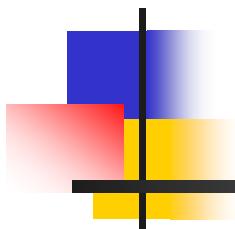


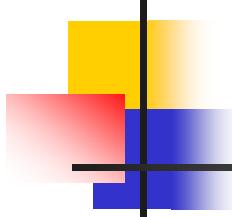
# Securing Energy Security and Preventing Global Warming

· · · Role of Nuclear Energy and Japan-US Cooperation · · ·



Takuya HATTORI  
Japan Atomic Industrial Forum, Inc

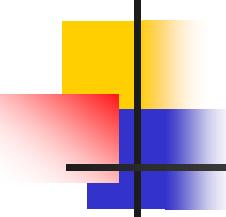
June 14, 2007



# Introduction

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- **IPCC 4 th Assessment Report : WG-III**
  - N-Power is “key mitigation technology”
- **2008**
  - Kyoto Protocol First Commitment Period
  - G8 Summit : Hokkaido-Toyako, Japan
- **Nuclear Renaissance**

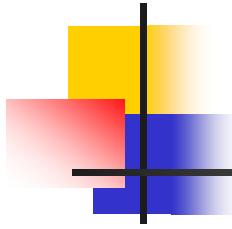


# Main Points

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## Japan-US Cooperation

- ▶ To secure **energy security** and prevent **global warming**
- **Sharing Recognition** on Importance of Nuclear Power
- **Work Together** for Steady Development of Nuclear Power



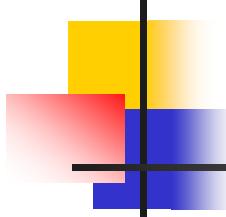
# Energy Situation of Japan

• • • Diversification is basic strategy

## ■ Pursue “Best Energy Mix”

• • • • Share of Power Source

	1973	2005	(US)
Oil	73	10	( 3)
Gas	2	24	(18)
Coal	5	25	(50)
Nuclear	3	32	(20)
Hydro	16	8	
( 9)			



# Energy Policy of Japan

• • • How to challenge trilemma ?

- Basic Law on Energy Policy (June, 2002)
- Balance of 3E
  - Energy Security
  - Environment Protection
  - Economic Growth
- Harmonization of Basic Policy
  - Energy, Environment and S&T

# Nuclear Power Program in Japan

• • • Japan steadily develop N-Power

- Introduction of Reactor Tech. from US
- Development of Indigenous Technology
- 55 units, 50Gw, ~1/3 of power supply
- Replacement start ~2030

# Nuclear Policy of Japan

• • • **Steady advancement of fuel cycle**

- **Framework of Nuclear Energy Policy**
  - 30~40% Electricity Supply by Nuclear
  - Pursue Nuclear Fuel Cycle
  - Commercial FBR development by 2050
- **Pu recycle as MOX Fuel in LWR**
- **Final Geological Repository of HLW ?**

# GHG emissions

• • • Involvement of US, China, India is crucial

## Total CO<sub>2</sub> emissions ;25 Gt/yr (2003)

# US • • • • • • • 24%

China . . . 14%

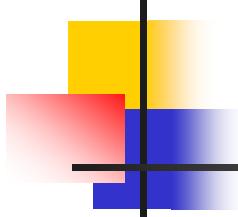
\* EU · · · · · 16%

\* Russia . . . 6%

\* Japan . . . 5%

# India • • • • • 4%

## \* Kyoto Protocol mandated countries

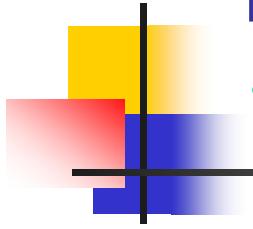


# Energy Conservation

• • • Japan utilize energy efficiently

- GHG emission per GDP ( C t-eq/M\$)

- Japan	58
- US	174
- Canada	197
- UK	120
- Russia	1126
- China	777
- India	565



# Reduction of GHG emissions

• • • NPP has a great advantages

- Basic concept of Japan :  
**Simultaneous Pursuit of Economy and Environment**
- CO2 emissions intensity (KgCO2/Kwh)  
**Japan/US : 0.38/0.57**
- NPP reduce ~10% of world GHG emissions  
**by 430 units / 390Gw / 2700Twh**

# Nuclear Renaissance

• • • 200Gw of fleet join by 2030

- US   . . . . .      36 Gw (32 units)
- Russia   . . . . .   ~40 Gw by 2030
- China   . . . . .   ~30 Gw by 2020
- India   . . . . . . .   ~40 Gw by 2030
- Japan   . . . . .      17 Gw (13 units)

# Japan-US Cooperation

## • • • How to manage the 1st project ?

- US~30 yrs blank
- Japan~40 yrs continuous development
- **US 1<sup>st</sup> project** is most important
  - **on time & within budget**
- How to minimize the “**risk- Technical, Financial and Social Risk
- reliable “**project management**”
- sound “**supply chain**”**