

# Regional Energy Cooperation for Sustainable Development: Northeast Asian Perspective

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# Sustainable Energy System

## ∞ Commission on Sustainable Development

“... one that ensures adequate and affordable access to energy for present and future generations in an environmentally sound, socially acceptable and economically viable way.”

## ∞ OECD/IEA

“Sustainable development in the context of energy policy-making is ‘development that lasts’ and that is supported by an economically profitable, socially responsive and environmentally responsible energy sector with a global, long-term vision.”

# WSSD Recommendation for Energy Policy Measures

- ∩ Strengthen international energy cooperation
- ∩ Strengthen cooperation between international and regional organizations
- ∩ Strengthen regional cooperation to facilitate cross-border energy trades
- ∩ Strengthen dialogue forums between producing and consuming countries of energy
- ∩ Improve functioning of energy markets
- ∩ Enhance access to energy

# Sustainable Technology Development

## ∩ Combined Cycle Gas Turbine (CCGT)

- Lower greenhouse gas emissions
- Higher thermal efficiency

## ∩ Information Technology (IT)

- Makes possible long-distance energy transportation
- Capable of controlling larger interconnected systems

## ∩ High Voltage Direct Current (HVDC)

- Higher transmission capacity with less loss
- Less need to obtain right of way
- Easier operation and cooperation between systems

# Challenges to Northeast Asian Countries

## Ω Rapid Growth of Energy Demand

- EIA forecast of annual growth rate for 1999~2020:  
China 4.7%, South Korea 2.7%, World Average 2.3%

## Ω Growing Dependency on Oil

- Oil becoming the leading primary energy in NE Asia
- Japan (2<sup>nd</sup> largest consumer), China (3<sup>rd</sup>), South Korea (6<sup>th</sup>)

## Ω Increasing Import from Outside the Region

- 76% of NE Asia oil imports from the Middle East in 1999:  
Japan (86%), S.Korea (72%), China (46% → 79% in 2020)

## Ω Vulnerability to Environmental Issues

- High dependency on coal (64% in China) and oil (S. Korea 51%, Japan 50%, China 30%)

# Challenges to Northeast Asian Countries

## Total Energy Consumption Projection (quadrillion Btu)

	1999	2005	2010	2015	2020	Annual Growth (%, '99-'20)
S. Korea	7.3	9.6	10.7	12.0	13.0	2.7
Japan	21.7	22.9	24.2	25.4	26.6	1.0
China	31.9	42.9	55.1	68.8	84.4	4.7
World	381.9	438.6	492.6	551.7	611.5	2.3

Source: EIA

# Challenges to Northeast Asian Countries

## CO<sub>2</sub> Emissions Projection (million TC)

	1999	2005	2010	2015	2020	Annual Growth (%, '99-'20)
S. Korea	107	136	152	164	175	2.3
Japan	307	327	343	356	370	0.9
China	669	881	1,127	1,393	1,692	4.5
World	6,097	7,018	7,910	8,866	9,850	2.3

Source: EIA



# NEA Energy Cooperation as a Solution for Sustainable Future

## Resource Endowments of Northeast Asian Countries

	Oil & Gas	Coal & Minerals	Labor	Capital	Tech.	Mgt. Expertise
China	B	A	A	D	C	C
Japan	D	C	C	A	A	A
S. Korea	None	C	C	B	B	B
N. Korea	None	B	B	D	D	D
Russia	A	A	D	D	C	C
Mongolia	C	B	C	D	D	C

# NEA Energy Cooperation as a Solution for Sustainable Future

## ∞ Economic Benefits

- Resource development
- Improvement in facility use
- Spillover Effects: market liberalization, etc.

## ∞ Environmental Benefits

- Utilization of abundant environment-friendly energy: natural gas and hydro

## ∞ Emergency Preparedness

- Less vulnerable to factors outside the region
- Enable emergency swap of energy supply

# NEA Energy Cooperation Schemes

## ∞ Natural Gas

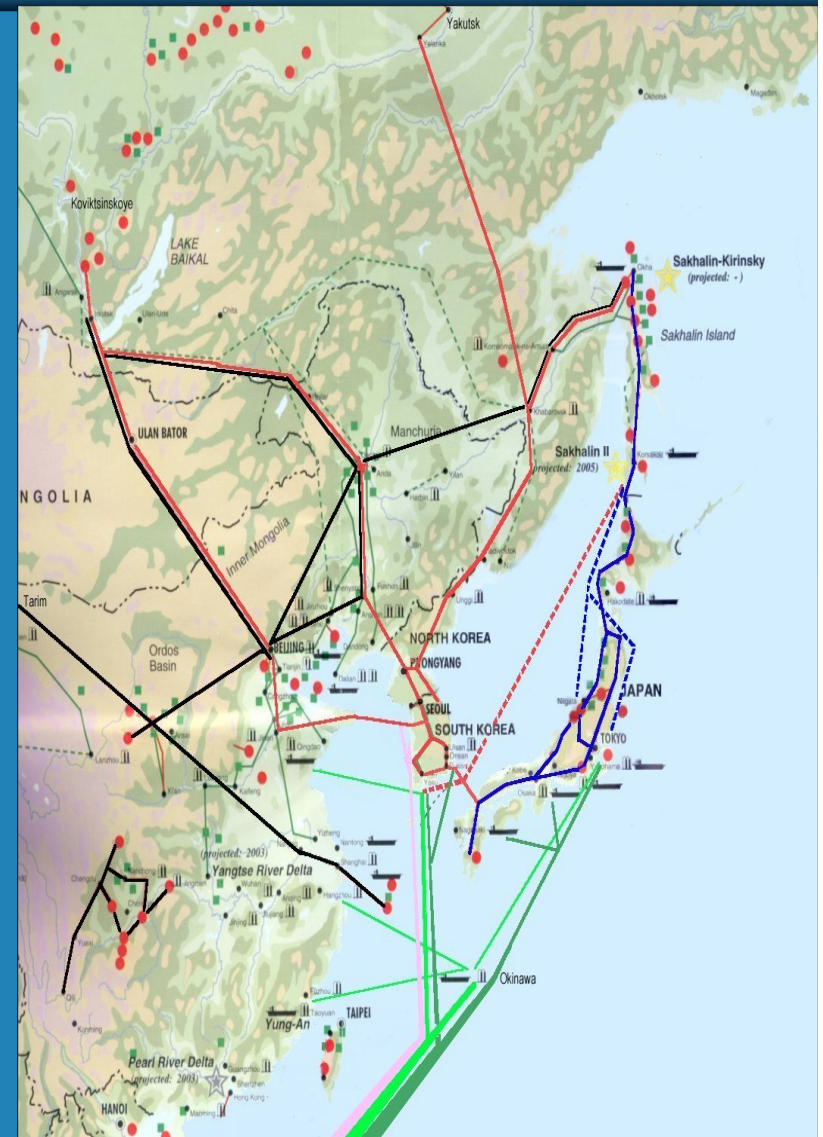
- Development & Trans-NEA Pipeline Construction: Irkutsk, Sakhalin, Yakustk...

## ∞ Electricity

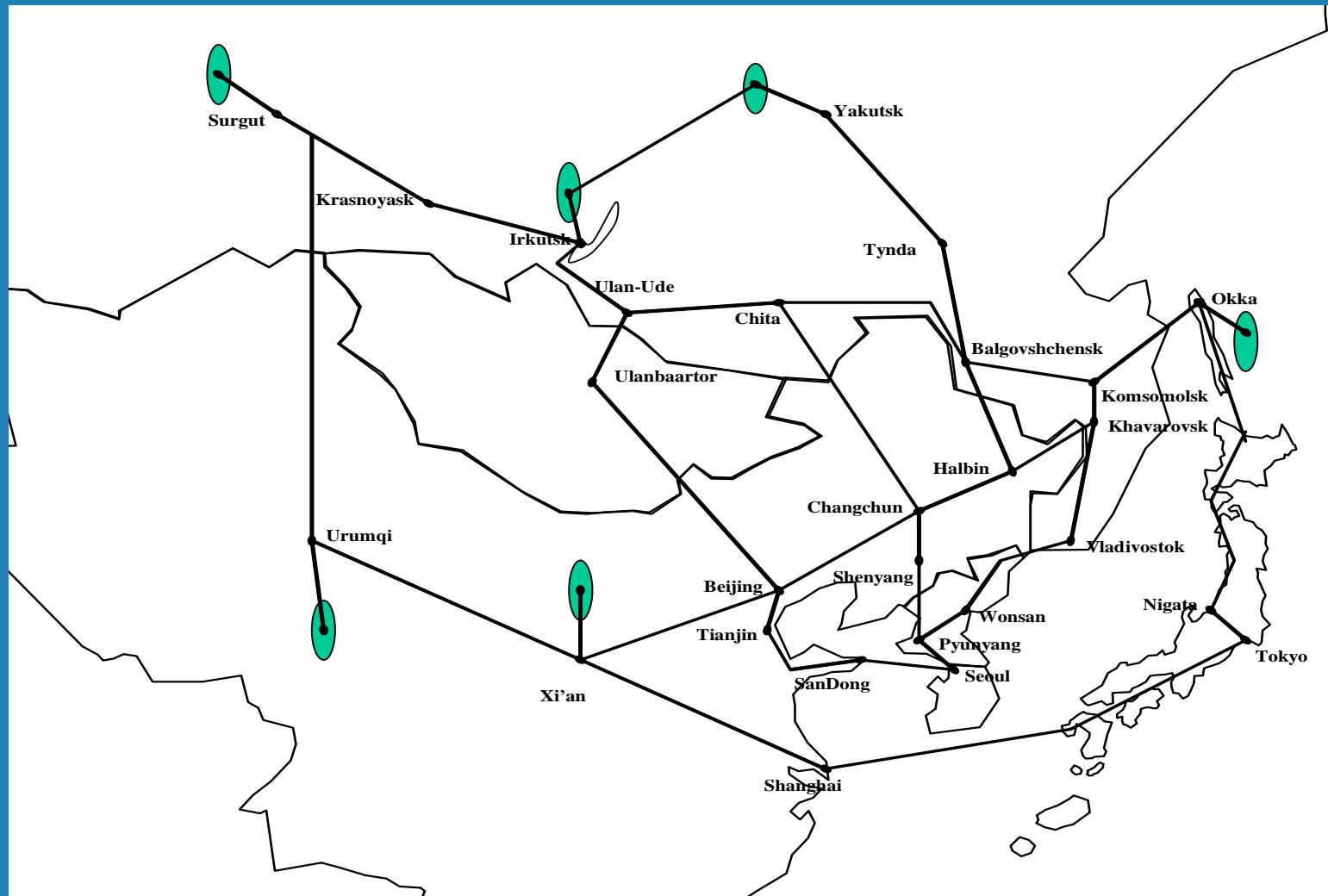
- Power Grid Interconnection & Power Swap

## ∞ Oil

- Oil pipelines, Joint Utilization of Storage Facility, Joint Transportation, & Joint Efforts to Remove the “Asian Premium”



# Prospective PNG Projects



# Power Grid Interconnection



# Current Discussion and Challenges

## ∞ Working Committee for NEA Energy Cooperation

- Proposed by Minister of Commerce, Industry & Energy in June 2001 at the First International Conference co-hosted by UN ESCAP and KEEI
- Objective: to promote multilateral NEA energy cooperation at government level

## ∞ Khabarovsk Communique

- First intergovernmental meeting in October 2001
- Agreed Basic Principles:
  - Recognition of sovereign rights over energy resources
  - Development of free and fair trade
  - Investment promotion and protection
  - Environmental protection

# Current Discussion and Challenges

## Ω Vladivostok Statement of Senior Officials

- Attended by senior officials from Northeast Asian countries, assisted by UN ESCAP, ADB, IEA, UNECE, APERC, and KEEI in April 2003
- Regular senior officials meetings to be held
- UN ESCAP to serve as interim secretariat
- Three working groups to be established
  - electric power interconnection
  - interstate transit of fossil fuels
  - prospective energy planning and programming
- A task force to be formed to formulate Collaborative Framework on Energy Cooperation in Northeast Asia

# Current Discussion and Challenges

## ∞ More Dialogues Required to Address:

- Political & Institutional Concerns
  - Investment protection, Assurance of fiscal stability (tax, tariff), Dispute settlement mechanism for resolving trans-boundary jurisdiction, Harmonization of technical standards, etc.
- Governmental, commercial & research sector interchange
- Coordination of Conflicting Interests
  - Bilateral vs. multilateral cooperation
  - Sharing benefits and burdens
- Institutional Vehicle for Infrastructure Financing: 'NEADB'
  - Finance infrastructure investment/economic development in NEA
  - Mobilize international capital market for NEA infrastructure needs
  - Reduce investment risks with governments as its shareholders



# Concluding Remark

∞ NEA Energy Cooperation for Sustainable Future:  
Win-win opportunities

- Individual countries in NEA
- The region as a whole and the world

*Regional energy cooperation  
to overcome short-term obstacles with  
long-term vision for sustainable future*

Thank You Very Much!

*Gam-Sa-Ham-Ni-Da!*

