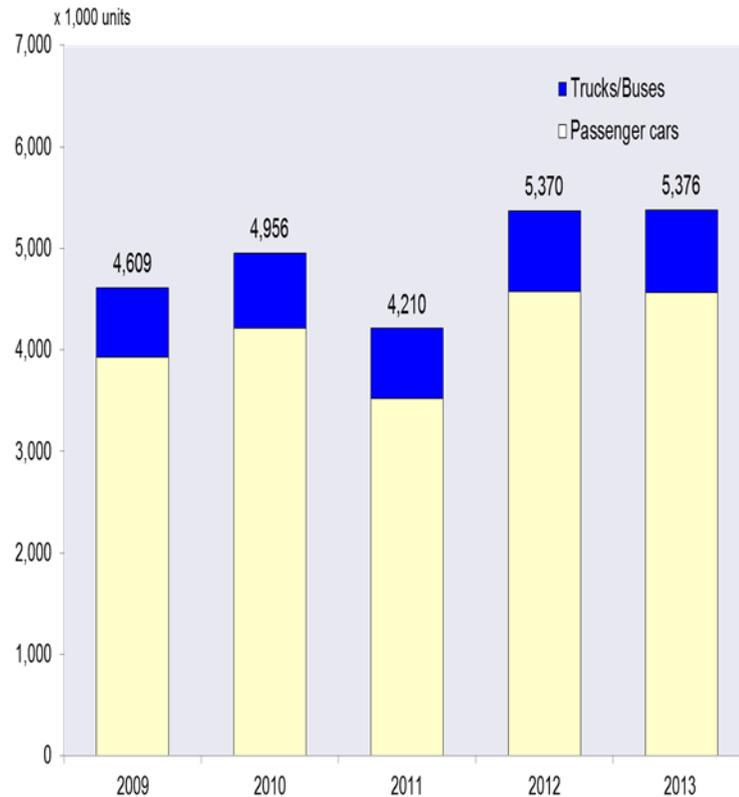
Abenomics' "three arrows" of economic initiatives

1. Aggressive monetary policies
2. Flexible fiscal policies
3. Growth strategies promoting private investment

- GDP growth rate in real terms:
0.7% (FY 2012) → 2.3% (FY 2013) → 1.2% (FY 2014 forecast)
- Unemployment rate:
3.9% (FY 2012) → 3.7% (FY 2013) → 3.5% (FY 2014 forecast)
- Nikkei stock average:
JPY 10,395 (end of 2012) → JPY 16,173 (end of September 2014)

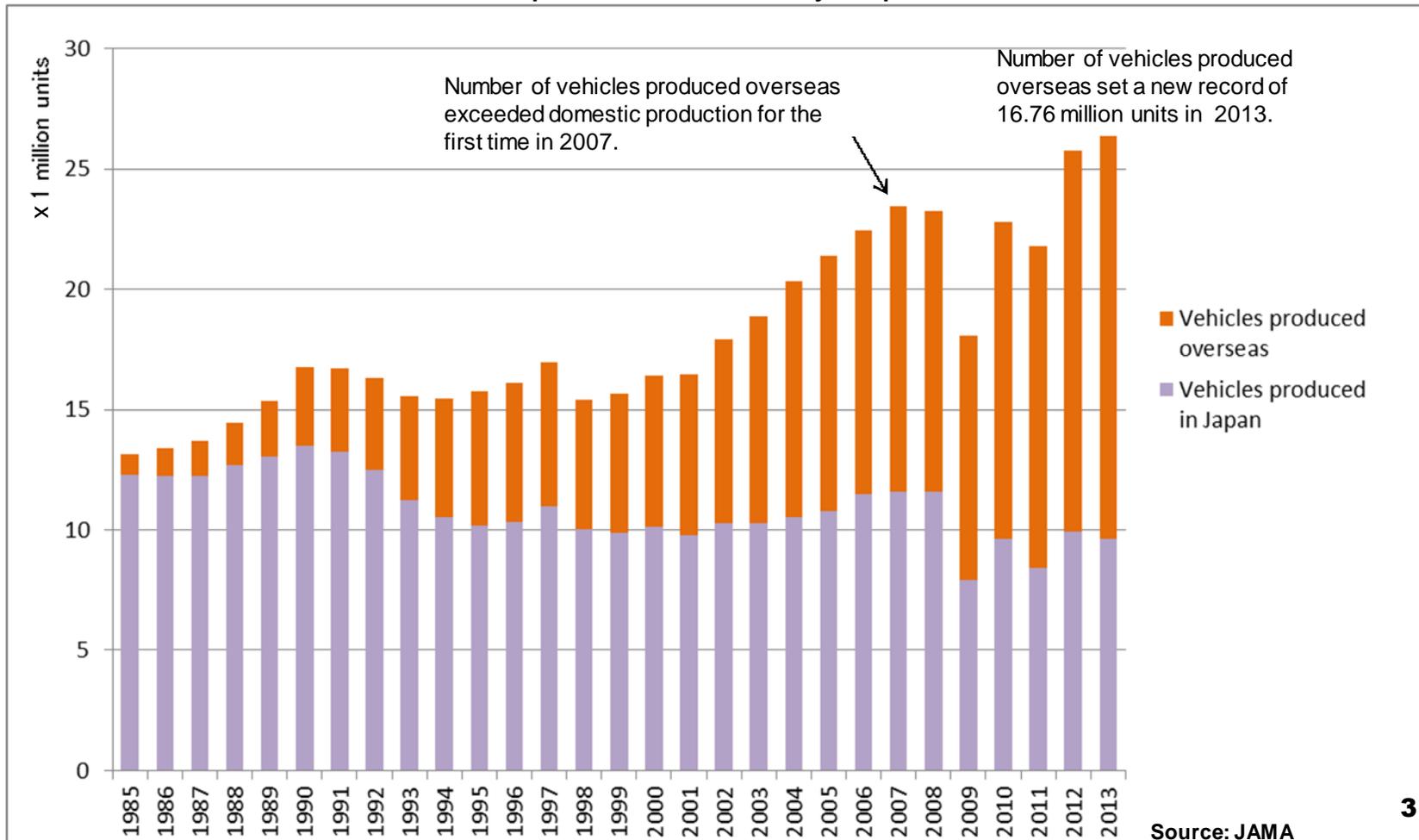
1.2 New Motor Vehicle Sales Trends in Japan

■ A sluggish domestic market has been a basic long-term trend, the result of prolonged economic stagnation and longer vehicle replacement demand cycles. However, in recent years the market has seen a firm upward trend following the negative impacts of the global financial recession and the natural disasters of March 11, 2011, as a result of specific market policies and general economic recovery.



1.3 Continued Expansion of Overseas Production

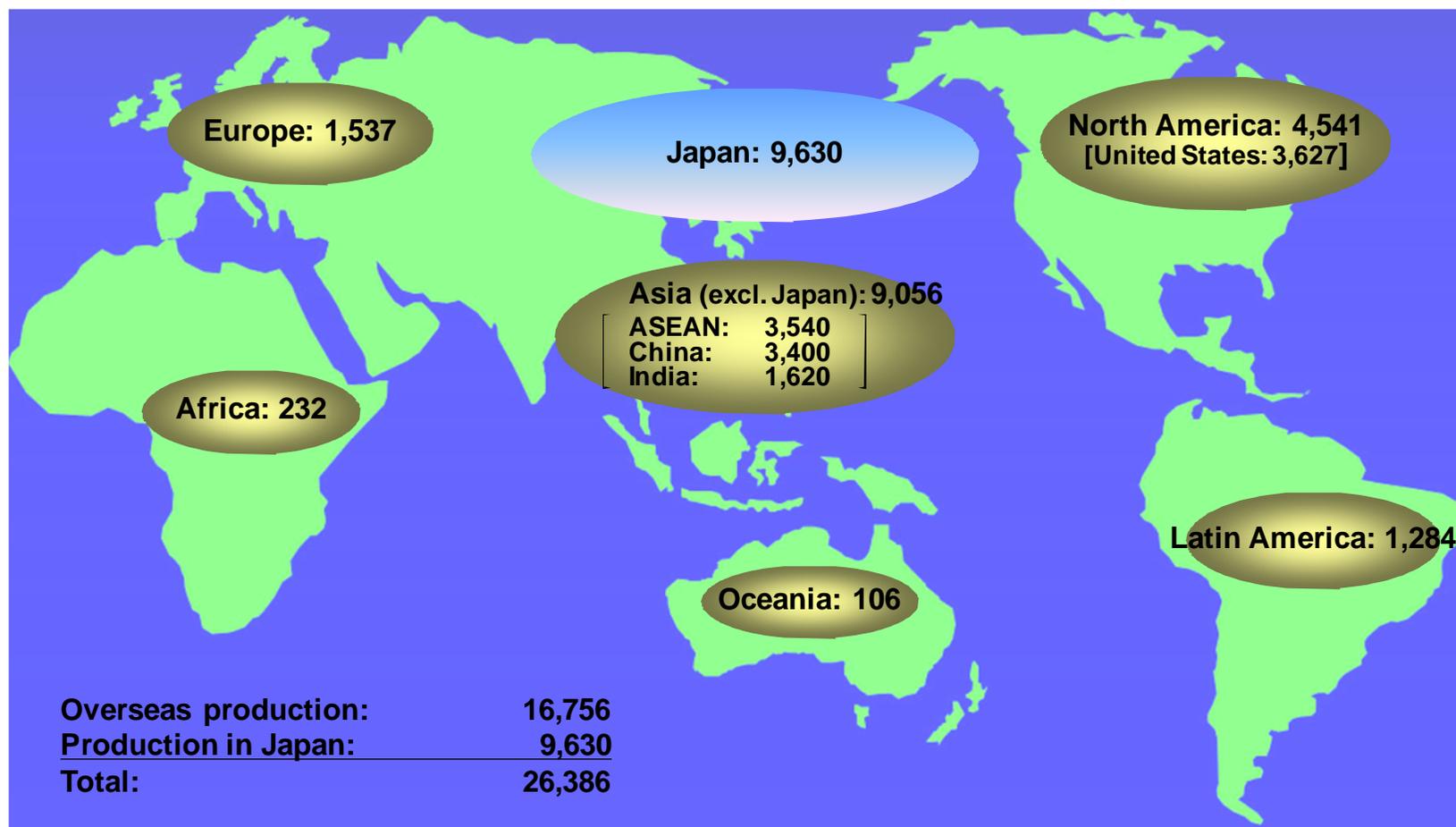
Vehicles Produced in Japan / Overseas by Japanese Automakers





1.4 Japanese Automakers' Domestic & Global Production, by Region (2013)

(x 1,000 units)



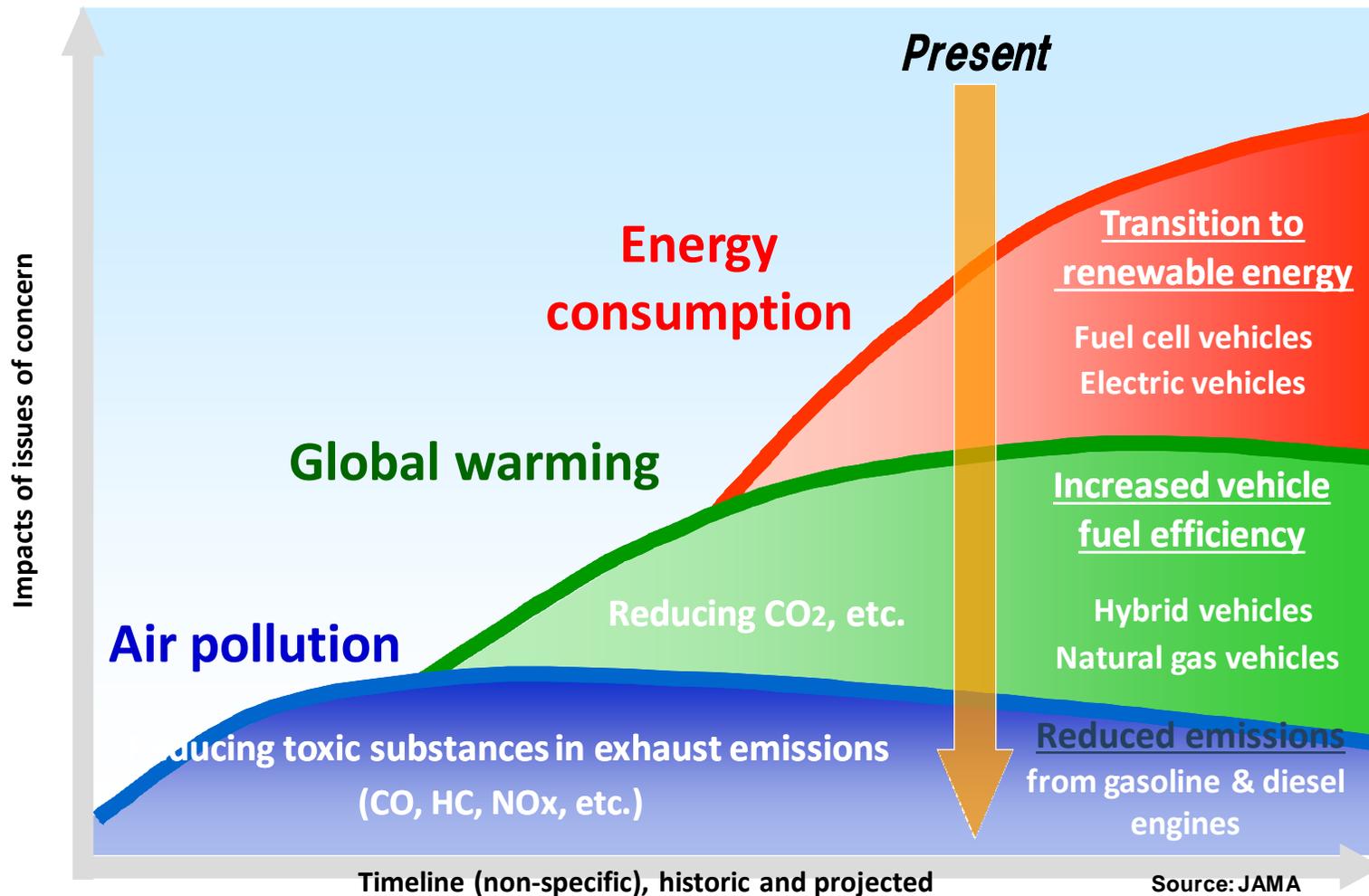
OICA Round Table
“The World Auto Industry: Situation and Trends”
Subject 2-Green Car Market Situation and Policies
Japan’s Initiatives for the Diffusion of Next-Generation Vehicles

Seiichi NAGATSUKA
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2.1 Global Warming and the Depletion of Oil Resources

- Governments and industries in all countries must work on a cooperative basis to tackle global warming and the depletion of oil resources.





2.2 Target: Expanding the Share of Next-Generation Vehicles

- Strategies need to be developed and implemented to expand the share of next-generation vehicles in the national vehicle fleet.

Japan's Next-Generation Vehicle Diffusion Projections for 2020 and 2030

		2020	2030
Conventional vehicles		50-80%	30-50%
Next-generation vehicles		20-50%	50-70%
	Hybrid vehicles	20-30%	30-40%
	Electric vehicles, Plug-in hybrid vehicles	15-20%	20-30%
	Fuel cell vehicles	Under 1%	Under 3%
	Clean diesel vehicles	Under 1%	5-10%

2.3 What Are Next-Generation Vehicles?

- In Japan, the term “next-generation vehicles” refers to alternative energy-powered vehicles and clean diesel vehicles.
- Because of their excellent fuel efficiency, they represent a strong pathway for energy conservation, CO₂ reduction and energy security.
- Japan’s automakers are accelerating the advancement of these vehicles.



Natural gas vehicle



Hybrid vehicle



Electric vehicles



Clean diesel vehicle



Plug-in hybrid vehicle



Fuel cell vehicle

2.3 Next-Generation Vehicles

1. Hybrid Vehicles



◇ Status

- Current number of vehicles in use (end of fiscal 2013 estimate): Approx. 3.87 million.
- Almost all are passenger vehicles, but freight transport trucks and buses are increasing.
- Hybrids have a significant impact on energy saving and CO2 reduction.

◇ Outlook

- Number of hybrids in use is expected to continue to rise. While freight transport vehicles will increase, passenger vehicles will remain the prevailing vehicle type in use.
- **Improved battery performance** and **reduced cost** are needed for the greater diffusion of hybrid vehicles.

2.3 Next-Generation Vehicles

2. Electric Vehicles



◇ Status

- Current number of vehicles in use (end of fiscal 2013 estimate): Approx. 54,000.
- EVs have seen notable growth in recent years.

◇ Outlook

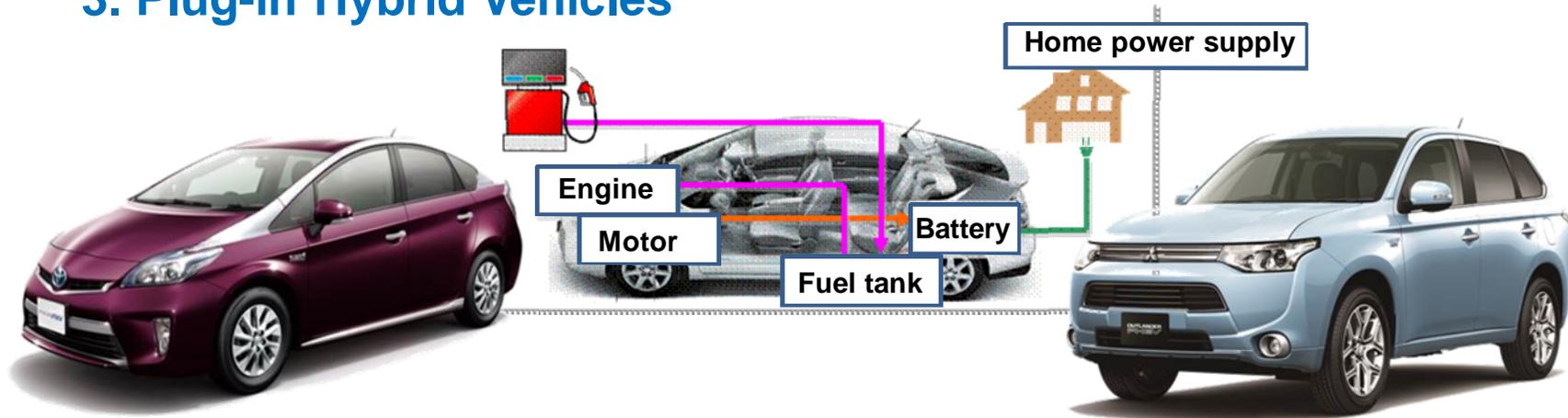
- The introduction of lithium-based batteries has helped reduce the number of issues, but an expansion of charging infrastructure is necessary.
- A **significant breakthrough at a basic research level** for **new types of batteries** is essential for expansion.
- The primary issues are **cost, durability, and range**.

◇ Example models

- | | |
|-----------------------------|---|
| • i-MiEV (Mitsubishi) | Sales to corporations began in July 2009, market sales in April 2010. |
| • MINICAB-MiEV (Mitsubishi) | Market sales began in December 2011. |
| • Leaf (Nissan) | Market sales began in December 2010. |
| • i3 (BMW) | Market sales began in April 2014. |
| • e-UP! (VW) | Market sales are scheduled to begin in February 2015. |

2.3 Next-Generation Vehicles

3. Plug-in Hybrid Vehicles



◇ Status

- Current number of vehicles in use (end of fiscal 2013 estimate): Approx. 30,000.
- Charged by an external power source, giving the vehicle an extended range.
- Drives as an EV for short trips, and as a normal HV for long trips.

◇ Outlook

- Primary issues are to **improve battery performance (to extend travel range)** and **reduce cost**.

◇ Example models

- | | |
|--------------------------|--------------------------------------|
| • Prius (Toyota) | Market sales began in January 2012. |
| • Outlander (Mitsubishi) | Market sales began in December 2012. |
| • Accord (Honda) | Market sales began in June 2013. |

2.3 Next-Generation Vehicles

4. Fuel Cell Vehicles



◇ Status

- High potential to reduce both oil dependency and CO₂ emissions. Development is in progress at various companies.
- Verification tests combining hydrogen infrastructure and fuel cell vehicles are being promoted both domestically and abroad.

◇ Outlook

- Fuel cell vehicles are shaping up to be both durable and reliable.
- A **reduction in FC system costs** and **development of a hydrogen infrastructure** are required to bring FCs into full-scale use.

◇ Example models

- | | |
|-----------------------|--|
| • FCHV-adv (Toyota) | Limited leasing began in September 2008. |
| • New FCV (Toyota) | Market sales are scheduled to begin in 2015. |
| • FCX Clarity (Honda) | Limited leasing began in November 2008. |

2.3 Next-Generation Vehicles

5. Clean Diesel Vehicles



◇ Status

- Current number of vehicles in use (end of fiscal 2013 estimate): Approx. 145,000.
- Clean diesel vehicles have seen notable growth in recent years.

◇ Outlook

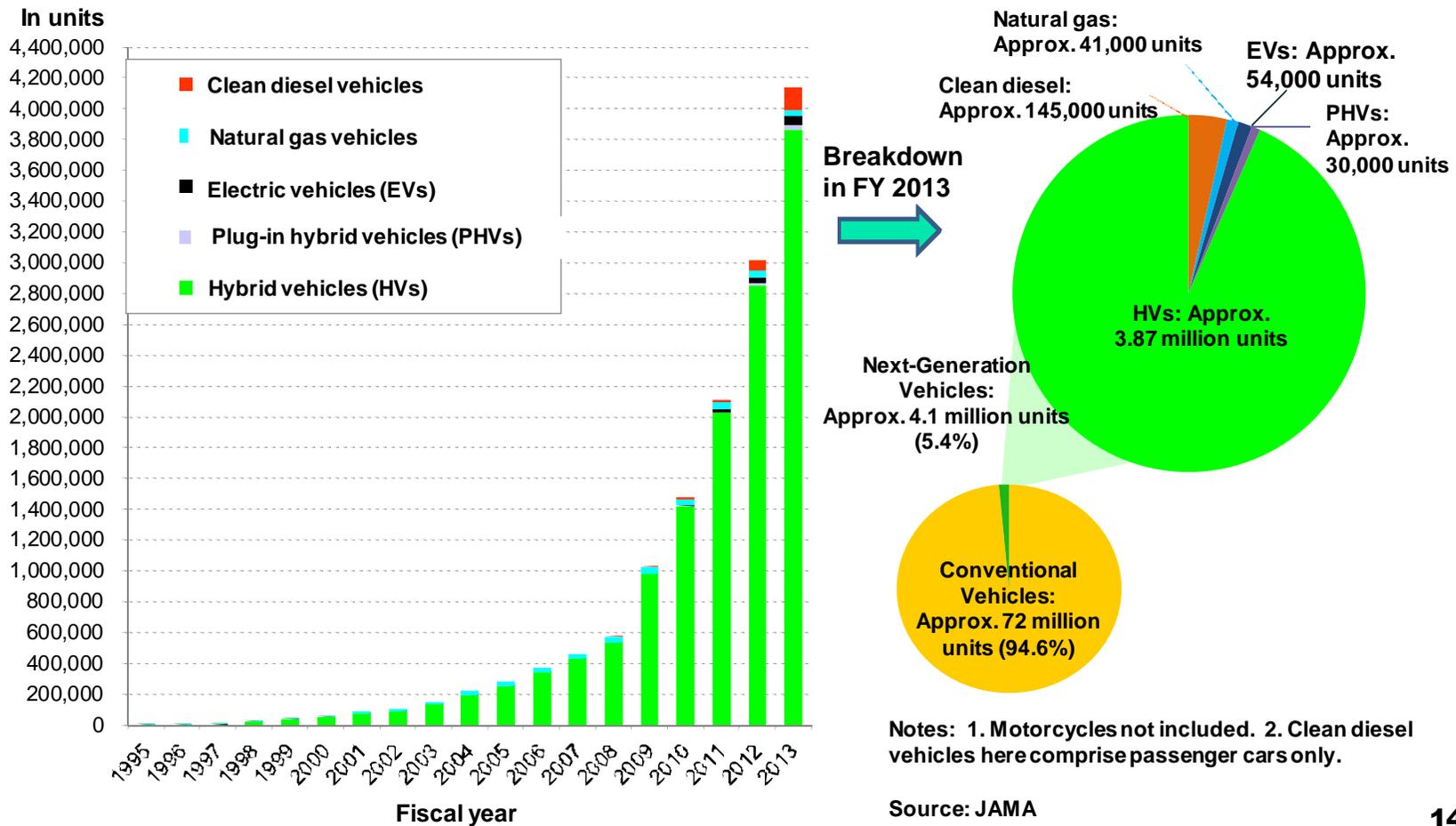
- Clean diesel vehicles emit significantly fewer CO₂ emissions than gasoline vehicles, but their production costs are higher because they require an advanced purification system.

◇ Example models

- | | |
|-------------------------|---------------------------------------|
| • X-Trail 20GT (Nissan) | Market sales began in September 2008. |
| • Pajero (Mitsubishi) | Market sales began in September 2010. |
| • CX-5 XD (Mazda) | Market sales began in February 2012. |

2.4 Status of Next-Generation Vehicle Use in Japan

- At present, the number of next-generation vehicles in use in Japan is roughly 4.1 million, or as little as 5.4% of the total number of vehicles in use.
- In the years ahead, a steady growth is expected in the in-use number of these vehicles.



2.5.1 Government Measures for Next-Generation Vehicles

Purchasing Subsidies for Next-Generation Clean-Energy Vehicles

- This program has been in effect since fiscal 1998 and is updated yearly depending on market trends and other factors.

In fiscal 2014:

Eligible Vehicles	Maximum Subsidy Amount
Plug-in hybrid vehicles, Electric vehicles	JPY 850,000
Clean diesel vehicles	JPY 350,000

The term “clean diesel vehicles” refers to diesel-engine automobiles generating low levels of particulate matter (PM), nitrogen oxides (NOx) and other emissions in compliance with Japan’s “post new long-term” regulations for diesel emissions introduced in 2009.

2.5.2 Government Measures for Next-Generation Vehicles

Tax Incentives for Eco-Friendly and Next-Generation Vehicles

- Period in effect: For acquisition tax: April 1, 2012 through March 31, 2015
For tonnage tax: May 1, 2012 through April 30, 2015

Vehicle Type		Reductions/Exemptions		
		Requirements	Certification Sticker(s)	Acquisition Tax (4)
Passenger Cars and Small Trucks and Buses (GVW ≤ 2.5t)				
Electric Vehicles (including fuel cell vehicles), Plug-In Hybrid Vehicles, Clean Diesel Vehicles (1), Natural Gas Vehicles (2)			Exempt	Exempt at time of 1st and 2nd vehicle inspection
Gasoline Vehicles (including hybrid vehicles)	Compliant +20% compared to 2015 fuel efficiency standards, with emissions down by 75% from 2005 standards (3)		Exempt	Exempt at time of 1st and 2nd vehicle inspection
	Compliant +10% compared to 2015 fuel efficiency standards, with emissions down by 75% from 2005 standards (3)		80% reduction	75% reduction
	Compliant with 2015 fuel efficiency standards, with emissions down by 75% from 2005 standards (3)		60% reduction	50% reduction

2.5.3 Government Measures for Next-Generation Vehicles

Infrastructure Development for Next-Generation Vehicles

- Infrastructural development is essential for the diffusion of next-generation vehicles such as electric vehicles and fuel cell vehicles. It is therefore imperative that government, automakers, and commercial enterprises engaged in charging and fuel-supply operations work together to develop a charging and supply network nationwide in order to promote the much wider use of these vehicles.

	Electric Vehicles	Fuel Cell Vehicles
Vehicles: Market status & outlook	Mass-production EVs were launched in Japan's domestic market in 2009. EVs have since seen steady market growth.	Mass-production FCVs are scheduled to be introduced to the domestic market in 2015.
Chargers: Market status & outlook	As of October 2014, 2,129 quick chargers were installed in Japan. That number is to expand to 6,000 chargers by the end of March 2015.	In order to spur demand for FCVs, a network of approx. 100 hydrogen supply stations is to be set up ahead of their launch.



Prime Minister Abe test-drives a fuel cell vehicle.

2.5.3.1 Subsidies for EV & PHV Charging Infrastructure Development

1. Budget Allocated and Implementation Period of Subsidy Project

Budget allocated: JPY 100.5 billion (allocated in fiscal 2012 supplementary budget)

Implementation period: March 19, 2013 to December 27, 2015

Deadline for submission of final cost reports: October 30, 2015 (April 28, 2017 for Project Category 3)

2. Eligibility and Applicable Subsidy Rates

Subsidies will be provided to operators installing new chargers falling into one of the four project categories below.

Project Category	Equipment Use Description	Cost(s) Subsidized	Subsidy Rate
Category 1	Installed in accordance with a government or highway-operating company strategic deployment plan ⁽¹⁾ and for public use ⁽²⁾	Equipment purchasing cost and installation cost	2/3
Category 2	Installed for public use, but not in accordance with a wider strategic deployment plan	Equipment purchasing cost and installation cost	1/2
Category 3	Installed for use in communal housing (apartment block) parking lots or monthly rental parking facilities	Equipment purchasing cost and installation cost	
Category 4	Installed for uses other than those described above	Equipment purchasing cost	

⁽¹⁾ Chargers and their installation sites must comply with the provisions of government or highway-operating company plans for the strategic deployment of charging equipment for electric and plug-in hybrid vehicles, and must be recognized by Japan's Next-Generation Vehicle Promotion Center.

⁽²⁾ "For public use" comprises the following requirements (and applies to Project Categories 1 and 2): a. The charging facility must be freely accessible by the public from a public road; b. Use of the charging equipment must not be conditioned on the purchase of other services or products (e.g., food), although a parking fee in the case of chargers installed in public parking lots is permissible; c. Use of the charging equipment must be accessible to any user who pays on the spot.

2.5.3.2 Development of a Hydrogen Supply Infrastructure

- Promoting the use of fuel cell vehicles requires the development of a sufficiently wide network of stations supplying hydrogen fuel.

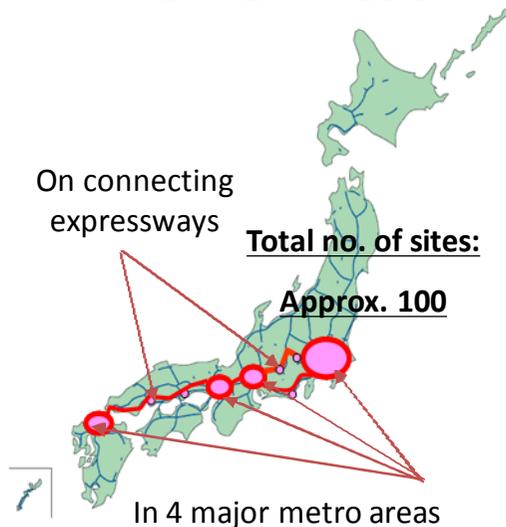
Development of hydrogen supply infrastructure = Extent of network × Strategy

Required number of stations

Station Locations
Timing of launch

- About 100 hydrogen fuelling stations concentrated in four major metropolitan areas and on the expressways connecting them are to be built ahead of the market introduction of FCVs in 2015.

Hydrogen Supply Infrastructure Development: Station Site Designation Criteria



Station Locations	No. of Stations
<ul style="list-style-type: none"> ● In Japan's four major metropolitan areas Location of refuelling stations is critical to the early growth of the FCV market and is determined on the basis of the following criteria: <ul style="list-style-type: none"> ● A maximum allowable driving time interval of 15 minutes between stations ● Local average vehicle speed ● Local passenger car density 	90
<ul style="list-style-type: none"> ● On the expressways connecting the four major metropolitan areas 	10

Thank you for your attention!