



“ Energy Challenge in Asia ”

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**METI
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1. Energy Challenge in Asia

Energy Demand/Supply Situation

- Rapid Growth of Energy Demand in Asia
- Increasing Dependence on Imported Energy (especially oil from the Middle East countries)

Challenge: Energy Security

- “Energy Security” in the broader sense:
- Secure stable supply of energy at a reasonable cost in an environmentally friendly manner



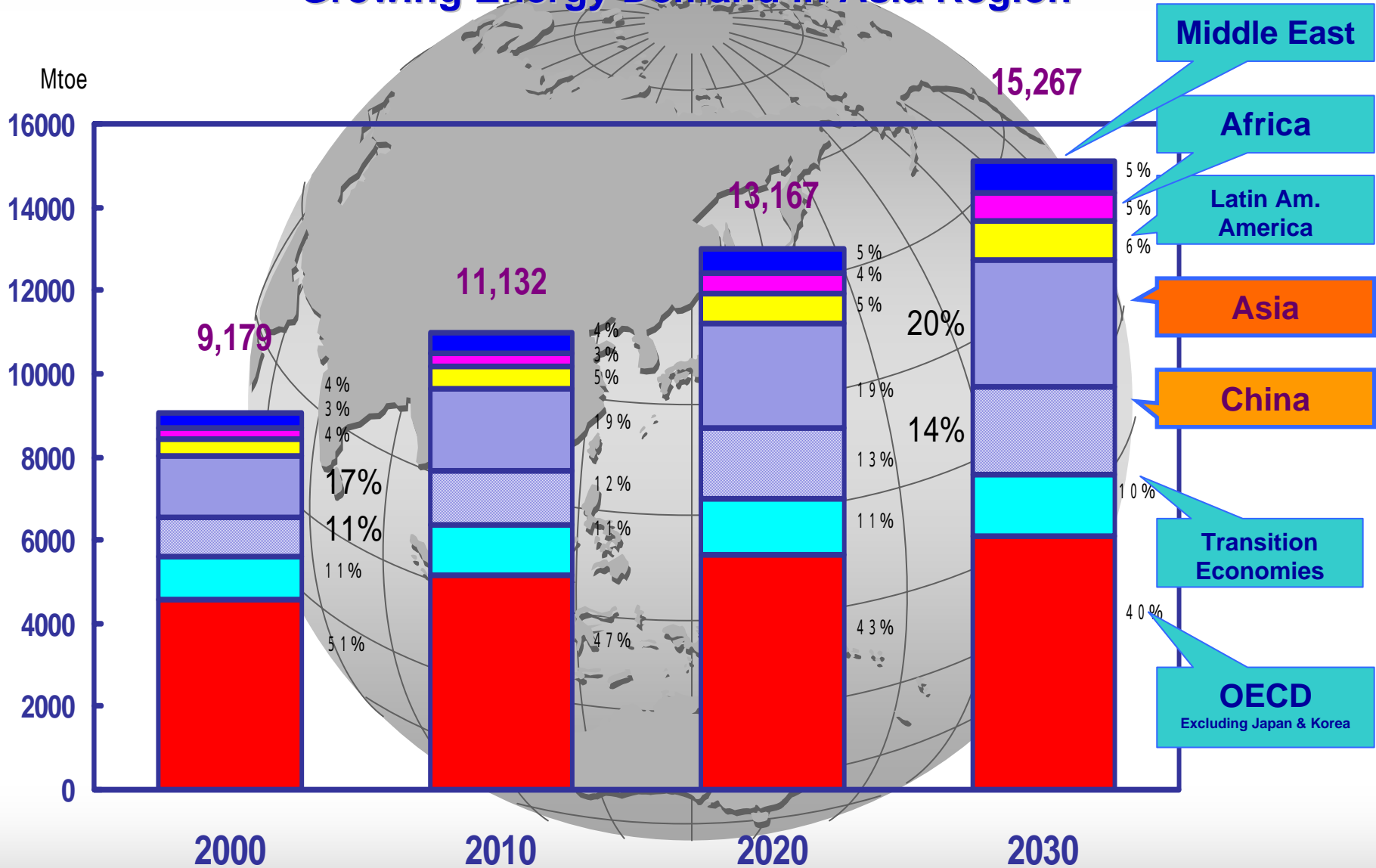
Enhancement of Asian Energy Security

2. Energy Situation in Asia

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- 1. Major Focal Point of Growing Demand in the International Energy Market**
 - 2. IEA Members (Japan and Korea) & Non-members (China, ASEAN and so on)**
 - 3. Indigenous Natural Gas & Oil Resources (China, Russia<East Siberia & Sakhalin>, and ASEAN producing countries)**

World Primary Energy Supply Outlook by Region

Growing Energy Demand in Asia Region



Source: IEA/World Energy Outlook 2002 5

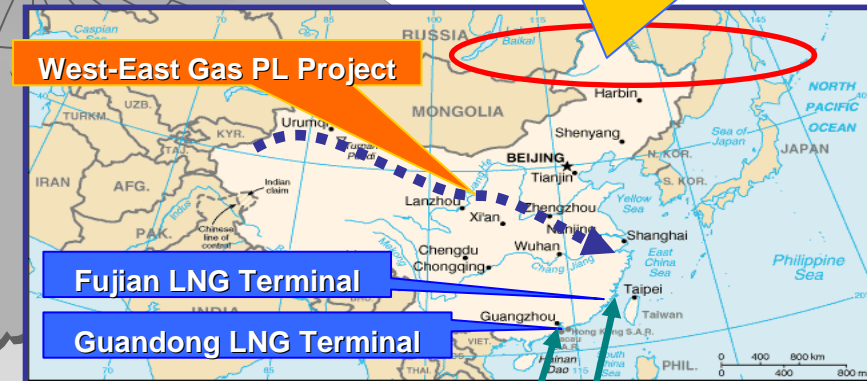
Natural Gas Reserves, Oil & Gas Projects in the Region

> Natural Gas Reserves

Gas Producing Countries	Proved Reserves (TCF)	Share of total (%)
Brunei	13.8	0.3
China	53.3	1.0
Indonesia	92.5	1.7
Malaysia	75.0	1.4
Australia	90.0	1.6
Russia (including Sakhalin)	1680.0	30.5

Source: BP Statistics 2003

> Recent Projects



Australia: NWS LNG

3. Issues to be addressed



3-1. Oil Market

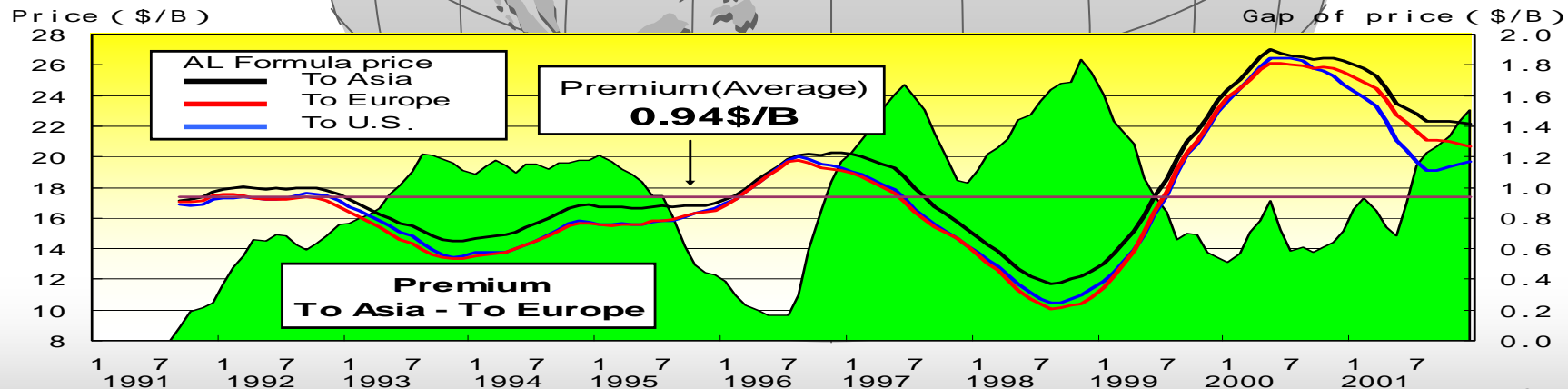
-Collective Asian demand should have market power vis-à-vis suppliers

>Establishing Oil Market in Asia

-Establishment of more open and transparent Asian Oil Market will create better price mechanism and supply-demand balance.

“Asian premium” is...

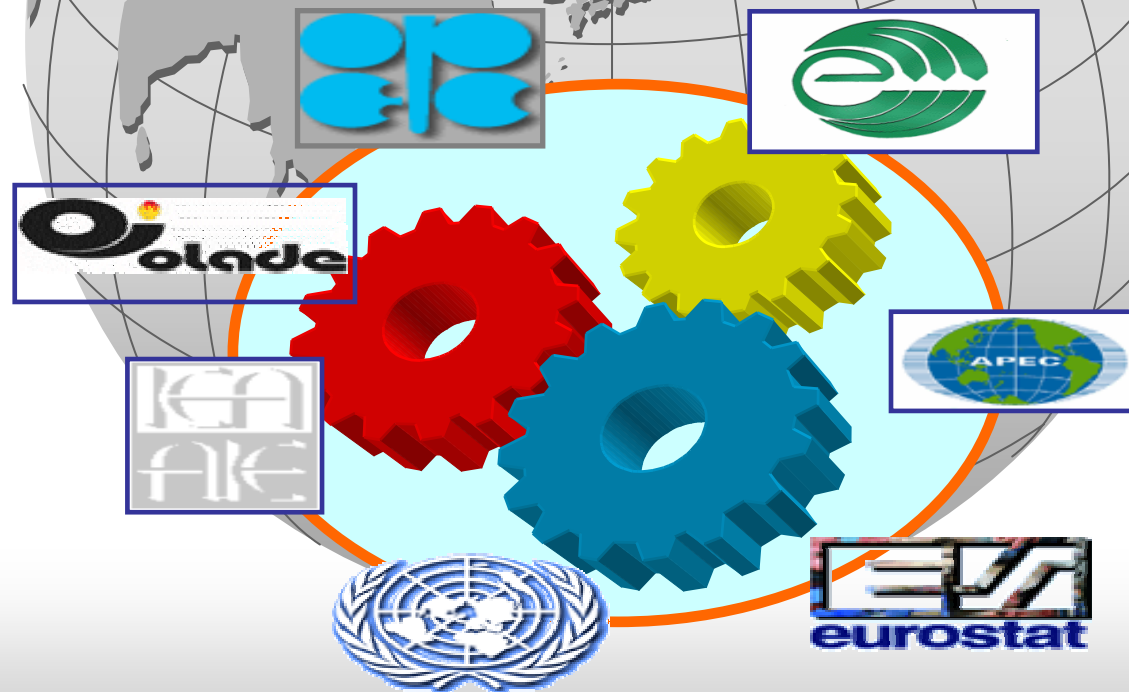
the situation that the price of oil which the Middle East exports to Asia is higher by \$1 ~ \$1.5 than that to Europe and U.S.A.



3-2. Energy Data

- To make the energy market function appropriately and to make a right energy policy
- Energy data / Statistics fundamental
- Harmonization, level up quality
(accuracy, timeliness, coverage)
- Capacity building

<Example: Joint Oil Data Initiative (JODI) >



3-3. Oil Stockpile

Japan & Korea

Keeping national oil stockpiling = IEA members

China

Decided to establish national oil stockpiling

ASEAN

*Decided to revise "ASEAN Petroleum Security Agreement" (1986)
Planning to enhance regional emergency preparedness capability (2003).*

Considering the continuous increase of Energy demand in Asia, as an Emergency Response Measure, Establishment of Oil Stockpiling and regional cooperation in Asia is important.

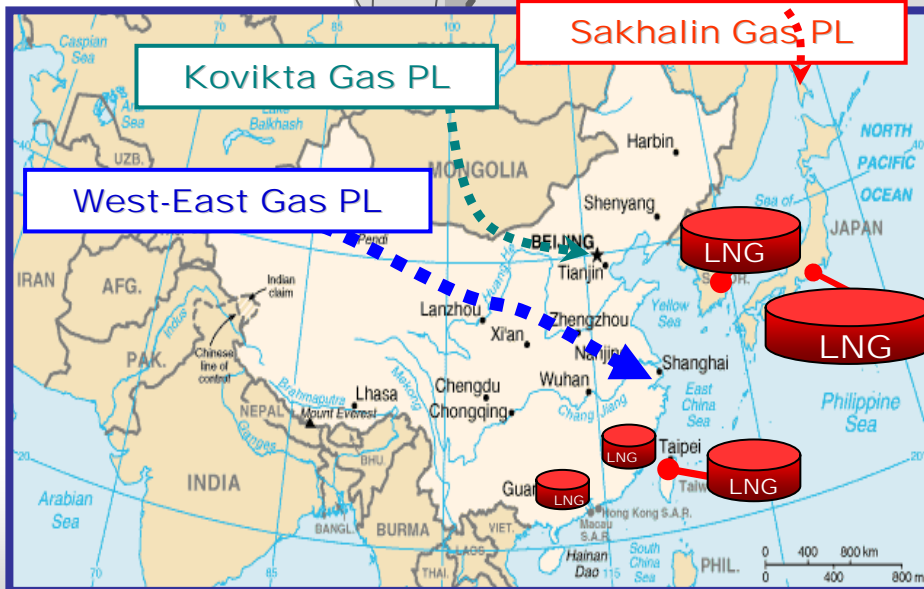
3-4. Natural Gas

>Recent Features in LNG Trade

Diversification of LNG market

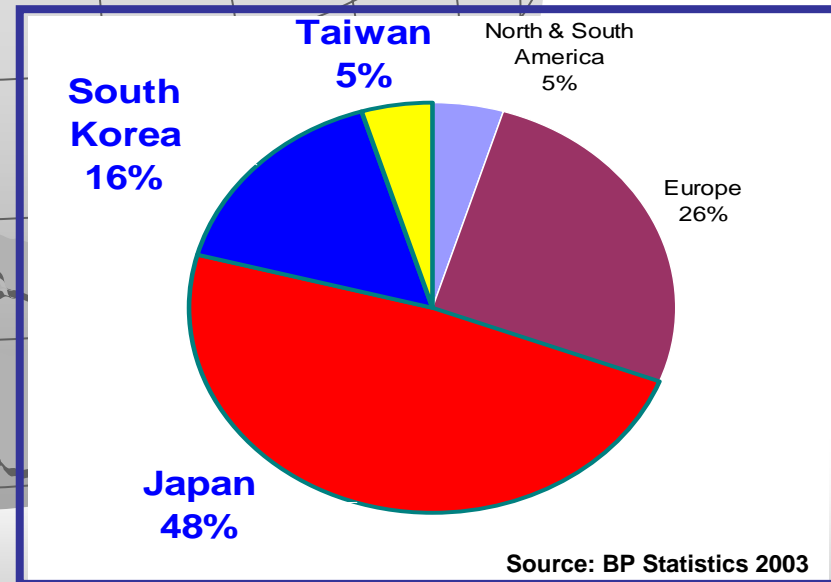
- Increase of LNG suppliers and consumers (China, etc)
- Increase of flexible contracts, spot transaction, swaps between seasons, etc.

>Natural Gas Development in Northeast Asia



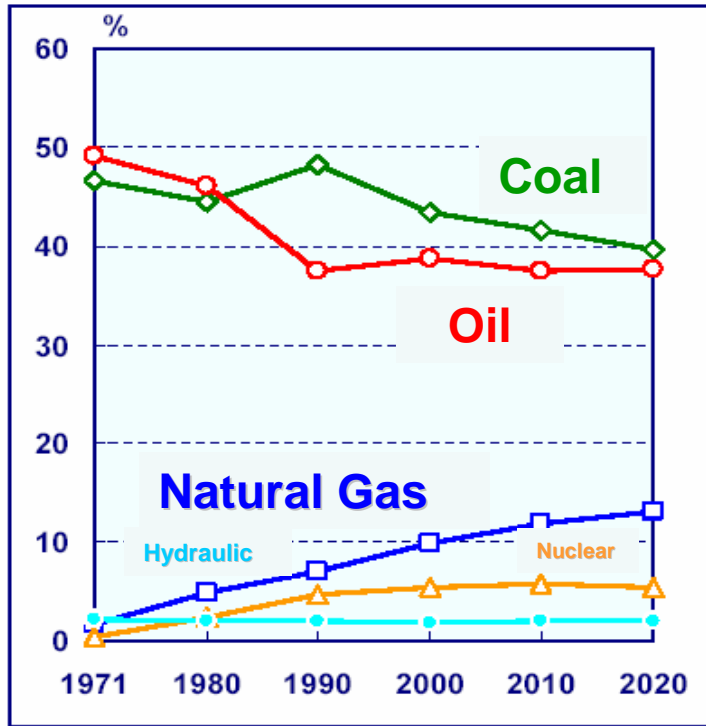
>World LNG Trade

Asia's Total Share: 69%



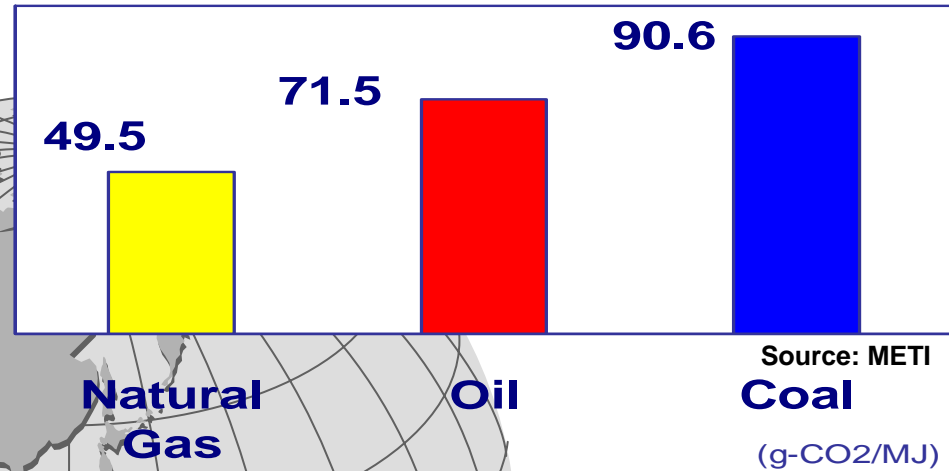
3-5. Coal

Primary Energy Consumption in Asia



Source: Institute of Energy Economics, Japan

Comparison of CO2 Emission per Calorie



>Coal will remain as major energy source in Asia till 2020.
 >Emission of CO2 by consumption of Coal is almost double of Natural Gas

“Clean Coal Technology (CCT)” will contribute to...

- Reduction of Environmental Load.
- Effective Usage for other fossil fuels using coal as relatively rich resource.

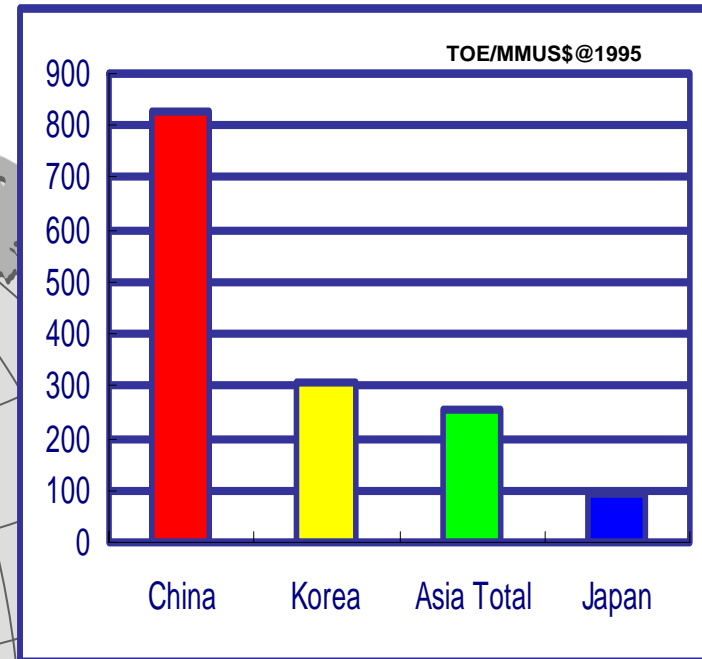
3-6. Energy Efficiency & Renewable

In Asia, each country shows different index on how much efficient in energy use.



- >Some countries have own technology and experience in efficient energy use.
- >Possibility on cooperation to share those technology and experience in Asian countries.

Primary Energy Consumption per GDP 2001



Source: Energy Balance of OECD/Non-OECD Countries, IEA 2003

And also,

- >Renewable energy (hydro, solar, wind, geothermal, combustion, biomass, etc) to successfully deal with environment problems and energy security,
- >Further cooperation of renewable energy policy in Asian countries .

4. Russian Projects

4-1. Sakhalin Projects

	Sakhalin-1	Sakhalin-2
Recoverable Reserves	Oil: approx.2.3 Billion BBL	Oil: approx.1.1 Billion BBL
	Gas: approx. 17TCF	Gas: approx. 17TCF
Grand Project Cost	12 Billion USD	10 Billion USD
Schedule	2005: Commencement of Oil Production Max. 250,000B/D	1999: Commencement of Oil Production Max. 180,000B/D
	2008: Commencement of Natural Gas by pipeline *planning Max. 6MMt/yr Length: 1,300-1,600km	2007: Commencement of Natural Gas by LNG *planning Max. 9.6MMt/yr



Source: Report from related companies

4-2. East Siberia Oil Development and Pipeline Project

- Route: From Angarsk to Nakhodka
- Length: 3,885km
- Capacity: 1MMB/D
- Estimated Construction Cost: approx. 6 billion USD
- Status: Under consideration by Russian Gov.

Source: Publication from Transneft





5. Forum, Dialogue & Cooperation



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Bilateral Fora between Japan & other Asia Region Countries



- Republic of Korea

On 19 March 2004: The 12th Korea-Japan Energy Policy Dialogue will be held.



- People's Republic of China

On 23 October 2003: The 7th China-Japan Energy Policy Dialogue.



- Australia

In May 2004: The 28th Australia-Japan High Level Group on Energy and Minerals Consultations will be held.



- Russian Federation

Under Planning 3rd Russia-Japan Energy Policy Dialogue

Multilateral Energy Forum



▶ ASEAN + 3 (Japan, China, and Korea)

Energy Cooperation

- Priority areas

(from “HIRANUMA Initiative”, September 2002)

- * Creation of an emergency network
- * Initiative for the development of oil stockpiling
- * Development of joint studies on the Asian oil market
- * Initiative for the improvement of natural gas development
- * Initiative for the improvement of energy efficiency and renewable energy

- Natural Gas Forum, to be held in Shanghai in 29-30 March 2004

Multilateral Energy Forum

▶ APEC Energy Cooperation

“Energy Security Initiative” (from 2000)

- * Monthly oil data collection
- * Energy information sharing, etc.



▶ IEF (The International Energy Forum)

- 8th Forum achievements (September, 2002)

- * Confirmation of collaboration between oil-producing and oil consuming countries toward stabilization of the oil market
- * Support for Joint Oil Data Initiative (JODI)
(Priority: M-1 Data on production, stocks, and demand)
- * Sharing awareness of the energy supply-demand situation in Asia
- * Confirmation of the importance of natural gas
- * Agreement to set up a permanent secretariat

- 9th Forum: Amsterdam, May 2004



6. Japan's Energy Policy Review

Japan's Energy Policy including long-term outlook is under review.

Related Points:

1. Asian Regional Approach
2. Natural Gas Shift
3. Oil Market in Asia
4. Energy / Environment Integrated Policy

