

Japan's Policy on Energy Conservation and Renewable Energies

Yo Mishima

International Affairs Office,
Energy Conservation and Renewable Energy Dept.
Agency for Natural Resources and Energy



Innovative Strategy for Energy and the Environment

- Issued on September 14, 2012
- Aimed at creating new energy society with collective efforts of every single nation in Japan
- Consists of three key elements:
 - (a) Realization of a society not dependent on nuclear power with 3 guiding principles and 5 policies
 - (b) Realization of green energy revolution
 - (c) Ensuring stable supply of energy
- The three key elements to be backed up by the bold implementation of electricity system reform
- Global warming countermeasures to continue to be steadily implemented

Realization of green energy revolution

○ Path to the electricity & energy saving in FY 2030

Electricity and energy saving	2010	2015	2020	2030
Power generation (TWh)	1,100	-25 (-2%)	-50 (-5%)	-110 (-10%)
Total final consumption (G Litter)	390	-16 (-4%)	-31 (-8%)	-72 (-19%)

% = compare to 2010

○ Path to the renewable energy use in 2030

Renewable energy	2010	2015	2020	2030
Power generation (TWh)	110	140 (1.4 times)	180 (1.7 times)	300 (3 times)
Capacity (GW)	31	48	70	132
Power generation (TWh) (excluding hydro)	25	50 (2 times)	80 (3 times)	190 (8 times)

X times compared to 2010

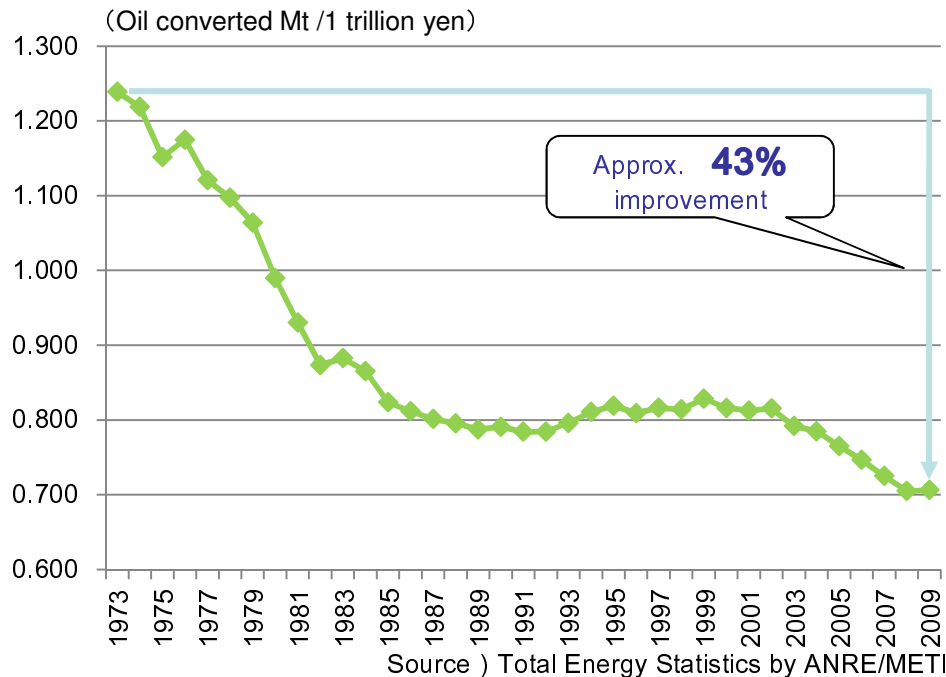


Energy Efficiency

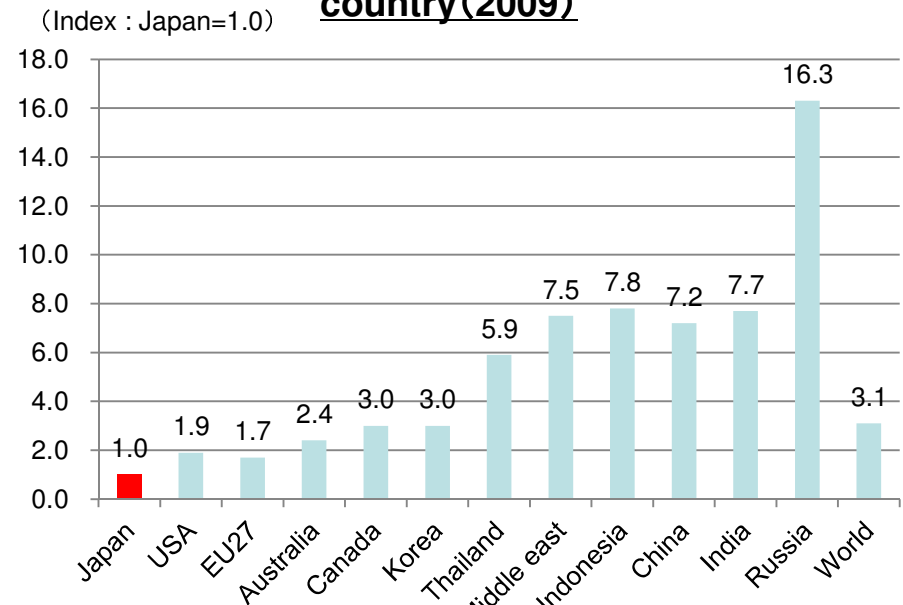
Energy Conservation Efforts of Japan after Oil Crises

- Japan has been improved energy efficiency by **about 40% after the oil crises since 1970s** as a result of positive action by both public and private industrial sectors.
- Japan intensively introduced "**Energy Management system based on Energy conservation law**", then realized the lowest energy consumption per GDP.

Primary energy use per real GDP of Japan



Primary energy supply per GDP unit of each country (2009)





Japan's Energy Efficiency Policy

1. Regulation

Energy Conservation Law : Enacted in **1979**

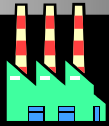
→ Upgraded and improved several times
responding to social needs

2. Promotion

- Tax incentives
- Subsidies (including for R&D)
- Preferential interest rate

3. Voluntary action (by private sector)

Historical Development of Energy Conservation Law



Industry

1947 Establishment of heat management

1979 Establishment

- Designated Energy Management Factories
- Guidance for Buildings and Appliances

Effective use of electric power and fuel in industrial sector

- 1983 Amendment
- Licensed energy manager system

- 1993 Amendment
- Periodical reporting

- 1998 Amendment
- Expand coverage of factories

- 2005 Amendment
- Integration of Heat and Power Control

- 2008 Amendment
- Company based regulation include franchised chains

- 2012 Amendment
- Measures on demand side at peak demand hours
- Top Runner Program for **Building Materials** etc.



Residential Commercial



Promote energy efficiency of automobiles and household electrical appliances

- 1998 Amendment
- Top Runner Program for automobiles and household electrical appliances

- 2002 Amendment
- Energy Management of Office Buildings

- 2005 Amendment
- Reporting System on Energy by Carriers

Transportation

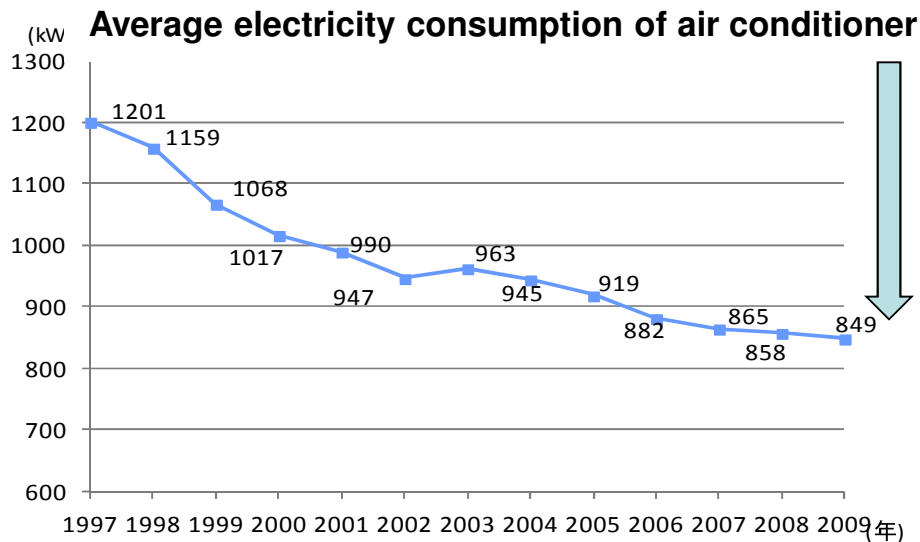


Japan's Energy Efficiency Policy

<Regulations>

Automobiles/Electronic Appliances

- **“Top Runner”** Program
Target products : **23** products



SETSUDEN (power saving) Campaign, Summer 2011

(1) Large users (contract electricity > 500 kW)

- Every large user to map out and implement their own plan
- Mandatory demand restriction by the Electricity Business Act (Art 27)

(2) Small users (contract electricity < 500 kW)

- To map out specific targets and voluntary plans according to the business type
- The government conducted awareness campaigns and individual visits using “Standard Format for Action Plan of Electricity Saving”

(3) Households and individuals

- Government provided “Menu of Electricity Saving Measures by Households”
- “Electricity Saving Manifesto by Households” on the website prepared by the government
- Promote energy saving through education

(4) Nation-wide activities

- Providing electricity supply-demand forecast.
- “Tight Supply-Demand Alert” and announcement of the possibility of rolling blackout – announce to individual cell-phone

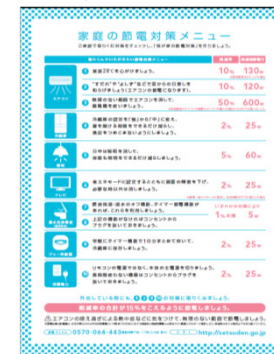
Ad on newspaper



Standard Format for Action Plan



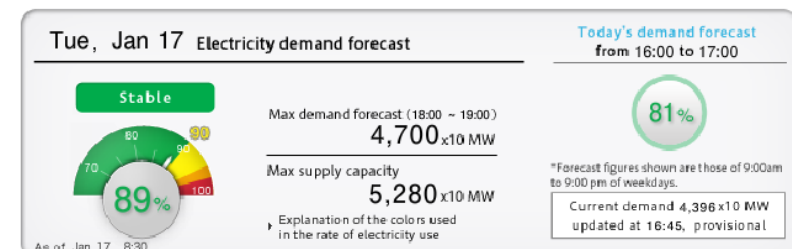
Menu of Electricity Saving by Households



Electricity Saving Manifesto by Households



Electricity demand forecast



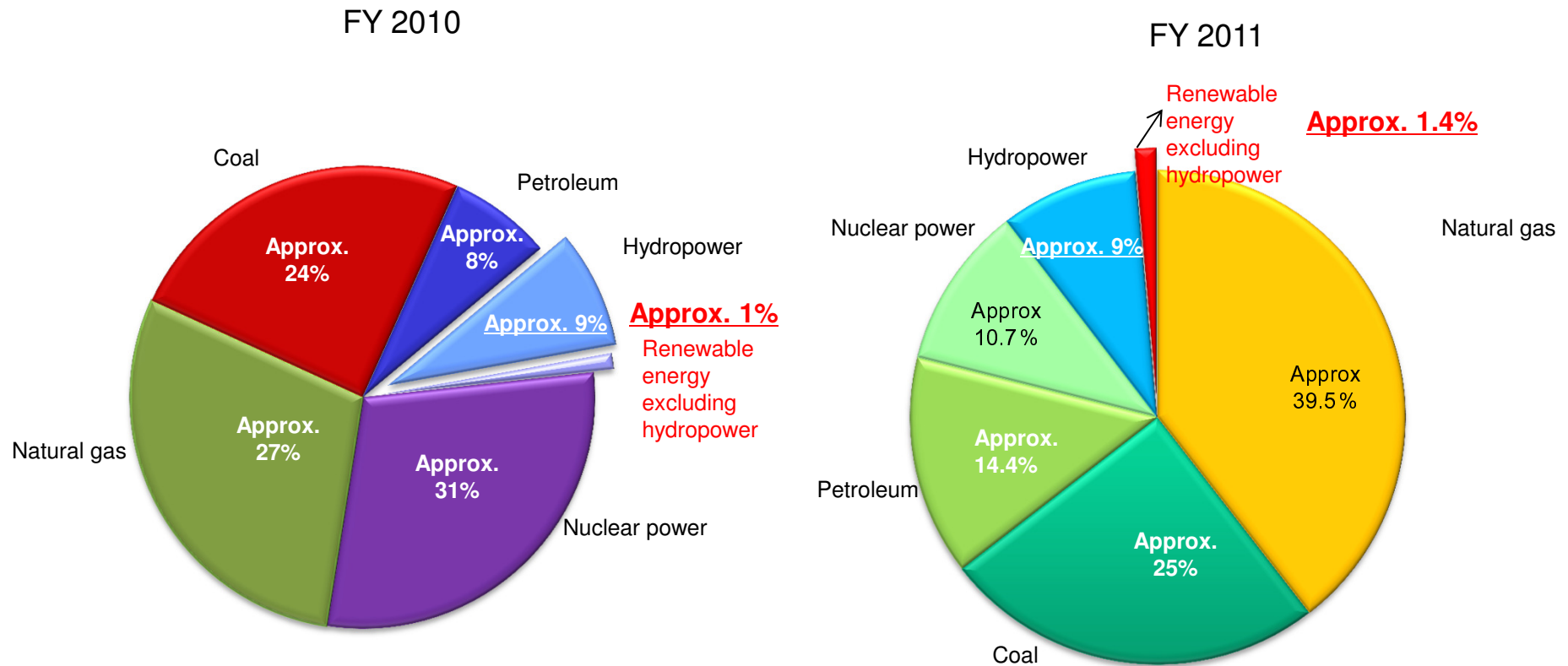


Renewable Energies

Current Composition of Power Sources in Japan

- Among the total electricity generated in fiscal 2010, renewable energy, etc. accounted for approximately 10%; approximately 9% of which is hydraulic power generation.
- Other renewable energy is still cost prohibitive.

Composition of annual electricity generated in Japan

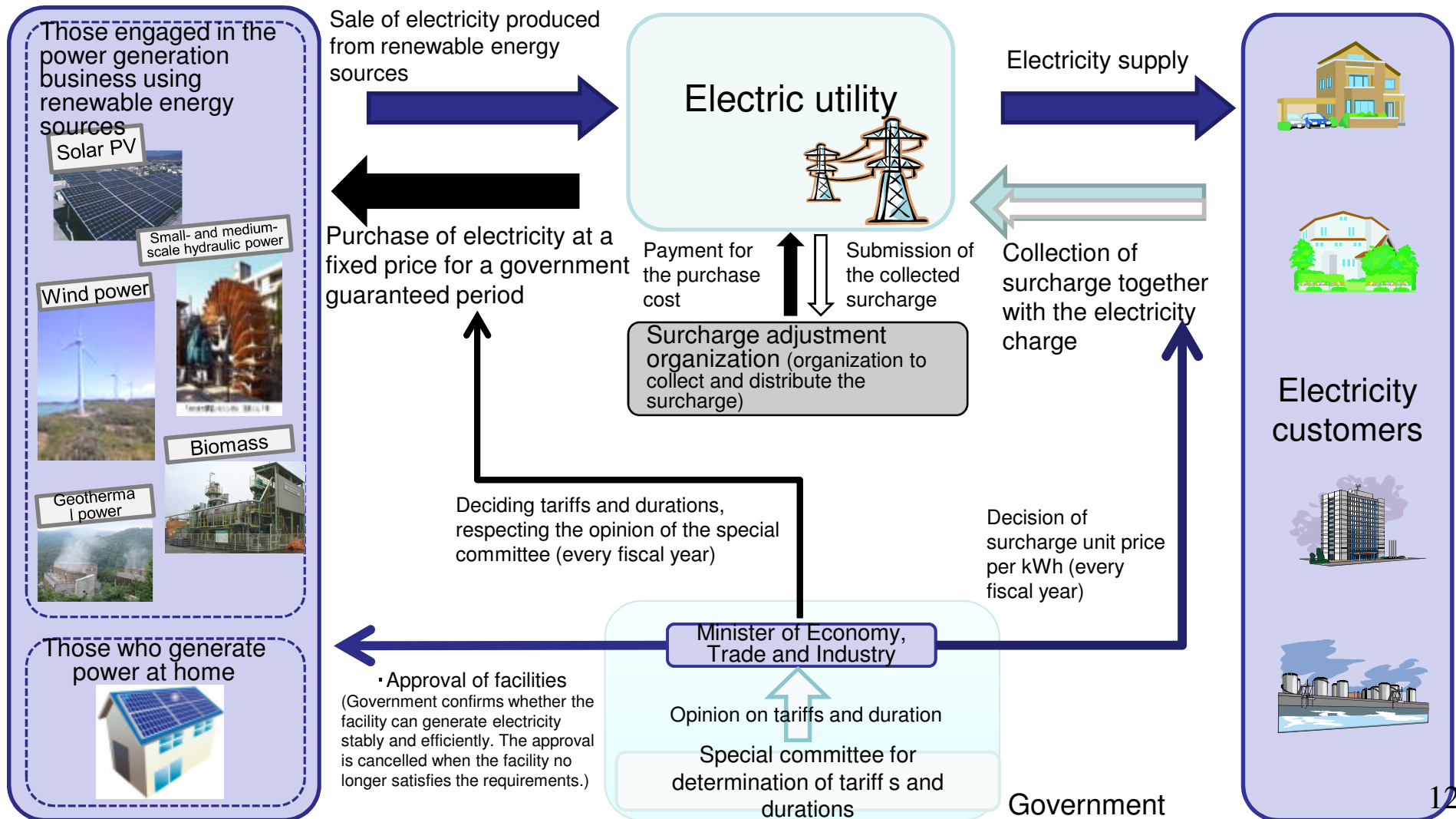


Note: "Etc." of "Renewable energy, etc." includes the recovery of energy derived from waste, refuse derived fuel (RDF) products, heat supply utilizing waste heat, industrial steam recovery, and industrial electricity recovery.

Source: Prepared based on the Agency for Natural Resources and Energy's "Outline of Electric Power Development in FY 2010"

Basic Mechanism of the Feed-in Tariff Scheme

- Under the feed-in tariff scheme, if a renewable energy producer requests an electric utility to sign a contract to purchase electricity at a fixed price and for a long-term period guaranteed by the government, the electric utility is obligated to accept this request.



Renewable Energy Forecast (FY2012)

- Estimating based on officially announced projects and recent trend, approximately 2.5GW renewable energy facilities would be installed in this fiscal year. (Current renewable energy generation capacity approx. 19.45GW, expected to increase to approx. 22GW.)

< Renewable energy installation situation in FY 2012(as of September) >

	Already installed capacity by FY2011	Installed capacity already operational at the end of September	Installed capacity already authorized by the end of September	Forecast of newly installed capacity in FY2012
Residential PV	Approx. 4GW	0.74GW	0.44GW	+ Approx 1.5GW (40% increase from new installation in 2011)
Non-Residential PV	Approx. 0.8GW	0.14GW	1.03GW	+Approx 0.5GW (Estimate by METI)
Wind	Approx. 2.5GW	0.01GW	0.3GW	+ Approx 0.38GW (50 % increase from recent annual installation)
Small and Medium scaled hydro (1MW to 3MW)	Approx. 9.35GW	0.001GW	0GW	+ Approx 0.02GW (Estimate by METI)
Small and Medium scaled hydro (Less than 1MW)	Approx. 0.2GW	0.002GW	0.002GW	+ Approx 0.01GW (50 % increase from recent annual installation)
Biomass	Approx. 2.1GW	0.01GW	0.006GW	+ Approx 0.09GW (50 % increase from recent annual installation)
Geothermal	Approx. 0.5GW	0GW	0GW	+ 0GW
Total	Approx. 19.45GW	0.91GW	1.78GW	+ Approx 2.5GW

Thank you very much!
ありがとうございます！

Questions?