

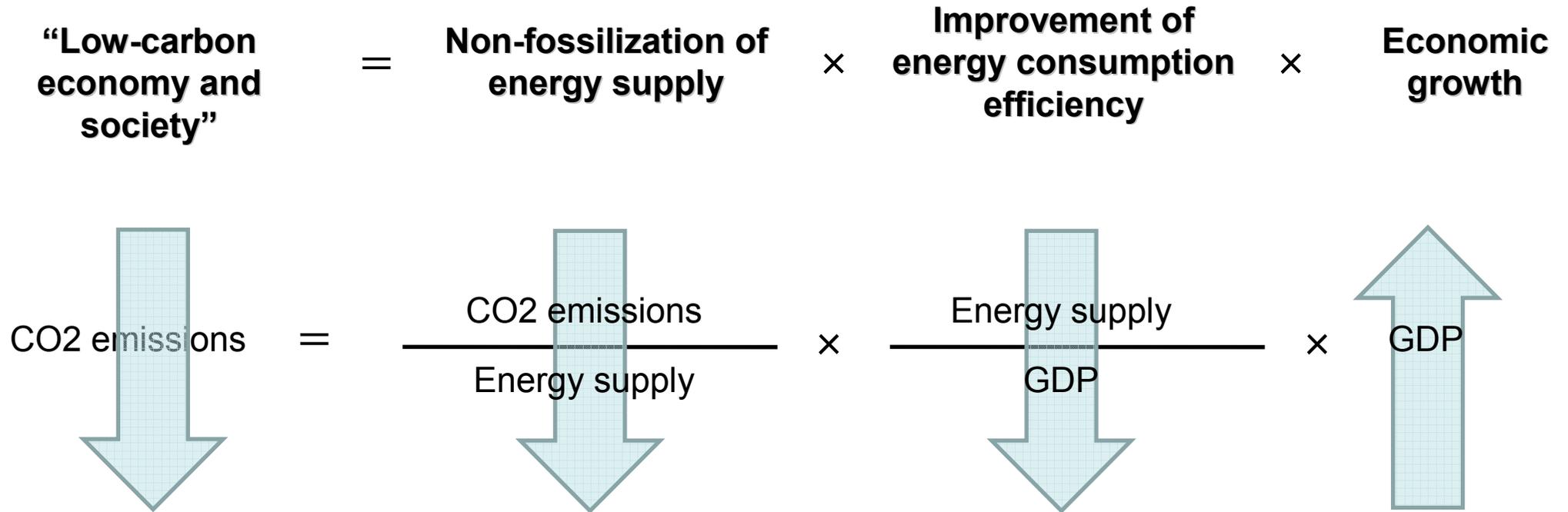
# Renewable Energy Policies for Development and Deployment

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# “Low-carbon Economy and Society,” Energy Conservation and New Energy



- ✓ Expansion of the introduction of new energy
- ✓ Promotion of nuclear energy
- ✓ Expanded utilization of biofuels

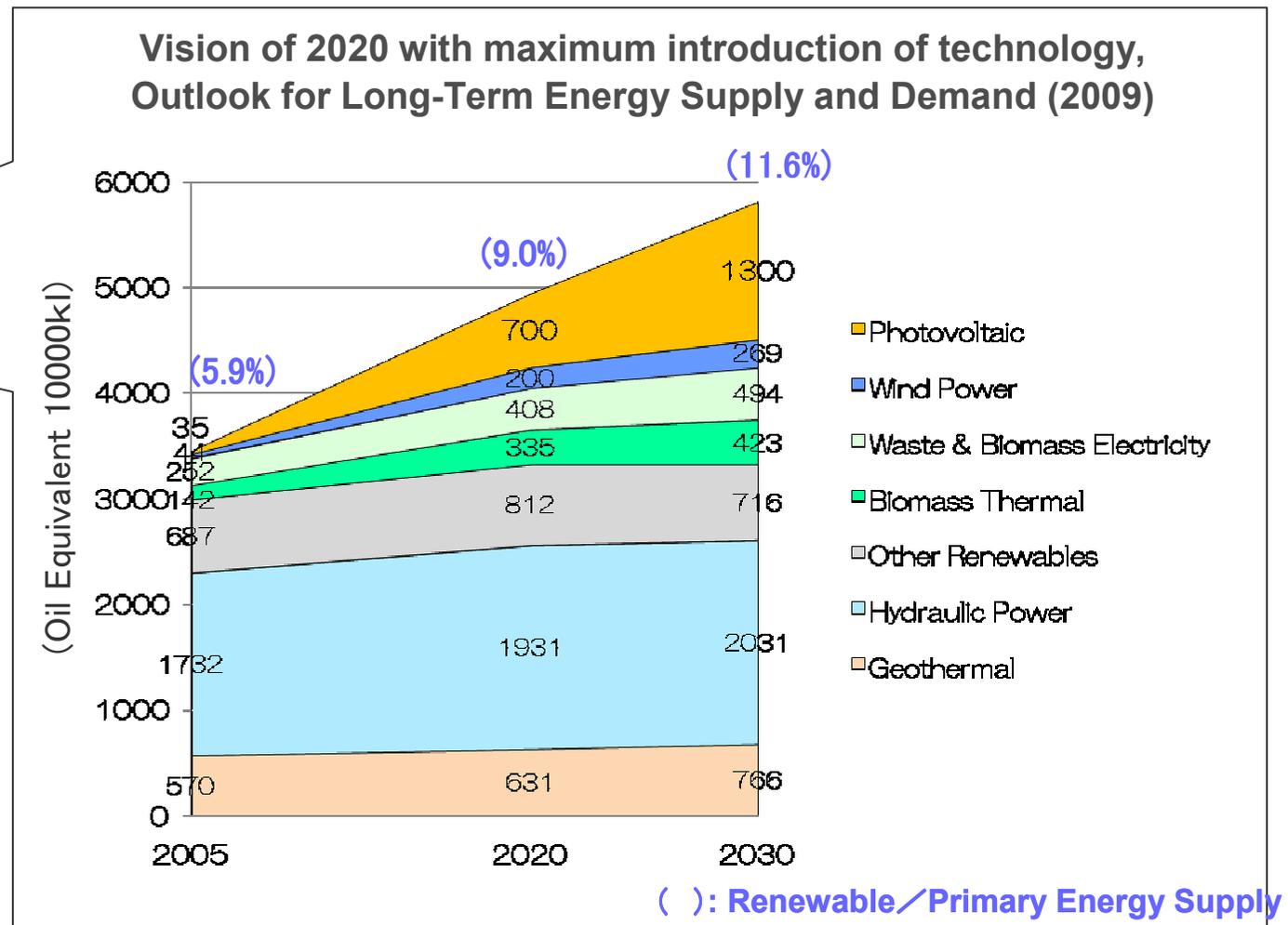
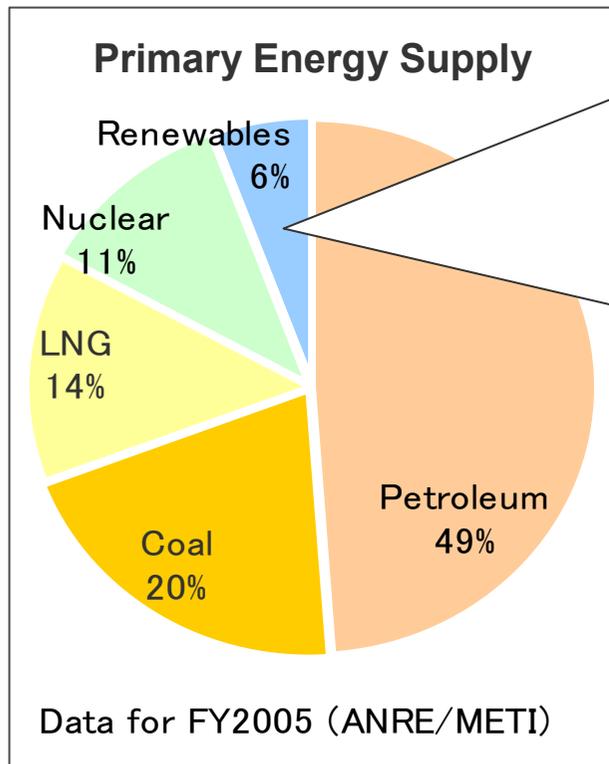
Others

- ✓ Promotion of energy conservation
- ✓ Improvement of energy utilization intensity
- ✓ Improvement of fuel efficiency performance

Others

# Future vision for Renewable Energy deployment

- Increase “Renewable Energy / Primary Energy Supply” to 9.0% in 2020 and to 11.6% in 2030 (the cumulative installation of photovoltaic will be 20 times of current level in 2020)



# Challenges for development and deployment of Renewable Energy

Unit : 10000kl oil equivalent

	2005	2020 forecast	Challenges to deployment
<b>Solar PV</b>	35	700	Cost gap, increased deployment in public buildings, effects on electricity grid, new technology development, etc
<b>Wind</b>	44	200	Cost, lack of suitable locations (birds, esthetics, noise), regulatory barriers, new technologies (offshore, small scale)
<b>Waste Biomass</b>	252	408	Use of unused biomass (collection and transport), utilization of distributed and labor intensive energy resources
<b>Biomass heat</b>	142	335	Increased use of transport bio-fuels, R&D of second generation bio-fuels
<b>Hydro</b>	1732	1931	Time and cost barriers to large scale projects, increased use of small scale hydro
<b>Geothermal</b>	73	77	Time and cost barriers to large scale projects (coordination with hot water rights, national park regulations)

# Regulatory Scheme & Incentives

## ■ Revision of Alternative Energy Act

Areas to develop and promote installation :  
from “oil alternative” to “non fossil”

## ■ New Energy Promotion Act

## ■ Act for Promotion of Non-fossil Energies by Energy Suppliers

energy suppliers (electric power companies, gas companies, oil companies) have to use non-fossil energies while using fossil oil efficiently

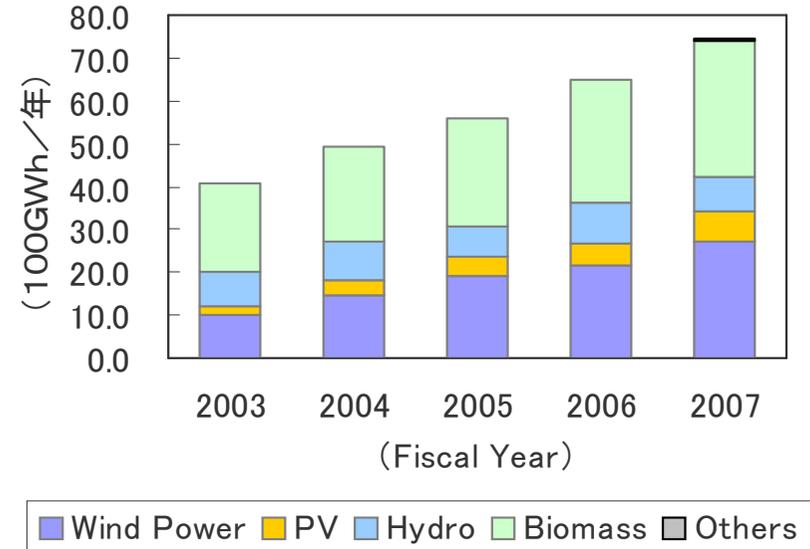
## ■ RPS (Renewables Portfolio Standards) Act

- electric utilities have to use electricity generated from renewable energies
- the target increases until FY2014 year by year

## ■ Incentives

- subsidies and tax incentives for residence and non-residence

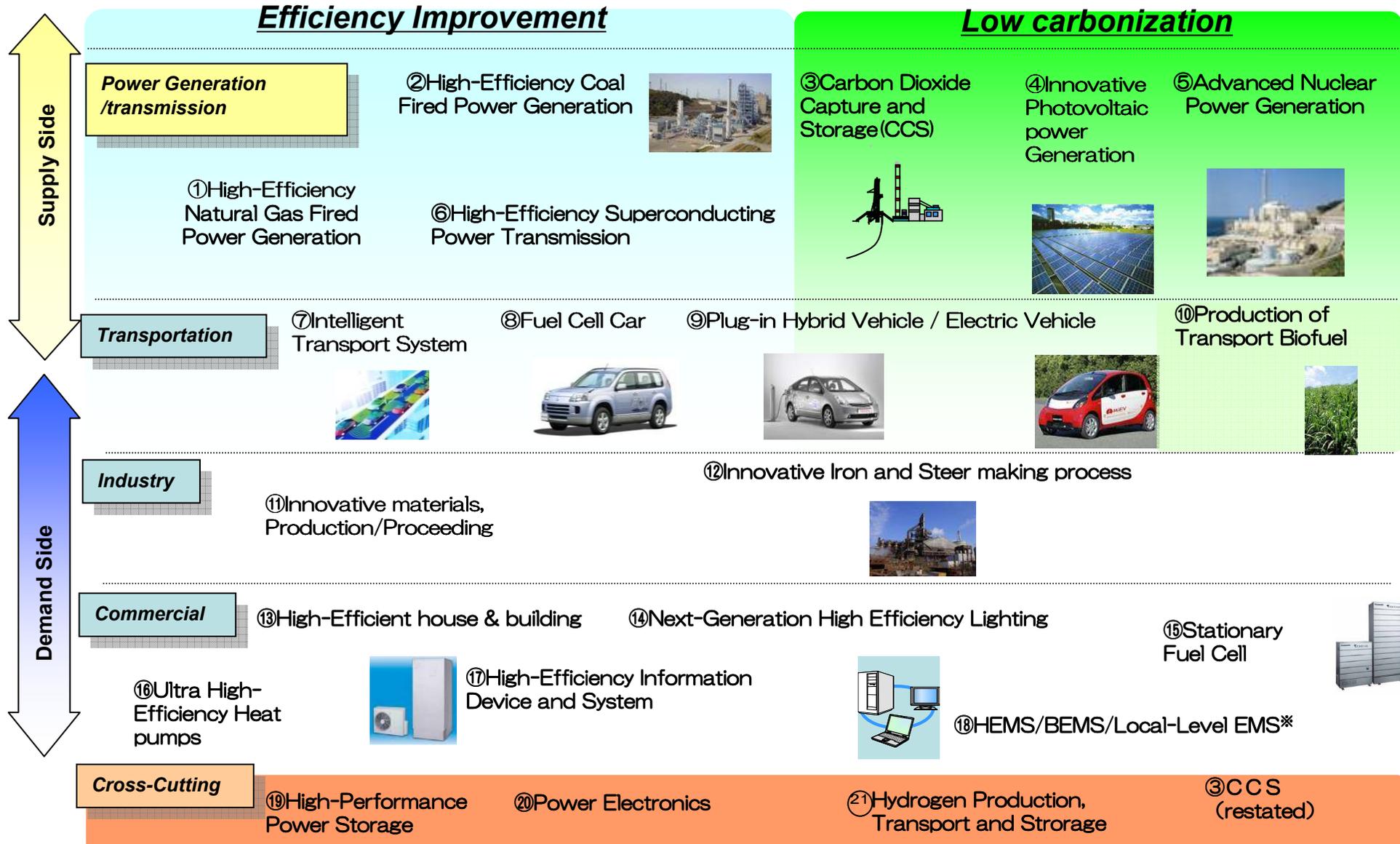
Numerical Target of RPS Act



## Incentives (Subsidies and Taxations)

	for Residence	for Non-Residence
Subsidies	<b>Photovoltaic</b> 70,000 yen per kW (system under 700,000 yen)	<b>All the New Energies</b> non profit bodies etc. <b>half of installation cost</b> companies <b>1/3 of installation cost</b>
Taxations	<b>Photovoltaic</b> Tax Reduction for Home Loan and for Reform to save the energy	<b>All the New Energies</b> <b>7% Tax Reduction</b> (Small & Medium Entities) or <b>Special Depreciation</b>

# Innovative Energy Technology Development



\*EMS : Energy Management System, HEMS : House Energy Management System, BEMS : Building Energy Management System

# Budget

## 128 billion yen for FY 2010 Budget Request

unit : 100 million yen

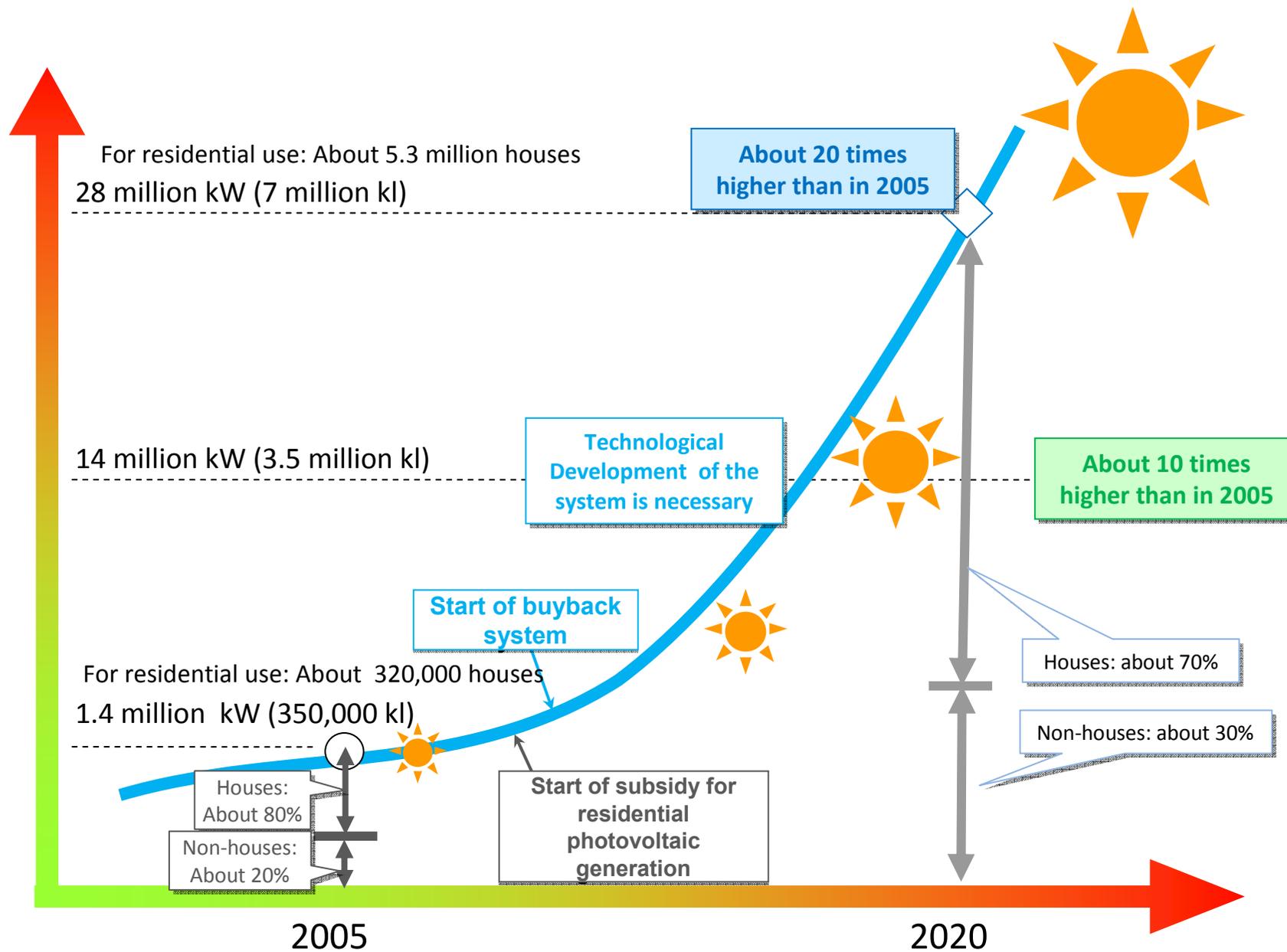
### ■ Deployment (Subsidy)

	Budget Request for FY2010	Budget for FY2009	Supplemental Budget for FY2009
Subsidy for Installation of Residential Photovoltaic System	412	201	220
Subsidy for Purchasing of Clean Energy Vehicle	114	43	0
Subsidy for Installation of Residential Fuel Cell	80	61	20
Subsidy for Installation of New Energy (non-residence)	389	364	161

### ■ Research and Development

Post-silicon Innovative Photovoltaic Cells	15	15	9
Next Generation Wind Power Technologies	3	3	2
<b>Bio-ethanol Production System from Celluloses</b>	<b>19</b>	<b>8</b>	
<b>Effective Transform Technologies for Biomass Energy</b>	<b>35</b>	<b>36</b>	
R&D for Scientific Innovation on New Generation Batteries	30	30	
Research on Storage Batteries with Various Appliances	64		
R&D for Practical Use of Polymer Electrolyte Fuel Cell	51		
Advanced Research on Materials for Storage of Hydrogen	9	10	3

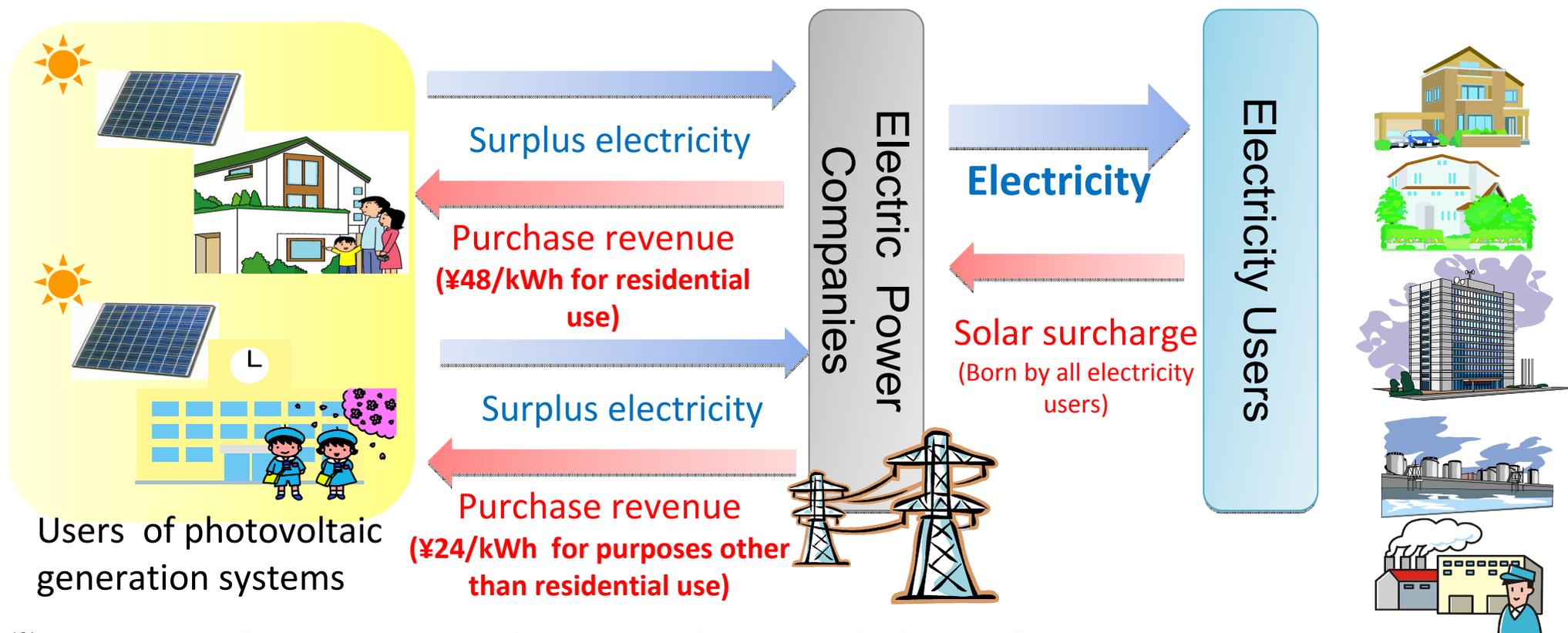
# Scenario for Introduction of Photovoltaic Generation (Estimate)



# Outline of the New Buyback Program for Photovoltaic Generation

## Major points of the buyback system

- Of the electricity generated by photovoltaic generation systems, surplus electricity will be purchased.
- The buyback period is within the 10 years from the start of the program. The buyback price is fixed.  
(※The buyback price may differ depending on the fiscal year in which a panel is installed. In the initial stages, it is ¥48/kWh for residential use [less than 10kW].)
- Expenses will be born by all electricity users.



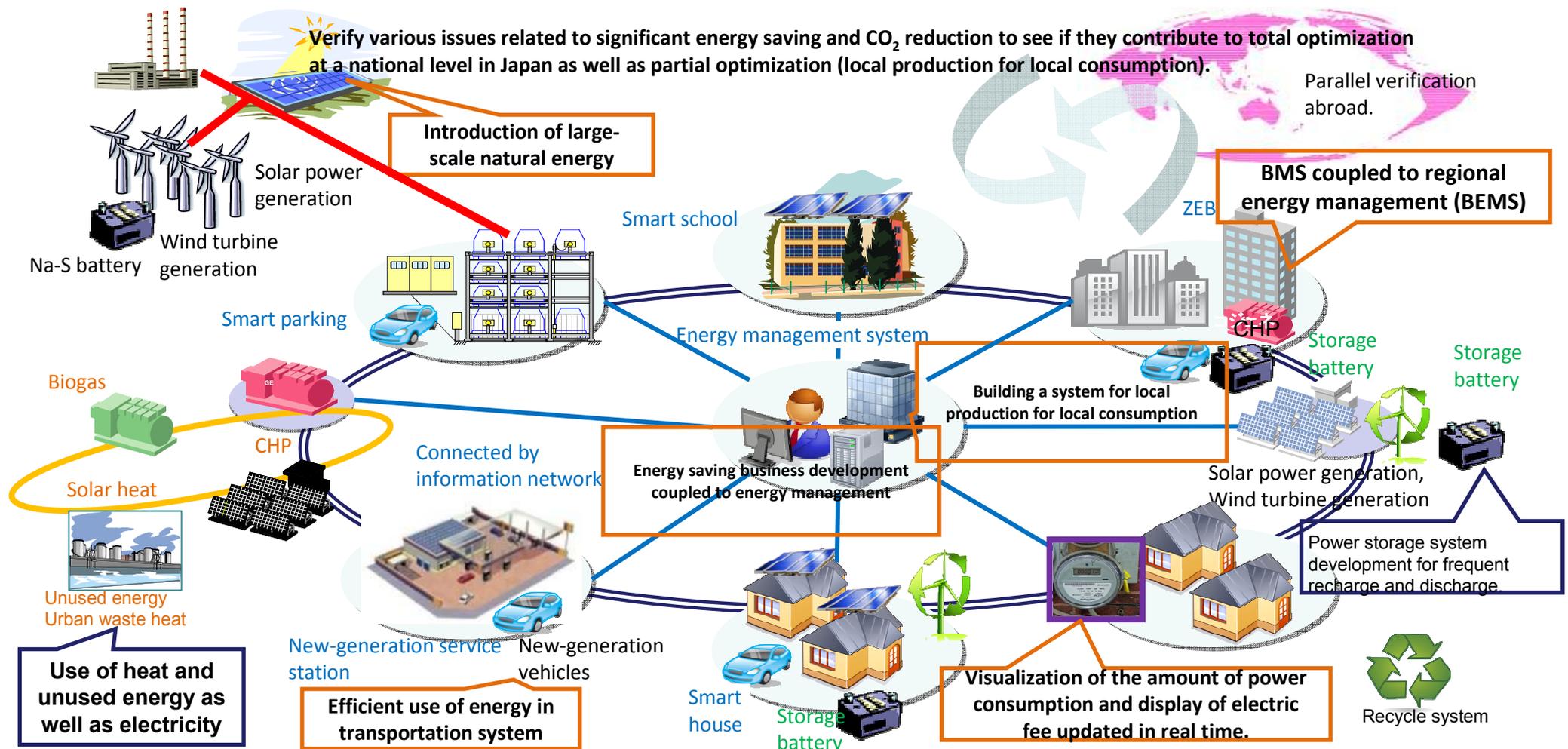
※In the initial stages after installation, ¥48/kWh for residential use (less than 10kW) and ¥24/kWh for other uses.  
In the case where a private electric generator is also installed, ¥39/kWh and ¥20/kWh, respectively.

# Demonstration of a Smart Energy Network

- More dispersed sources – BALANCE - more home electrification and electric vehicles (supply side) (demand side)

“Smart Energy Network”.

- Efficient use of heat energy and unused energy
- Social systems such as local transport and city structure are also key components
- Demonstration projects by industry, residents, municipalities to be carried out in Japan (fy2010 ).



# Overseas Deployment of Smart Energy Network

- Overseas demonstration tests are planned to build a smart energy network.
- The Smart Energy Network Alliance Forum (tentative name) will be launched to promote smart energy network alliance both domestically and overseas.
- Different types of systems will be developed for overseas countries; urban type (domestic projects and New Mexico project), remote island type (Okinawa-Hawaii project), emerging country type (India).

