

Mutual Cooperation for Energy Issues in Northeast Asia

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AGENDA

1. Regional Energy Issues

2. National Energy Policy of Japan

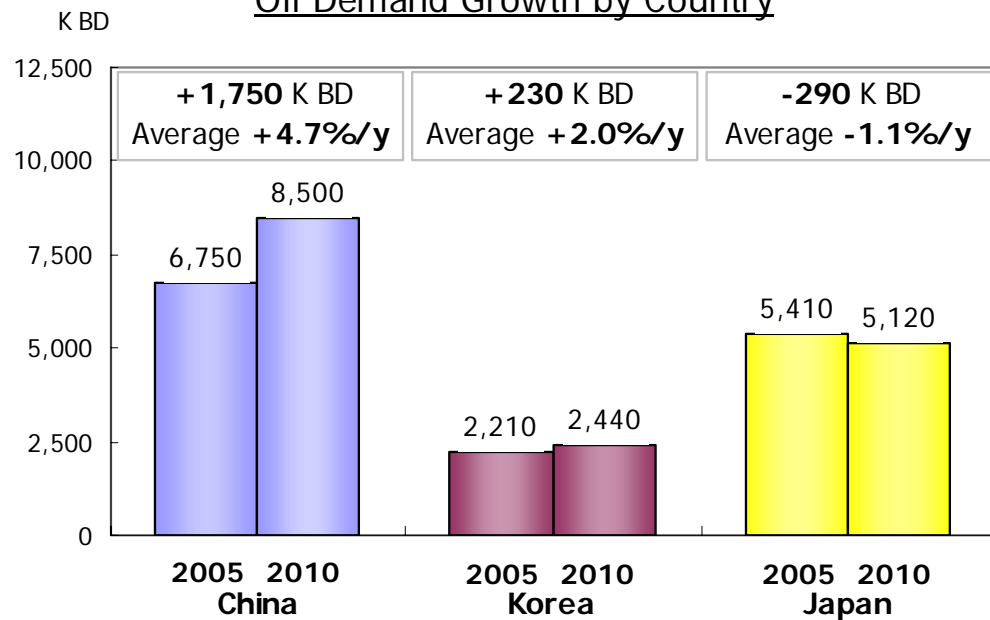
*3. Regional Cooperation for Energy
Issues*

1. Regional Energy Issues

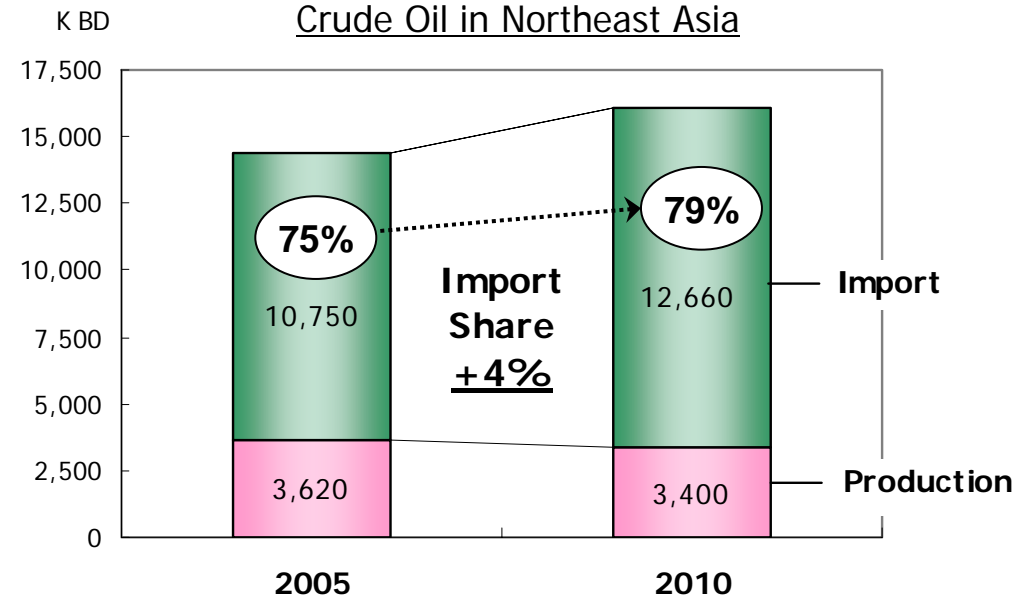
Regional Oil Supply and Demand Outlook

- 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

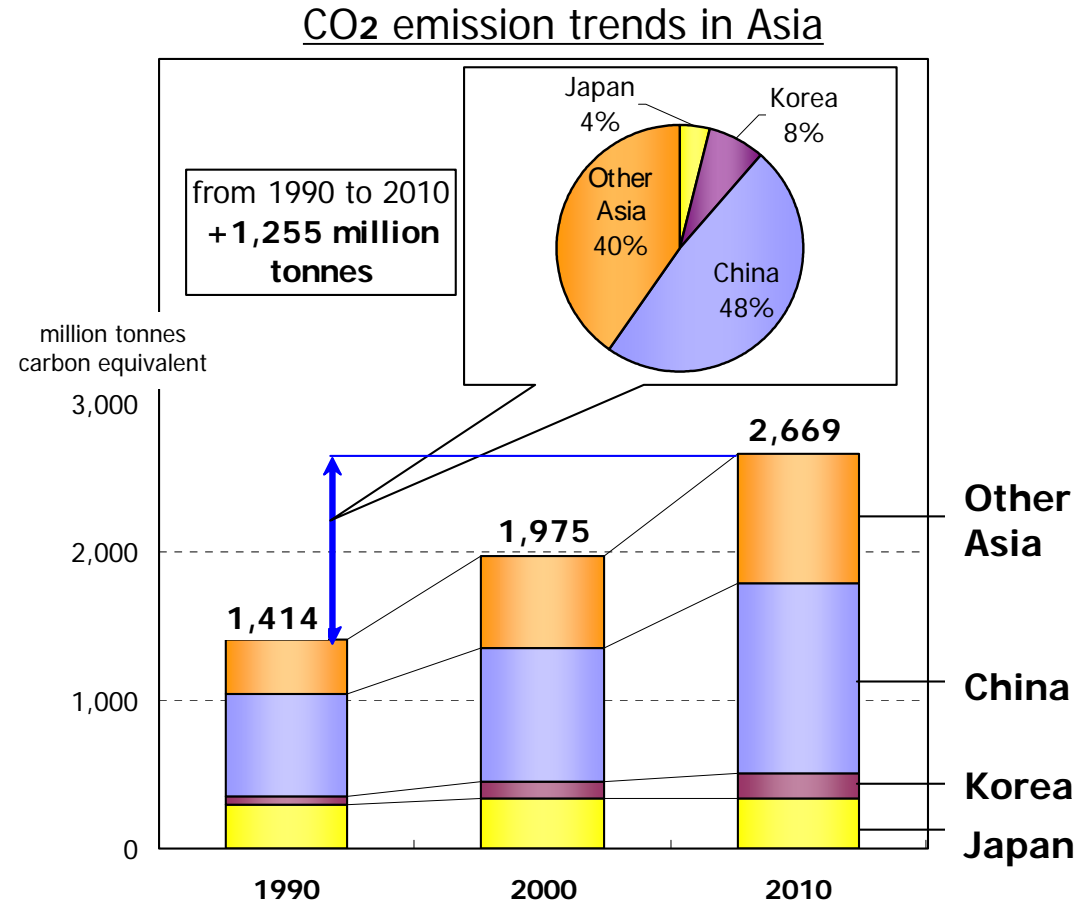
- Fierce competition for energy resources
- Insufficient oil stockpile

2. Increasing CO₂ emission

- CO₂ emission in Asia will be doubled from 1990 to 2010.
- Northeast Asia accounts for 60% of the increase.

3. Constraints for sustainable economic growth

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

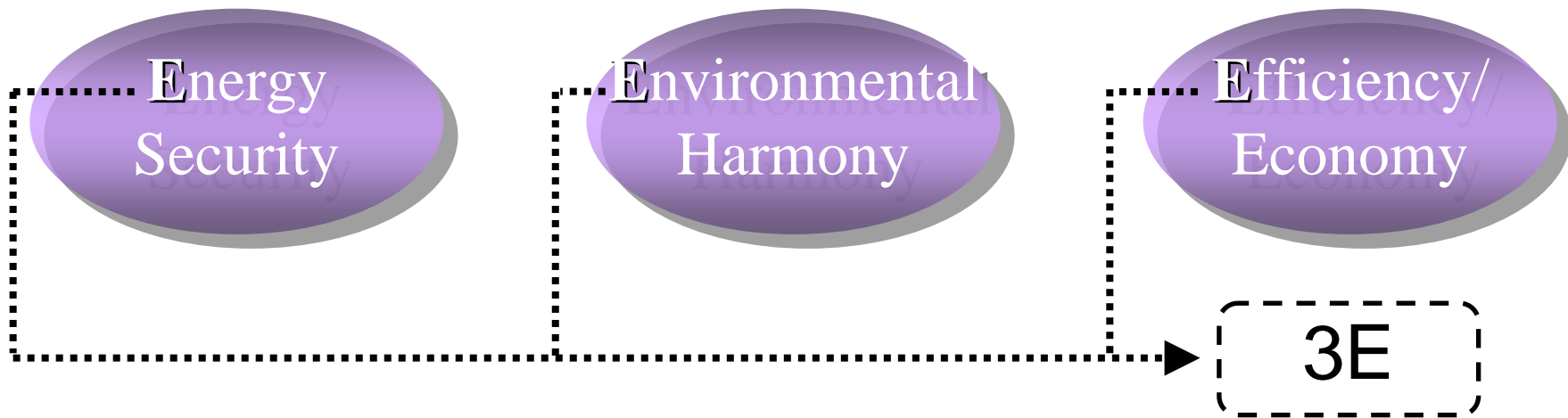


<Source> IEEJ Asia/world energy outlook

2. National Energy Policy of Japan

National Energy Policy of Japan

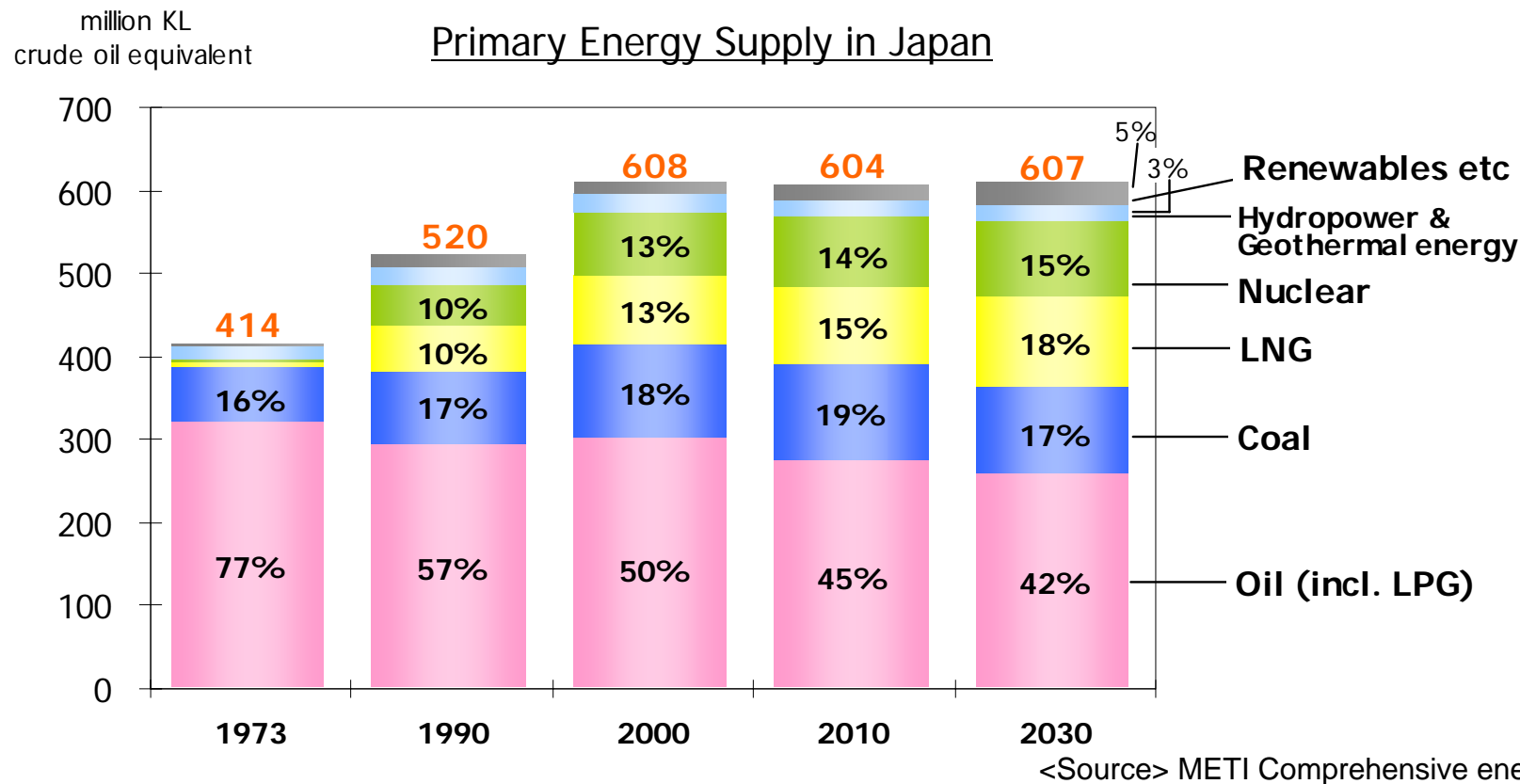
1 . Objectives of the national energy policy of Japan



2 . Measures taken to achieve the objectives

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

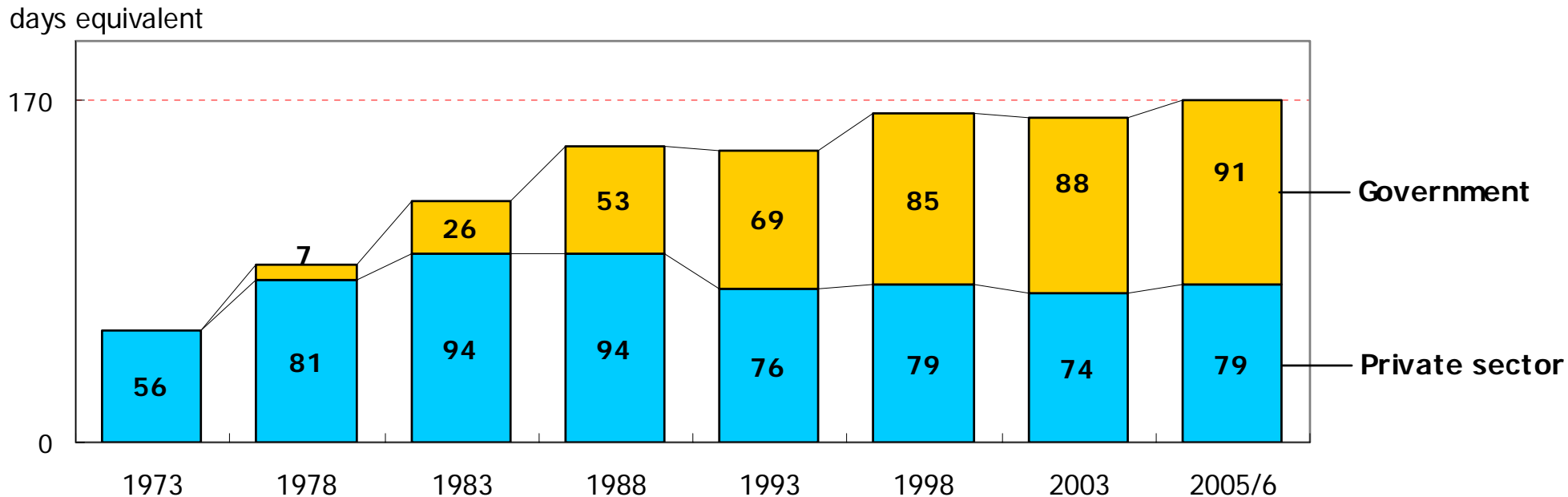
Diversification of Energy Sources



- 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

Amount of Oil Stockpile



<Source> Agency for Natural Resources and Energy

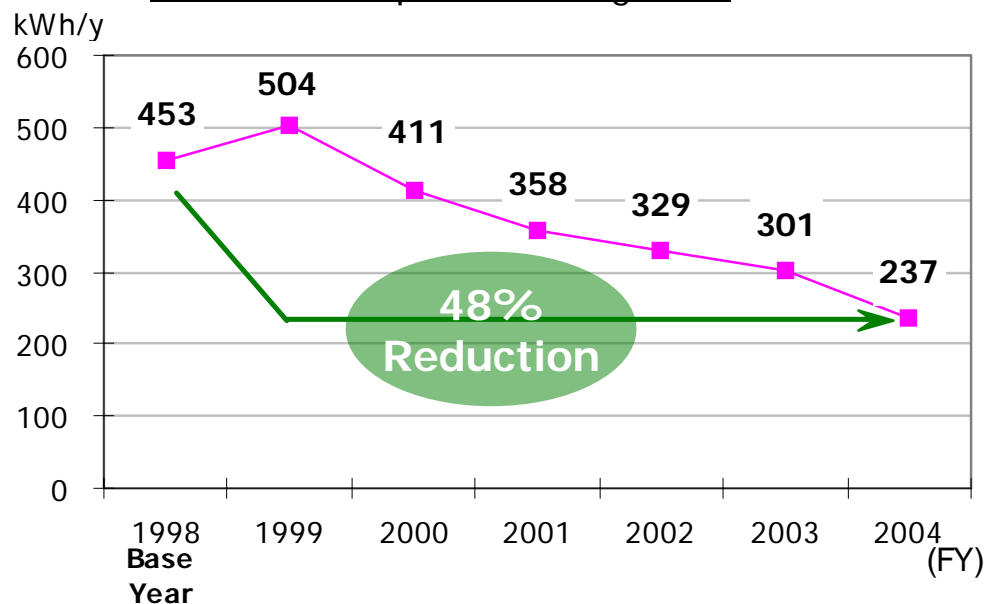
- Stockpiling on the private sector (from 1972)
- Government stockpiling (from 1978)
- Current level: 170 days of forward demand (Private and Government)
- Mainstay of the energy security measures

Energy Conservation Efforts (1)

“Top Runner Standard” under the Energy Conservation Law

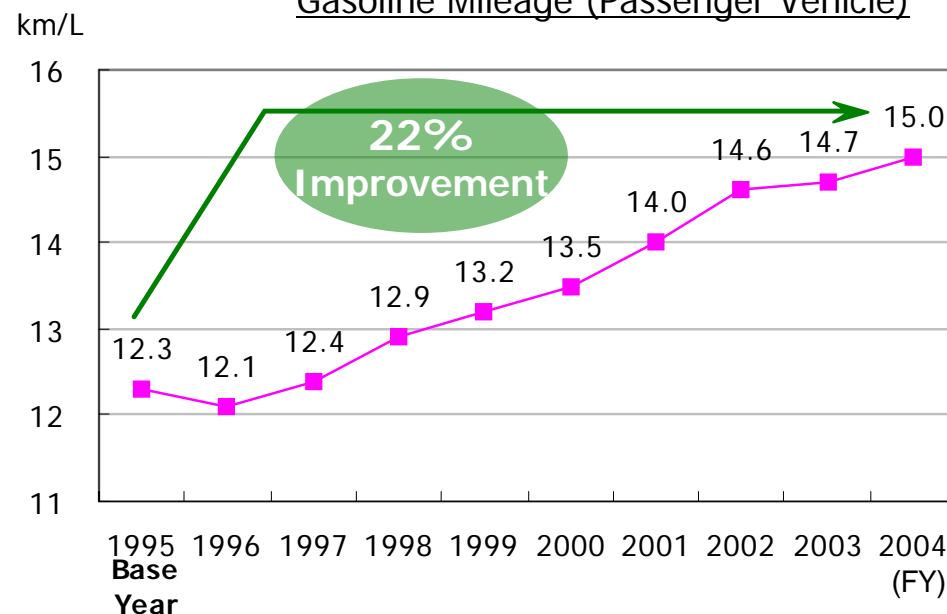
Adoption of the highest efficiency levels achieved by the “*top runner*” appliance/machinery manufacturers as a legal obligation for energy conservation.

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

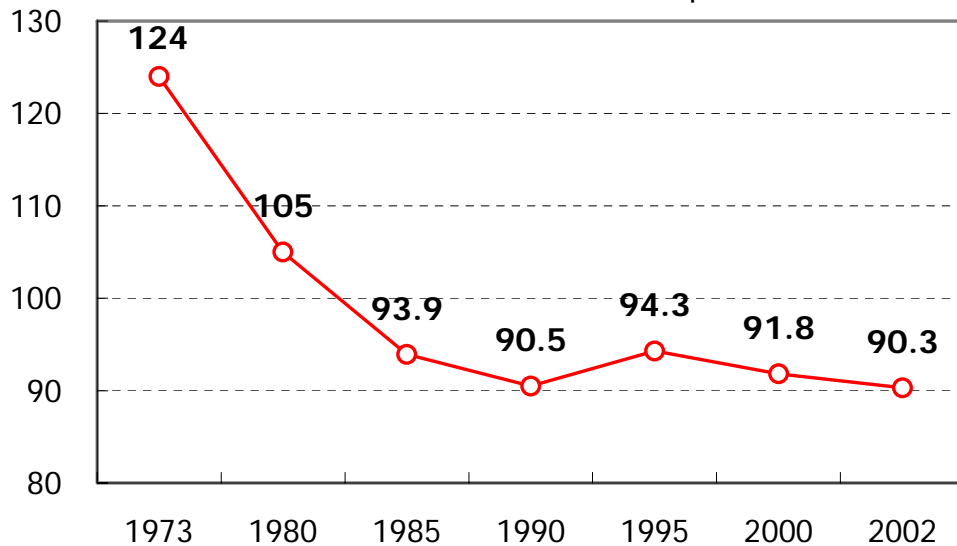
Energy Conservation Efforts (2)

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)

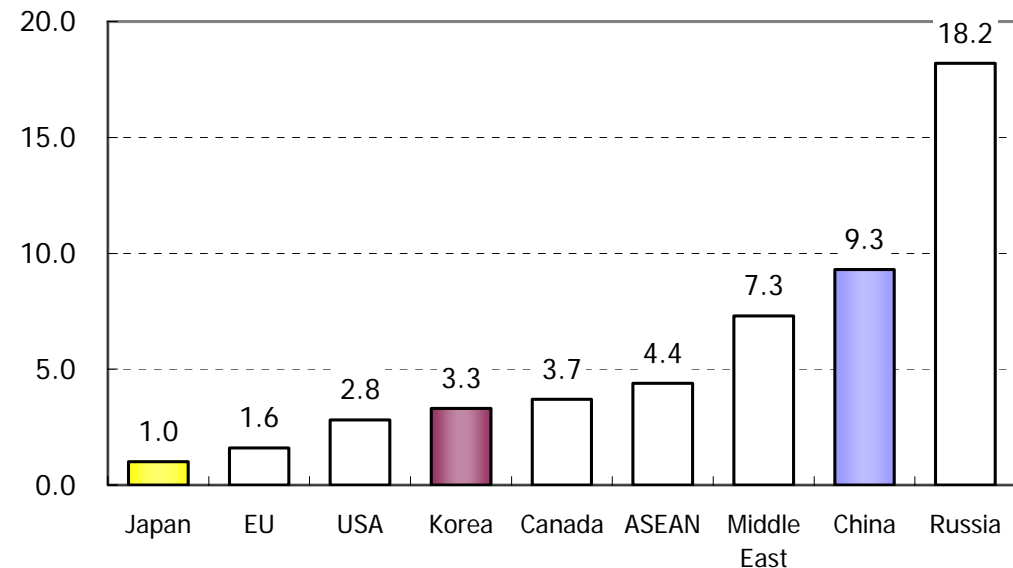
tonnes per thousand US\$



* Calculated by the following formula

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

Comparison by Country (in 2002)

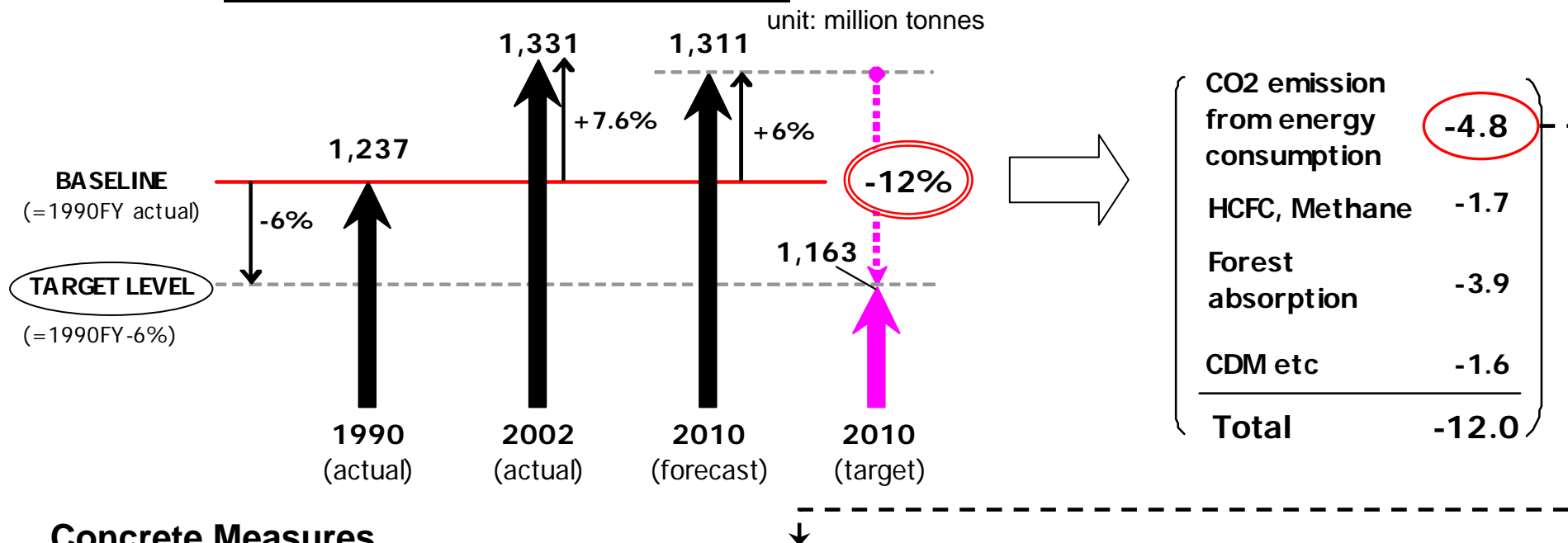


* Calculated by the same method as the left graph
 (Japan=1.0)

<Source> EDMC Energy economics statistics outline

Kyoto Protocol Target

Greenhouse Gas Emission Trend



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% CO2 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 CO₂ 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



Environmental
Harmony

*Integrated Gasification Combined Cycle power generation using heavy oil residue

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.