

# Objectives of Energy System Over the Next 10-20 Years in Japan.

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An aerial photograph of an industrial facility, possibly a refinery or chemical plant, with a large body of water in the foreground. The facility features several large storage tanks, distillation columns, and various industrial buildings. The water is a dark greyish-blue, and the sky is overcast.

# 1. Rethinking of the Basic Energy Plan

- A sustainable energy policy that earns the public's trust
- An energy policy that emphasizes the "demand side"
- An energy policy that utilizes diverse power and energy resources

## 2. Objectives of Japan's energy systems

- The safety of the nuclear power plants
- Reduce dependency on nuclear power
- More renewable energy sources
- Our society much more energy efficient
- The stable supply of electricity
- The reform on public utility industries
- A new energy strategy

### 3. Japan's challenges and breakthroughs

#### (1) Ensuring safety

#### (2) Ensuring stable supply

#### (3) Energy conservation

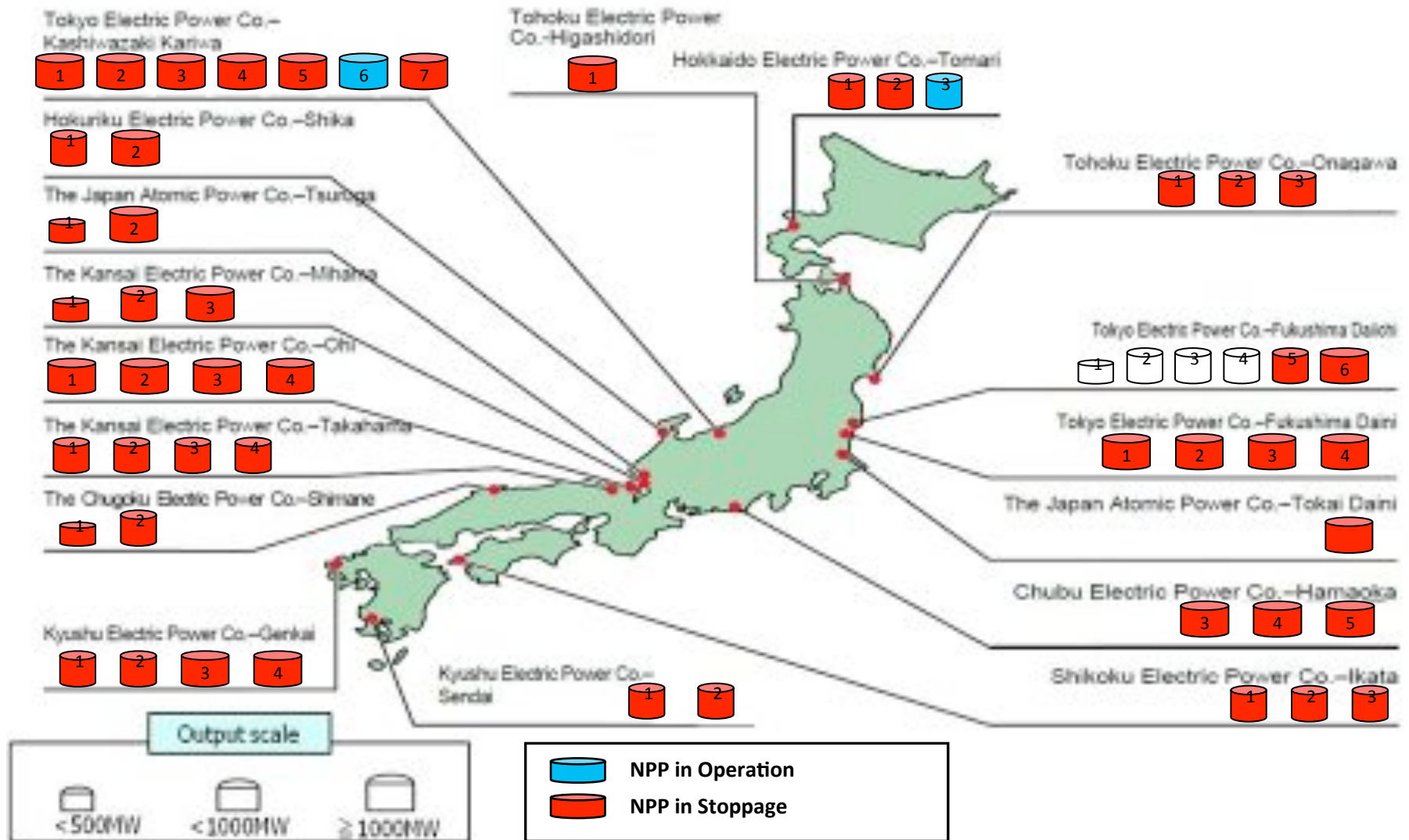
- The mechanism to conduct peak control
- Sustainable energy conservation in the non-industrial sector

#### (4) Renewable energy

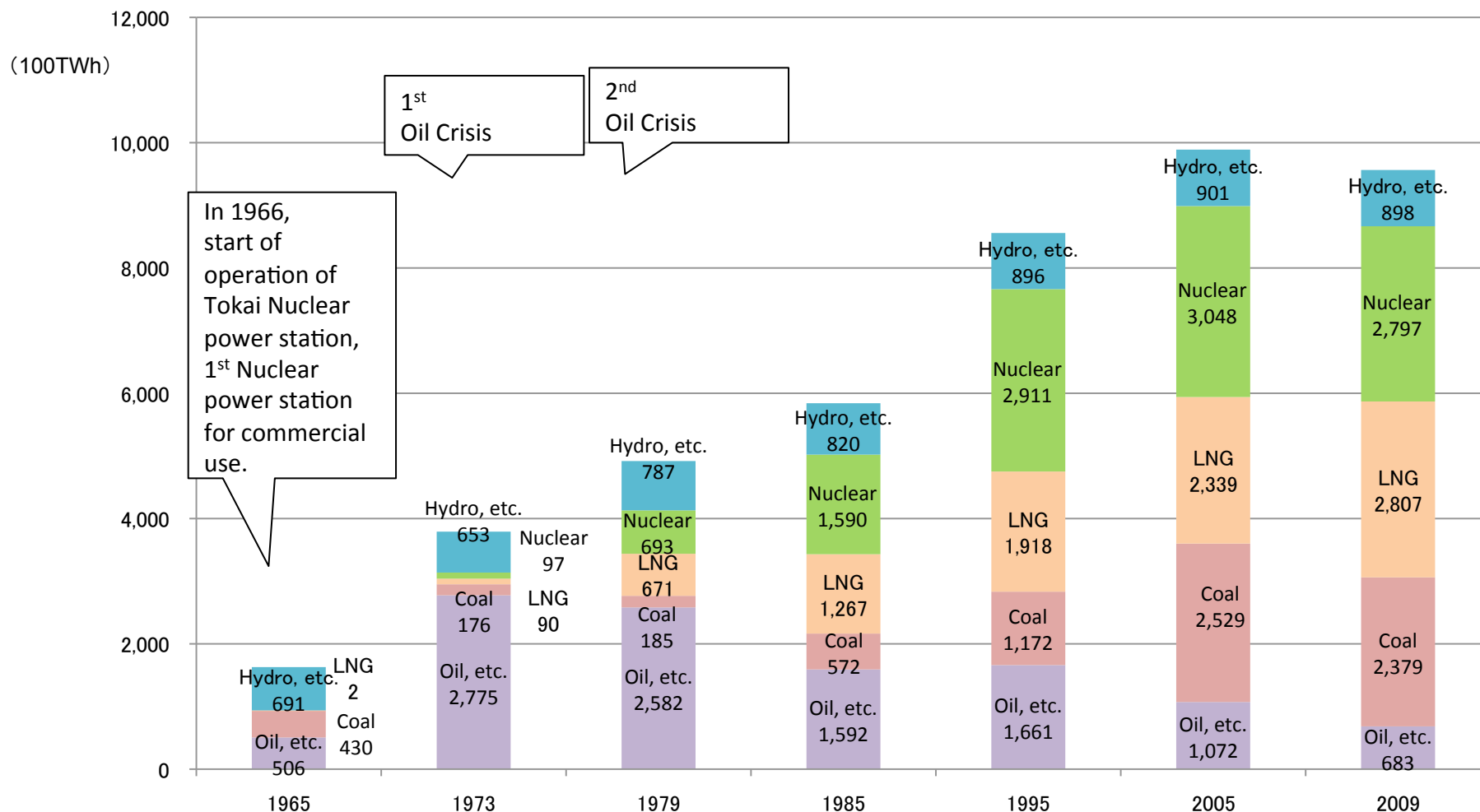
- Feed-in-tariff scheme for renewable energy
- Grid stabilization and R&D support

# Nuclear Power Plants in Japan

Currently 54 units of nuclear power plants are in operation. (The decision to decommission Units 1~4 at the TEPCO Fukushima Daiichi Nuclear Power Station has been made.) **2 units (in blue)** are in operation and **48 units (in red)** are in stoppage due to periodical inspections or unplanned outages.



# Trend in power supply structure



Nuclear power stations	0	3	18	29	47	52	54
Hydro, etc.	42.4%	17.2%	16.0%	14.0%	10.5%	9.1%	9.4%
Nuclear	-	2.6%	14.1%	27.2%	34.0%	30.8%	29.2%
LNG	0.1%	2.4%	13.6%	21.7%	22.4%	23.7%	29.3%
Coal	26.4%	4.6%	3.8%	9.8%	13.7%	25.6%	24.9%
Oil, etc.	31.1%	73.2%	52.5%	27.3%	19.4%	10.8%	67.1%

Source: Outline of development of power sources in 2010

# Framework of the Energy Conservation Act (Act on the Rational Use of Energy)

The Energy Conservation Act, which was enacted in 1979 after the oil crises.

Factories, business facilities,  
transport firms, shippers

- Business operators **are required to submit annual periodic reports** regarding the following items.
  - 1) Changes in energy intensity (target: annual average improvement of 1%)
  - 2) Implementation status of energy conservation measures

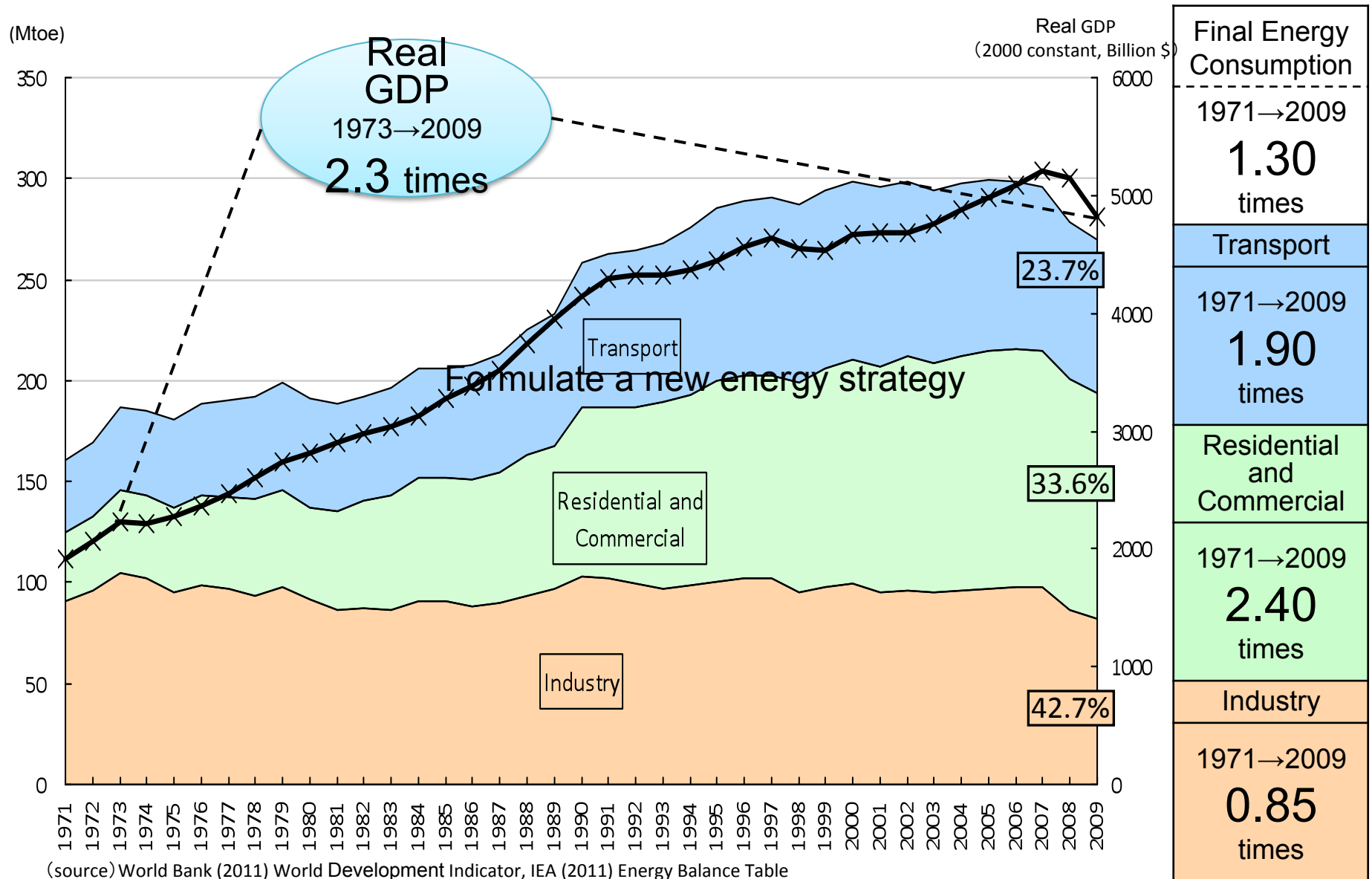
Appliances & equipment  
(Top runner program)

- Makers and importers of energy-consuming appliances are required to meet high standards (top runner standards) by the target years, which will be three to 10 years ahead. **They are required to report on their achievements in the target years for check by the government.**

## **Top runner standards (23 items for appliances)**

[Efficiency improvement achieved] Passenger car fuel economy:  
47% (1997→2009) Air conditioner energy efficiency: 68%  
(1997→2004)

# Japan' GDP and Sectoral Final Energy Consumption Trends





# Future of Japan's Energy Conservation Policy: Energy Conservation - Challenges Arising from the Earthquake Disaster

## Necessity of peak demand countermeasures

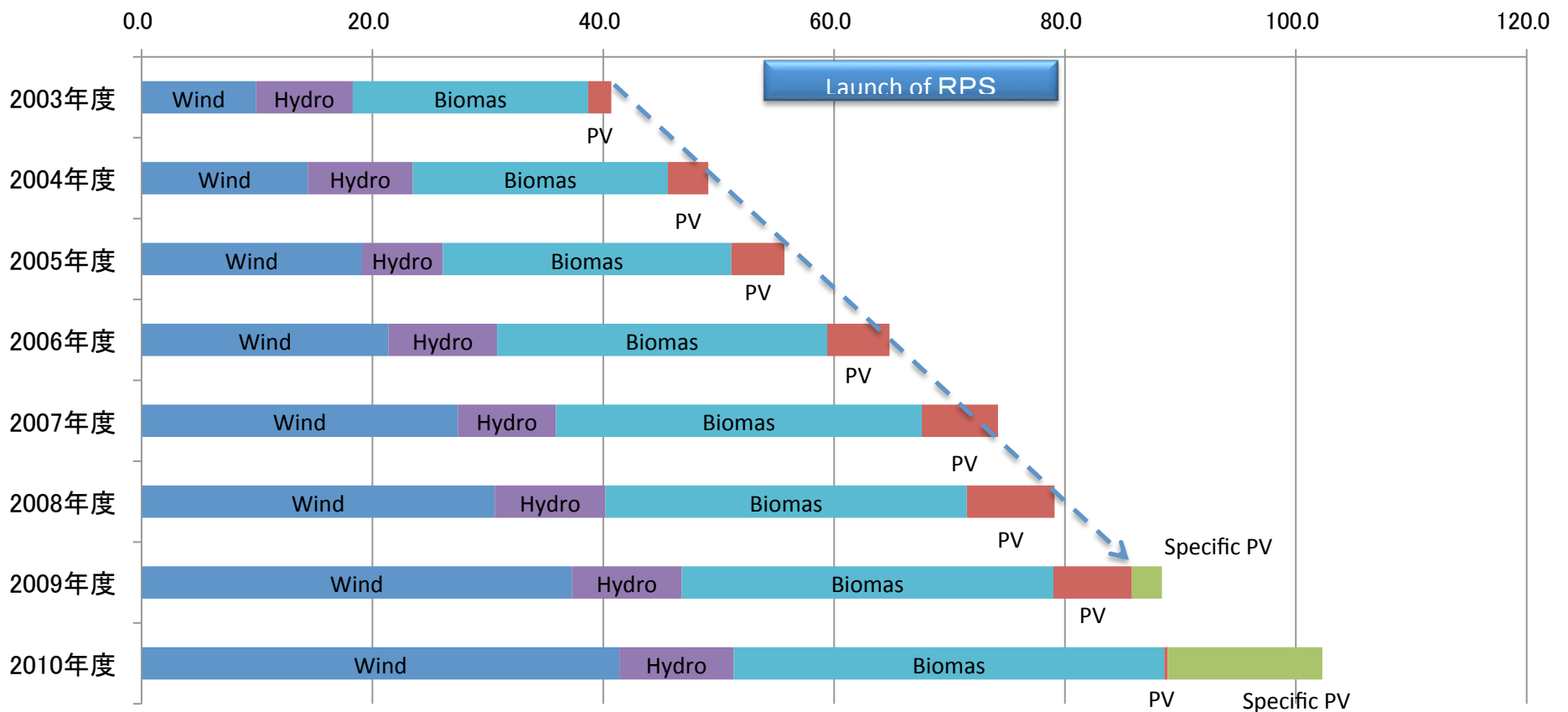
- ◆ Japan will strengthen its industrial competitiveness by curbing the cost increase related to capital expenditures by the supply side through measures to reduce electricity use in peak demand hours (peak demand countermeasures).

## Strengthening of energy conservation measures in the non-industrial sector

- ◆ In the non-industrial sector (houses and buildings), it is urgent to promote energy conservation measures because energy consumption is growing significantly.
- ◆ It is important to promote sustainable energy conservation in the non-industrial sector by improving the energy conservation performance of houses, and buildings as well as appliances and equipment.

# Renewable Energy Generation Capacity in Japan

- Renewable energy generation doubled through the introduction (2003) of a RPS (Renewable Energy Portfolio Standard)
- After the introduction of buyback Scheme (2009), residential PV installation significantly increased.



※ This data is from the amount of power from the certified facility by RPS law. This data does not include the self-consumed electricity.

※ Specific PV: The target PV of surplus electricity buyback system since November 2009

# Future of Japan's Renewable Energy Policy

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- To expand use of renewable energy, it is necessary not only to introduce the feed-in tariff system but to take all possible policy measures, including revision of regulation on the location of facilities, grid stabilization and R&D support.
- Through such measures, the government will quickly reduce the cost of renewable energy with a view to having renewable energy become well-established.

## 1. Steady implementation of the feed-in tariff program

- Efforts will be made to put the program into force on July 1, 2012.

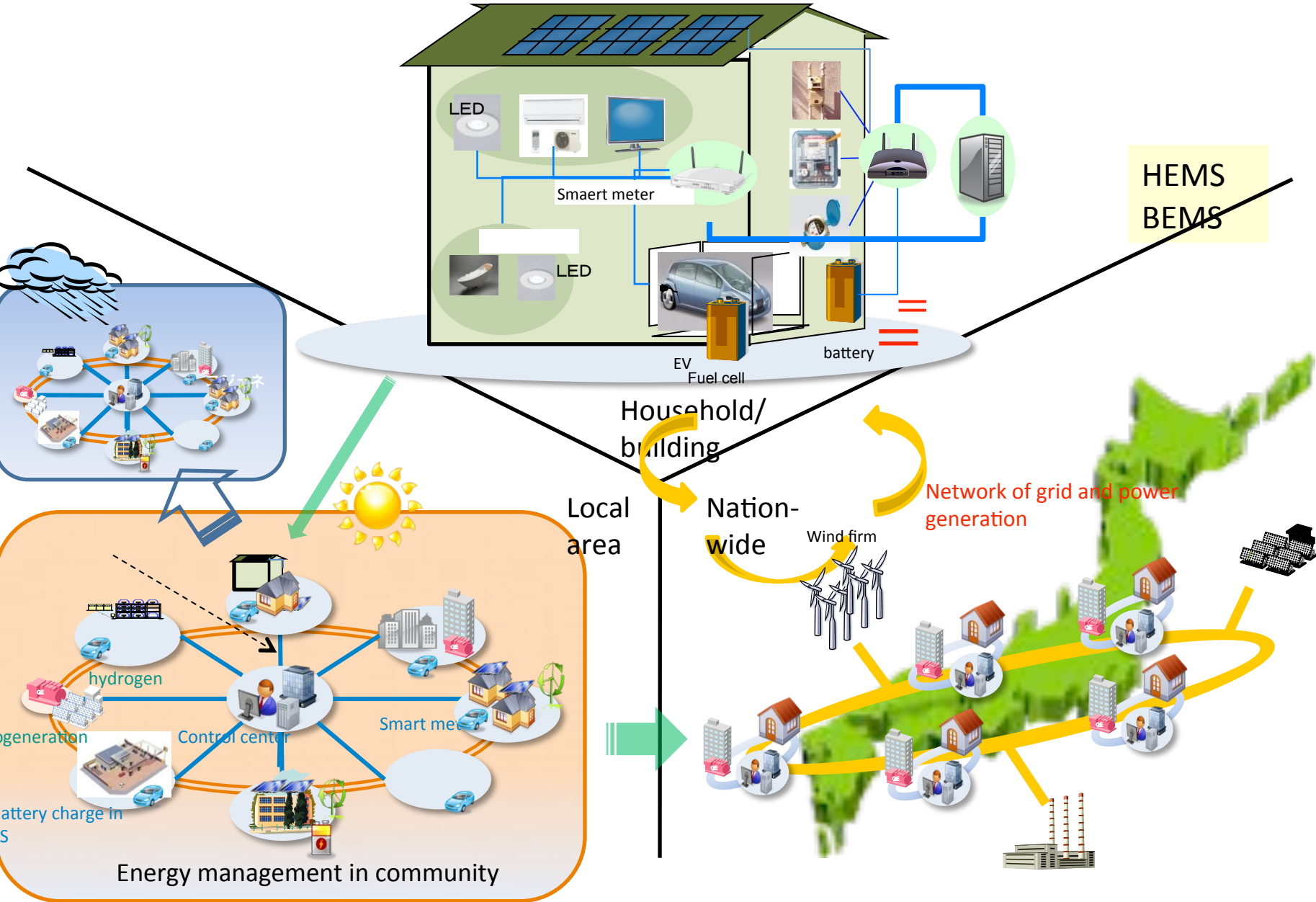
## 2. New measures for grid stabilization (expansion of grid capacity and development and introduction of large storage batteries)

- Promote development and introduction of large storage batteries in preparation for large-scale introduction of renewable energy such as photovoltaic wind power, which is an unstable electricity source.

## 3. Securing of locations through regulatory and institutional reforms

- Examine regulatory factors so as to secure locations suited to wind, geothermal and mega-solar power generation systems.

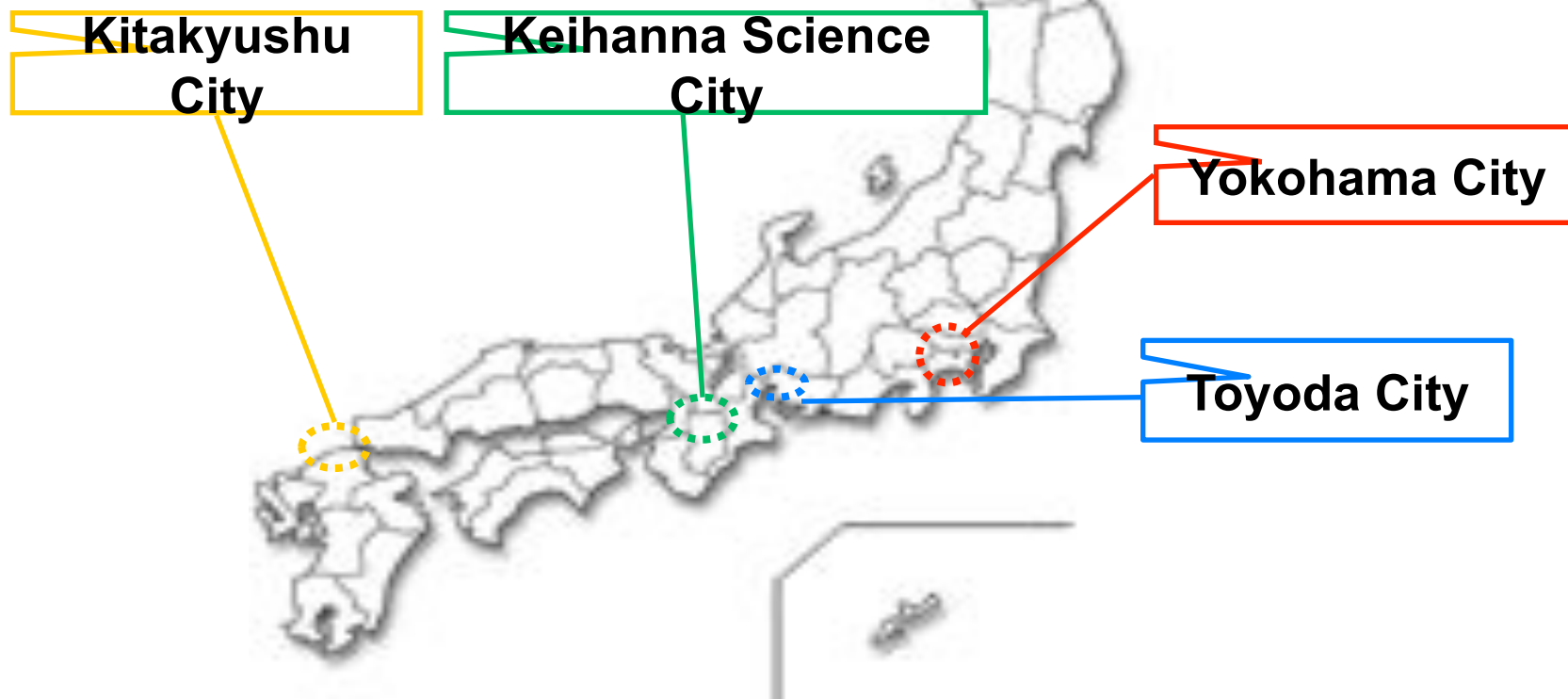
# Image of Smart Energy network



# New Significance of Smart Community: Building of Next-Generation Energy System Involving Energy Users

- Realize risk dispersion regarding supply capacity, efficient energy use and demand-supply matching in peak times by introducing distributed forms of renewable energy, cogeneration and fuel cell systems, etc.
- Encourage quick introduction of smart meters as infrastructure necessary for creating an environment that enables energy users to proactively conserve energy and reduce energy use in peak times.

Demonstration projects under way in four regions in Japan since fiscal 2011.



# Hawaii-Okinawa Clean Energy Cooperation

## TASKFORCE

(DOE • METI • State of Hawaii • Prefecture of Okinawa, MOFA, NEDO etc.)

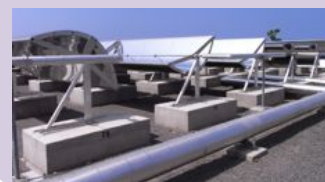
LOI bet.  
State of  
Hawaii  
& NEDO

Smart Grid  
WG

Energy Efficient  
Buildings WG

Renewable  
WG

People-to- People  
Exchange WG



cooperative projects under Okinawa-Hawaii Cooperation

Showcase of the new energy model for isolated islands  
and remote areas

## 4. What we are doing

- Ensure the electricity supply in this year
- Building the confidence of the public toward energy policy
- Review of energy policies as a whole and formulate a new energy strategy

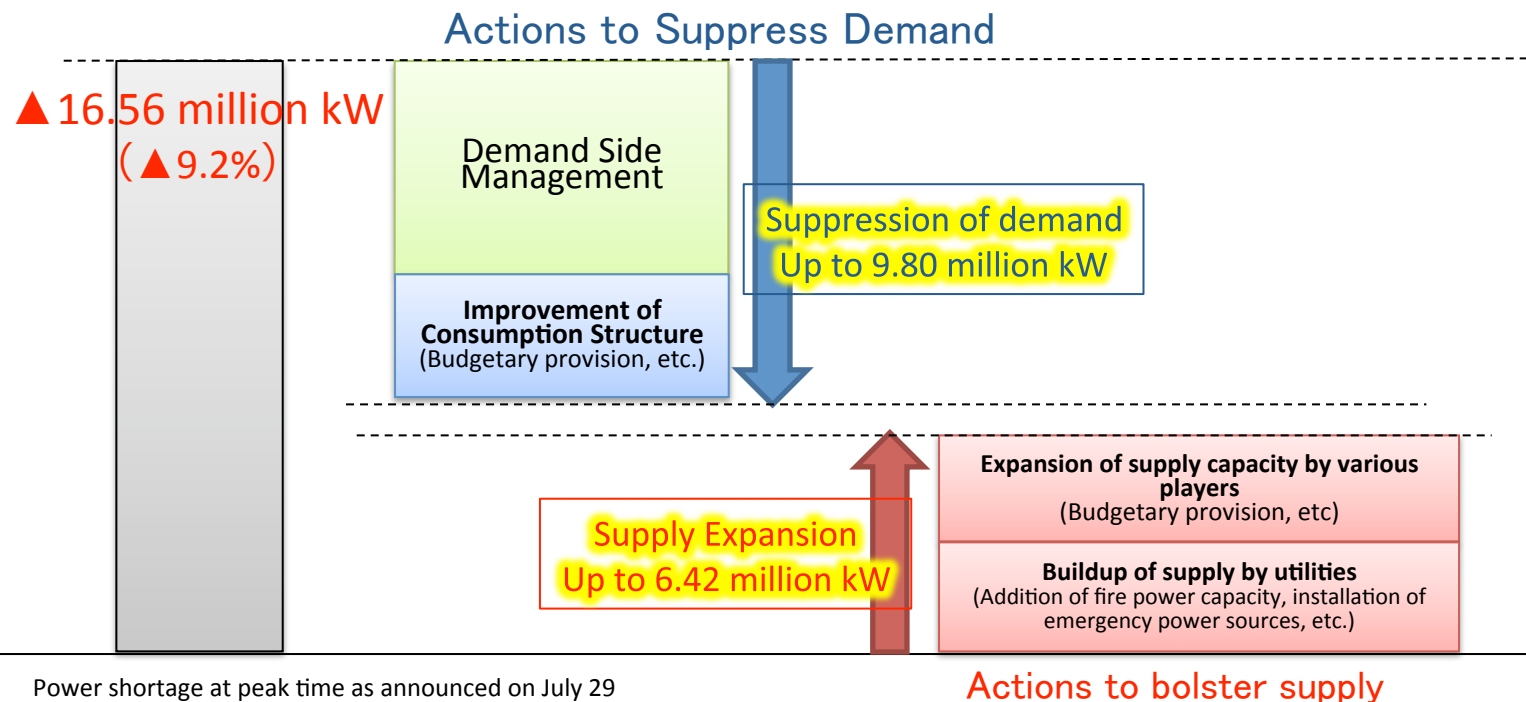
## Measures for Peak Power Shortage in the Summer, 2012

### ■ Main measures for Peak Power Shortage in the Summer, 2012

1. Demand Side Management (price mechanism encouraging power saving, visualization of consumption through smart meters, etc)
2. Improvement of Consumption Structure (improving efficiency, including introduction of efficient equipments)
3. Expansion of supply by various players (reform of supply structure)

### ■ Remaining risks for the Demand-Supply Balance

1. The need to secure a 3% reserve margin
2. Temperature change (unusual climate)
3. Loss of supply capacity (accidents/troubles)
4. The range of variation in policy effects, etc.





# Desirable composition of energy sources

- The Basic Energy Plan that was formulated in June of 2010 establishes that Japan will depend on nuclear power for more than half of its power generation in 2030. However, this supply structure must be fundamentally revised in the aftermath of the recent disaster and nuclear accident.

## < Basic direction >

- ① **Fundamental strengthening of energy-saving and power-saving conservation measures.**
- ② **Maximum acceleration of development/utilization of renewable energy.**
- ③ **Cleaner use of fossil fuels (such as shift to natural gas) .**
- ④ **Reducing the dependence on nuclear power in the medium to long term.**