

Challenges and Opportunities of NEA Energy Integration: Korea's Perspective

Sept. 25. 2014

Seoul, Korea

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Contents

1 Eurasia Initiative of Korean Government

2 Korea's Perspective on Establishment of Energy Grid

3 Conclusion

1. Eurasia Initiative of Korean Government

Eurasia Initiative of Korean Government

- ③ To move towards a 'single continent', 'creative continent', 'peaceful continent'
- ③ For Eurasia to open a new silk road of energy cooperation.
 - by connecting railroads, pipeline, and transmission line
- ③ As seen in the experience of Europe, Northeast Asian countries, based on a common vision and mutual trust, can establish a solid framework for multilateral cooperation in energy, trade, investment sectors.



Ever-growing need for Energy Cooperation

- ① There is an ever-growing need for energy cooperation in Northeast Asian region
 - Political side: President Park's 'Eurasia Initiative', President Xi Jinping's 'New Silk Road', President Putin's 'New Eastern Policy'.
 - Economic side: bilateral or trilateral FTA talks
 - Energy side: establishing trans-border energy transport networks, forming nuclear safety body
- ② Actively planning and promoting cross-border energy grid projects in the wake of increased energy supply from the Russian Far East to the Northeast Asian region
 - Multilateral cooperative mechanism for creating a more favorable conditions for investment and financing

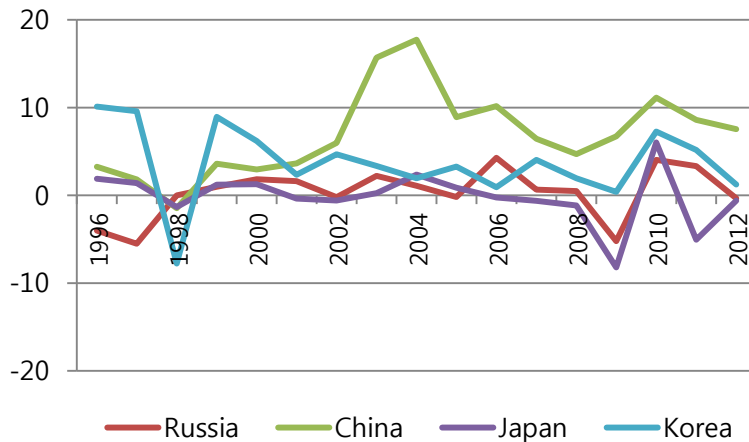
Ever-growing need for Energy Cooperation

- ④ More interests in proactively responding to supply crisis, emergencies
- ④ North Pole Route as a new energy transportation route and abundant undeveloped energy resources in Arctic region
- ④ Constructing energy supply infrastructure (pipeline, transmission line) is required to facilitate the intra-regional trade
 - Contribution to improving self-sufficiency of energy supply in the region and reducing dependency on imports from outside the region, particularly the Middle East.
 - Cost-effective and sustainable energy mix
- ④ But, a lack of effective measures to address newly emerging common safety, environment, and security issues in comparison with Europe and America
 - Intergovernmental Collaborative Mechanism on Energy Cooperation in Northeast Asia(Nov. 2005)

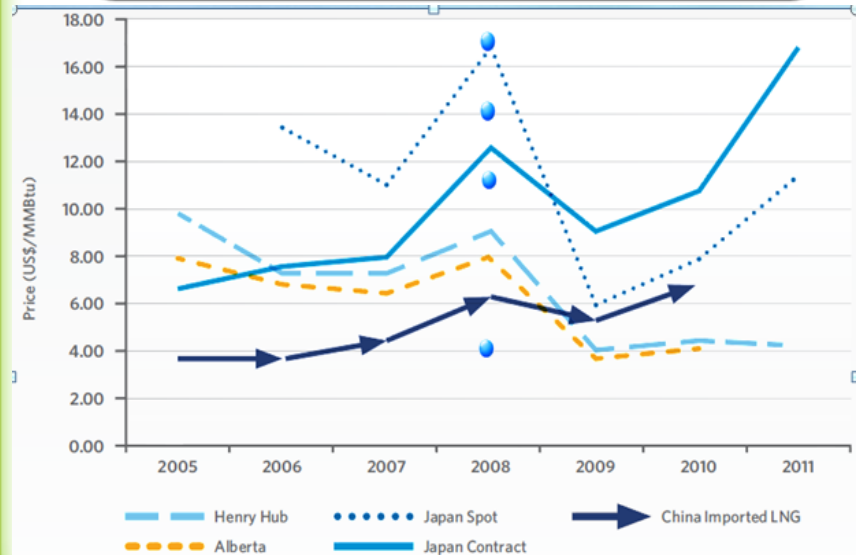
Energy Consumption Prospects and Asian Gas Premium

Energy Consumption

(annual growth rate, %)



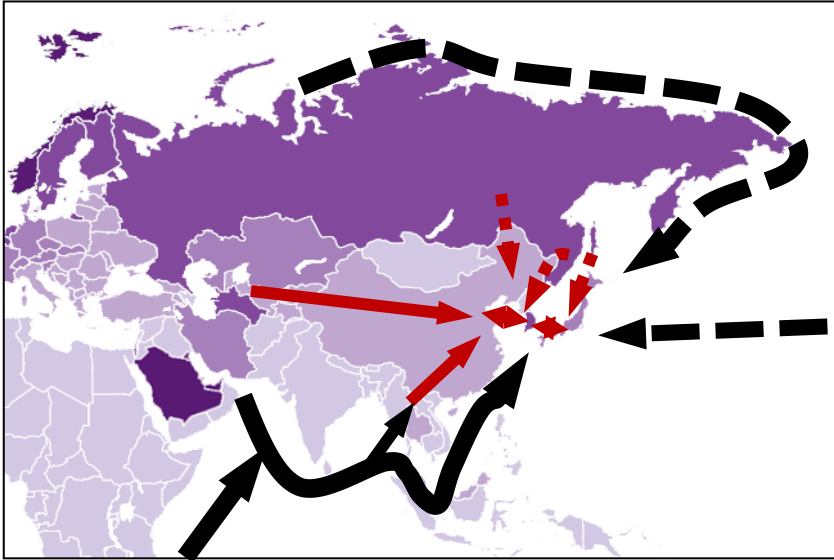
Asian Gas Premium



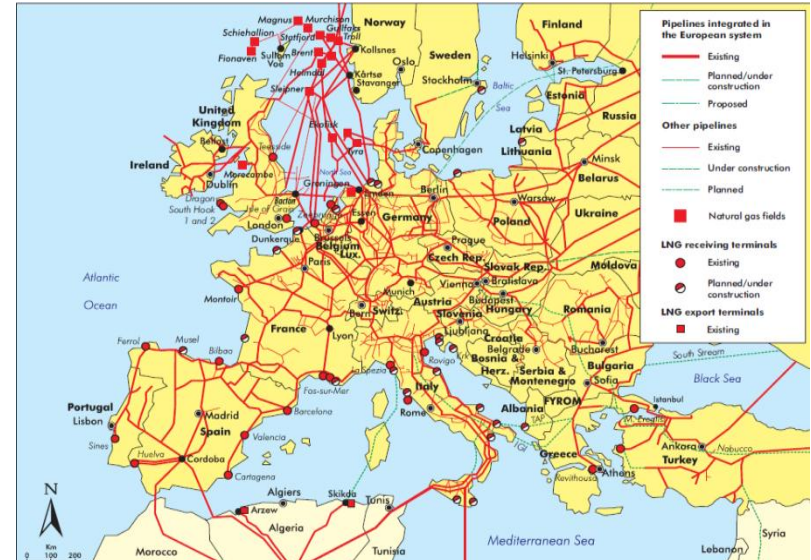
- Energy consumption during the period of 2005-2012
 - Northeast Asia 4.9%, World 2.3%, EU -0.9%, US -0.7%
- Large gas price difference between North America and Asia
 - Absence of multiple import sources, long-term contracts, and use of oil-indexed formulas

Energy Grid in Northeast Asian Region

Pipeline Network in NEA



Pipeline Network in Europe



- In Northeast Asian region, energy grid connection is weak because of geographical features.
- Transport risk in importing energy resources from Middle East region through long-distance shipping

Energy Market Integration in NEA Region

- ④ Establishment of integrated energy market in NEA region
 - Significant energy and economic benefits
 - Construction and operation of infrastructure to transport energy across a region as one of the most fundamental requirements for an integrated energy market
- ④ Joint investment for integrated NEA regional energy network
 - For putting real NEA regional energy networks in place with regard to exporting terminal, transit pipeline, LNG facilities, transmission
- ④ Energy market integration in NEA region should proceed initially at bi-lateral or tri-lateral levels, rather than across the entire region
- ④ Developing an oil/gas trading hub in NEA region
 - Creating a competitive market : to attract new participants and to encourage market players to use a trading hub
 - Obstacles to a competitive gas market : the limited amount of PNG, requirement of an flexible supply chain

Expected Effects of Oil and Gas Hub

- ① Launch trading hub on the infra operation
 - construction/operation logistics infrastructure: storage facilities, pipeline interconnection
 - deregulation/system improvements
 - establish Oil/Gas Exchange
- ② Smooth and stable supply/demand in Northeast Asian region
 - Contribution to the stabilization of international price and supply/demand situation
- ③ Improve region's capacity to respond to energy crises by expanding storage facilities.
- ④ Contribution to economic vitalization by creating added value through opening/operating trading market

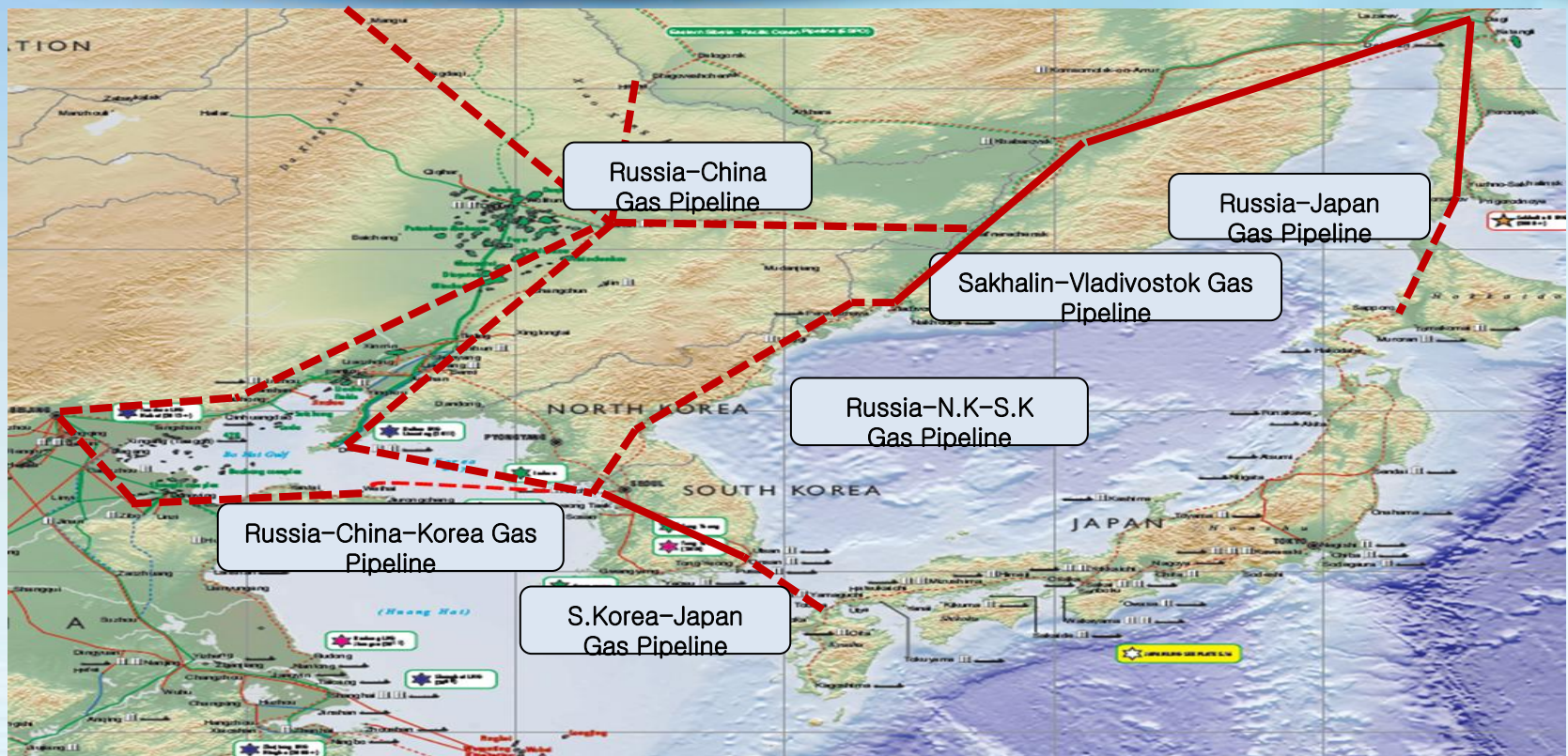
2. Korean Perspectives on Establishment of Energy Grid



Cooperative Agenda by Energy Sources

Petroleum	Natural Gas	Coal	Electricity
<ul style="list-style-type: none"> • Joint development 	<ul style="list-style-type: none"> • Joint development of conventional and unconventional gas 	<ul style="list-style-type: none"> • Joint development 	<ul style="list-style-type: none"> • Joint development of electricity supply sources
<ul style="list-style-type: none"> • Crude oil pipeline connection • Construction of storage facilities/terminal • Commercial use of the North Pole Route 	<ul style="list-style-type: none"> • Gas pipeline connection • Construction and operation of LNG Plant and regasification facilities • Commercial use of the North Pole Route 	<ul style="list-style-type: none"> • Railway connection • Construction and operation of export terminal 	<ul style="list-style-type: none"> • Transmission line connection
<ul style="list-style-type: none"> • Refinery construction and petroleum product sales 	<ul style="list-style-type: none"> • Trading and sales 	<ul style="list-style-type: none"> • Trading and sales • Clean coal, CTL technology cooperation 	<ul style="list-style-type: none"> • Trading and sales

Gas Pipeline Network Plan in Northeast Asia



- Actively developing gas fields
- Strategy for diversification of export market and import sources
- Growing awareness about cooperation's importance among countries
- Establishment of gas trading hub

Outline of SuperGrid in Northeast Asia



- Korea has an isolated power grid like Japan, high load density and condensed power system, transmission congestion problem
- The price gap, natural energy resource imbalance among nations
 - Rich resources(Russia, China) vs. Poor resources(Korea, Japan)
 - Large supply(Russia) vs. Large demand(Korea, China, Japan)
 - Approval issue of new power plants(Korea, Japan)
 - Different peak demand

Closer cooperation among NEA Nations is needed.

Matured conditions to develop a SuperGrid

Effects of SuperGrid in Northeast Asia



Economy

- Effective use of natural resources, flexible selected power generations' location



Environment

- Utilization of eco-friendly resources, new NRE power plants development



Reliability

- Mutual power management for blackout and power qualities control



International Cooperation

- Expanding South and North's exchanges and possible cooperation

3. Conclusion



Conclusion

- Gradual, step-by-step approach
 - building mutual trust
- Expansion and complement existing mechanisms for cooperation
 - multi-layered and multi-dimensional cooperation
 - : business forum(petroleum forum, gas pipeline forum), intergovernmental meeting, expert seminar
 - : cooperation body for safety, security, environment
- Joint technical and economic feasibility study
- Support of governments(policy and political) in energy projects
- Expert council attended by NEA countries
- Pilot project
- Project financing

Conclusion

- **Future plan in Inter-governmental Collaborative Mechanism on Energy Cooperation in Northeast Asia**
 - Develop the SOC (Senior Officials Committee) to the Energy Ministerial Meeting in Northeast Asia
 - Korean Peninsular trust-building
 - Expansion of membership
- **Creation of institutionalized frameworks for multilateral regional energy cooperation: Charter, Regional Energy Community**
- **Introduction of policy coordination functions: Institutional arrangement**
- **Address on an intra-regional financing mechanisms**

Thank You !!