Japan's Policy Direction and Initiatives to Increase Grid Connected Renewable Energy Production

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Topics

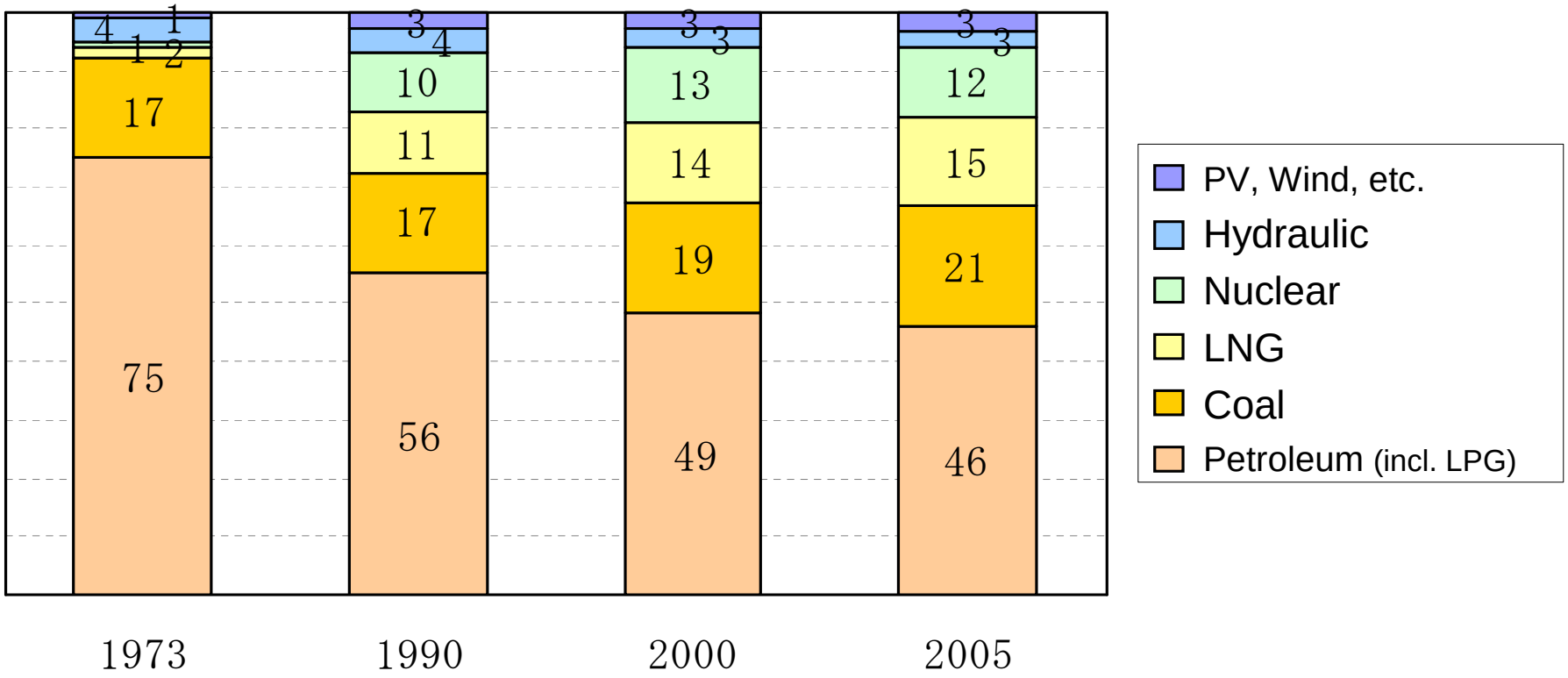
- **Necessity of Renewable Energy**
- **How to Expand Renewables**
- **The influence of Deployment of Renewables**
- **How to overcome this influence**
  - Smart Grid / Smart Community-
- **Deployment to all over the world**

Necessity of Renewable Energy

Primary Energy Supply in Japan

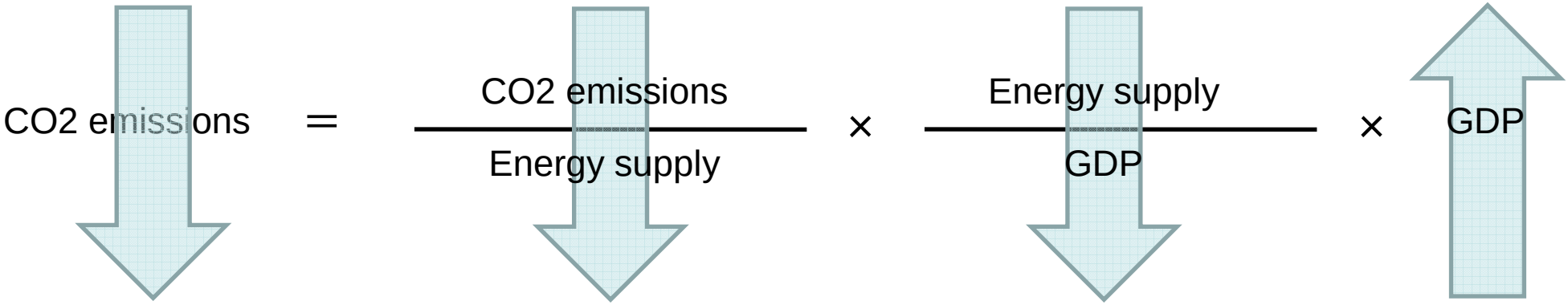
The proportion of petroleum to the primary energy supply has come down, while that of fossil fuels have not decreased.

Proportion of Each Energy to the Primary Energy Supply in Japan



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

“Low-carbon economy and society” = **Non-fossilization of energy supply** × **Improvement of energy consumption efficiency** × **Economic growth**



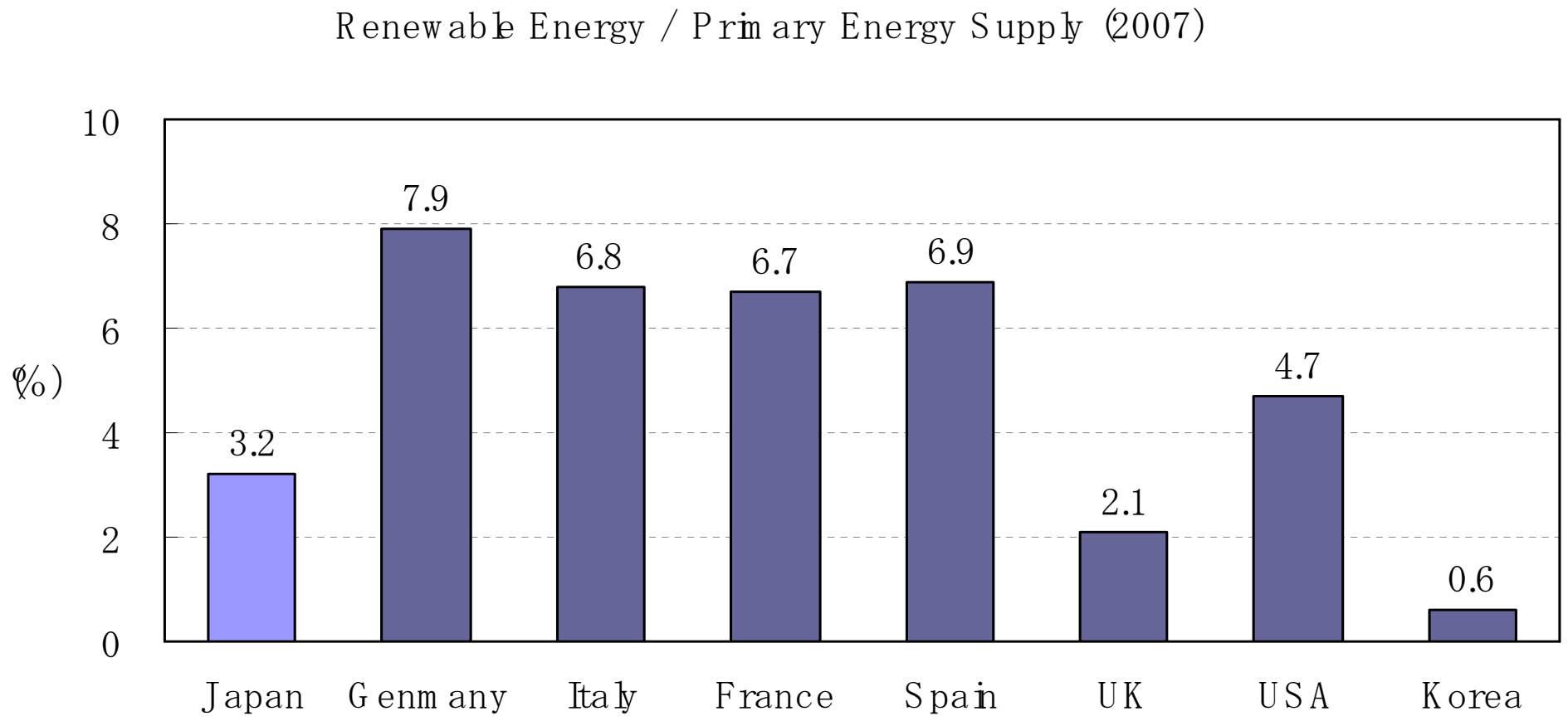
- ✓ Expansion of the introduction of new energy
- ✓ Promotion of nuclear energy
- ✓ Expanded utilization of biofuels

Others

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

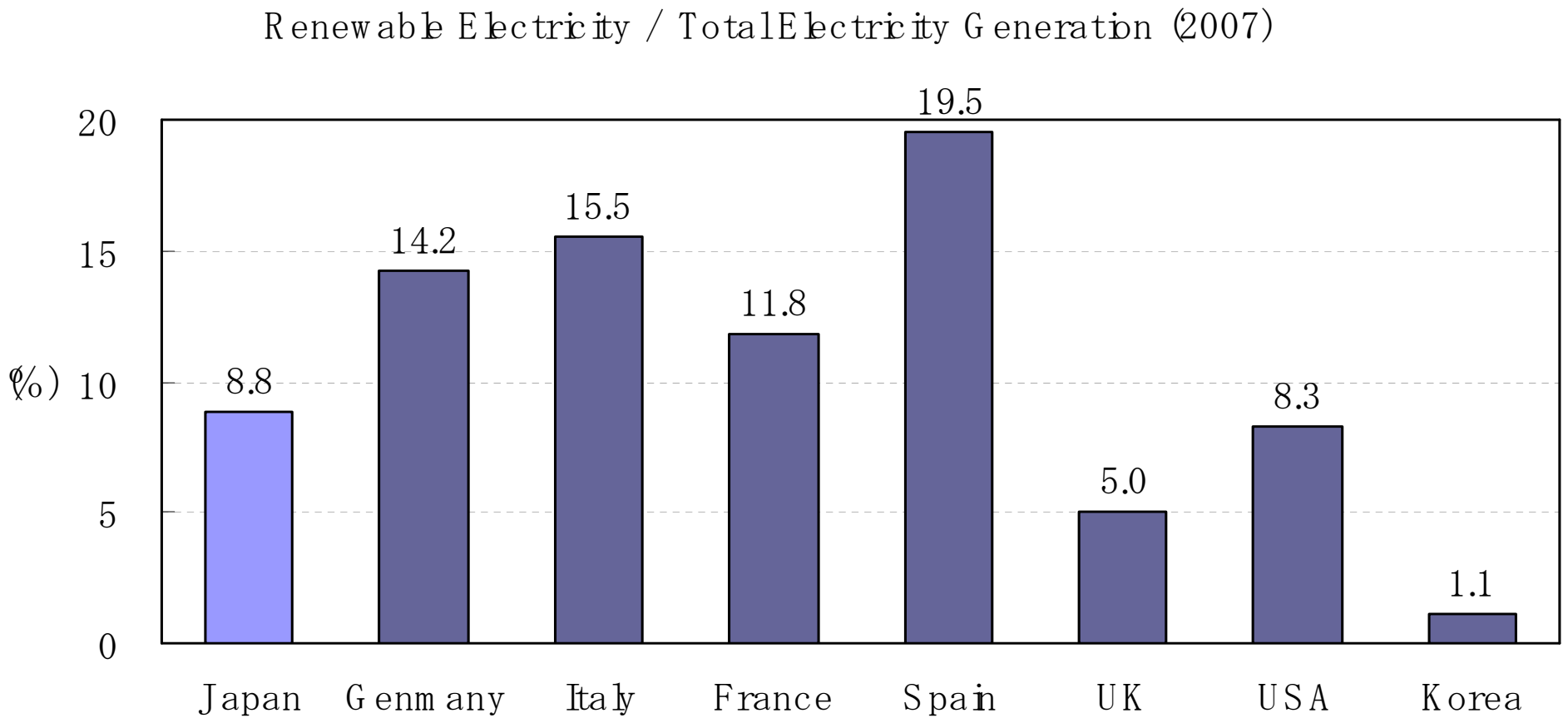
Others

Installation of Renewable Energy



(Data) IEA 2007

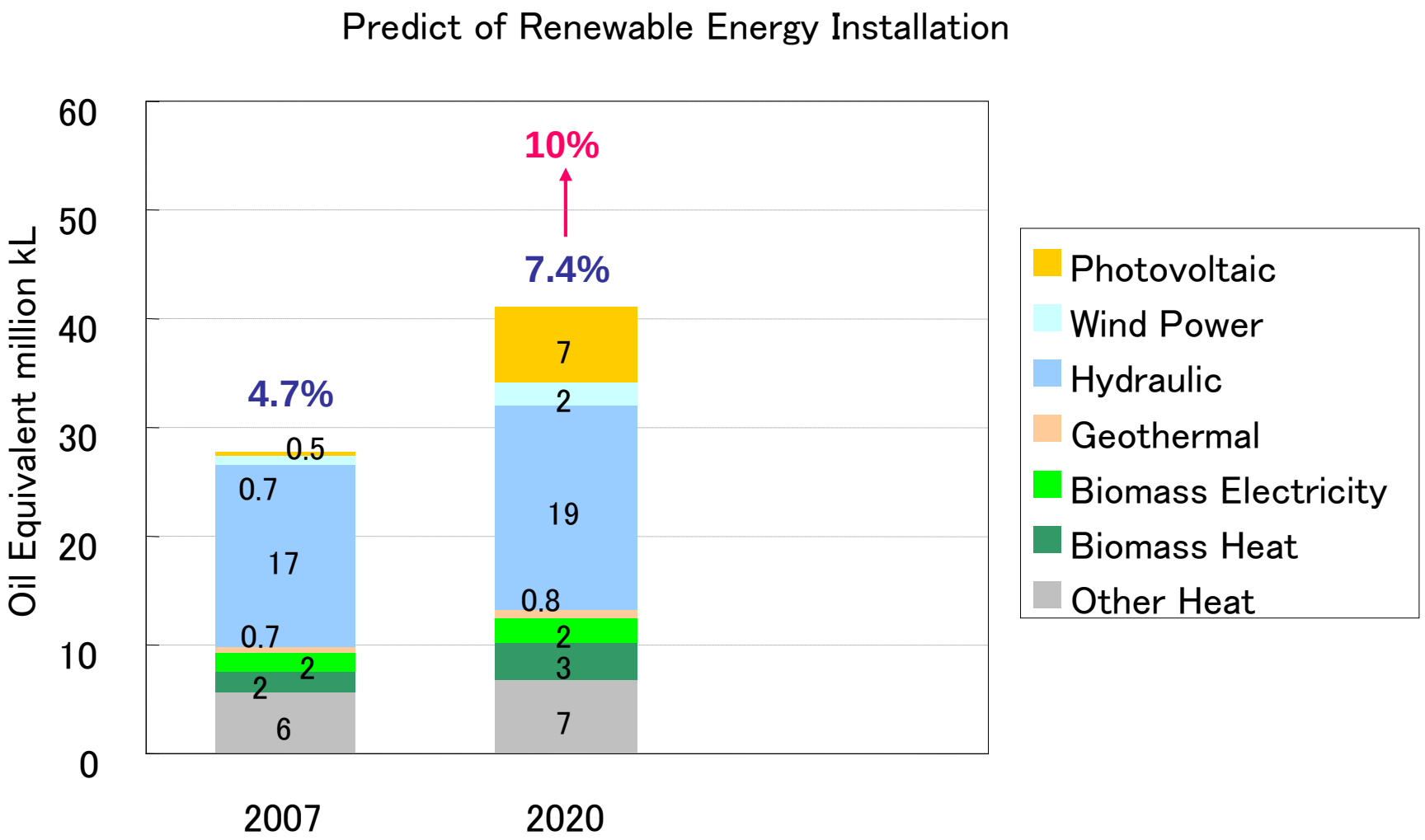
Installation of Renewable Energy



(Data) IEA 2007

Target of Renewable Energy

10% of Primary Energy Supply is the target by Economic Growth Strategy.

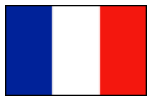


Employments created by Renewables

2008.9.24 Report at UNEP concerning with “Green Industry” (referred to the draft of “Clean Energy New Deal Policy”, IEA)
- 2.3 million has been already employed in the renewable energy sector
- 2.1 million employment in the area of wind power and 6.3 million in photovoltaic until 2030

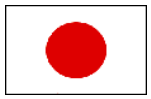
2007.1.19 Chairman for European Renewable Energy Policy Conference
- 2 million new employment by 2020 in EU 15 countries

2006.9.12 Report by Ministry for Environment
- employment in the industry related renewable energy will become 300 thousand until 2020, will exceed 330 thousand



2008.11.17 Minister for Ecology, Energy and Sustainable Development of Country
- create 100 thousand employment until 2020 by supplying renewable energy more than 23% of energy consumption

2009.2.17 American Recovery and Reinvestment Act
- $ 584 billion investment in two years ($ 787 billion until 2019), create 0.6 - 1.8 million new employment by the forth quarter 2011
- $ 83 billion tax reductions and bond, etc. in the area of clean energy & renewable energy, $ 11 billion investment for the reinforcement of electric distribution networks



2010.6.18 Economic Growth Strategy
- create 1.4 million employment until 2020 in the area of environment and energy
- 10 trillion yen market for renewable energy by 2020

How to Expand Renewables

Subjects and Measures on Renewables

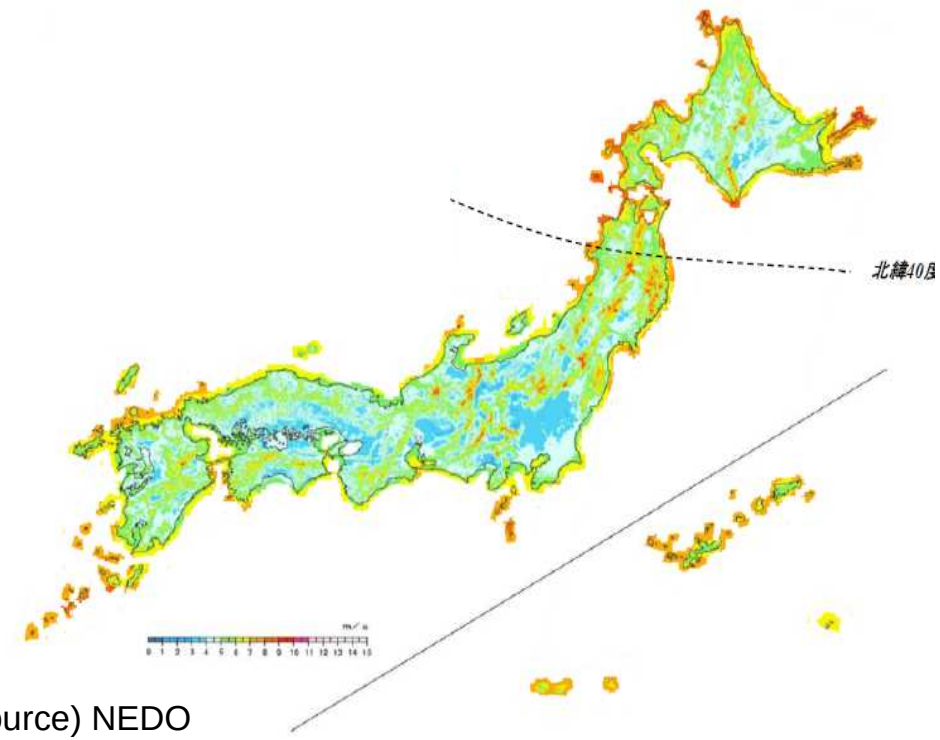
- Climate condition, Geometrical restriction
  → best practice for each area
- High cost
  → R&D, Demand expansion
- Instability, Influence on distribution systems
  → Energy management to stabilize the networks
- Global competition
  → R&D, Standardization, develop new market

Geometrical Restriction

Renewable Energy suitable for each area should be concerned.

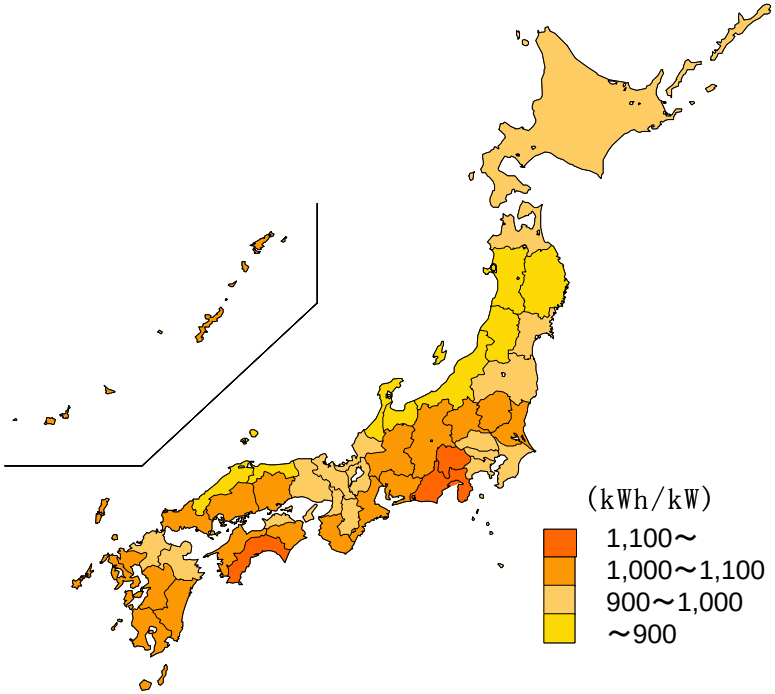
METI has supported many towns to make plans for new energies.

Wind Velocity



(Source) NEDO

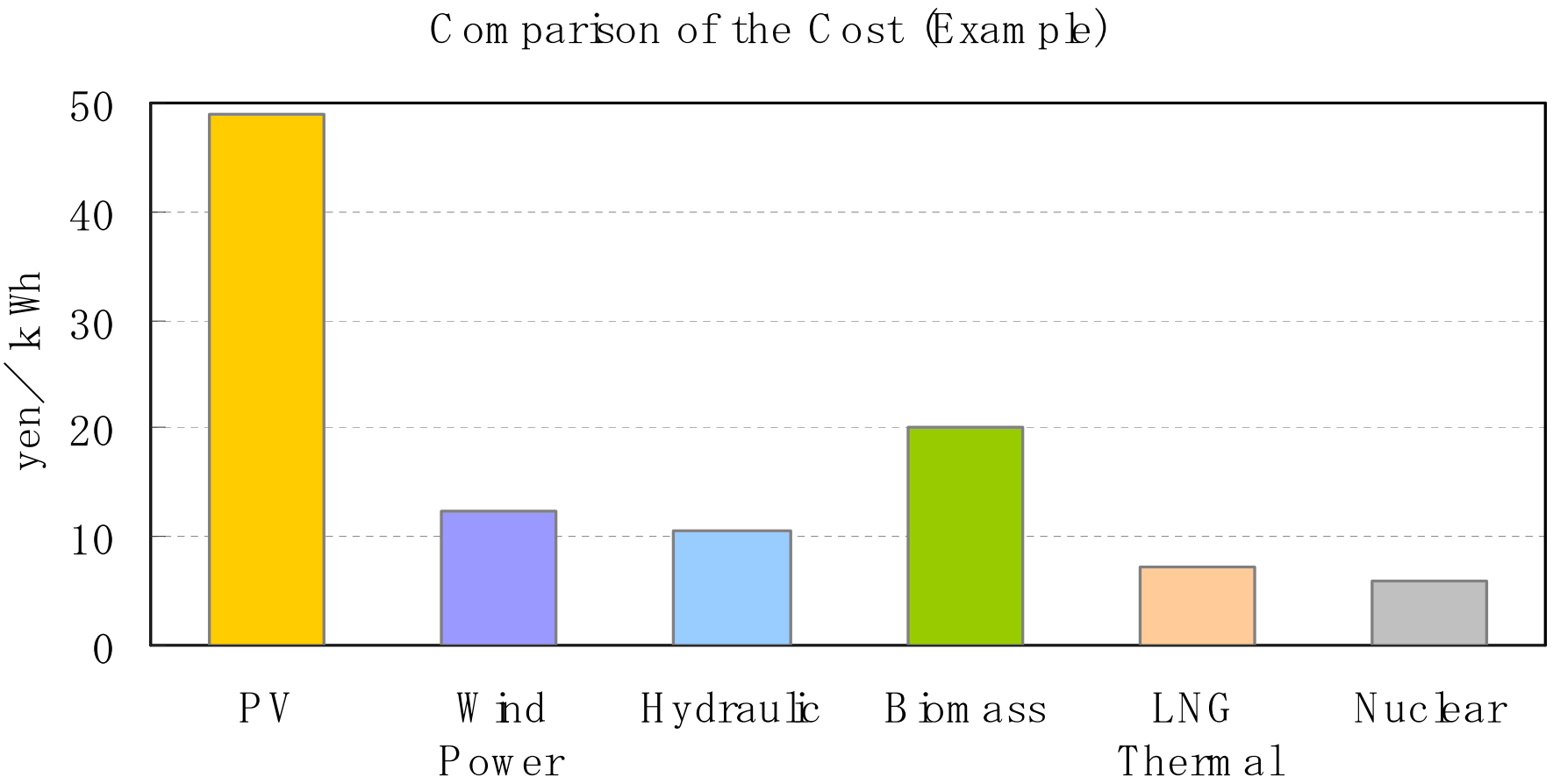
Output by photovoltaic system



(Source) New Energy Foundation

Cost for Renewable Energies

Renewable Energies are expensive (especially, Photovoltaic).



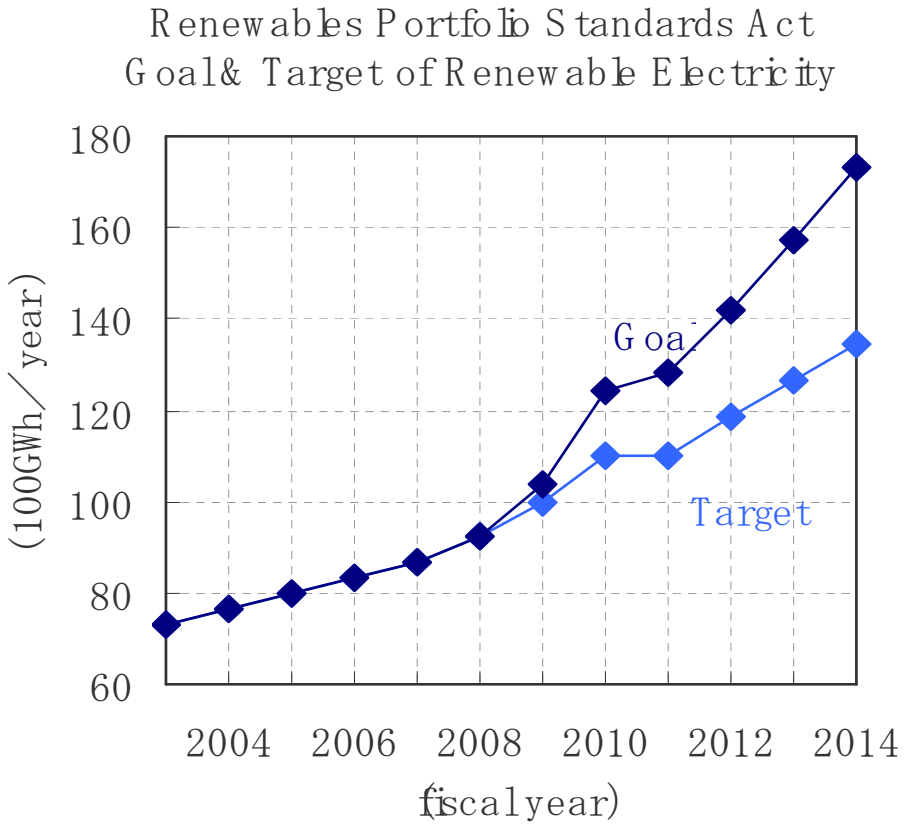
Measures for Deployment

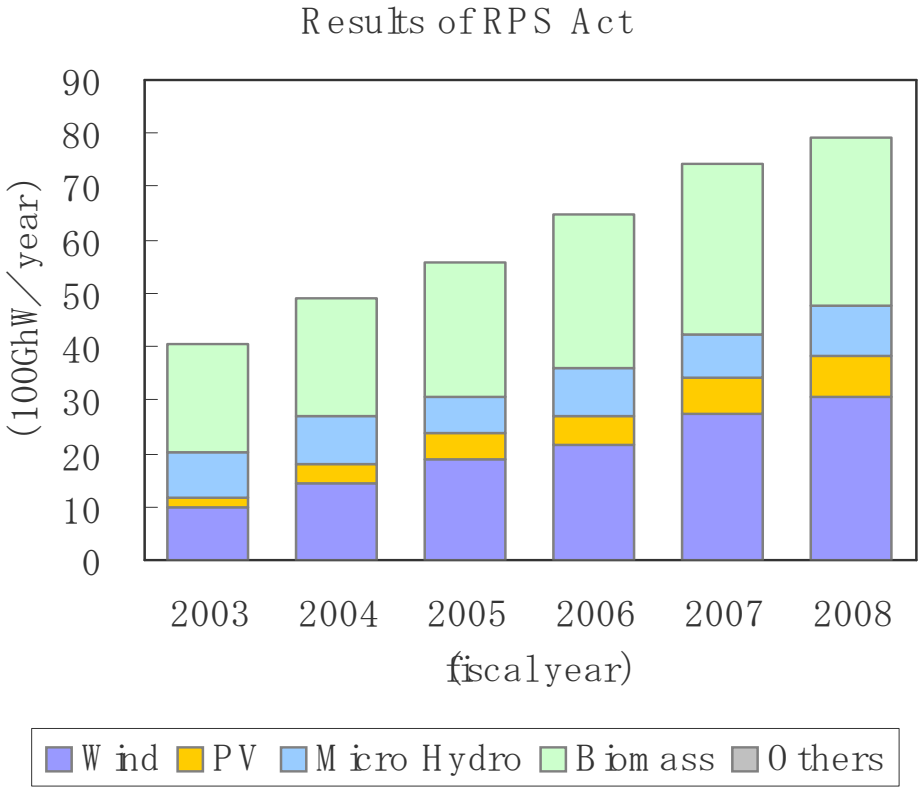
Incentives (Subsidies and Taxations)

	for Residence	for Institution
Subsidies	**Photovoltaic** 70,000 yen/kW (system under 650,000 yen/kW) **Fuel Cell** 1.3 million yen for 1 unit	**All the New Energies** non profit bodies etc. half of installation cost companies 1/3 of installation cost
Taxations	**Photovoltaic** ・ Tax Reduction for Home ・ Loan and for Reform to save the energy	**All the New Energies** 7% Tax Reduction (Small & Medium Entities) or Special Depreciation

Measures for Demand Expansion

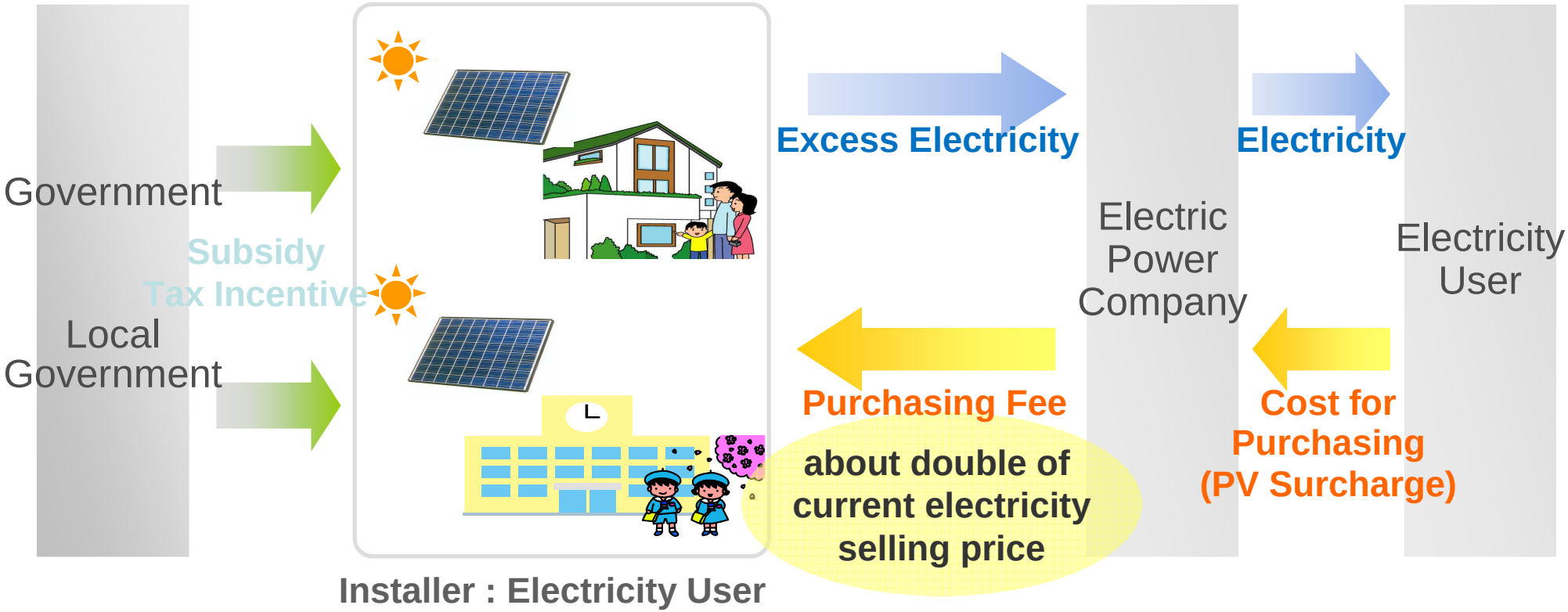
Electric utilities have to use renewable electricity by RPS Act.





Measures for Deployment

Excess Electricity Purchasing Scheme for PV started last November.
Enlargement of the scheme is under consideration.



Enlargement of the Scheme

- Enlargement of the scheme to every renewable electricity is under consideration at METI's task force.
- Ideas in which every renewable electricity (except PV) is purchased at 15～20 yen/kWh for 15～20 years are submitted by METI.
- The outline of the reformation was published this summer.

Ideas (Optional Cases) by METI

<table>
<tr><th>Case</th><th>A.
Range of R.E.</th><th>B.
Purchasing of Electricity by PV</th><th>C.
Purchasing from Old Facility</th><th>D.
Purchasing Rate (yen/kWh)</th><th>E.
Length of Purchasing (years)</th><th>Cumulative Installation (GW)</th><th>Electric generation (TWh/year)</th><th>CO_2 Reduction (million ton)</th><th>Cost for CO_2 Reduction (yen/ton)</th><th>Cost for Purchasing (billion yen/year)</th></tr>
<tr><td>1</td><td>A1
every R.E.</td><td rowspan="2">B1
every electricity</td><td>C1
every facility</td><td rowspan="4">D1
one price for every R.E.</td><td>E3
20 years</td><td>38 ~</td><td>51 ~</td><td>31 ~</td><td>~ 52,297</td><td>1608 ~</td></tr>
<tr><td>3</td><td rowspan="3">A2
every available R.E.</td><td rowspan="3">C2
restricted to newly constructed facilities</td><td>20</td><td rowspan="2">E3/ E2</td><td>20 years</td><td>32 ~ 38</td><td>40 ~ 51</td><td>24 ~ 31</td><td>25,743 ~ 28,854</td><td>613 ~ 887</td></tr>
<tr><td>4</td><td rowspan="2">B2
excess electricity in case of residences</td><td>15</td><td>15 years</td><td>32 ~ 35</td><td>40 ~ 48</td><td>24 ~ 29</td><td>19,407 ~ 21,798</td><td>462 ~ 629</td></tr>
<tr><td>5</td><td colspan="2">D2
individually</td><td>E2
15 years</td><td>31</td><td>40</td><td>24</td><td>20,596</td><td>491</td></tr>
</table>

Enlargement of the Scheme (for PV)

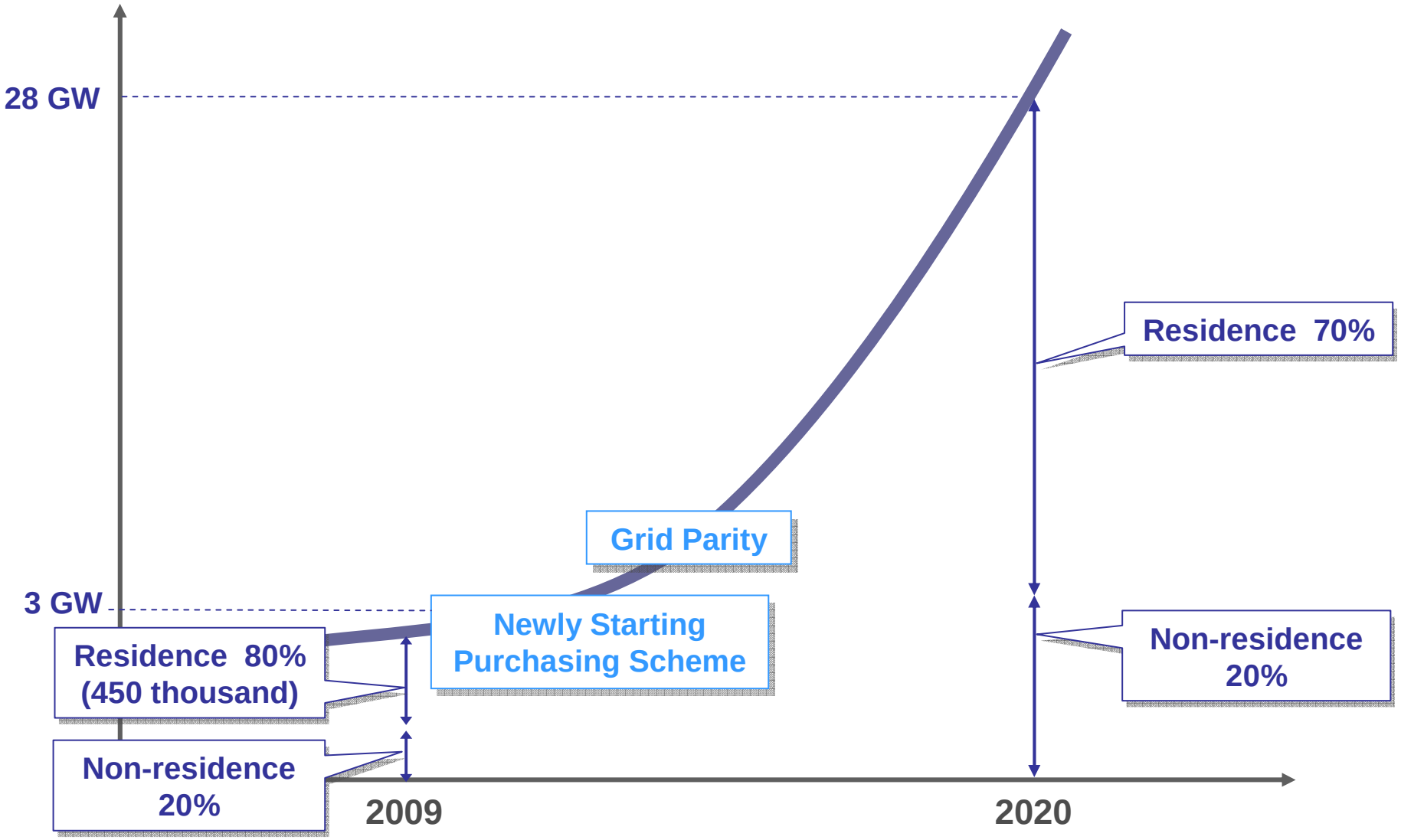
Enlargement for the business utilities or large size plants ?
Revision for the non-residential PV ?
→ expand the installation by non-residence and the thin film solar market

Current Scheme for PV Excess Electricity Purchasing

<table>
<tr><th></th><th>～10kW</th><th>10～500kW</th><th>500kW～</th></tr>
<tr><td>Residence
excess ratio : 60% in ave.</td><td>purchasing excess electricity at 48 yen per kWh+</td><td></td><td></td></tr>
<tr><td>Non-residence
excess ratio : 10～20%</td><td colspan="2">purchasing excess electricity at 24 yen per kWh+</td><td></td></tr>
<tr><td>For Business</td><td></td><td colspan="2">out of the obligation</td></tr>
</table>

+ in case of using gas generators, the purchasing price is in principle 39 yen/kWh for the system under 10kW, 20 yen/kWh for the system over 10kW.

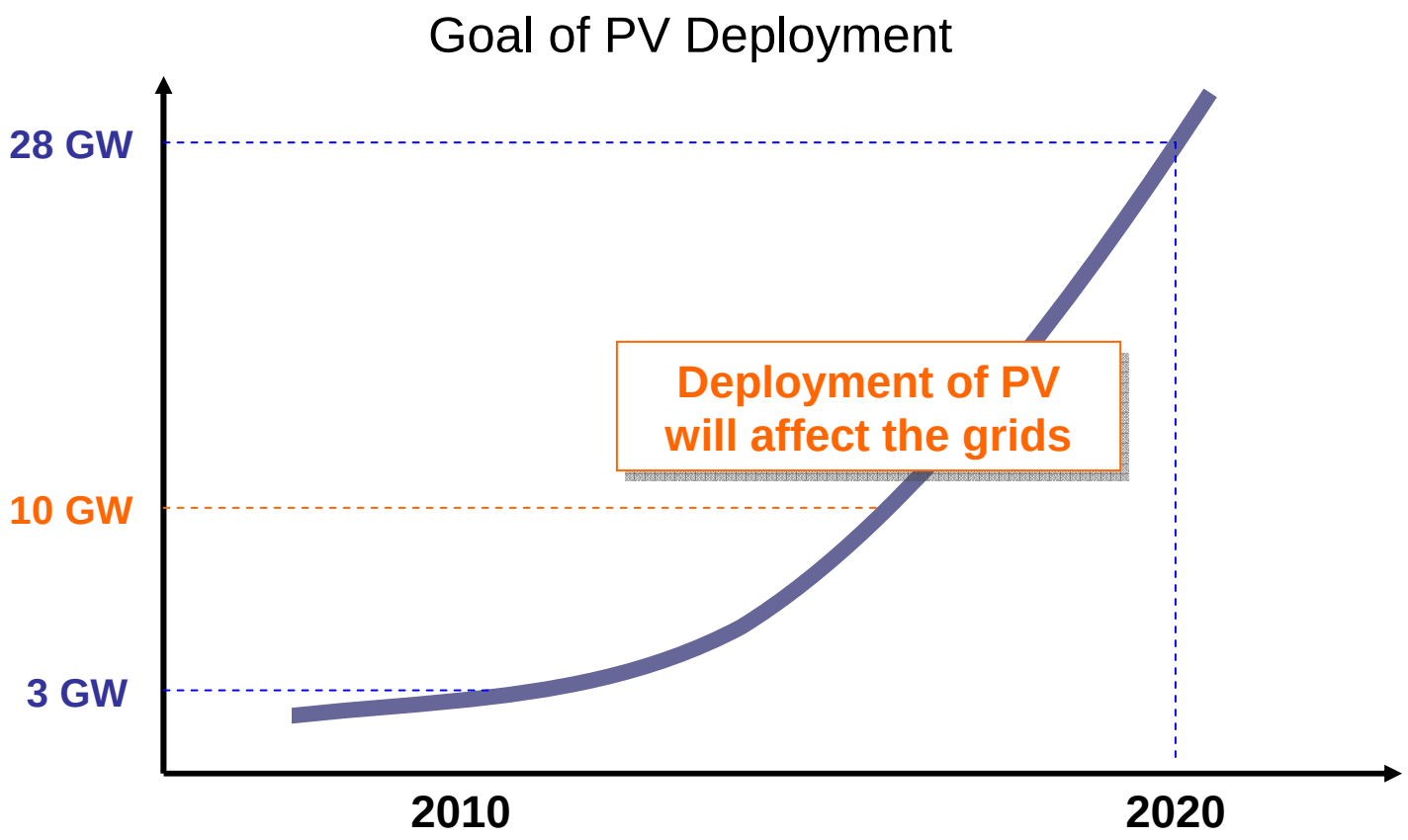
Goal of PV Installation



The influence of Deployment of Renewables

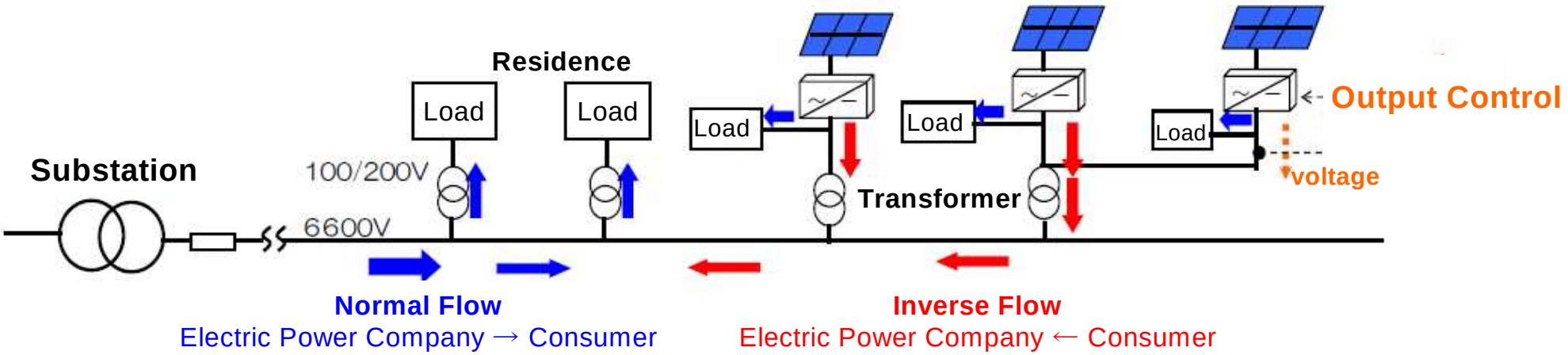
Influence on Grids

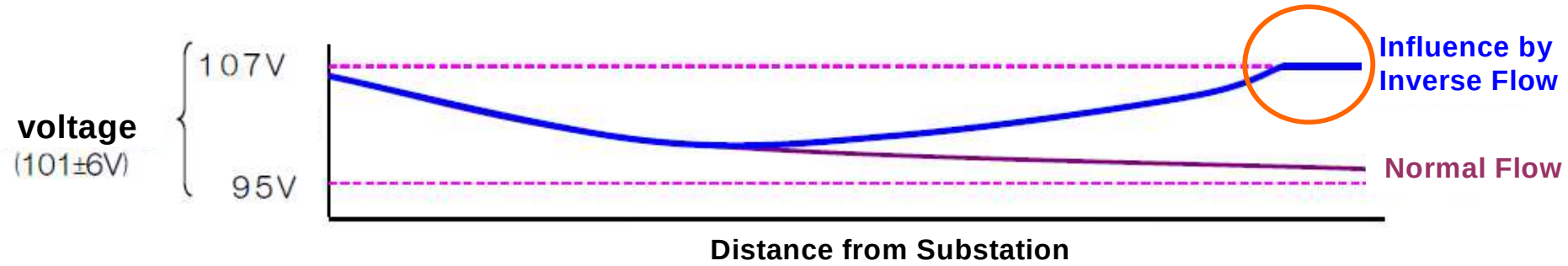
- By the deployment of PV, unstable outputs may affect the grids.
- Energy Management Systems using storage batteries will be important to stabilize the grids.



Influence on Grids

Voltage of the distribution lines will go up by the residential PVs.

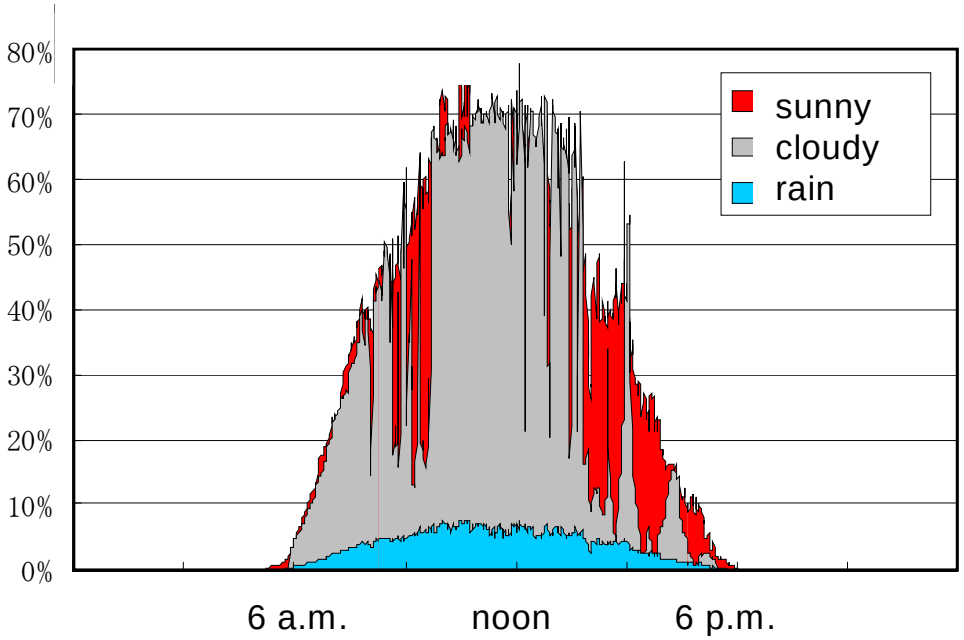




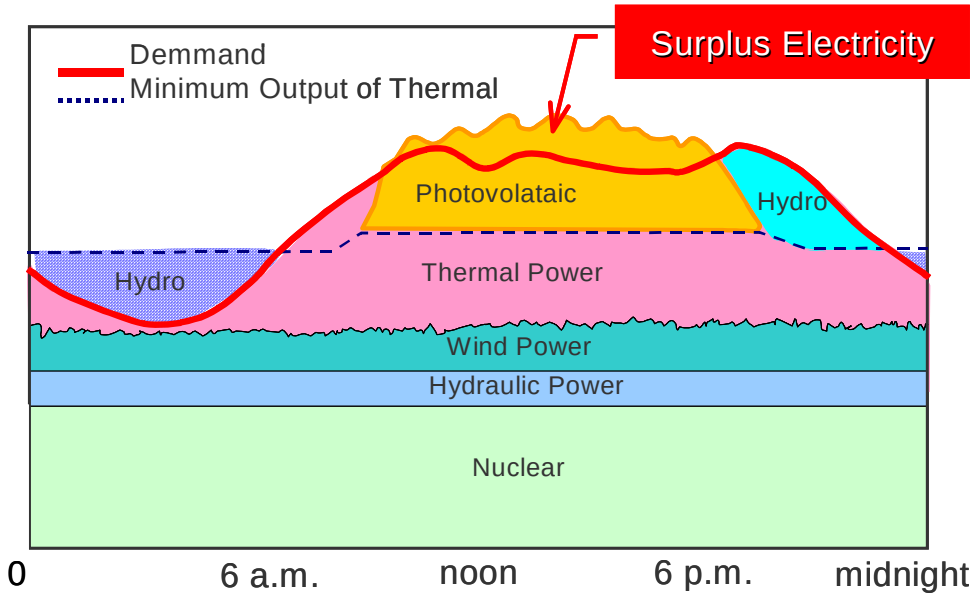
Influence on Grids

Measures for the output fluctuation and the surplus electricity caused by the residential PV systems will be also required.

PV Output Fluctuation



Surplus Electricity

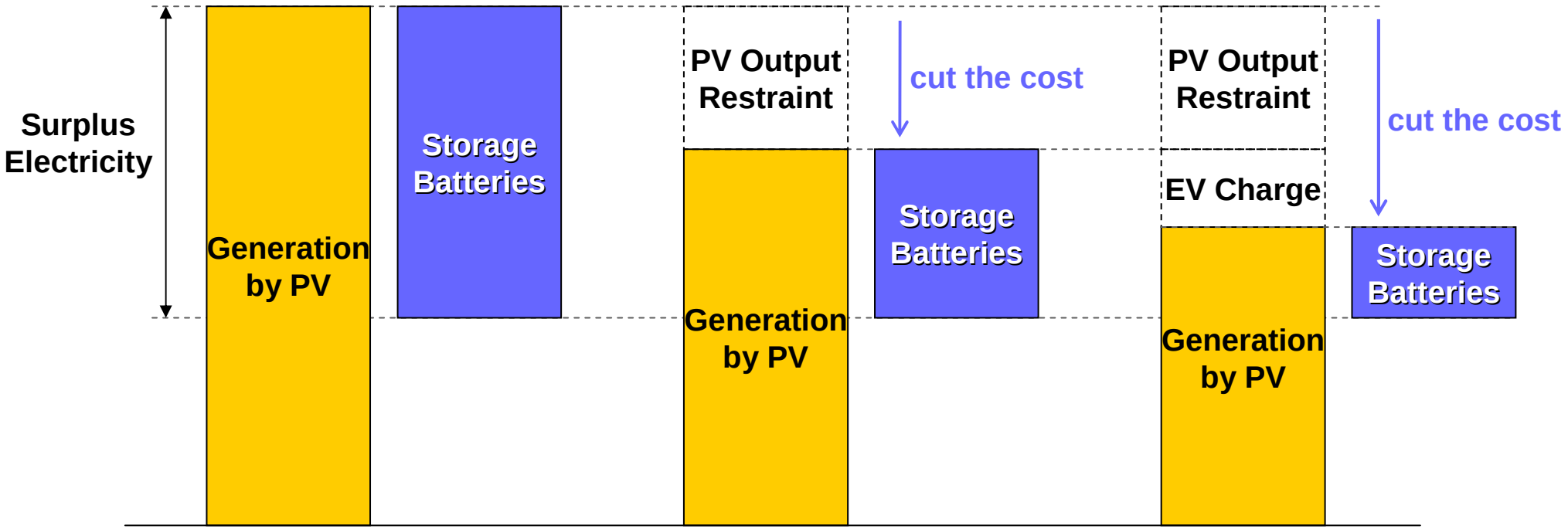


Measures for Grid Stabilization

The cost to stabilize grids are estimated 0.14～5.7 billion yen by 2020.

PV Output Control, EV Charge and Heat Pumps will be able to reduce the cost (= the volume of storage batteries).

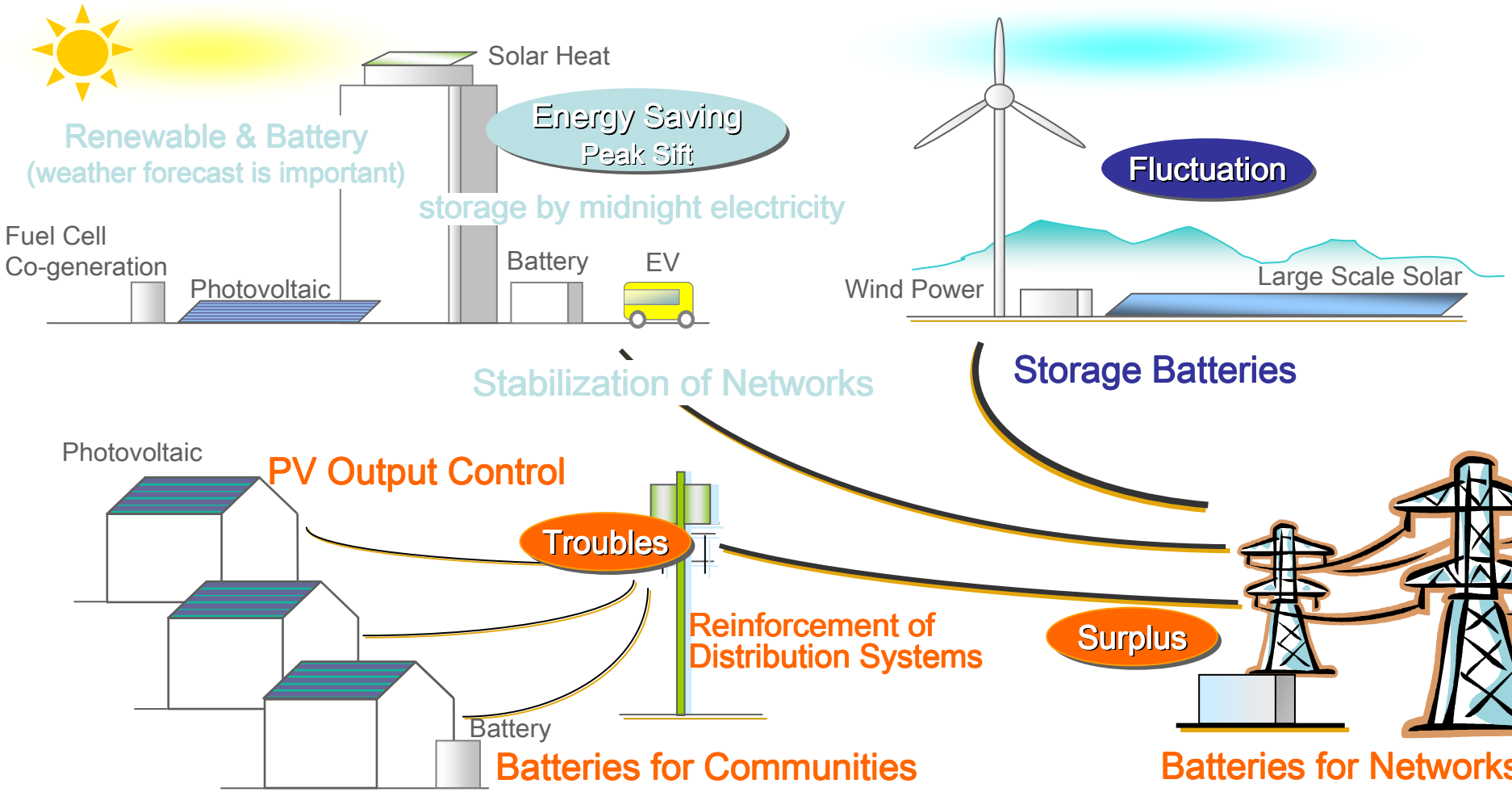
Output Control Pattern on Specific Day



How to overcome this influence
- Smart Grid / Smart Community-

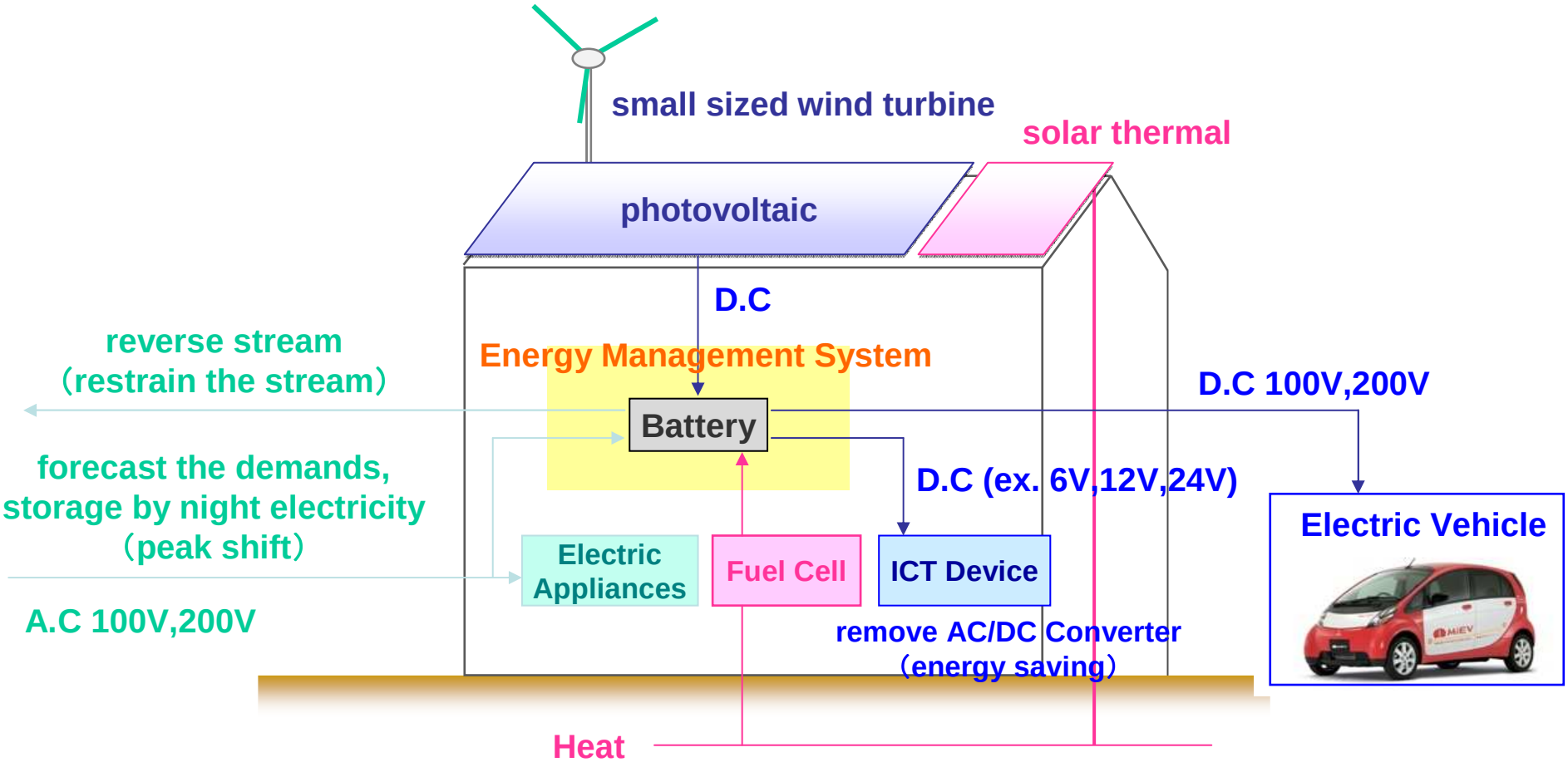
Energy Management System

Renewable Energy, Energy Saving Technology, Storage Battery and Information & Communication Technology will play important rolls.



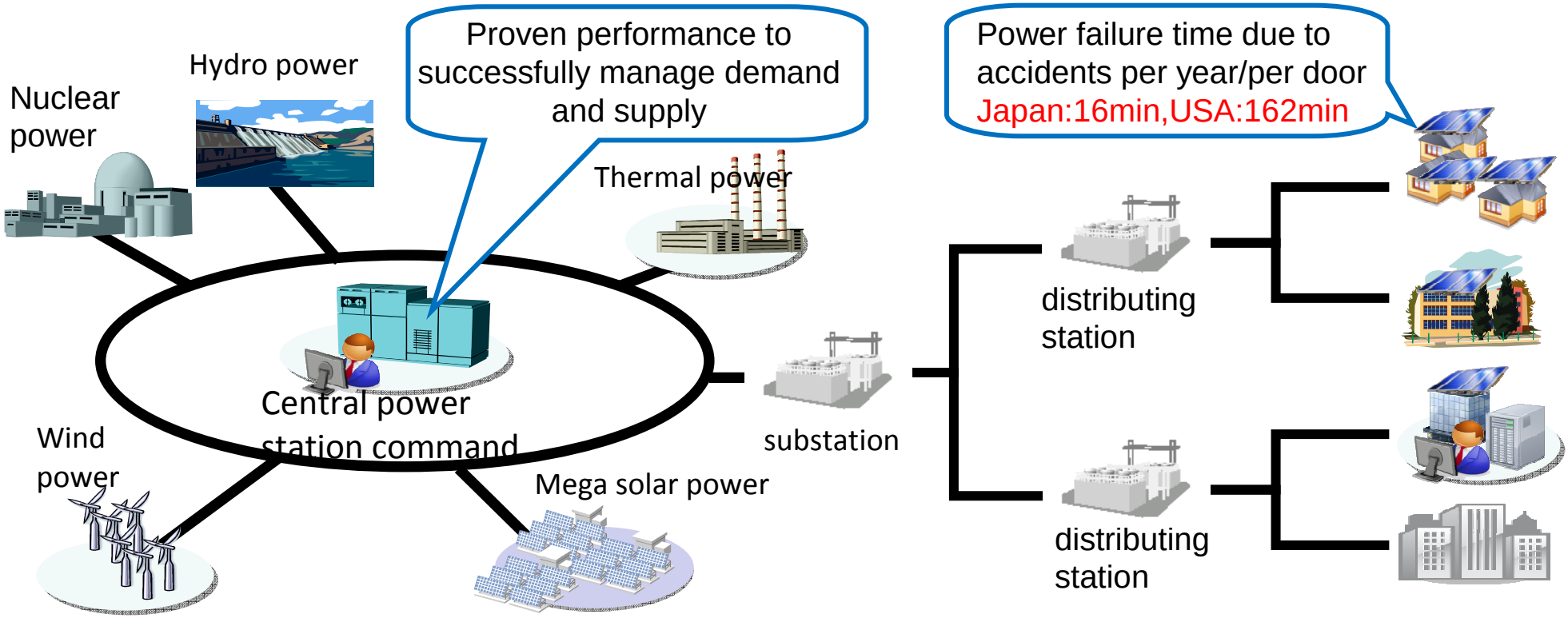
Energy Management System

Energy managements in houses and buildings are possible.



Building and operating intelligent energy management system

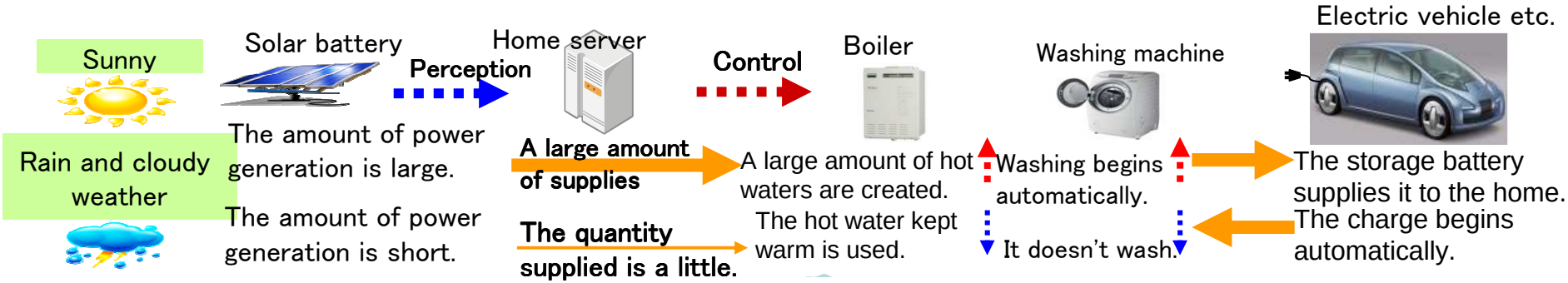
- Japanese companies have expertise in building intelligent energy management system and successfully operating it (with regards to thermal, nuclear, and hydraulic)
- There is still challenges to better manage unstable energy sources like PV or wind power, and to utilize battery for stabilization of the energy system



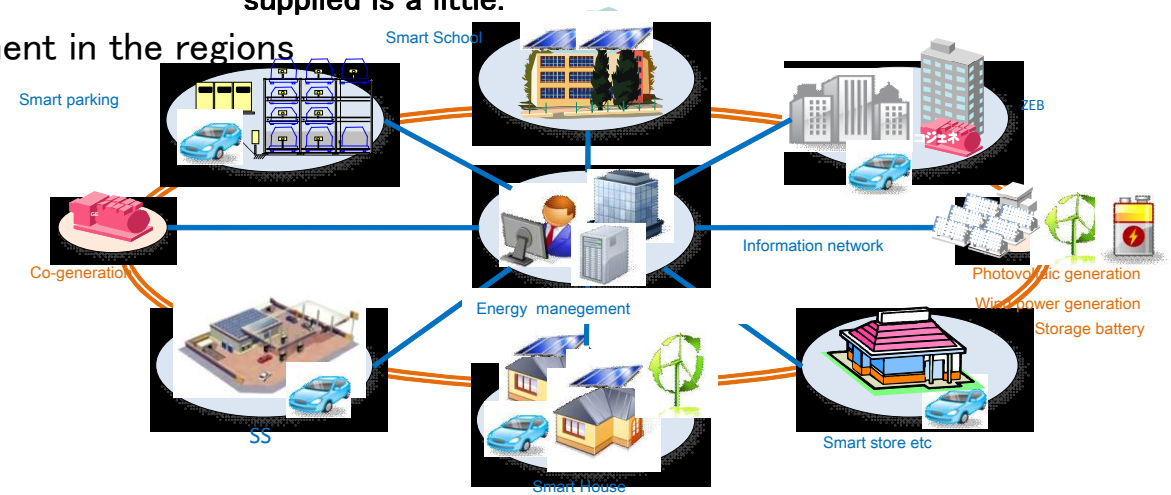
The “Smart Grid” concept

- Once after renewable energy, home electrification, use of electric cars, etc. are introduced, it will become possible to change the energy supply-demand system. There is a potential for the demand side to play an adjustment function role which is currently assumed by energy suppliers.
- Energy can be used more efficiently if the demand side manages to distribute power supply locally, i.e. “local production for local consumption”. It also contributes to energy efficient use in huge distributed electronic power supply by load leveling such as peak-cut.
- The 'Smart grid' is an electric transmission and distribution grid to promote the stability of electric power supply by using information and communication technology.

◆Example of energy utilization on demand side that uses information-communication technology



◆Image of energy management in the regions

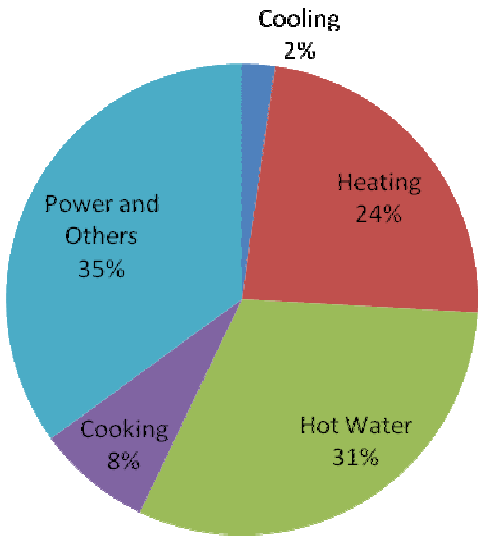


“Grid” to “Community”

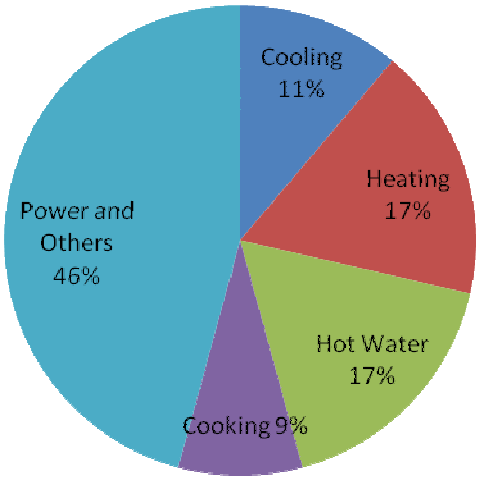
- Half of the final energy consumption is “Thermal Energy ”. It is necessary to think of effective use of electricity and thermally integrated efficient use for efficient use of energy.
- Moreover, the transportation sector accounts for a large portion of final energy consumption.
- It is necessary to promote a “Smart Community”. The Smart Community is the concept of a next generation energy social system which combines the public transportation system and peoples’ lifestyles managing electricity and thermal energy on a community basis.

Final energy consumption

Domestic use

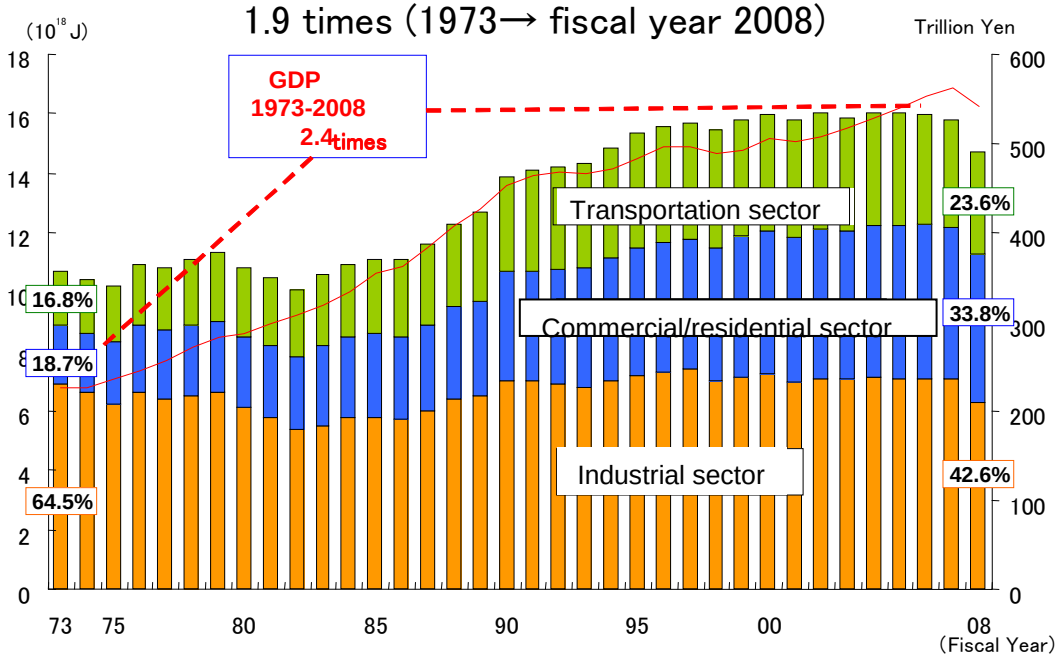


Business use



Expansion of energy consumption of transportation section

1.9 times (1973→ fiscal year 2008)



(Source) “Total energy Statistics "by ANRE, the handbook of Energy & Economy Statistics in Japan

The “Smart Community” Concept

☐Transformation of energy supply and energy use is likely to happen through further diffusion of PVs and electric powered vehicles (EV and PHEV).

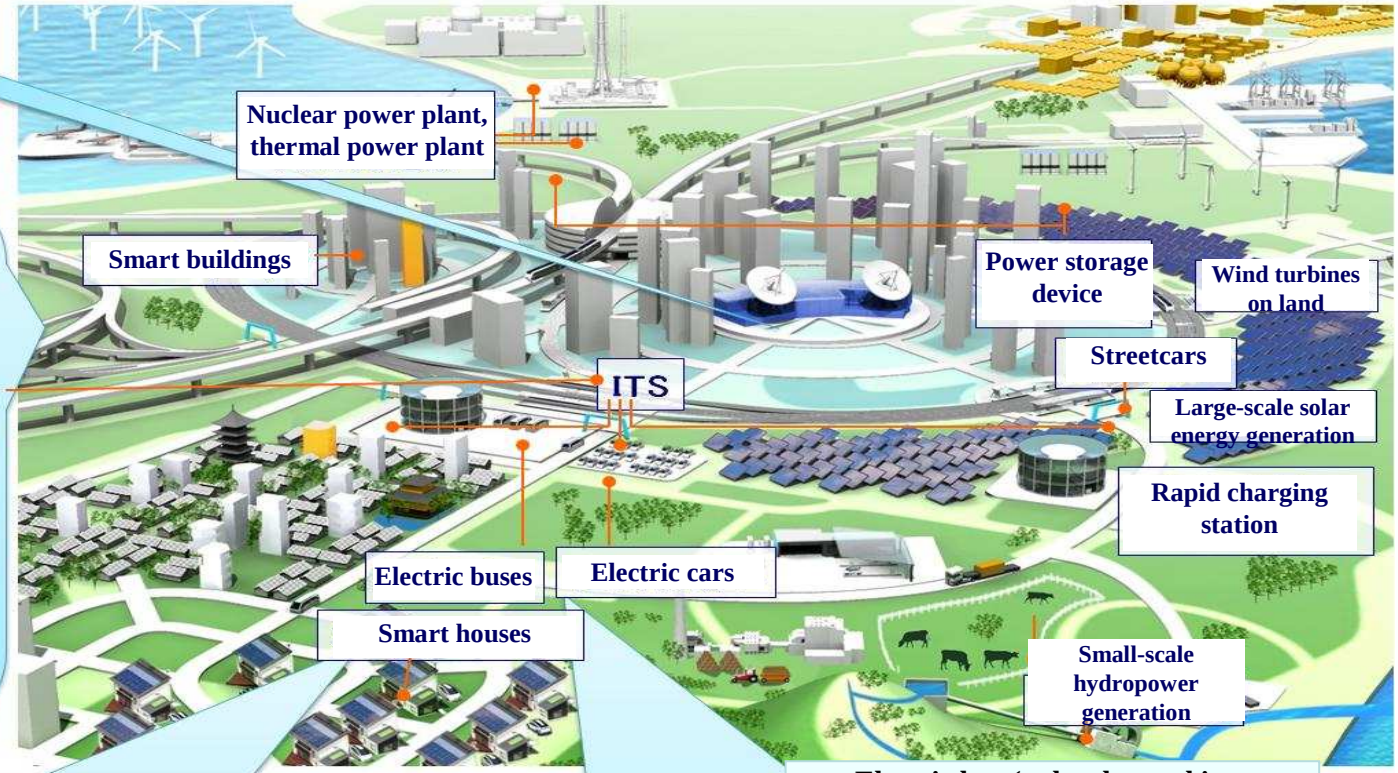
☐ The “Smart Community” concept is a new model of infrastructure which combine homes, offices, and transportation systems to the current energy system in order to significantly reduce CO2 both in the consumer and transportation sectors

Control center

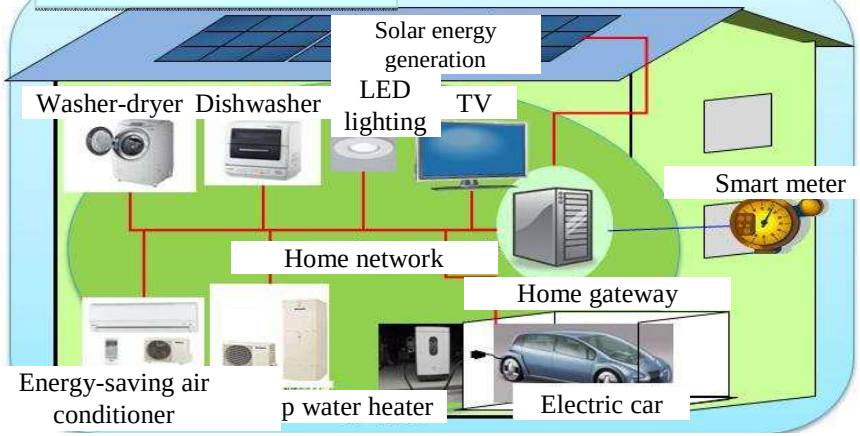
Control center that optimizes supply and demand of energy for the region

A new transport infrastructure integrated with the energy network

Drastically lowering carbon emissions and providing solutions for traffic accidents and traffic jams, by exchanging information between EVs and electric buses.

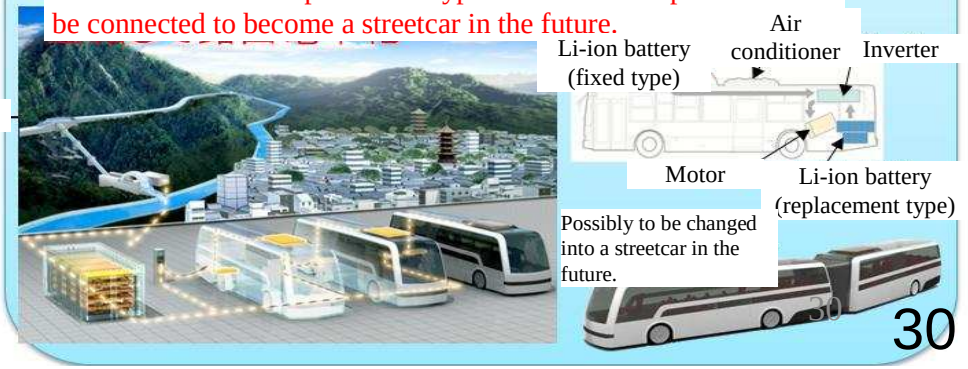


Smart houses



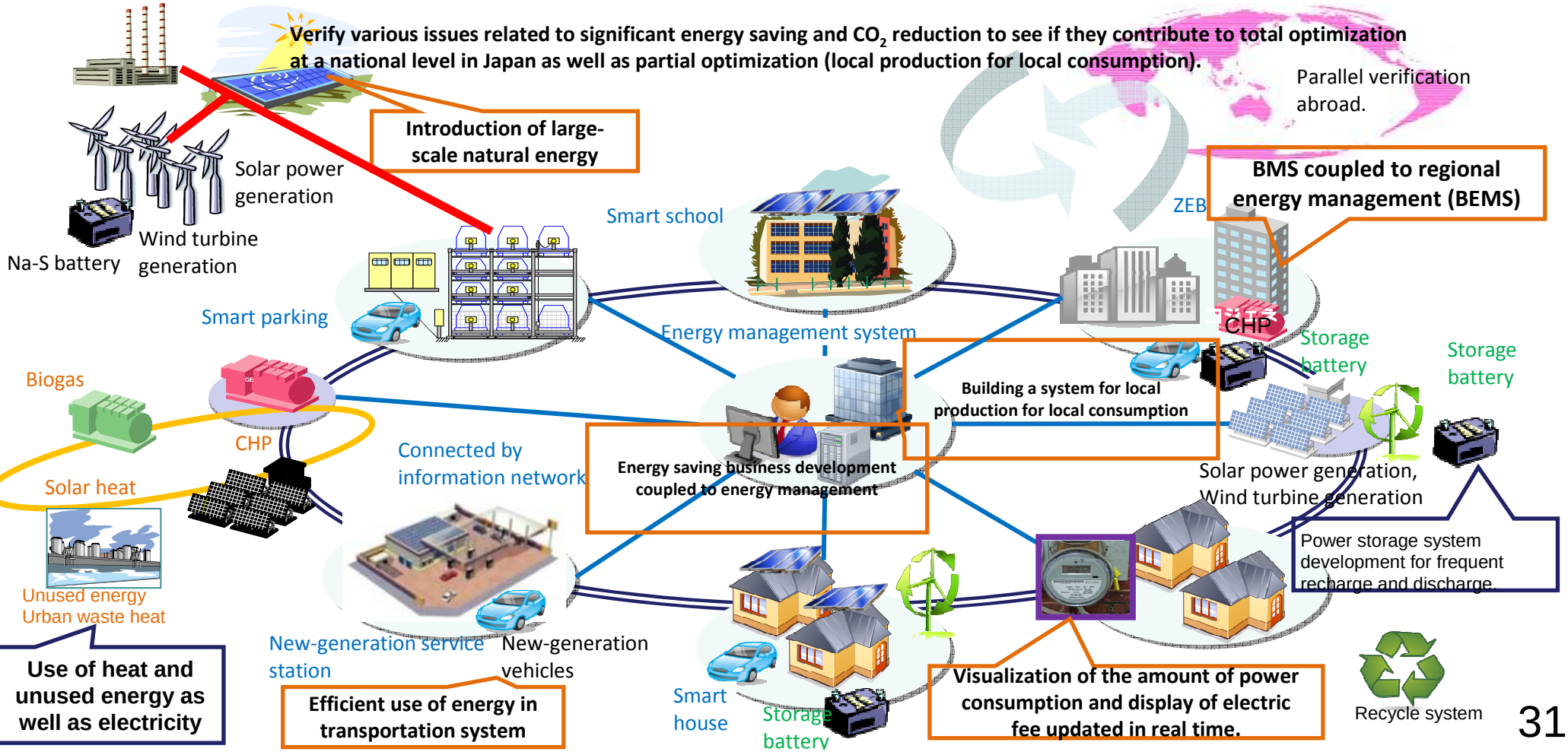
Electric bus (to be changed into streetcars in the future)

Electric buses with replacement-type batteries. Multiple buses will be connected to become a streetcar in the future.



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
- Demostration projects by industry, residents, municipalities to be carried out in Japan (fy2010).



Selection results

- Proposals submitted from 20 areas were reviewed. As a result, the following areas were selected as “Next-Generation Energy and Social Systems Demonstration Areas”:

  Yokohama City, Toyota City, Kyoto Prefecture (Kansai Science City), Kitakyushu City

- Master plans for these areas will be developed through discussions by the Next-Generation Energy and Social System Committee. Various demonstrations, including those of the construction of energy management systems, which are essential to building a smart grid, will be conducted in these areas.

Selection Procedure and Schedule

1. Call for project proposals

- Application period: January 29-February 28, 2010
- Eligibility: Municipal governments, energy companies, companies engaged in the construction of energy management systems
- Type of projects: Projects mainly focusing on demonstrations of energy management systems, including those involving demonstrations of transportation and lifestyle innovations

2. Review procedure

> Review items: Ability to demonstrate the following and the applicability and sophistication of demonstrated issues

- ✓ Ambitious targets for energy savings and CO2 emissions reduction, and large-scale deployment of renewable energy
- ✓ Establishment of an energy management system for each site of energy consumption and at a regional level
- ✓ Establishment of a complementary relationship between regional energy management and a large-scale networks
- ✓ Efficient use of energy in a transport system that includes next-generation vehicles and railways
- ✓ Participation of not only the local government but also energy-related companies, system manufacturers, and other users (households, buildings, commercial facilities, etc.) exceeding the specified number
- ✓ Lifestyle innovation, etc.

> Review method: Interview with the applicant and scores given by experts of the Next-Generation Energy and Social System Committee

3. Next schedule (planned)

Development of a master plan for each area, based on the proposal, in a way that suits the purpose of demonstration.

Late April: Exchange of views between the project operator of each area and experts of the Next-Generation Energy and Social System Committee

Late May: Interim interview

Late June: Finalization of the master plan

Large Scale Pilot projects on Smart Grid and Smart Community in Japan

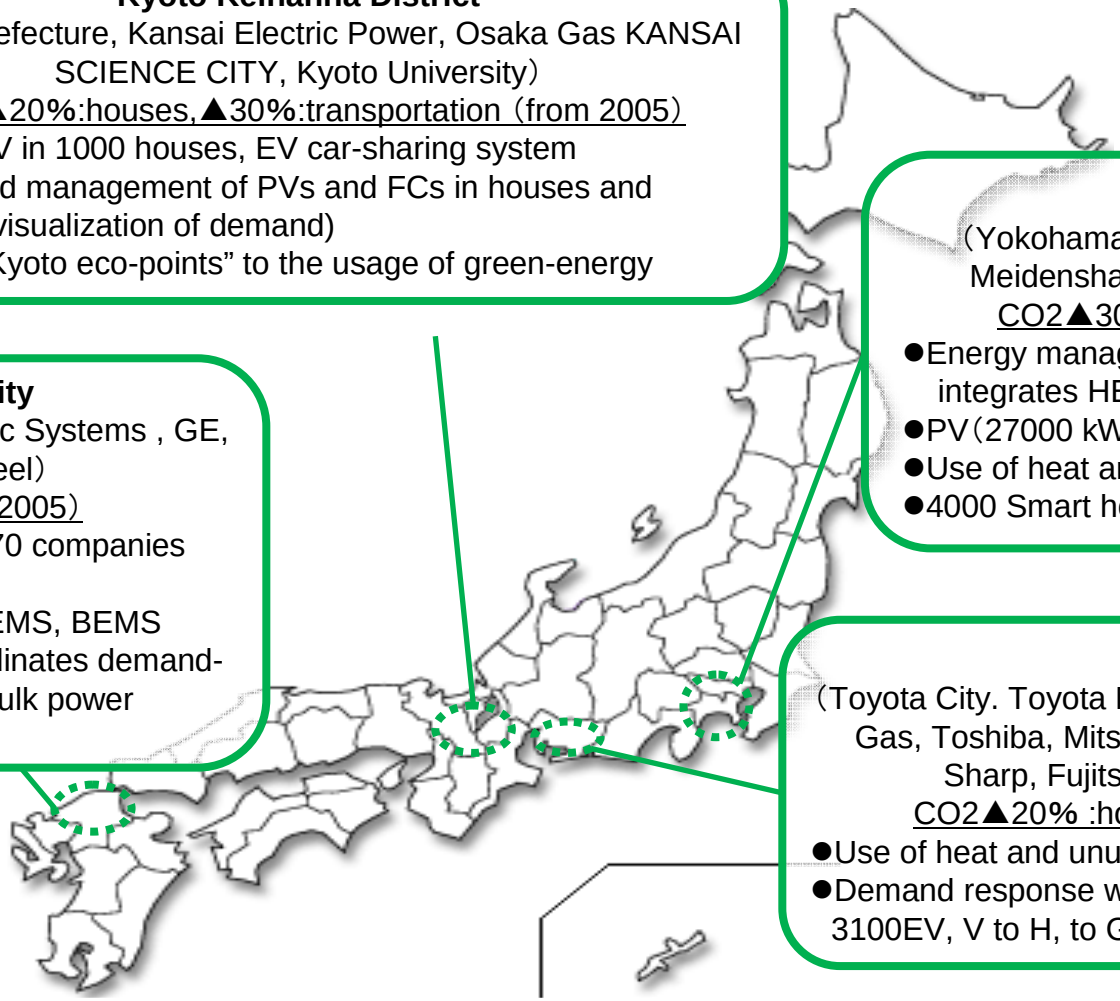
☐On April 8th, we selected 4 sites in Japan to run large scale pilot projects on smart grid and smart community （2010-2015）

Kyoto Keihanna District
（Kyoto Prefecture, Kansai Electric Power, Osaka Gas KANSAI SCIENCE CITY, Kyoto University）
CO2▲20%:houses,▲30%:transportation（from 2005）
- ●Install PV in 1000 houses, EV car-sharing system
- ●Nano-grid management of PVs and FCs in houses and buldings (visualization of demand)
- ●Grant “Kyoto eco-points” to the usage of green-energy

Yokohama City
（Yokohama City. Toshiba, Panasonic, Meidensha, Nissan, Accenture, etc.）
CO2▲30% by 2025（from 2004）
- ●Energy management system which integrates HEMS,BEMS,EV
- ●PV（27000 kW）
- ●Use of heat and unused energy
- ●4000 Smart houses, 2000 EVs

Kitakyushu-City
（Kitakyushu City, Fuji Electric Systems , GE, IBM, Nippon Steel）
CO2▲50%（from 2005）
- ●Real-time management in 70 companies and 200 houses
- ●Energy management by HEMS, BEMS
- ●Energy system which coordinates demand-side management with the bulk power system .

Toyota City
（Toyota City. Toyota Motor, Chubu Electric Power, Toho Gas, Toshiba, Mitsubishi Heavy Industries, Denso, Sharp, Fujitsu, Dream Incubator, etc.）
CO2▲20% :houses,▲40%:transportation
- ●Use of heat and unused energy as well as electricity
- ●Demand response with more than 70 home 3100EV, V to H, to G



Yokohama City, Kanagawa

(Yokohama City Government, Accenture, Toshiba, Nissan Motor, Panasonic, Meidensha, Tokyo Electric Power, Tokyo Gas)

■Proposal outline

- Construct a new social system by bringing together in Yokohama the wisdom of companies for reducing CO2 emissions and increasing national wealth and promote its deployment overseas. In doing so, make the utmost use of Yokohama's excellent assets and opportunities, such as civic power, diverse geographical features, and APEC meetings.
- To make the project sustainable, construct a system in an existing urban district where people actually live.
- Establish an entity responsible for overall decision making, investments, and publicity to organize a promotional structure involving energy companies and users.
- Seek to reduce CO2 emissions by 30% by 2025 compared to the 2004 level.

■Planned actions

The following actions will be taken in three major districts, including Minato Mirai 21.

- ✓ Large-scale deployment of renewable energy (27,000 kW photovoltaic system)
- ✓ Introduction of smart house/building technology (at 4,000 households/establishments)
- ✓ Coordinated control of regional energy (e.g., electricity, heat) complementary to a large network
- ✓ Diffusion of the next-generation transport system (2,000 next-generation vehicles)
- ✓ Lifestyle innovation through visualization
- ✓ Enhanced promotional structure through the establishment of a business alliance

Toyota City, Aichi

(Toyota City Government, Toyota Motor, Denso, Chubu Electric Power, Toho Gas, Sharp, Toyota Home, Fujitsu, Toshiba, KDDI, Circle K Sunkus, Mitsubishi Heavy Industries, Toyota Industries, Dream Incubator)

■Proposal outline

- Focus on the household sector (homes and cars) and aim to construct a low carbon social system through joint efforts of global companies, leading local firms, and the local government in cooperation with consumers
- Demonstrate the efficient use of a mix of different energy sources (electricity, heat and unused energy) and the construction and linkage of low carbon transport systems, while restricting social costs
- Make standardization and other efforts emphasizing international competition
- Seek to reduce CO2 emissions by 20% in households and 40% in transport

■Planned actions

- ✓ Efficient use of energy in households (70 or more households)
- ✓ Efficient use of energy based on communities
- ✓ Establishment of a low-carbon transport system (diffusion of 3,100 next-generation vehicles)
- ✓ Lifestyle innovation through support to encourage consumers to change their action patterns and verification of its effect as an incentive (to reduce social costs)
- ✓ Development of strategy for global deployment (global deployment and international standards)

Kansai Science City, Kyoto

(Kansai Research Institute, Doshisha Yamate Sustainable Urban City Council, Kyoto Prefecture, Kyotanabe City, Kizugawa City, and Seika Town, Kansai Electric Power, Osaka Gas)

■Proposal outline

- Control energy by visualizing energy flows in homes and offices as well as those through EVs (a “nano-grid” project) in Kansai Science City, which aims to study and demonstrate sciences for a sustainable society and create new industries based on them
- By doing so, confine fluctuations in demand arising from human activity patterns and the instability of natural energy sources, and aim to establish a stable and efficient regional energy system and create new industries
- Seek to reduce CO2 emissions by 20% in households compared to the 2005 level and 40% in transport by 2030

■Planned actions

- ✓ Installation of photovoltaic systems in 1,000 households
- ✓ Building “nano-grids” in homes and buildings to intelligently control power generation systems (e.g., solar cells, fuel cells) and electrical storage systems through “computerized” management of energy
- ✓ Active deployment of EVs and construction of a network of charging stations
- ✓ Proposal of a regional energy economy model based on “Kyoto eco-points”
- ✓ Establishment of a model for local energy production for local consumption by integrating the above actions
- ✓ Experiments to demonstrate complementarities between a regional nano-grid and the national grid

Kitakyushu City, Fukuoka

(Kitakyushu City Government, Nippon Steel, IBM Japan, Fuji Electric Systems)

■Proposal outline

- Aim for regional energy management in which citizens and all other community members participate, by building a smart grid based on the local new energy infrastructure (solar power, hydrogen, etc.) and community infrastructure of the Yahata Higashida district, which has been pursuing an eco-friendly community under the leadership of the private sector, and eventually create a society with 50% less CO2 emissions
- Disseminate the outcome across the city by incorporating it in the city's community development policy and expand it to Asia through networking with other Asian cities
- Seek to achieve, in addition to the current target of reducing CO2 emissions by 40% by 2030 and 70% by 2050 in the residential/commercial and transport sectors), an additional 10% reduction (80% reduction instead of 70% by 2030, 80% reduction instead of 70% by 2050)

■Planned actions

- ✓ Creation of a city block where new energy, including that from industry, accounts for 10% of energy consumption
- ✓ Deployment of energy conservation systems for an entire town (e.g., real-time energy management for 70 companies and 200 households using smart meters)
- ✓ City block energy management through a regional energy saving station
- ✓ Development of communities and transport systems based on energy infrastructure
- ✓ Establishment of a system to transfer the outcomes to other parts of Asia

A Smart Energy Network Road Map ~ 3 E (Environment・ Energy Security・ Economy) ~

<For the development of a Next-generation Energy and Social System>
- Established a promoting organization " Japan Smart Community Alliance "as of April 7th (joined 287 companies)
- Domestic demonstration tests in Yokohama, Toyoda, Kyoto and Kitakyushu (FY2010~)
- Overseas demonstration tests in several regions aiming at global deployment (US, India and China)
- Promote international standardization

	【2010】	【2020】	【2030】
Population	127 million	123 million	115 million
GDP	541 trillion yen ($5,410bn)	656 trillion yen ($6,560bn)	739 trillion yen($7,390bn)
Crude Oil(CIF)	79 $/bbl	121 $/bbl	169 $/bbl
Market size・ Employment(domestic)	0.9 trillion yen (9$bn)・ 100,000 people	3.6 trillion yen (36$bn) ・ 400,000 people	5.4 trillion yen (54$bn) ・ 600,000 people
Promotion in Other Countries	■Promoting smart meters to above 80% by 2020. (EU directive, June 2009) ■European companies roll out Home Energy Management System (HEMS) in Japan.	■Raising the share of renewable energy to 20% in the overall energy consumption. ■Introduction of Smart Grid in EU (ETP Smart Grids) ■Increasing demand for nuclear power plants in China and India. (~2025)	■Introduction of Smart Grid in US (Grid2030) ■Introduction of Smart Grid in Korea

VISION

	2010 ~ 2020	2020 ~ 2030	2030 ~
Relation between power systems and local energy management systems	■PV price decline on the back of rapid progress in diffusion ■Adjustment of power networks to maintain the stable supply (Some substations install storage battery systems) ■Local energy management systems are brought to realization ■Reducing the cost of storage battery systems through demonstration tests	■PV further price decline ■Growing needs for local EMS to utilize renewable energy ■Establishment of local EMS technology combined with HP water heaters and storage batteries ■Spread of Smart Grids with two-way communication between grid operators and end-users	■Utilizing cost competitive renewable energy ■Introduction of Smart Grid with coordinated control of power system and local EMS in terms of efficiency and stability ■Managing renewable energy by V2H(Vehicle to Home) and V2G(Vehicle to Grid) ■Seasonal energy management (e.g. demand side management in summer and electric-generating capacity governance in fall)
Houses	■Smart meter demonstration tests ■HEMS and heat-pump water heater ■Home server system ■Demand responsive system ■EV demonstration tests	■Smart home appliances ■Application deployment on home server platforms ■HEMS and Local EMS ■V2H(Vehicle to Home)	■Fully automated HEMS ■Effective utilization of heat and power (e.g. combined solar heat and heat pump)
Buildings	■ZEB start-up	■ZEB in new-built public construction	■ZEB in new-built public and private constructions
Overseas development	■Accumulate technology and regionally specific know-how through demonstration tests ■Strategic standardization	■Meet global infrastructure demand	■deploy systems that integrates equipment with finance and operation globally

ACTIONS

Social systems	Smart Community demonstration tests (incl. overseas) International standardization of 26 technologies for the Next-generation Energy System	Optimization of power system and community EMS	
Electric networks	Smart interface Advanced prediction method of PV power generation	**Infrastructure building of two-way communication**	
Demand side	Storage battery system demonstration tests Large-scale smart meter demonstration tests		

One day in the life of the Next-generation Energy Society

Homes


- Smart Life with high QOL

•PV
•HEMS
•Remote control of home electrical appliances
•Security, fire prevention and fault detection systems
•QOL enhancement services
•Solar heat collector
•Local area combined heat and power system
•Utilization of waste heat from waste incineration plants

Offices


- Enjoy nature, even in the cities

•Utilization of renewable energy
•ZEB
•HP water heaters
•EV
•Comfortable office space with natural light and controlled HVAC
•Plant factory in a building
•Waste utilization

- Industrial zones as power production areas

•Huge PV on roofs of factories and tanks
•Utilization of waste heat by HP technologies
•Heat and power transmission to the cities

Transportation


- Modal Shift

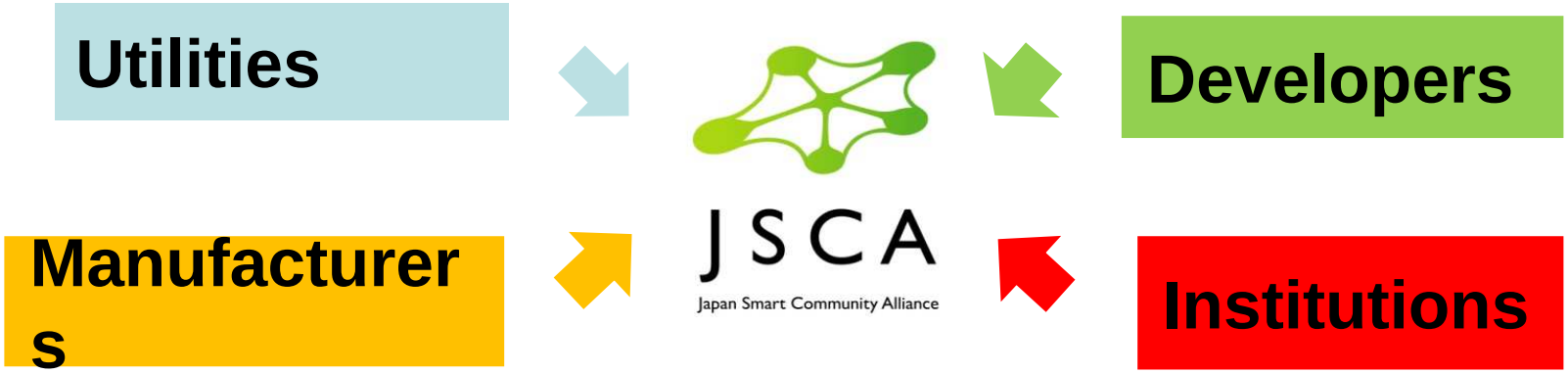
•LRT
•EV sharing
•Rail cars with batteries
•Electricity-assisted wheelchairs
•Modal shift by EV, PHEV, FCV

【 explanatory note 】
- EMS: Energy Management System
- HEMS: Home Energy Management System
- BEMS: Building Energy Management System
- ZEB: Zero Emission Building
- EV: Electric Vehicle
- PHEV: Plug-in Hybrid Electric Vehicle
- FCV: Fuel Cell Vehicle
- LRT: Light Rail Transit
- HP: Heat Pump

Deployment to all over the world

Japan Smart Community Alliance (JSCA)

- Because of the variety of technologies incorporated in a smart community, cooperation across industries and a linkage with the public sector are necessary.
- JSCA was launched in April 2010 in order to promote public-private cooperative activities toward realization of a smart community by tackling various common issues, such as dissemination and deployment, and research on smart grid standardization.
- NEDO（※）serves as the secretariat.
  ※New Energy and Industrial Technology Development Organization



As of June 10, 2010, 352 entities had become members.

Structure of JSCA

Japan
Smart Community Alliance

President
Norio Sasaki
(President and CEO, Toshiba)

Board
Hitachi, Itochu, JGC, Mitsubishi Electric, Panasonic, TEPCO, Tokyo Gas, Toyota

Steering Committee

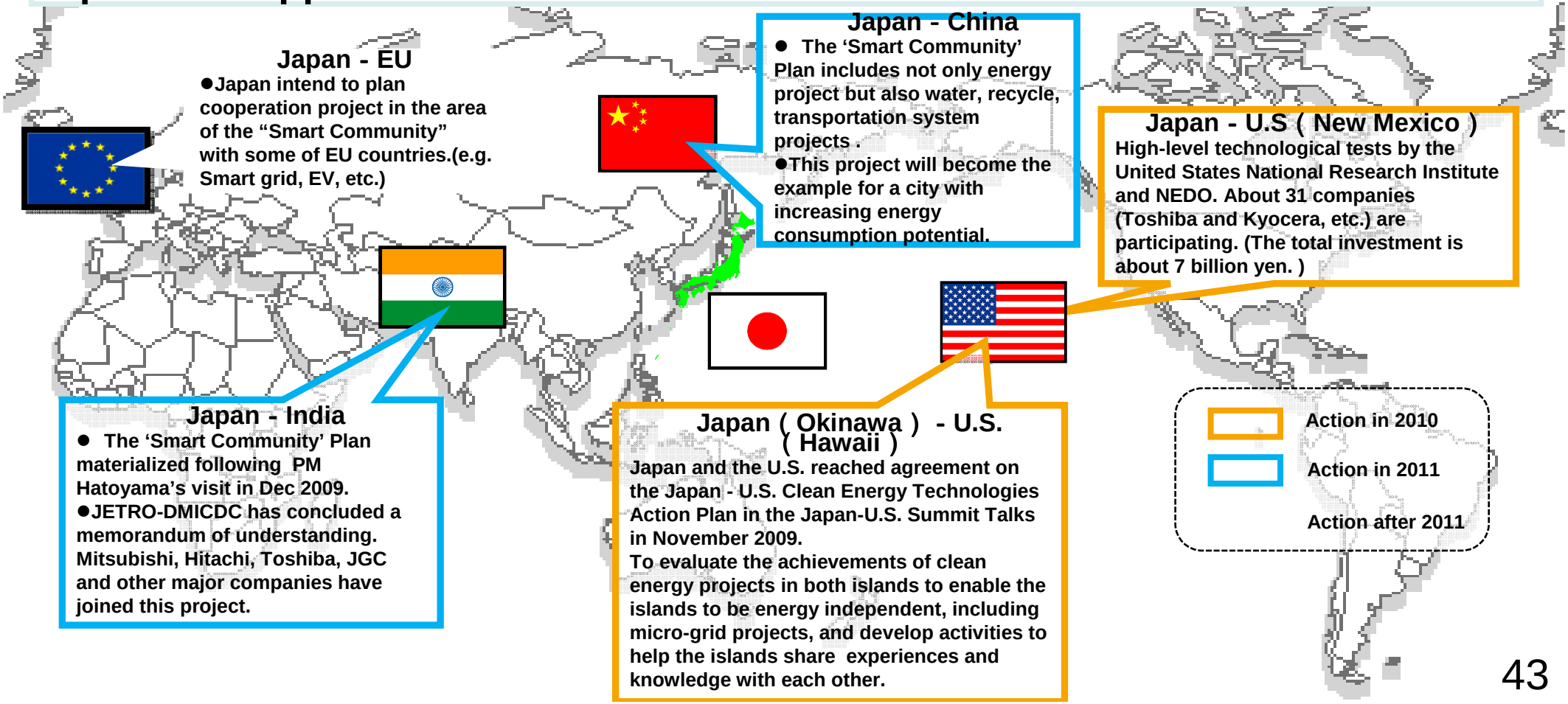
Secretary General

Secretariat
NEDO

- International Strategy WG
- International Standardization WG
- Roadmap WG
- Smart House WG

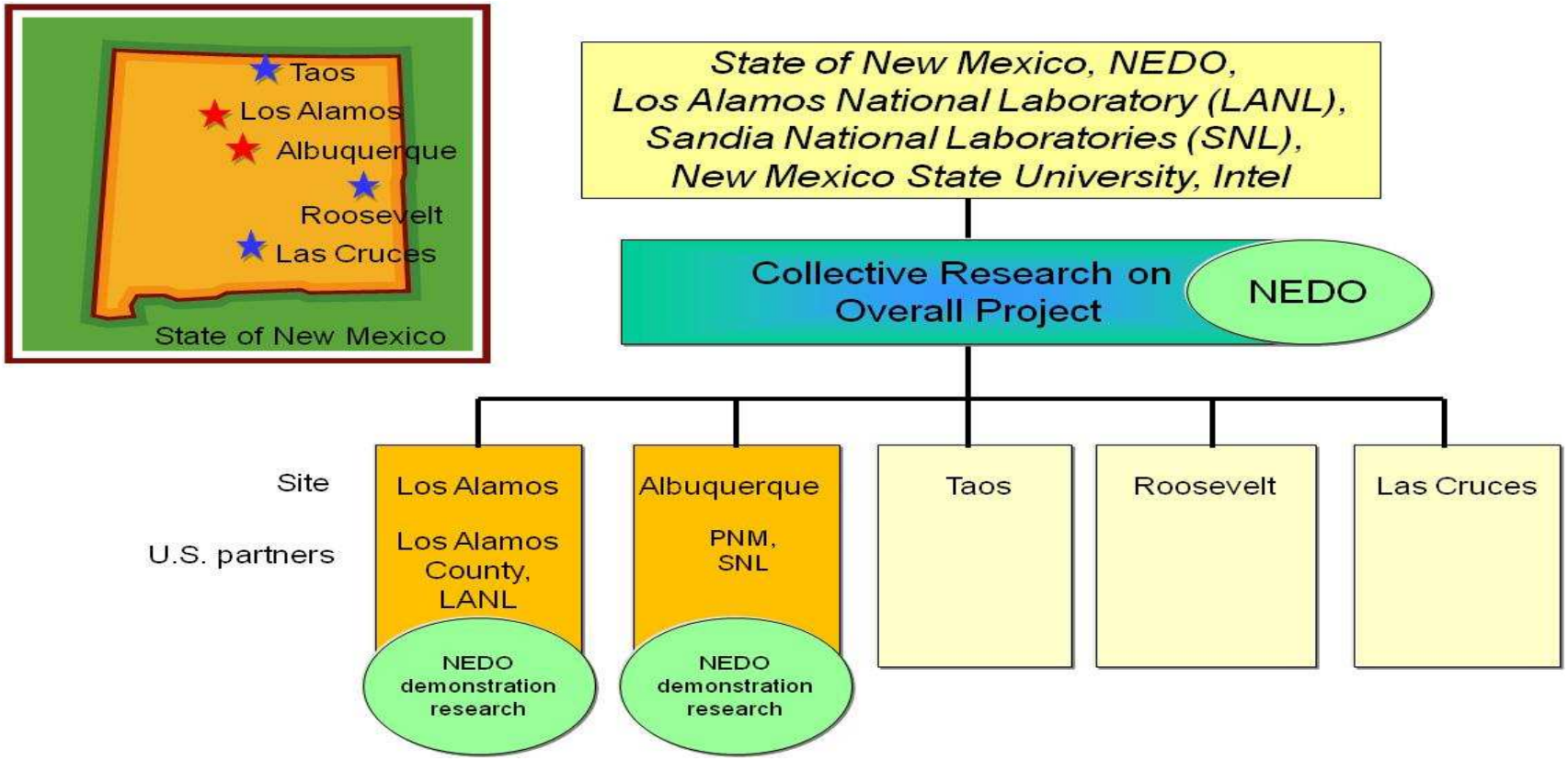
Overseas Deployment of Smart Community

- Offshore demonstration projects in parallel with domestic projects
- Currently, three different types of energy system are implemented in projects;
  1) urban city (domestic and New Mexico), 2) remote island (Okinawa-Hawaii), 3) emerging country (India)
- Establishment of Japan Smart Community Alliance (JSCA) in NEDO to provide support



New Mexico has one of the greatest potentials for RE and hosts Los Alamos and Sandia laboratories.

New Mexico launched the “Green Grid Initiative” which consists of five sites NEDO to participate in two sites and contribute to collective research.

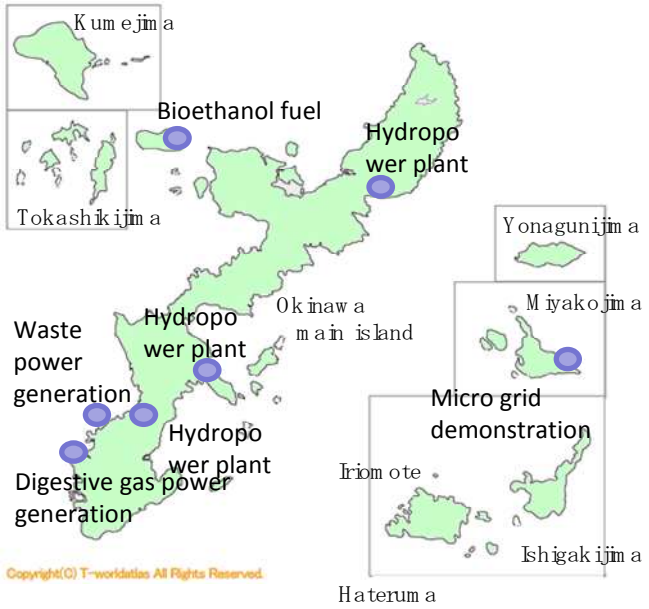


Significance of cooperation

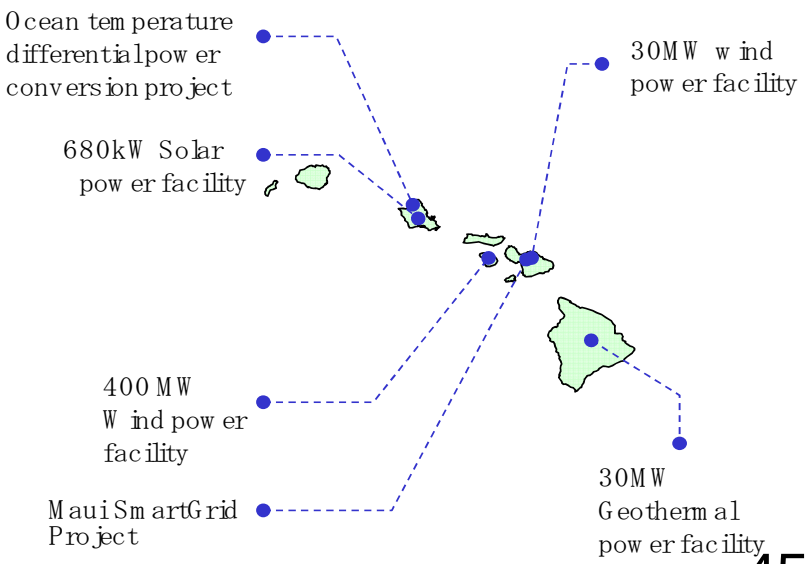
Okinawa and Hawaii are similar
- geographical conditions (island)
- climate condition
- energy structure

➢ Synergy through cooperation
➢ Joint creation of Global Model
➢ Okinawa –Hawaii cooperation as symbolic Japan-U.S. cooperation

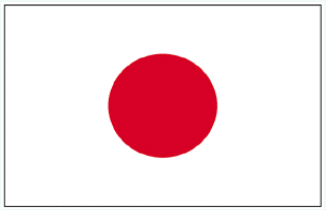
Example of activities in Okinawa



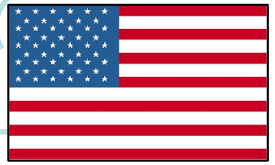
Example of activities in Hawaii



APEC (Asia Pacific Economic Cooperation)



2010 APEC
(YOKOHAMA, JAPAN)



2011 APEC
(HAWAII, U.S.)

Theme: Change and Action

APEC's New Vision for Action

I.Regional Economic Integration

II. Growth Strategy
- Balanced Growth
- Inclusive Growth
- Sustainable Growth (Green Growth)
- Innovative Growth
- Secure Growth

Shift to green economy

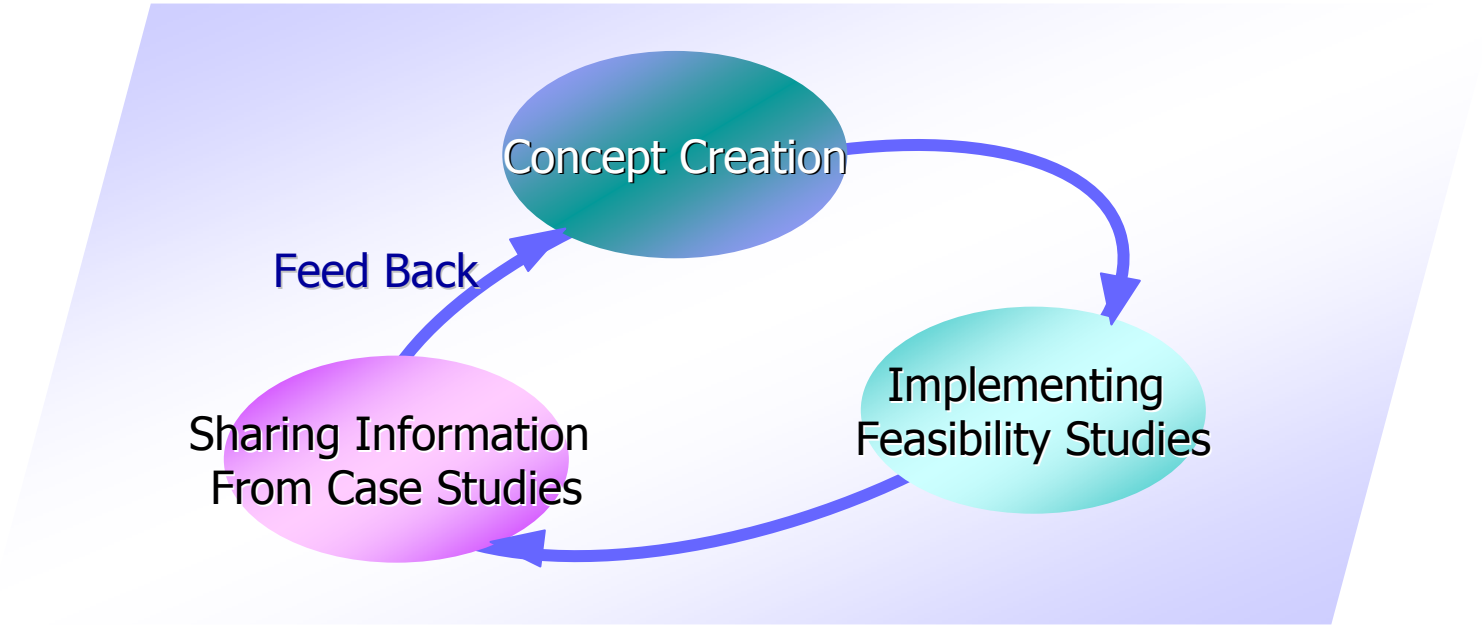
- Promoting energy efficiency and low-carbon energy
- Improving access for environmental goods and services (EGS)
- Promoting energy conservation activities through green ICT

APEC Low-Carbon Model Town Project

Source METI

APEC Low-Carbon Model Town Project

- Half of world population live in cities.
- Cities consume most of the energy.
- Low-Carbon Model Town Project was agreed at APEC Energy Ministers' Meeting (EMM9) held in Fukui, Japan
- Japan to contribute 1 billion yen in three years.
- Tianjin City Project proposed by China at the EMM9 as the first case, and it is hoped that many will follow.



Thank you very much for your attention!!

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