Mutual Cooperation for Energy Issues in Northeast Asia

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AGENDA

1. Regional Energy Issues

2. National Energy Policy of Japan

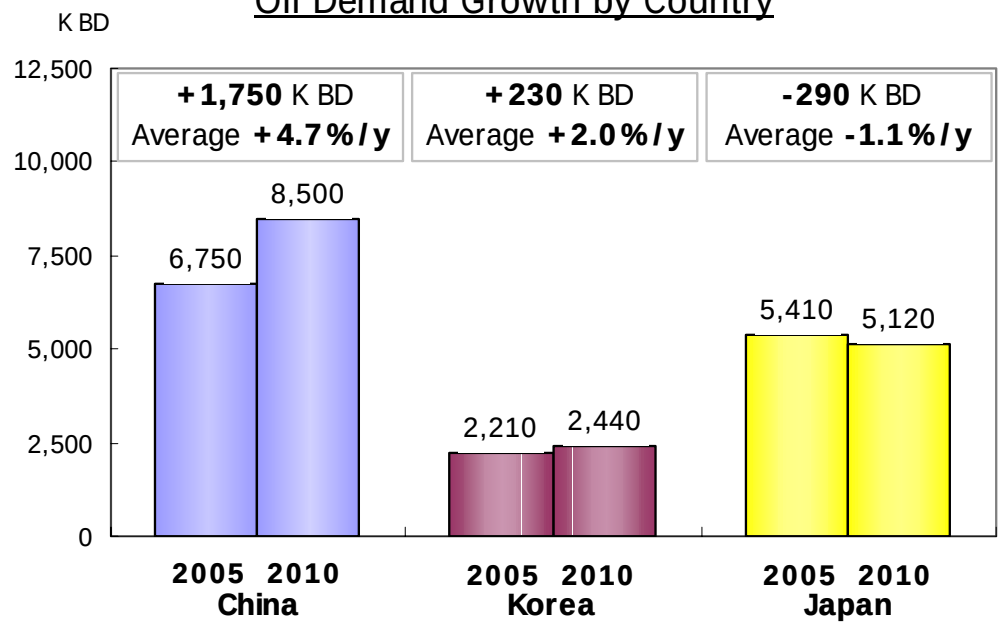
3. Regional Cooperation for Energy Issues

1. Regional Energy Issues

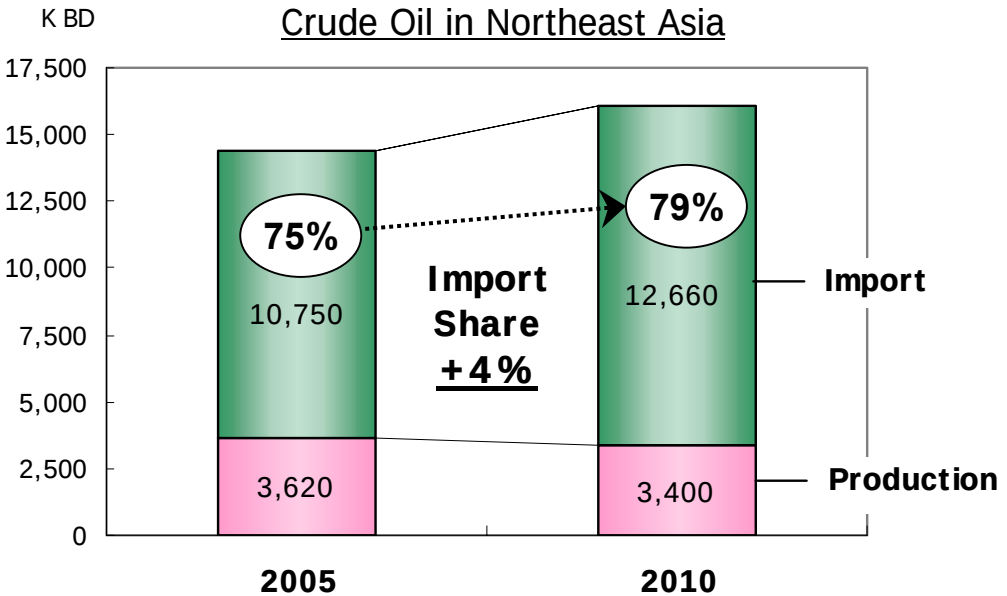
Regional Oil Supply and Demand Outlook

- Economic growth：2.9% / year (2000 - 10)
- Increase in oil demand：2.2% / year (2005 - 10)
- Dependence on oil supply from outside the region: 75%(2005) →79%(2010)

Oil Demand Growth by Country



Dependence on Imported Crude Oil in Northeast Asia



<Source> 2005: IEA Monthly Report
2010: Estimate by Nippon Oil Research Institute

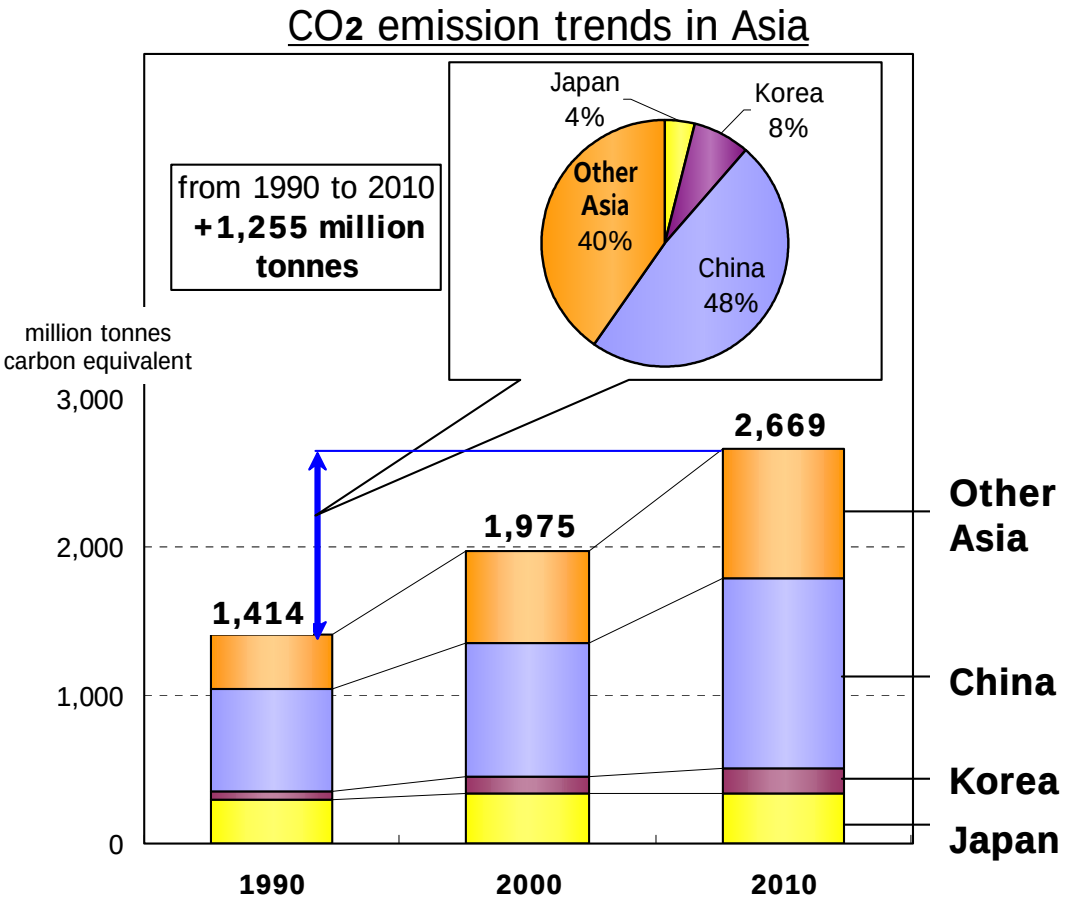
Three Major Issues to be Addressed

1. *Threatened energy security*

- Fierce competition for energy resources
- Insufficient oil stockpile

2. *Increasing CO_2 emission*

- CO_2 emission in Asia will be doubled from 1990 to 2010.
- Northeast Asia accounts for 60% of the increase.



<Source> IEEJ Asia/world energy outlook

3. *Constraints for sustainable economic growth*

- Hovering high crude oil price
- Importance of energy-saving efforts

2. National Energy Policy of Japan

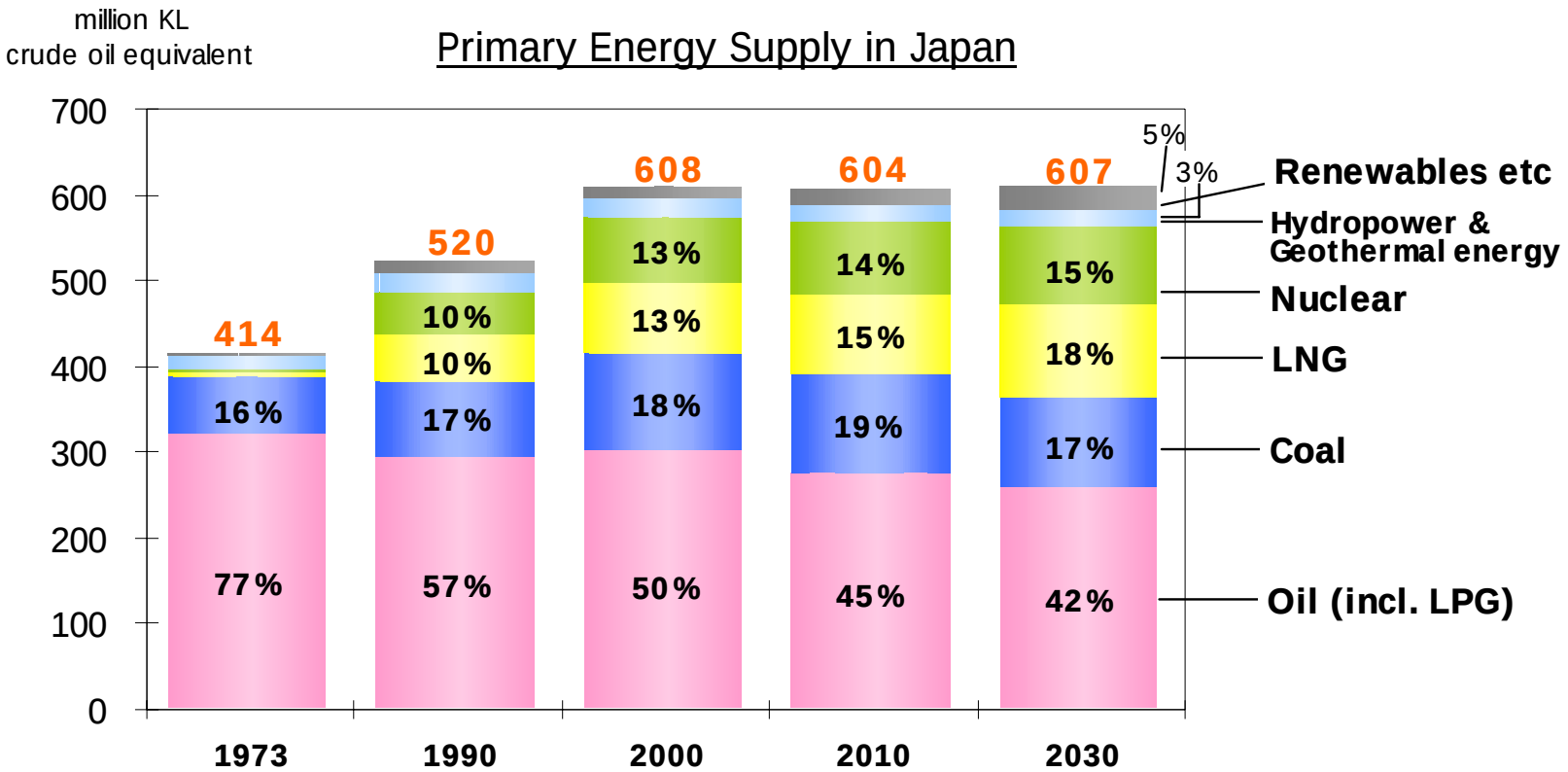
National Energy Policy of Japan

1. Objectives of the national energy policy of Japan

2. Measures taken to achieve the objectives

- Diversification of energy sources
- Building of oil stockpile
- Energy conservation efforts

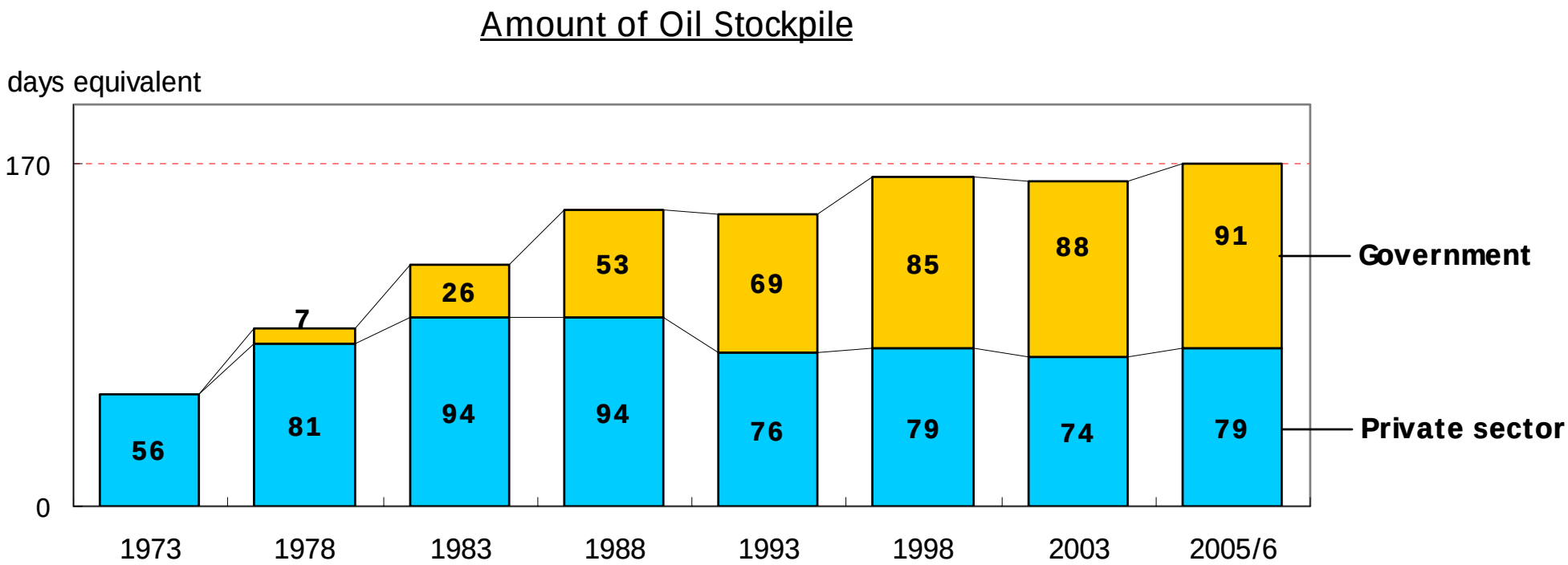
Diversification of Energy Sources



<Source> METI Comprehensive energy statistics

- Share of oil in primary energy mix: 77% (1973) ➞ 50% (2000)
- Share of oil in power generation: 71% (1973) ➞ 10% (2004)
- Oil is projected to be a major energy source: approx. 40% in 2030

Building of Oil Stockpile



<Source> Agency for Natural Resources and Energy

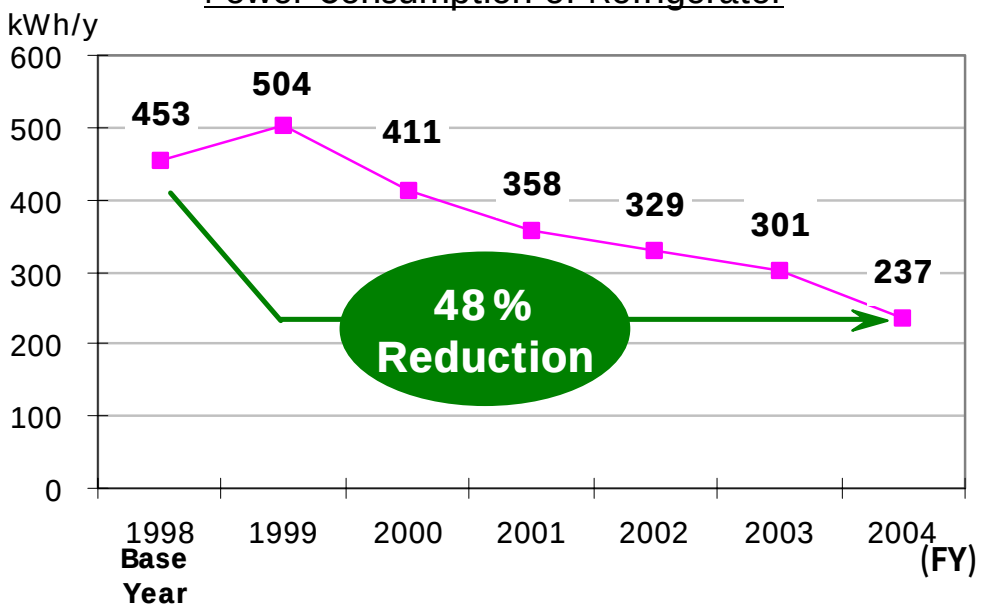
- Stockpiling on the private sector (from 1972)
- Government stockpiling (from 1978)
- Current level: 170 days of forward demand (Private and Government)
- Mainstay of the energy security measures

Energy Conservation Efforts (1)

"Top Runner Standard" under the Energy Conservation Law

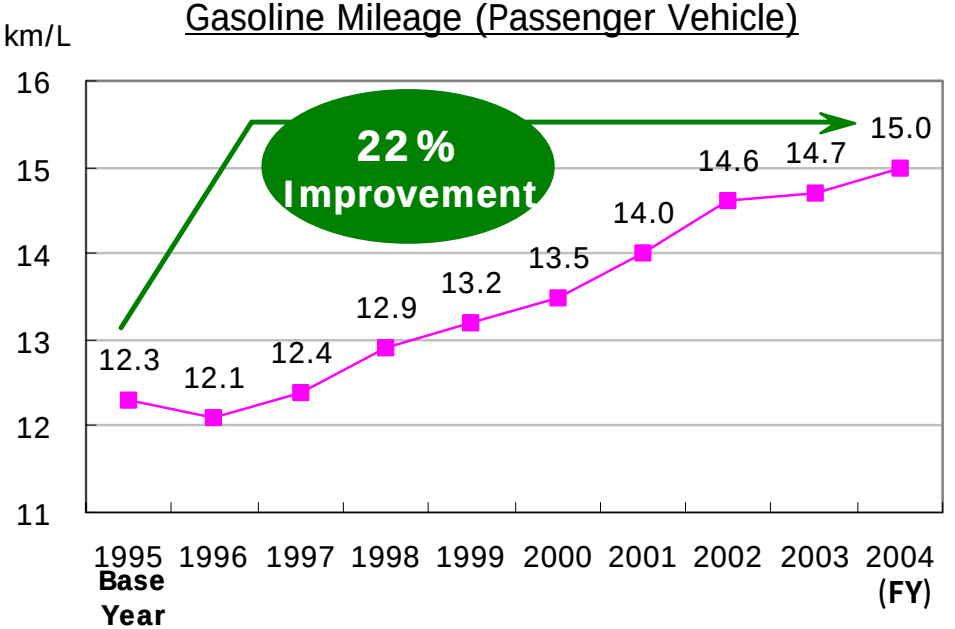
Adoption of the highest efficiency levels achieved by the *"top runner"* appliance/machinery manufacturers as a legal obligation for energy conservation.

Power Consumption of Refrigerator



*Average power consumption of a typical class per year
<Source> The Energy Conservation Center, Japan

Gasoline Mileage (Passenger Vehicle)



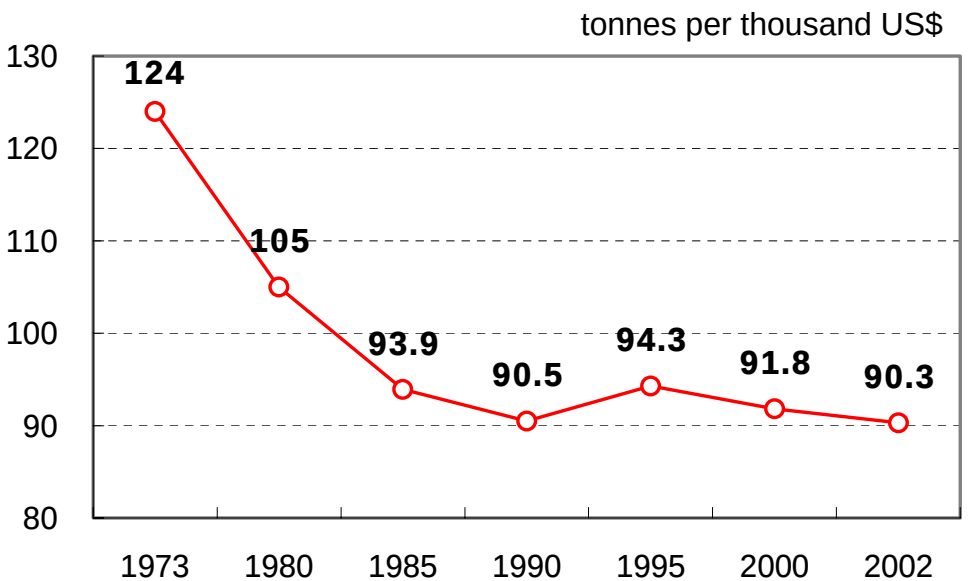
*Weighted average of all gasoline passenger vehicles newly sold in each year
<Source> Survey by METI and MLIT

Energy Conservation Efforts (2)

Outcomes of Energy Conservation Efforts

- Primary energy consumption per GDP: approx. 30% reduction (1973 to 2002)
- Outstanding energy-saving performance among peer countries

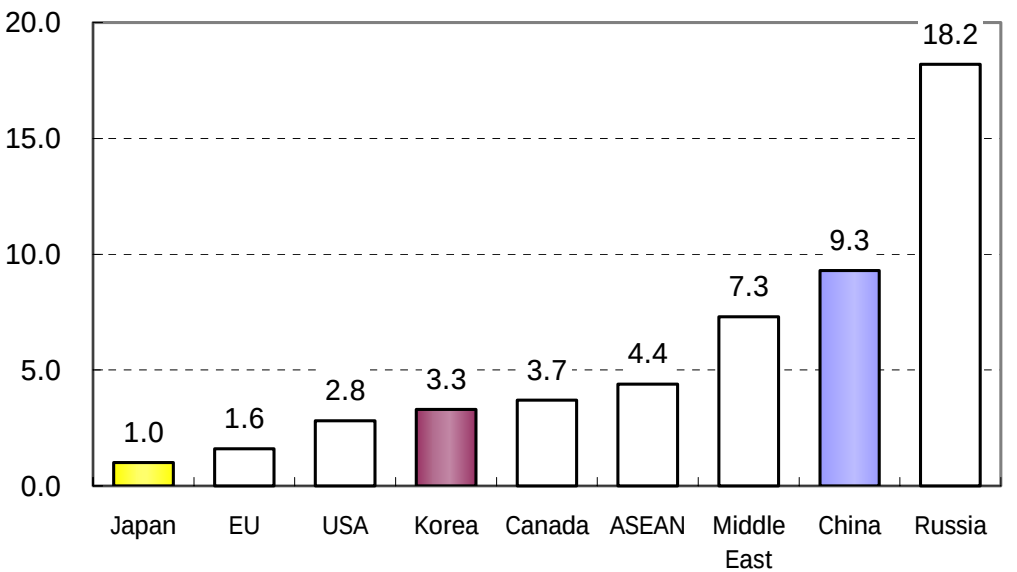
Primary Energy Consumption per GDP (Japan)



*Calculated by the following formula

$$\frac{\text{Energy consumption in tonnes oil equivalent}}{\text{GDP in thousand US\$}}$$

Comparison by Country (in 2002)

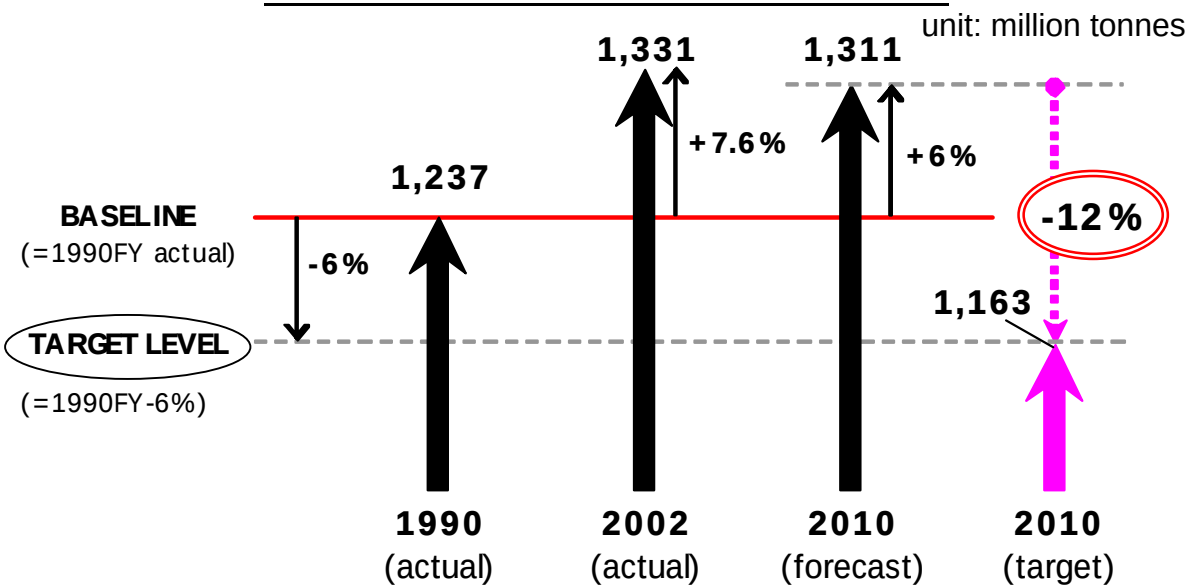


*Calculated by the same method as the left graph (Japan=1.0)

<Source> EDMC Energy economics statistics outline

Kyoto Protocol Target

Greenhouse Gas Emission Trend



CO2 emission from energy consumption	-4.8
HCFC, Methane	-1.7
Forest absorption	-3.9
CDM etc	-1.6
Total	-12.0

Concrete Measures

- Higher capacity utilization of nuclear power plants
- Tighter control on Top Runner standards

Measures taken by the petroleum Industry

- Reduction of energy consumption at refineries
- 100% shift to sulfur-free fuels (gasoline & diesel oil, from January 2005)
- Introduction of biomass fuels (under feasible study)

Accounts for 1.1% CO_2 reduction in Japan (approx. 14 million tonnes / year)

3. Regional Cooperation for Energy Issues

Blueprint for the Future

- Regionally integrated economy
  ⇒ Interdependent economies
  ⇒ Global trend of regionalism
  (e.g. NAFTA, EU)

- Cooperative framework for CO_2 reduction
  ⇒ Cross-border influences caused by environmental issues

Unilateral approach of individual country is not adequate.

Key factor for resolving regional energy issues in Northeast Asia:

Regional cooperation among China, Korea and Japan

Mutual Cooperation for Energy Issues in Northeast Asia

Areas of Cooperation:

1. *Reinforcement of oil stockpiling*

- Japan :170days, Korea:106days, China: - **(2005～)**
- Transfer of oil stockpiling know-how accumulated in Korea and Japan

Energy Security

2. *Technological cooperation in environmental protection*

- Effectiveness of environmental protection measures implemented by the Japanese petroleum industry
  e.g. sulfur-free fuels, IGCC*, energy-saving measures at refineries

*Integrated Gasification Combined Cycle power generation using heavy oil residue

Environmental Harmony

3. *Utilization of surplus refining capacity*

- Deficit of product supply in China
- Regional optimization through products trading

Efficiency/ Economy

Conclusion

For achieving 3E in Northeast Asia

Our sense of "one region"

- Regional Cooperation is a key factor.

Our actions as a "global citizen"

- Participation in the worldwide efforts to tackle global warming is recommended.
  (i.e. the post-Kyoto Protocol regime)

and last but not least...

Our awareness of "finite energy resources"

- Awareness that energy is finite and valuable should be further developed.

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