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Energy Saving Challenges in Japan after the Earthquake and Tsunami Disaster

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History of the Energy Policy Based on the 3 Es

- In light of the two oil crises, Japan has been steadily promoting efforts to ensure a stable supply of imported resources while reducing the rate of dependency on external resources (through diversification of the generation mix and energy conservation)
- The energy policy of Japan, a country with limited natural resources, is based on the best mix of the 3 Es: "energy security," <u>"economic efficiency</u>" and "environmental preservation."



Current Basic Energy Plan (June 2010)





Supply capacity in East Japan area declined after earthquake and a big demand-supply gap appeared.
 To avoid the rolling blackout conducted (32 times in total in 10days) just after the earthquake, measures to fill the electricity demand-supply gap (approx. 6GW) were taken in summer 2011. Not only measures to increase supply capacity, but also measures to reduce demand by 15% (including)

Electricity Demand

60	00011		
		Large users (business entities*2 with contract electricity of 500 kW or more) [Reduction by 15% : mandatory] — map out and implement a plan on the specific approaches to reduce maximum electricity consumption per hour	
	53. 8GW*1	Small users (business entities* with contract electricity of less than 500 kW) [Reduction by 15% : Requested] — map out and implement a plan on the specific approaches to reduce maximum electricity consumption — format for planning that includes the examples of the actions	
50	Pumped-storage power generation	Households and individuals [Reduction of 15% : Requested] — to promote an attitude of energy consciousness with all kinds of media	
	Increase of buying from IPP/Private power generation	- examples of measures Target : to reduce by 15%	
	Installation of emergency power supply equipment		
	Restoration of power stations		

Electricity Supply

legal restriction) were introduced.

*1 The estimation of total amount of supply is calculated including the electricity transfer to Tohoku EPCO of 1.4GW. *2 Business entities include not only private entities but also public ones.

Demand Side Measures

- ➢ Demand reduction target for large users, small users and households was equally set at ▲15%.
- Demand restriction based on the Electricity Business Act (Article 27) was applied to large users (> 500kW).
- The government encouraged small users (< 500kW) to map out a voluntary plan through orientation by visit.</p>
- The government familiarised households and individuals with the "Menu of Electricity Saving Measures by Households" and educated them through TV, newspapers and websites.

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

- Every large user mapped out and implement their own plan
- Demand restriction on the Electricity Business Act (Art 27)

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

- Mapped 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

- "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

- Visualise actual electricity supply-demand status
- "Tight Supply-Demand Alert" and announcement of the possibility of rolling blackout – announce to individual cellphone



Standard Format for Action Plan





Electricity Saving Manifesto by Households

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The Bill to Partially Amend the Act on the Energy Conservation Law

(currently waiting for the formal discussion at the Diet)

Peak Demand Reduction (Kw)

Measures on demand side

Taking account of consumers' efforts to reduce the use of electricity from utility grids during the peak demand hours.

*For example, using storage batteries, energy management systems in buildings and households, private power generation etc.

Measures on supply side

 In addition, electric power companies will be obliged to make efforts in providing information on electric power consumption etc., so that consumers save energy being conscious of the peak demand hours.

Energy Conservation Measures in Consumer Sector

Top Runner Program for Building Materials etc.

✓ Planning to add building materials (e.g. windows, insulators, bathroom & kitchen facilities) which contribute to higher efficiency of energy consumption at buildings and other equipment to the Top Runner program.

*Note that all new residences and buildings will be obliged step by step to conform to the energy conservation standard by 2020. We clarified specific processes this April.

Major Discussion Points Towards the Establishment of a New "Basic Energy Plan for Japan" (20 Dec 2011)

- 1. Perspectives required in rethinking of the Basic Energy Plan
- ① A sustainable energy policy that earns the public's trust
- ② An energy policy that emphasises the "demand side"
- ③ An energy policy that emphasises "consumers" and "ordinary citizens" as well as "regional communities"
- ④ An energy policy that supports national strength while making an international contribution
- (5) An energy policy that utilises diverse power and energy sources
- $2\,.$ The desired energy mix and direction of energy policy reform
 - (1) Desired energy mix

3. Next steps

- Fundamental reinforcement of energy and electricity conservation measures
- 2 Accelerated development and use of renewable energies to the maximum degree possible
- ③ Environmentally friendly use of fossil fuels (*e.g.* a shift to natural gas)
- ④ Reduced dependency on nuclear power wherever possible

- (2) Direction of energy policy reform
- 1 Realising the world's most advanced
 - energy-saving society: Reform of the demand structure
- ② Realising a distributed next-generation energy system: Reform of the supply structure
- ③ Need for technical innovation to support the energy mix conversion and reform of the operate supply domand structure

Advisory Committee on Energy and Natural Resources will conduct intensive study of specific scenarios aiming to present options for the desired energy mix, and aiming to reflect its results on the new Basic Energy Plan to be formulated around the summer.





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