



Japan's Energy Strategy

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(This paper is based on METI, but rearranged by the author.

It is the author's view and does not represent view of either METI or RIETI)

Changes in Environment of Japan's Energy Policy

1. International Situation

Rising Asian energy demand,
Complexities in the Middle East

2. Structural shift in energy supply/demand

3. Environmental restraints

4. Technological innovation



METI has done a review of the energy supply/demand outlook and overall energy policy from a longer perspective (up to the year 2030). An interim report was issued in October 2004.

Possible Futures Scenarios

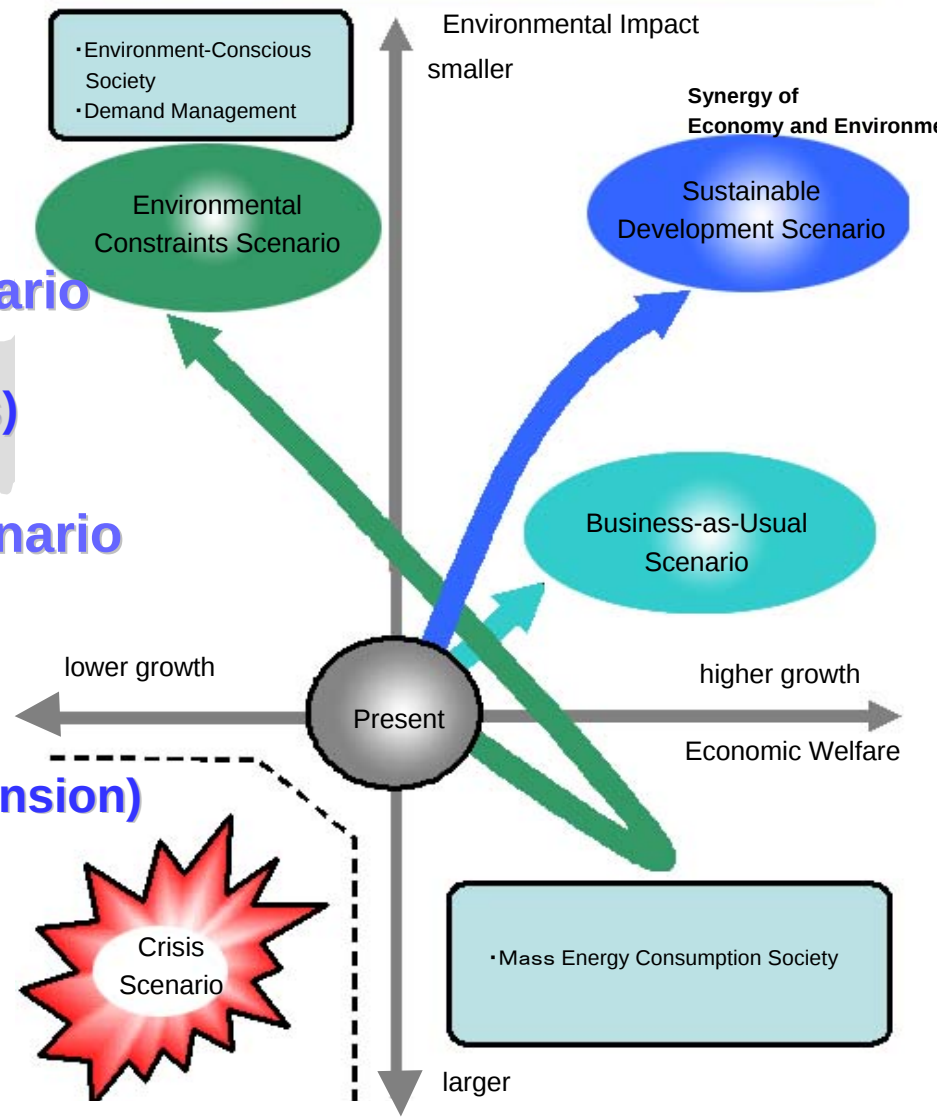
Scenarios -

1. Business-as-Usual Scenario
(Conceivable Pathway)

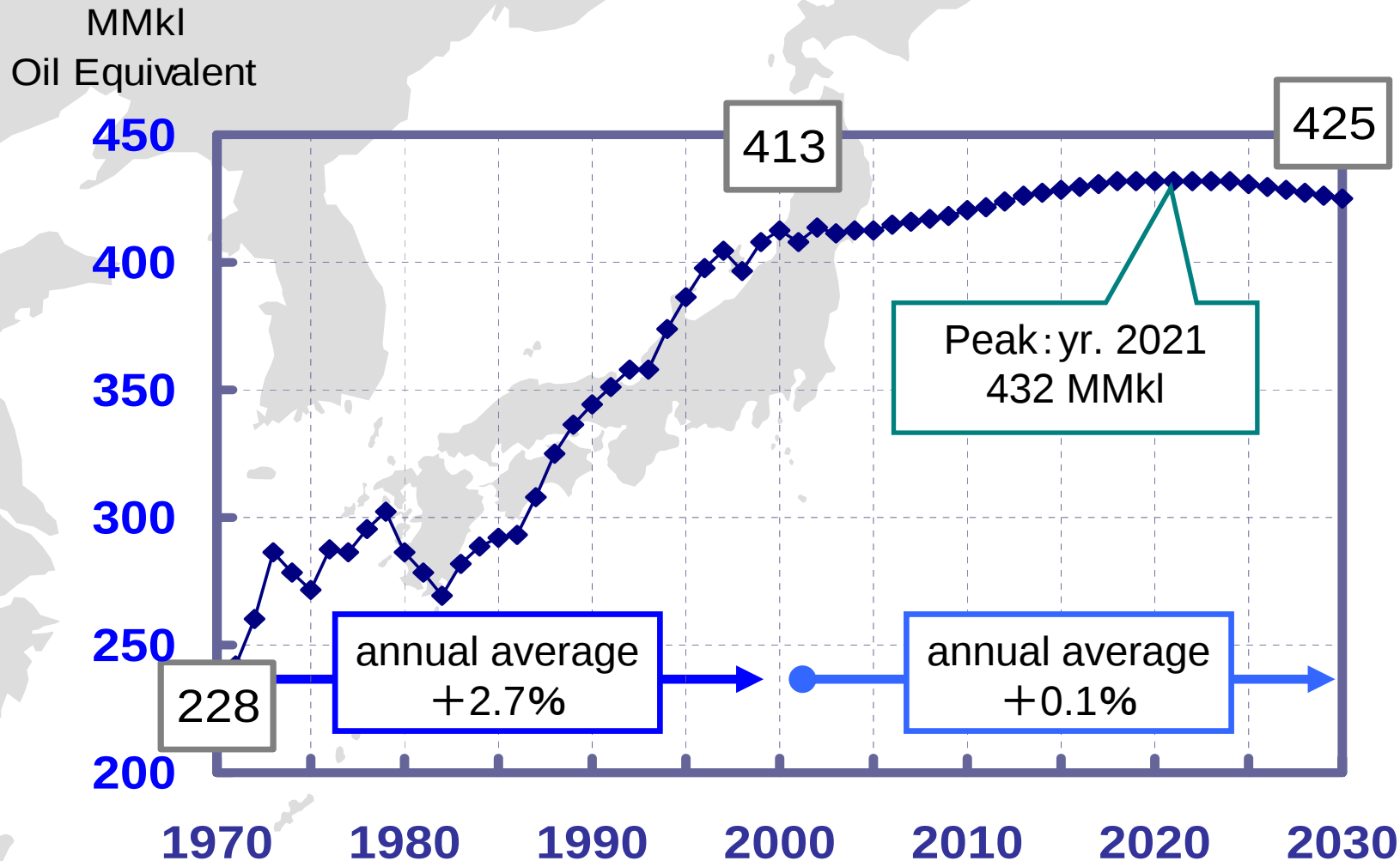
2. Sustainable Development Scenario
(Technological Innovation,
Environmental Consciousness)

3. Environmental Constraints Scenario
(Environmental Constraints)

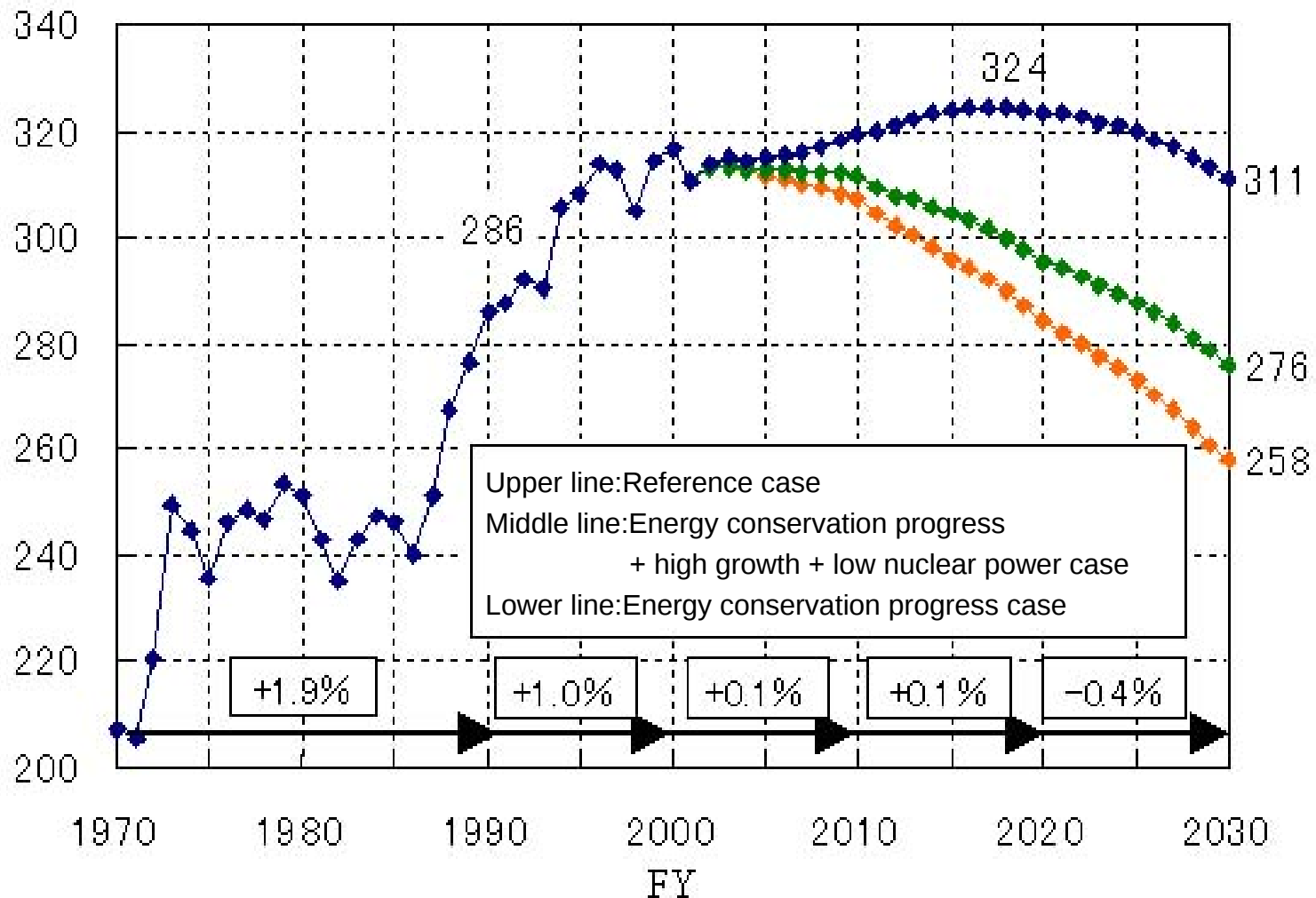
4. Crisis Scenario (International Tension)



Outlook of Energy Demand in Japan

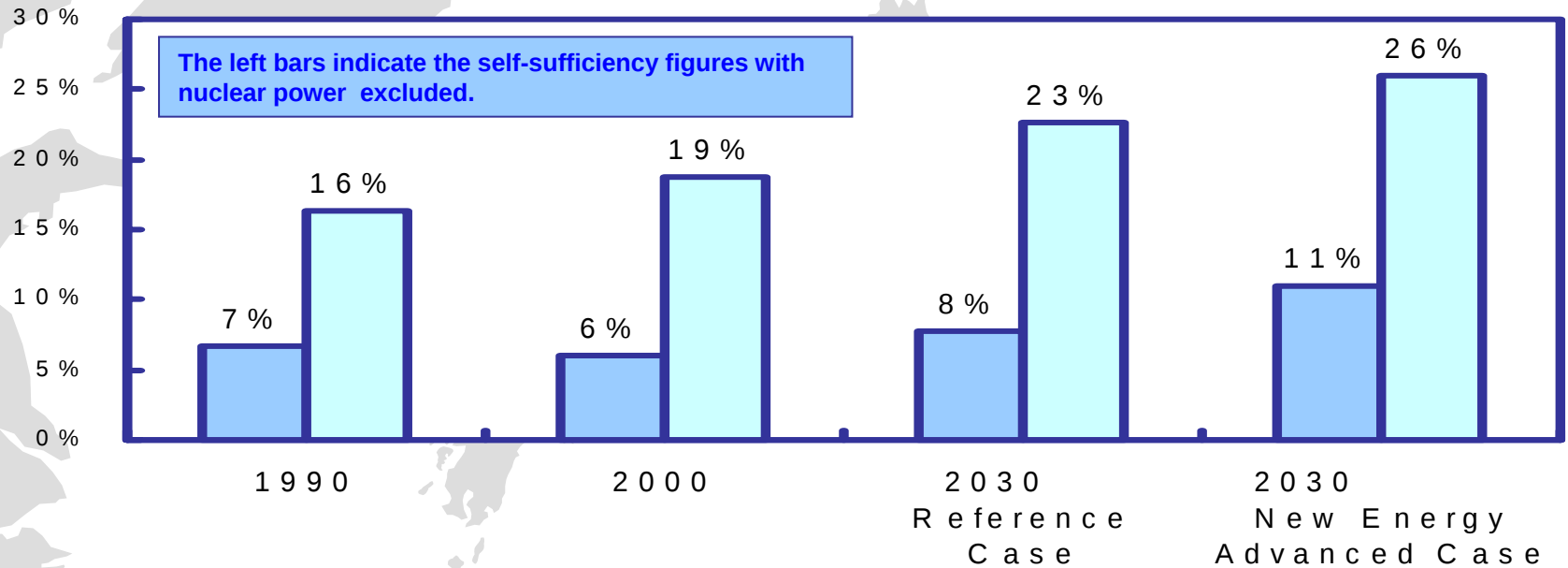


Energy Related CO2 Emissions

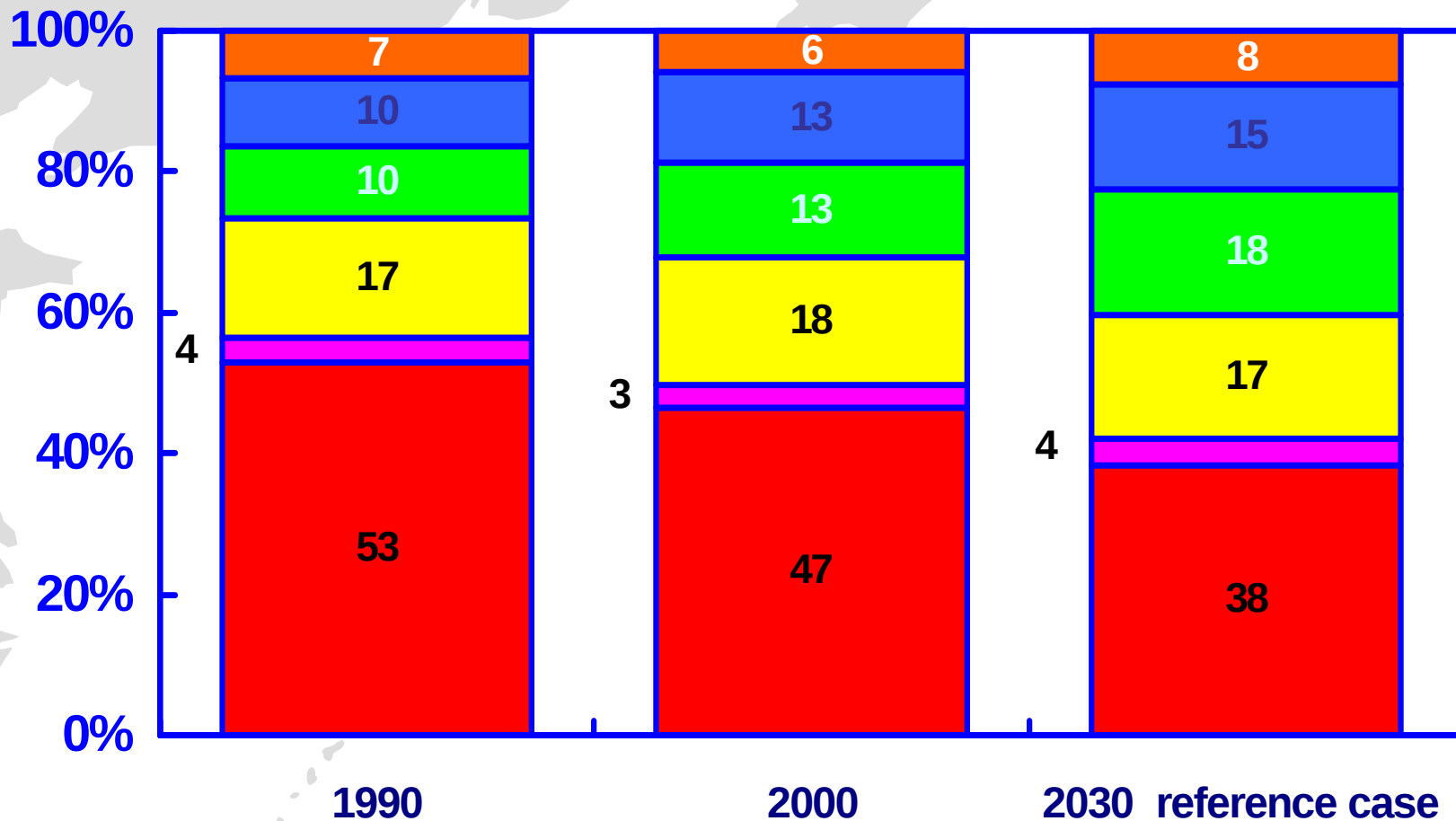


Self-Sufficiency Rate

The left bars indicate the self-sufficiency figures with nuclear power excluded.



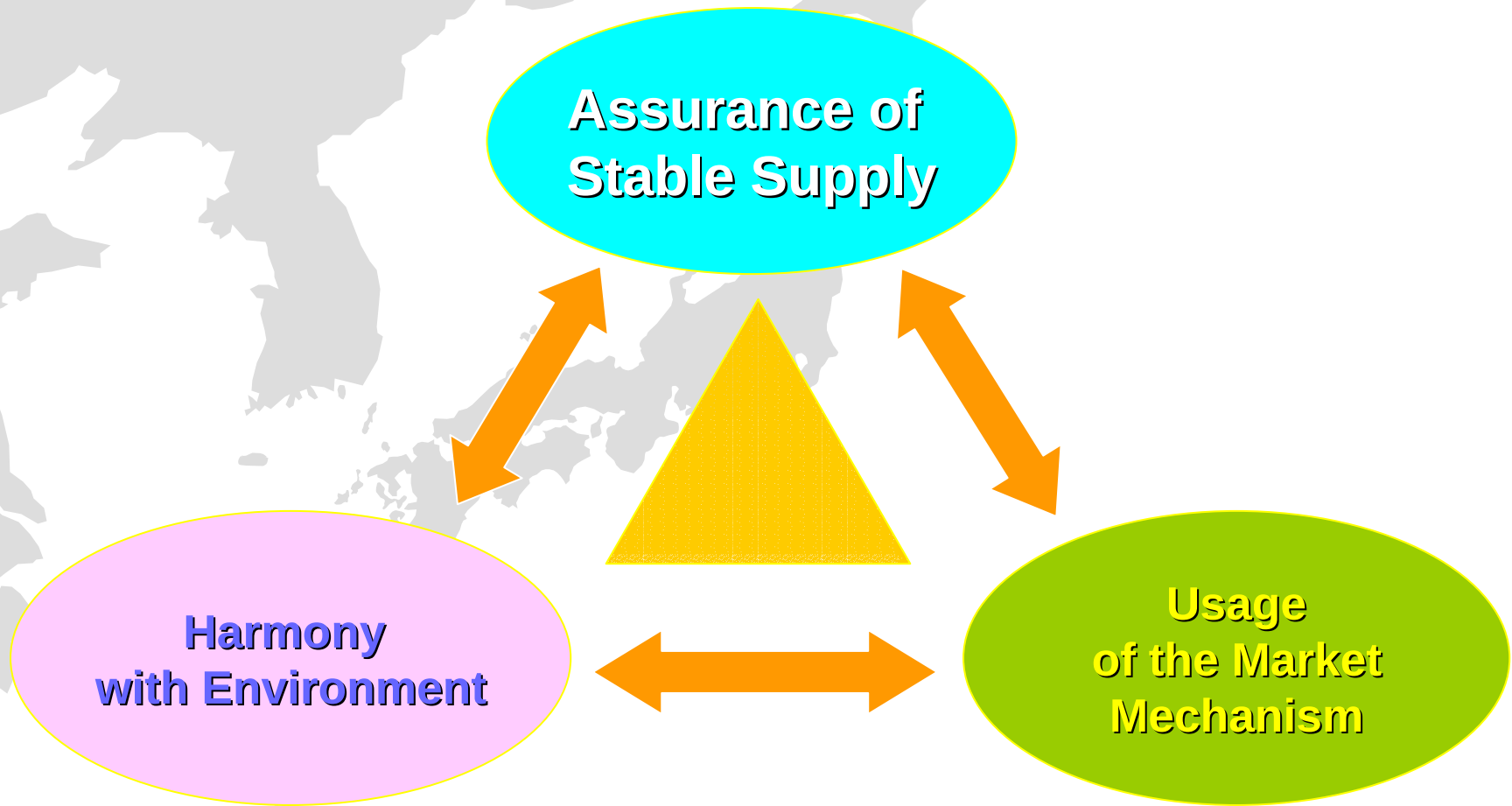
Outlook of Energy Supply Mix



Oil LPG Coal Natural Gas Nuclear Power New Energy

The Basic Principles of Japan's Energy Policy

Stipulated in The Basic Law on Energy Policy Making in June, 2002



*Basic Plan on Energy: endorsed by the Cabinet in October, 2003



Four Key Strategies

- 1. Establishment of an International Energy Strategy**
- 2. Virtuous Cycle of Energy-Saving and Environmental Protection Efforts by Enhancing Public Awareness**
- 3. Diversification of Energy Supply**
- 4. Flexible and Robust Energy Supply System**

A faint, light gray map of Japan is visible in the background of the slide, showing the main islands and surrounding waters.

2. Virtuous Cycle of Energy-Saving and Environmental Protection Efforts by Enhancing Public Awareness

- * Foster technological innovation and promote widespread use of the results of innovation.**
- * Provide information to customers and arouse their awareness of energy conservation.**
- * Cooperate with city policies.**
- * Improve the quality of public relations, education, learning, etc. related to energy-saving.**

3. Diversification of Energy Supply

- * **Develop, introduce and utilize gas energy.**
- * **Promote efforts to create a hydrogen society.**
- * **Promote utilization of nuclear power.**
- * **Further promote the introduction of renewable energy, etc.**
- * **Diversify fuels such as fuels for automobiles.**
- * **Use coal and oil effectively and in an environment-friendly manner.**

A faint, light gray map of Japan is visible in the background of the slide, showing the main islands and surrounding waters.

4. Flexible and Robust Energy Supply System

- * Optimize energy supply systems through an appropriate combination of large-scale centralized power generation and distributed power generation.**
- * Promote the utilization and liberalization of distributed energy resources**

A faint, light gray map of the Asian continent is visible in the background, centered behind the title box. The map shows the outlines of major landmasses including the Indian subcontinent, Southeast Asia, and East Asia.

International Energy Strategy

【Focused on Asian Regional Cooperation】

1. International Energy Strategy

(1) Realize a resilient & sustainable global energy system

● Ensuring long-term energy security (Energy Security, Environmental Protection, and Economic Efficiency) needs a global energy system sustainable and resilient to the fluctuation in demand and supply (both for the short term and mid-to-long term).

Supply side issues

- Develop the condition that makes supply capability built out of resource potentials.
- Strengthen relations with oil and gas-producing countries.
- Diversify supply sources.

Demand side issues

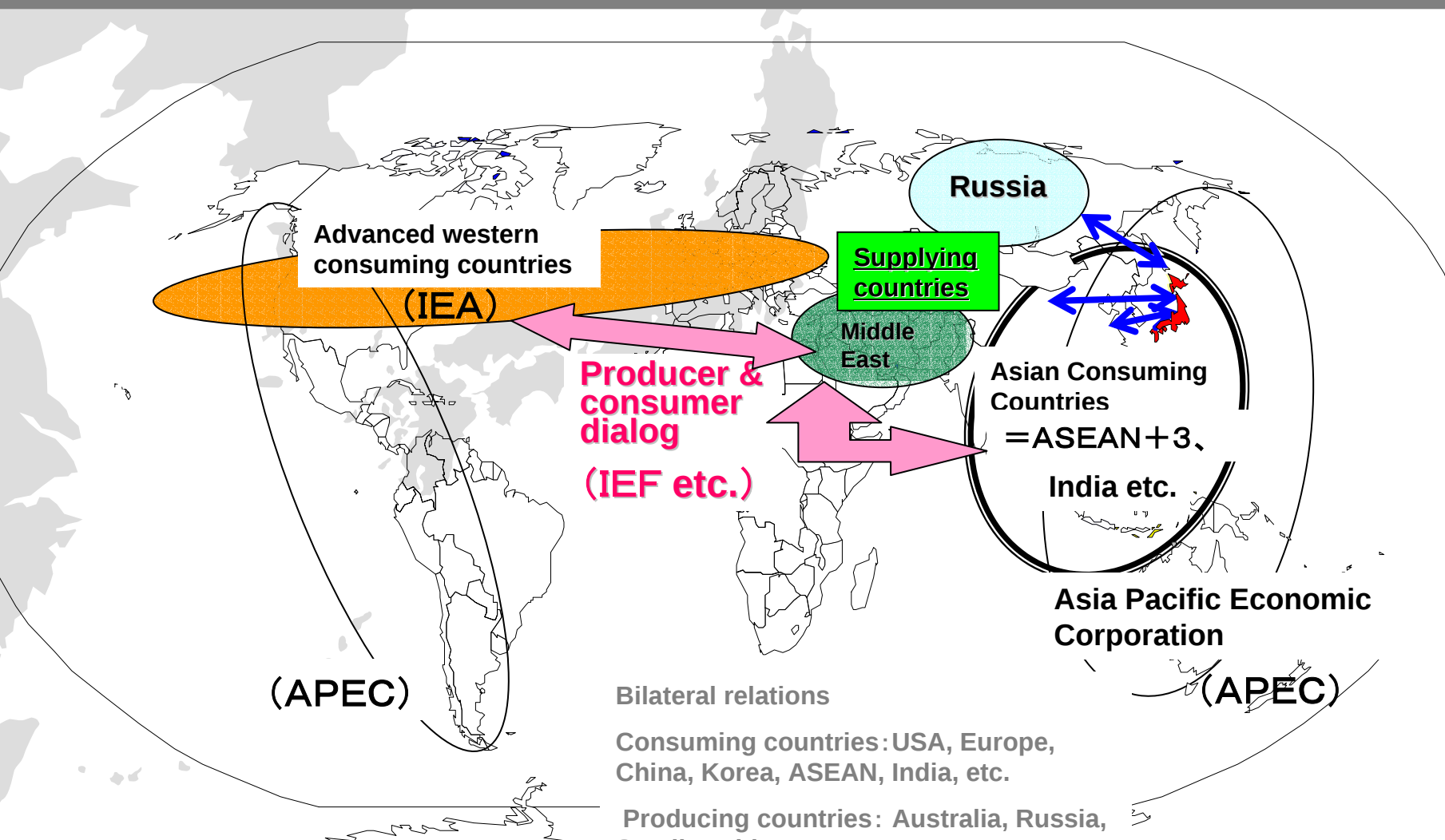
- Introduce and strengthen the emergency response, eg, stockpiling system in Asian countries.
- Strengthen the function of petroleum and natural gas markets in Asia-Pacific regions.
- Strengthen measures for environmental issues and energy efficiency.

★ "Global Energy System"

Global energy market system is a chain from supply to consumption: Creation of the market system requires the constant government engagement since the market function is affected by geopolitical elements.

(2) Construct a multilayer and multilateral framework

● Effective functioning of “Global Energy System” needs constructing a multilayer and multilateral “framework” with bilateral, regional and global structures; a special attention should be paid to strengthen the framework for Asian Consuming Countries.



2. Major Issues and Measures regarding Asian Consuming Countries

(1) Introduce and strengthen the petroleum stockpiling system in Asian countries

● Asian countries are recently becoming more aware of the importance of energy security, and China and India have made their plans for introducing petroleum stockpiling systems. These trends should be encouraged and accelerated.

● In future we should pursue the possibility to construct a concerted emergency response scheme in cooperation with complementing IEA functions.

Petroleum stockpiling status in Asia

	Government stockpiling system	Private sector stockpiling system
Korea	○	○
China	(in preparation)	×
Thailand	(under study)	○
Singapore	×	○ (partial)
Malaysia	×	×
Indonesia	×	○
The Philippines	×	○ (tentative)
India	(in preparation)	×
Taiwan	(in preparation)	○

(Source) The Institute of Energy Economics, Japan

(2) Strengthen function of petroleum and natural gas market in Asian and Pacific regions

【Current situation】

- It is pointed out that petroleum and natural gas prices in Asian countries are not formed on sufficiently competitive basis compared with those in western countries. (i.e. Asian premium etc.) The insufficient market functions raise concerns about distortion of supply-demand balance.
- Dependence by Asian countries on the Middle East is expected to increase in the future. Market function, with transparent and competitive pricing, reflecting Asian demand side, should be strengthened for oil and natural gas.

【Directions of measures】

●The flexible and transparent market mechanism should be realized in the Asia-Pacific region by removing restrictions for investments and trade for petroleum and natural gas and by creating well-organized spot and futures markets.

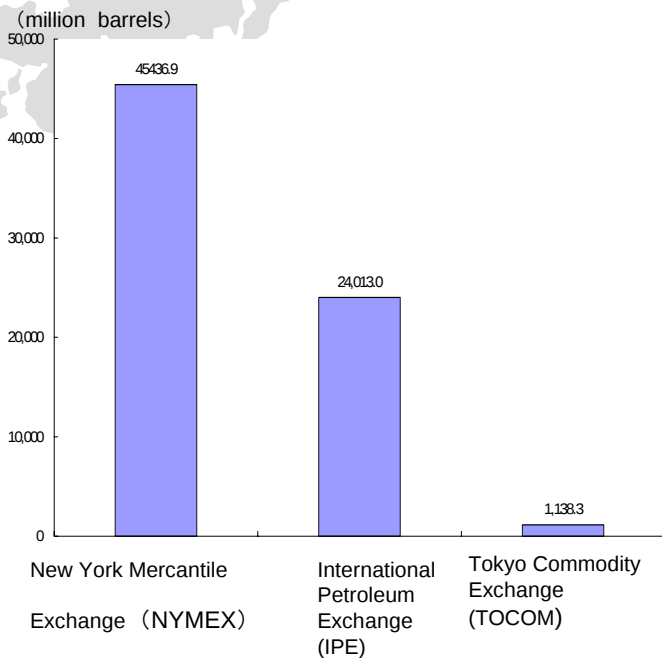
Petroleum consumption and petroleum product trade in major countries (2002)

Country/Region	Petroleum consumption (①)	Product import/①	Product export/①
USA	1,971	11%	4%
CD(Europe)	1,558	34%	27%
Japan	534	19%	1%
Korea	229	23%	31%
China	536	12%	4%
Singapore	70	113%	132%
Thailand	75	4%	17%
Philippines	33	20%	13%
Malaysia	49	29%	30%

Source: BP Statistical Review of World Energy (June 2003)

World Oil Trade, (Sept. 2003)

Crude oil futures trading in Japan, USA and Europe (2003)



(Source) Tokyo Commodity Exchange (TOCOM)

Spot procurement ratio of LNG (2002)

(Unit: million m³)

	Ratio of spot	All LNG tr
USA	52.8%	6,
France	10.1%	11,
Spain	33.9%	12,
Japan	0.4%	72,
Korea	7.4%	24,

(Source) Institute of Energy Economics, Japan

A) Improve environment for expanding trade and investments related to petroleum and natural gas.

- Promote mutual liberalization of trade and investments (with necessary regulations for the security and environmental protection) through FTAs with Korea etc.
- Enhance and harmonize quality/specification regulations on petroleum products in the region. (Utilize Japan-ASEAN dialog etc.)

B) Create well-organized spot and futures markets in the region.

- Improve markets and merchandise designs in mercantile futures exchanges in the region. (Securing wide-range participants including oil wholesale companies etc.)
- Improve mobility of crude oil and LNG in the region. (Removal of business regulations limiting destinations, increase of alternative sources for crude oil supply, etc.)

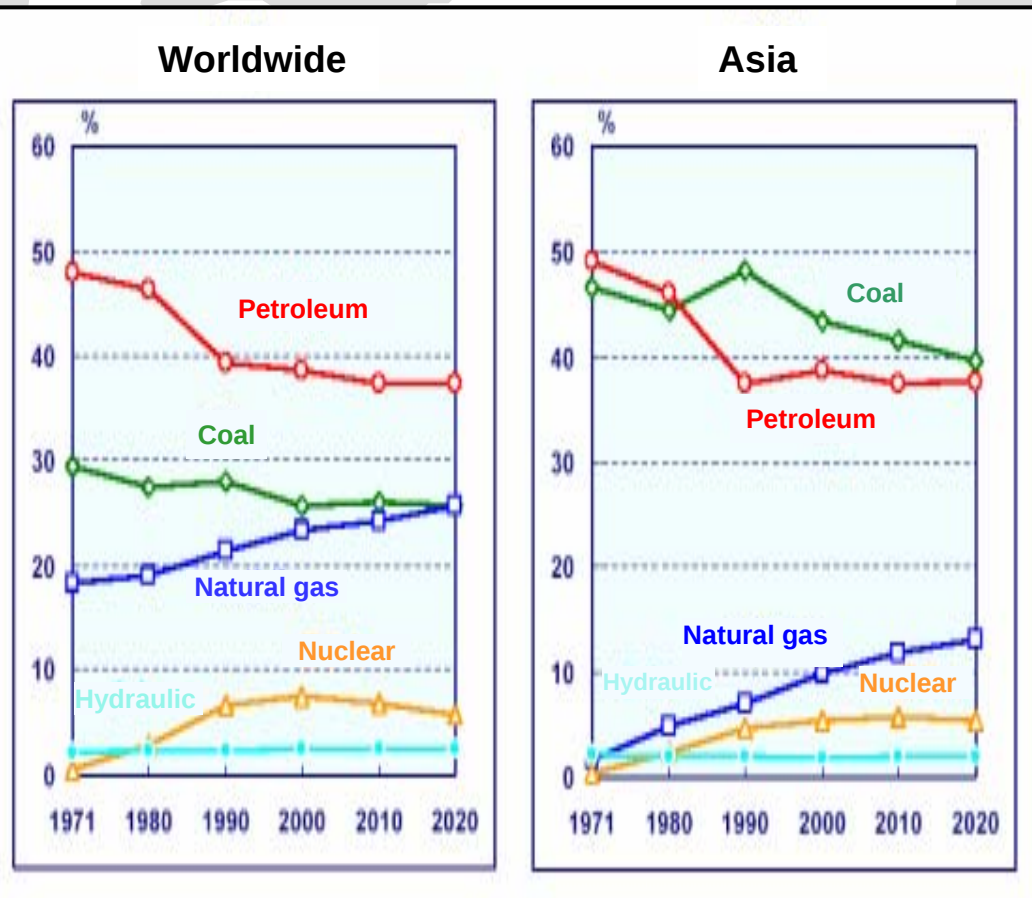
Trend of EU toward removal of limitation of destinations for natural gas supply.

In Apr. 2001, EU Commission started investigations on natural gas supply contracts, esp. Destination clause, for Europe in terms of EU Competition Law. In response, Nigeria agreed to delete the destination clause with ENEL of Italy in Oct. 2002. In Oct. 2003, ENI of Italy reached the same agreement with Gazprom of Russia. EU Commission is expected to take similar actions to LNG producers in Algeria.

【Current situation】

● China and many other Asian countries are expected to continue to use coal as major energy resources. This brings us significant environmental concerns such as air pollution etc. as the emission increase of CO_2 , SO_x , etc. is anticipated. Those countries should be encouraged to take proper measures to reduce or prevent environmental problems.

Primary energy consumption in the world and Asia (by resource)



Energy efficiency and environment standard in Asia

	China	Thiland	Malaysia	The Philippines	Indonesia	Vietnam	Japan
Energy consumption (toe/GDP)	1,020	433	460	462	704	1,270	92
Availability of Energy Conservation Law	○	○	×	×	×	△*	○
Standard for sulphur content in gas oil; as of 2003 (ppm)	2,000	500	500	2,000	5,000	2,000	500

※ Japan plans to set the maximum of 50ppm as mandatory starting on Dec. 31, 2004

Source: IEA / Energy Balances(2000-2001), Data of the Asian Development Bank, Data of the Energy Conservation Center of Japan, etc.

3. Strengthen Asian Energy Partnership

Asian energy consuming countries (Japan, China, Korea, ASEAN, etc.) share various energy-related challenges. Economic partnership agreements will further advance regional economic integrations in the future. Stronger and more comprehensive relationships among Asian countries would be needed by the establishment of a new framework.

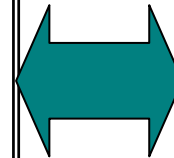
【Basic Principles】 Consuming countries cooperation, Responsibility sharing, Market oriented

◆Cooperation of governments

- Strengthen petroleum stockpiling systems and introduce concerted emergency response.
 - Develop the petroleum and natural gas markets and strengthen its functions.
 - Strengthen the energy conservation and environmental measures, and promote new energy usages.
 - Diversify procurements and supply sources, develop indigenous resources and exchange information for ensuring the sea lane security.
- <Policy dialogs, Creation of common rules, Cooperative projects etc.>

◆Cooperation of private sector players

- Expand international trade.
(Incl. flexible arrangement for sharing/trading of petroleum, LNG)
- Expand investment.
(Energy conservation, Environment related fields, Resources development, Infrastructure improvement etc.)
- Exchange of human resources and technologies



◆Strengthen the energy security for Japan and Asia.

(Energy Security, Environmental Protection, and Economic Efficiency)

◆Strengthen position vis-a-vis producing countries.

Reference 1: Regional energy cooperation of Western countries

North American Energy Working Group (USA, Canada, Mexico)

- In April 2001, the working group was established by the request of the leaders of USA, Canada and Mexico. There are five expert sub-groups acting (i.e. Energy situation, Electricity regulation, Energy efficiency, Science and technology, Natural gas). Meetings of senior officials have been held semiannually since June 2001. (But only once in 2003)
- Objectives:
 - Exchange of information and promotion of cooperation by the governments and energy sectors from three countries pertaining to the matters of their common interest.
 - Enhancement of North American energy trade and interconnection with the goal of sustainable development.
- Three reports were released in 2003: ("North America: Energy picture" in June, "North America: Energy efficiency, standards and labeling" in December, "North America: Regulation of international electricity trade" in December))
- Planned activity:
 - Release of the updated "Energy picture" report and the report on natural gas within this year.
 - Signing of the trilateral framework of science and technology in the ministerial meeting this year

EU-Russia Energy Partnership

- "EU-Russia Energy Dialog":
 - Establishment decision made at the "EU-Russia Summit" at Paris in October 2000.
 - Pursuit of "Common interest" in cooperation such as investment in energy sectors, rationalization of production and transport infrastructure, energy conservation, etc.
 - "EU-Russia Rome Summit" in November 2003: The fourth follow-up report released
- EU-Russia Cooperation on Stockpiling:
 - In October 2003, the then Vice-Prime Minister Khristenko made suggestion on possible cooperation with EU's stockpiling system for petroleum and gas.

Euro-Mediterranean Partnership

- Participants: EU-15 countries, Morocco, Algeria, Tunisia, Egypt, Israel, Jordan, the Palestinian Organization, Lebanon, Syria, Turkey, Cyprus, Malta, Libya (Observer)
- January 2000: Established the "Energy cooperation policy objectives" of energy policy conversion of Mediterranean countries, market development, interconnection of energy grids, etc.
- In May 2003, "Euro-Mediterranean Energy Ministerial Meeting" in Athens established priority projects for 2003 to 2006: (i.e. Energy conservation, Promotion of renewable energy, Completion of Mediterranean electricity and gas link, etc.)

Reference 2: Trend of regional energy cooperation in Asia

ASEAN + 3 Energy Cooperation

Participants:
Japan, China, Korea,
ASEAN 10)

○ In September 2002, the then minister of METI, Mr. Hiranuma, hosted the informal meeting of energy ministers of Japan, China, Korea and the ASEAN countries in Osaka. Hiranuma Initiatives were endorsed.

- ① Setting up of the network for an emergency
- ② Promotion of petroleum stockpiling system
- ③ Studies on the Asian petroleum market
- ④ Promotion of natural gas development
- ⑤ Promotion of energy conservation efficiency and new/renewable energy

○ The ministerial meeting of ASEAN + 3 has been institutionalized, and the Manila Ministerial Meeting in June 2004 adopted the Joint Statement on ASEAN + 3 Energy Partnership including cooperation in energy security, stockpiling, oil market, natural gas, renewable energy, coal, energy efficiency.

Energy Cooperation in APEC

Participants:
APEC 21 member
economies)

○ APEC•EWG (Energy Working Group) was set up in 1990.

○ In May 2000, the Energy Ministerial Conference pointed out the importance of energy security in the APEC area, and the ESI (Energy Security Initiatives) were drawn up and actions are being taken.

Substances: ① Joint Oil Data Initiative

- ② Sea lane security
- ③ Real-time Emergency information sharing
- ④ Oil Supply Emergency Response
- ⑤ Non-Petroleum and longer-term concerns