Korea’s Energy Strategy in Northeast Asia

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1. Northeast Asia in World Energy
### Energy Consumption in NEA

#### Total Primary Energy Consumption (2007)

<table>
<thead>
<tr>
<th></th>
<th>TPED (MTOE)</th>
<th>% of World Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1,863</td>
<td>16.9%</td>
</tr>
<tr>
<td>Japan</td>
<td>518</td>
<td>4.7%</td>
</tr>
<tr>
<td>Korea</td>
<td>234</td>
<td>2.1%</td>
</tr>
<tr>
<td>DPRK</td>
<td>22</td>
<td>0%</td>
</tr>
<tr>
<td>Mongolia</td>
<td>3</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>2,640</td>
<td>23.8%</td>
</tr>
<tr>
<td>World</td>
<td>11,099</td>
<td>100%</td>
</tr>
</tbody>
</table>

Sources: BP(2008)

- **Energy imports of NEA**
  - **Oil:** Japan(2), China (3), Korea(4)
  - **Natural Gas:** Japan (2), Korea (9)
  - **Coal:** Japan(1), Korea (2), China (6)

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Outlook for Asia-Pacific LNG Demand

China Crude Production and Net Oil Import Requirement


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Korea at a Glance (2007)

- Energy Import (2007)
  - Import Dependency: 96.7%
  - ME Dependency of Crude Oil: 80.7%
  - Energy Imports: $95.0 billion
    - Crude oil imports: $60.3 billion
    - LNG imports: $12.7 billion
    - Coal imports: $6.4 billion
    - Uranium imports: $0.5 billion
  - Energy Import/Total Import: 26.6%

Korea’s energy imports from Russia (2006)

<table>
<thead>
<tr>
<th></th>
<th>Crude Oil (million bbl)</th>
<th>Coal (million ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>14.0</td>
<td>5.03</td>
</tr>
<tr>
<td>Share</td>
<td>1.6%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>
Primary Energy Demand by Fuel: Korea

2007
236 mil. toe

- Renewable & Other: 11.5%
- Coal: 15.7%
- Nuclear: 27.8%
- LNG: 12.0%
- Petroleum: 33.0%

2030
300 mil. toe

- Renewable & Other: 2.5%
- Coal: 25.2%
- Nuclear: 13.0%
- LNG: 14.7%
- Petroleum: 44.6%

Source: KEEI(2008)
11. Cooperation Opportunity in Northeast Asia
Main Necessities of NEA Energy Cooperation

- Improve Energy Security
  - Diversification of energy resources and import sources
  - Emergency preparedness: less vulnerable to external shocks

- Energy efficiency and environment protection
  - Maximize the efficiency of energy supply and use
  - Minimize the environmental impacts and satisfy investment-friendly environment

- Reduction of political tension and enhancement of regional stability
  - Improve the situation by doing business, energy projects firstly
Main Necessities of NEA Energy Cooperation

- Expand scale of energy industry
  - Effective development of resources throughout technology transfer
  - Create and specialize business activity in energy projects

- To establish new oil & gas market
  - Secure a stable oil and gas demand
  - Exploit and export oil/gas resources from East Siberia and the Far East
  - Spill-over effects and expanded energy markets

- To build up energy infrastructure
  - Set-up energy distribution and infrastructure system in Siberia and the Far East
Issues for Energy Cooperation in NEA

- **Project cooperation**
  - Development of energy resource & establishment of cross-border transportation network
    - Oil and oil pipeline (ESPO)
    - Natural gas and pipeline (UGSS)
    - Coal and coal transportation infra
    - Power grid interconnection

- **Policy cooperation**
  - Establishment of bilateral & multilateral energy cooperation bases
    - Reducing investment barriers
    - Cross-border energy transportation network

- **Collective action for climate change**

- **Political conflicts**
  - Territorial disputes
  - Energy poverty problem in DPRK: Nuclear problem
Potential Energy Cooperation Projects

- **Resource and transportation route development projects**
  - Construction of expanded crude oil pipeline in East Siberia
  - Development of natural gas field in Russian Far East and China: Irkutsk, Yakutiya, Sakhalin
    - Construction of cross-border pipeline networks: <Russia - China - Korea> and <Russia - DPR Korea - Korea>
  - Cross-border power interconnection grids with hydro power in Russia

- **Down-stream cooperation projects**
  - Joint strategic oil stockpiling
  - Sharing refinery/upgrading facilities
## Cooperation Opportunity

### Russia

- **High reserves for oil and gas to develop for exports**
  - Oil, Natural Gas, Coal and Hydro

- **High economic growth**
  - Needs for improvement of social & economic infrastructures
  - Diversification of industry from energy: Petrochemicals, Ship building,
  - Other SOC’s: New city, telecom, road, pipelines

- **Diversification of energy export markets**
  - Growing energy demand in the Asia-Pacific region

### Korea

- **Need for overseas oil and gas development**
  - Energy Diversification/ Security

- **Experiences for down-stream industry**
  - Refinery & Petrochemicals

- **Hi-tech & SOC industry know-how**
  - Advanced technology application

- **Well-established government/business partnership for international relations**
  - Policy supports for overseas development
Korea’s Need to Cooperate with Russia

- Energy Security
  - Diversification of energy sources
    - from nuclear & coal: Siting + Environment issues for a small country
  - Import source diversification from the Middle East
    - Is Russia more reliable and attractive supplier?

- LNG Demand & Supply Gap
  - Tightened international LNG market ⇒ Russia can be an option for gas import source for Korea in future.

Korea-Russia Energy Projects

- Oil & Natural Gas Projects
  - West Kamchatka Offshore Oil Development Project
  - LNG of 1.5 million tonnes from Sakhalin-II from 2009

- Power Interconnection

- Coal Development & Trade
How to Match the Dreams: To Realized before 2015

- **<Sakhalin–III> + <Sakhalin–I> + <Chayanda> through pipelines**
  - Subject to <Khabarovsk – Vladivostok> pipeline construction before 2012 & North Korean involvement
  - In 2015-17, supply to South Korea through North Korea

- **<Sakalin–III> + <Sakhalin–II> for LNG**
  - Most likely scenario for the short-term interest, not long-term

- **<Chayanda> + <Kovykta> through pipelines**
  - Maximizing the economics and export markets
    - Timing of construction of LNG export terminal in Vladivostok
  - In the long term, larger scaled project included for LNG export project even to the US West Coast
  \[\Rightarrow\] Similar to the Shtokman Project for Asia
Gas Pipeline Network in Northeast Asia
III. Korea’s Energy Cooperation Strategy
Economic Environment Change

- Contamination of financial crisis from US and resulted world economic depression
  - Reduced demand for goods including energy
  - Collapse of oil prices and other energy prices
  - Collapse of raw materials prices
  - Collapse of values of energy enterprises in NEA in stock markets

- Implication for energy cooperation
  - Mixed effects on energy development and transportation projects
    - Reduced demand + collapse of energy prices = reduced economics
    - Collapse of raw materials prices = reduced construction costs
  - Mixed effects on international participation
    - Collapse of enterprises’ stock value in host countries = joint invest
    - Reduced demand + collapse of energy prices = less attractive
  - Time to get together to face it
Political Environment Change

- **DPR Korea issue**
  - US removing DPRK from list of State Sponsors of Terrorism
  - Better chance for resolution of DPRK nuclear issue within 6-Party Talks framework

- **Presidential election in US**
  - The election of Barack Obama may have some influence on Korean Peninsula tension and NEA energy cooperation, in turn
  - New President is pro-DPRK?

- **Implication for energy cooperation**
  - DPRK may get access to international communities and financial organization
  - Increased chance for DPRK joining NEA energy cooperation
Basic Framework of Korean Approach

- **Main Principles of Korean Approach**
  - Development of free and fair trade
  - Investment promotion/protection and environmental protection
  - Addressing special needs and collaboration in emergencies

- **Voluntary and Non-binding Participation**
  - Induce all six NEA countries’ participation
  - Develop incentive mechanism for all NEA countries

- **Open Regionalism to Non-NEA**
  - Induce interests from US, EU, Energy Organizations
  - Cope with international rules and regulation
Cooperation for Energy Supply Security

- Two-Level approach
  - Korean government pursues bilateral & multilateral cooperation simultaneously by case

- Bilateral cooperation
  - Project level cooperation
  - Summit & Energy and Mineral Resources Cooperation Committee

- Multilateral cooperation
  - Cross-border transportation network, investment environment
  - 6-Party Talks, 5-Countries Energy Ministerial Meeting, APEC, ASEAN+3, IEA, GTI, and so on

- Promotion of consumer and producer energy cooperation mechanism
  - SOC/UNESCAP
Example for Bilateral Cooperation

- **Korea-Russia Summit in Sep. 2008**
  - Russian PNG to Korea passing through DPR Korea: 7.5 MT/y (‘15~’17)
    - Joint feasibility study (‘08~’10)
    - Signing natural gas supply contract b/w KOGAS & Gazprom (‘10)
  - Joint construction and operation of gas/petrochemical industrial complex in Russian Far East
    - Joint establishment of model for LNG liquefaction plants and petrochemical industrial complex construction and operation
  - Mega-scale Korea-Russia economic cooperation projects
    - Total scale of projects: more than USD100billion

- **Implication**
  - Encouraging DPRK participation + mitigation of Korean Peninsula tension
  - Stimulating other energy development projects in Russia
  - Better energy security in Europe and Asia-Pacific region
Example of Multilateral Cooperation

- Establishment of Inter-governmental Collaborative Mechanism (ICM) on Energy Cooperation in Northeast Asia
  - Membership: DPR Korea, Mongolia, the Republic of Korea, and the Russian Federation (4 countries), China (observer)
  - Created in November, 2005 at the first session of the Senior Officials Committee (SOC)
  - Working Group Activity (Working Group for Energy Planning and Policy – WG-EPP)
    - Members’ Country Report for Energy Policy and Statistics (‘06), Energy Demand Forecasts (‘07), Energy Production Potentials (‘08)

- Issues
  - China’s and Japan’s participation
  - DPR Korea’s nuclear weapon program (6 Party Talks)

- Future plan
  - To upgrade to the Energy Ministerial Meeting in NEA
  - To expand activities of WG-EPP or create more working groups
Korea’s Approach to Energy Cooperation with Russia

- **Energy Partnership**
  - Korea will provide Russia with stable energy demand market
  - Russia needs to guarantee the long-term stable supply of oil and natural gas to Korea

- **Enhancing Direct Bilateral Cooperation with Russia**
  - Inter-governmental as well as industrial levels

- **Energy projects to be linked with other economic/industrial development projects in Russia**
  - Vladivostok development plan, etc
  - Promotion of technology and capital investment cooperation

- **Cooperation of the Regional Energy Common Market with Other Countries in Northeast Asia**
  - Regional market for natural gas/electricity with Russia and China

⇒ Cooperation can provide a win-win opportunity for both countries, Russia and Korea
Thank you very much