



*Prospect of Korean
Natural Gas Market*

Tokyo, 27 October 2009

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◆ Key features of Korean Natural Gas Market

◆ Issues on Government Policies

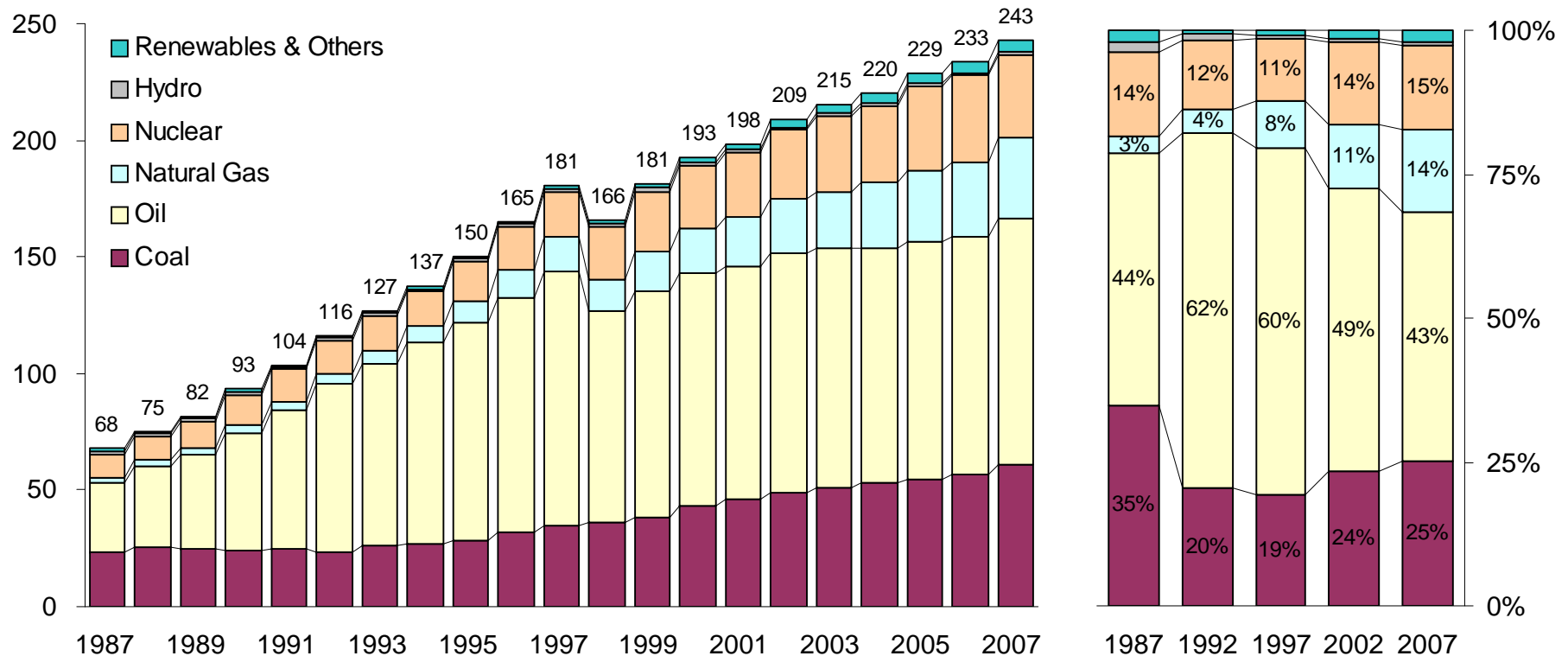
◆ Outlook for Natural Gas D/S

Total Primary Energy Supply

IEEJ: November 2009

- Natural gas imported from 1986 aiming at diversifying energy source and improving air quality
- AAGR('87-'07) : TPES 6.6%, Coal 4.8%, Oil 6.5%, Natural Gas 15.0%, Nuclear 6.7%

Million TOE

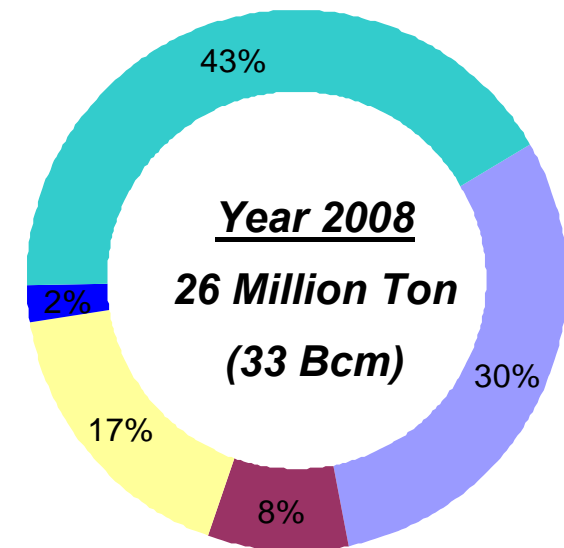
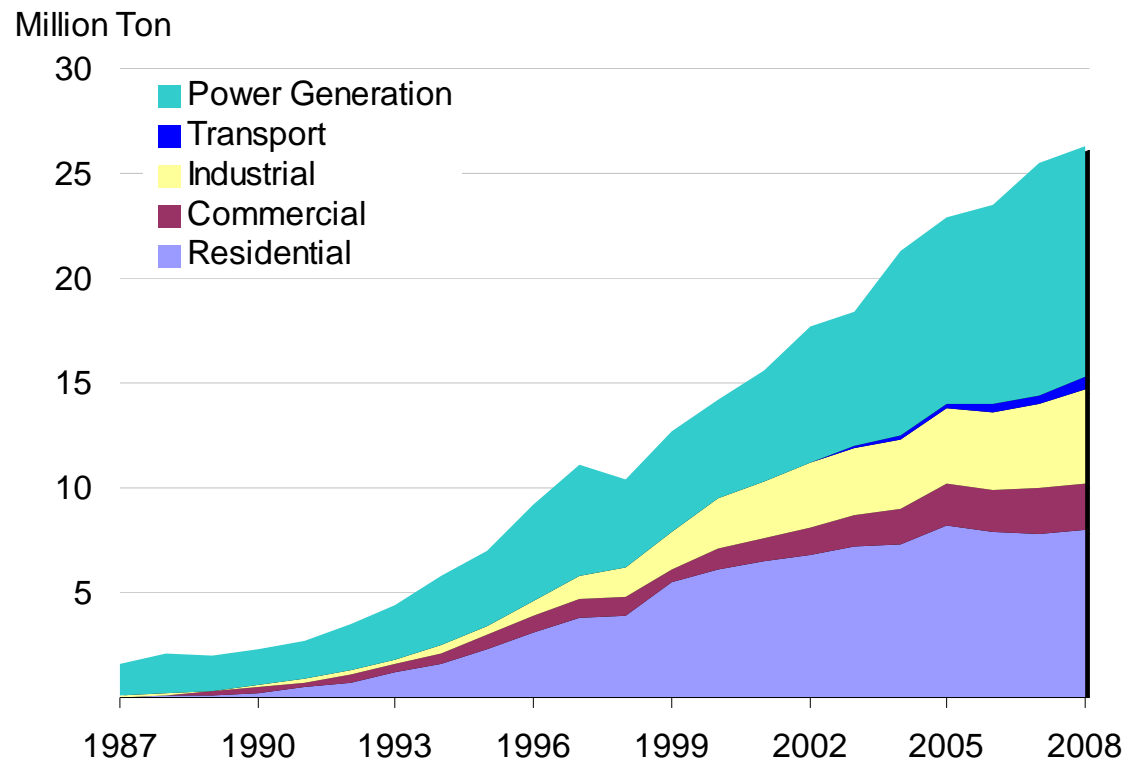


Source : KEEI

Natural Gas Consumption

IEEJ: November 2009

- Demand for power generation continued to grow while demand for residential use slowed down
- AAGR('98-'08→'03-'08) : City Gas 9%→5%, Power Generation 10%→11%



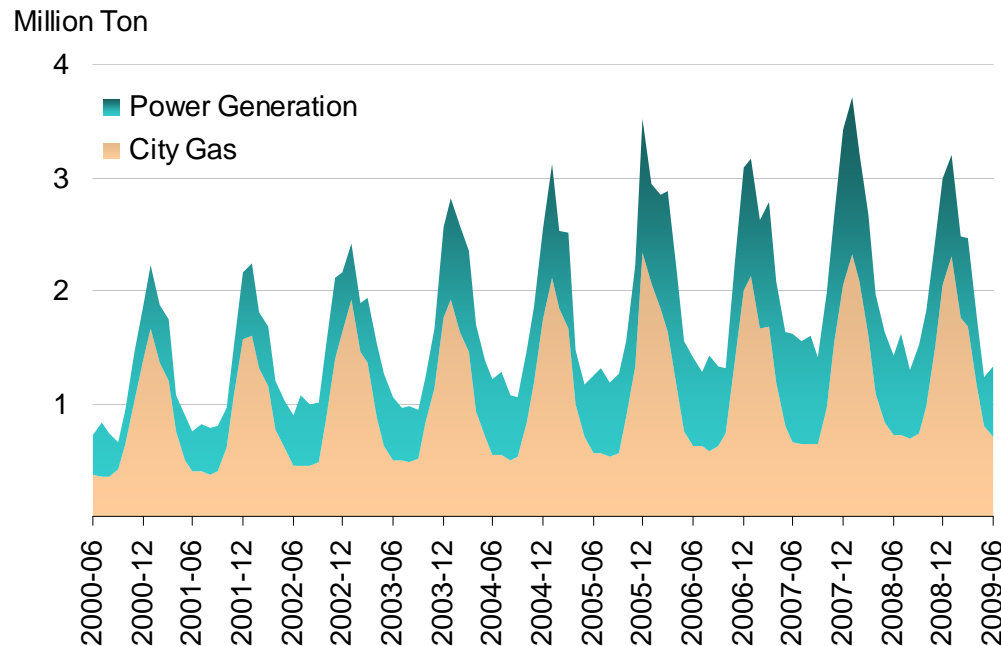
Source : KOGAS

Natural Gas Demand Pattern

IEEJ: November 2009

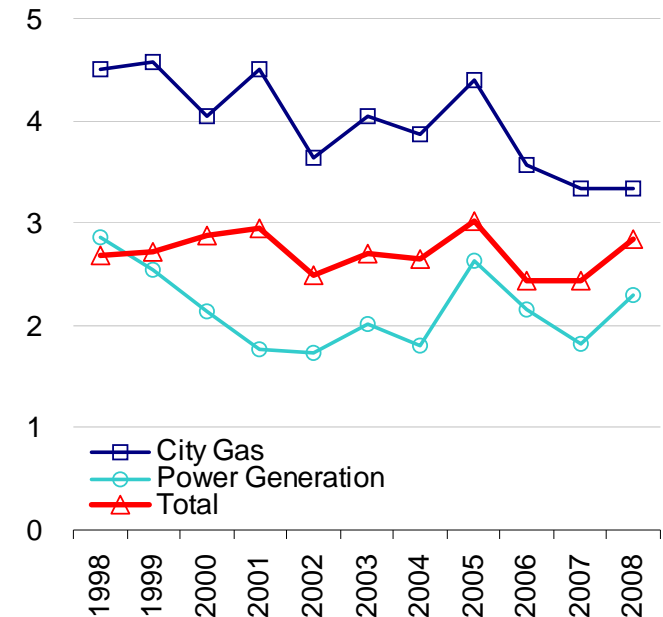
- On top of insufficient storage capacity, seasonality of gas demand threatens stable gas supply
- Relatively high monthly TDR requires large investments in further storage capacity expansion

Monthly Natural Gas Consumption



Source : KEEI

Monthly TDR*



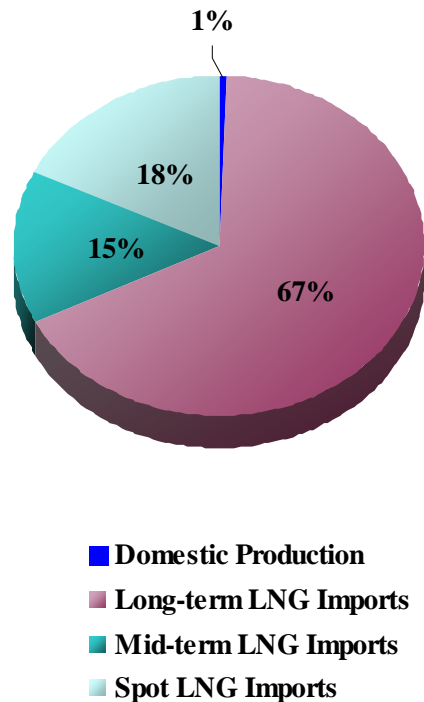
*TDR(Turn Down Ratio)
= Max Monthly Consumption ÷ Min Monthly Consumption

Natural Gas Supply

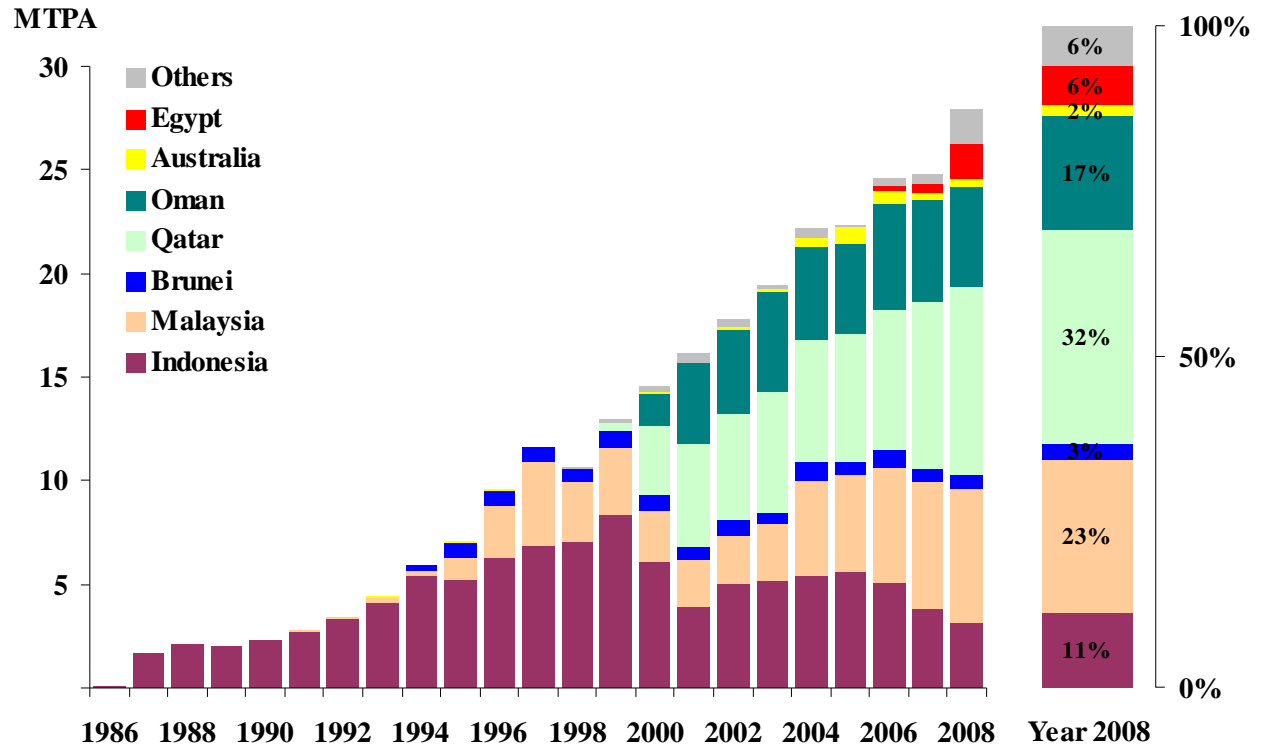
IEEJ: November 2009

- Korea relies heavily on mid-term and long term LNG imports for its natural gas supply
- Korea has been diversifying its LNG import sources for the better security of natural gas supply

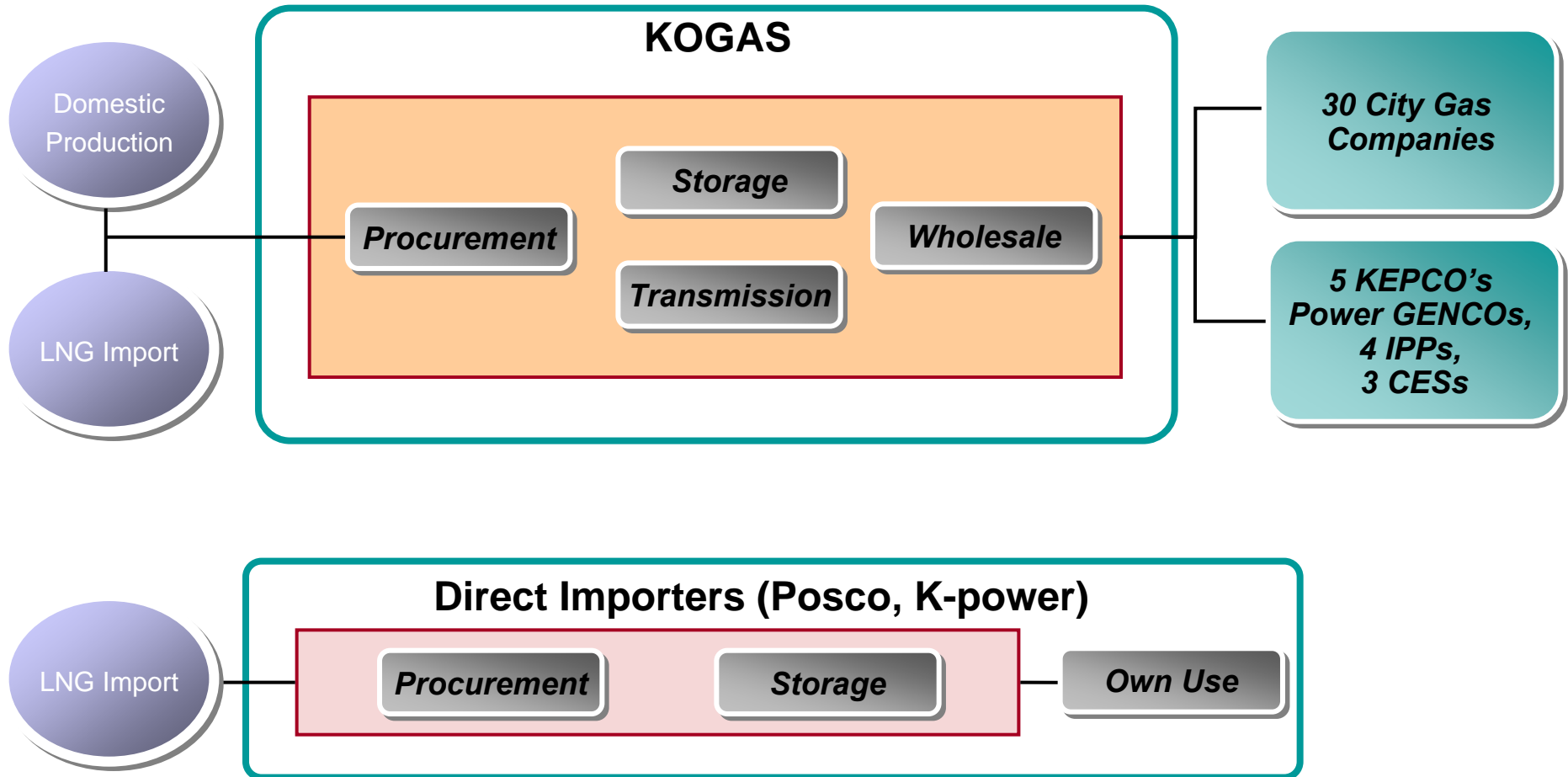
Natural Gas Supply in 2008



LNG Imports by Country



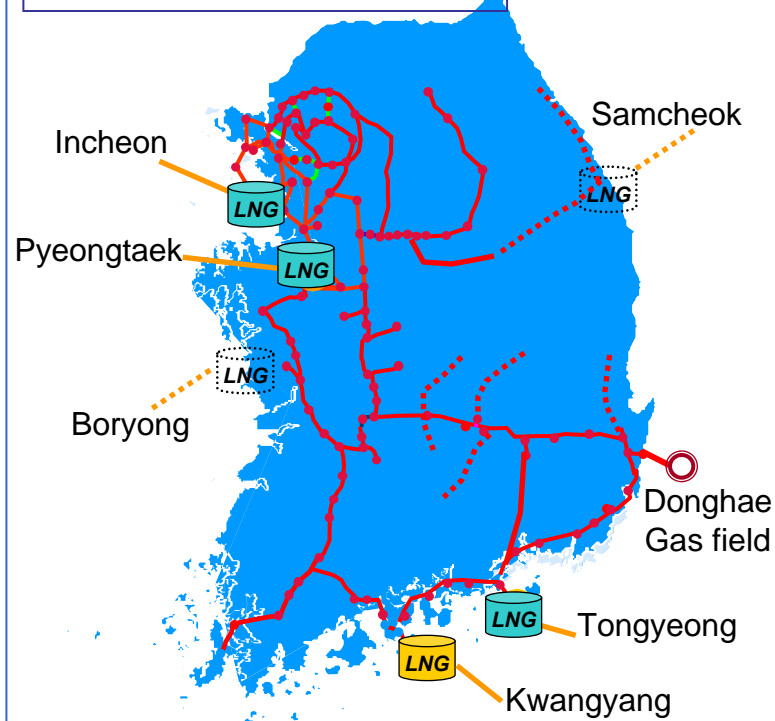
Source : KOGAS



National Pipeline Network

Trunk line : 2,739 km
Distribution line : 221,947 km

As of June 2009



LNG Terminals

As of Dec. 2008

	Operator	Start-up	Storage Capacity (1,000 m ³ , #)	Send-out Capacity (billion m ³ /yr)
Incheon	KOGAS	Oct. 1996	2,680(19)	42.24
Pyeongtaek	KOGAS	Nov. 1986	1,560(14)	38.81
Tongyeong	KOGAS	Sep. 2002	1,680(12)	18.66
Kwangyang	POSCO	Jul. 2005	200(2)	2.30

- *New government established aggressive energy policy targets for “low carbon green growth”*
- *Such policies have a significant implication on future natural gas market if they are realized*

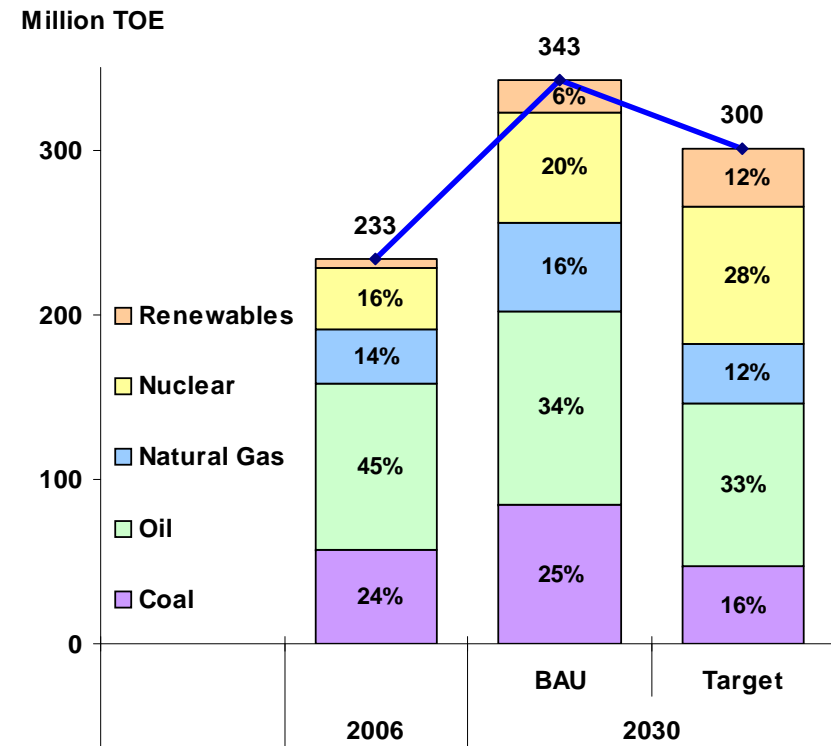
1st National Energy Basic Plan

Low Carbon Green Growth

- **Realize low carbon & energy consumption**
 - **Energy Intensity (TOE/\$1,000 of GDP)**
(’06) 0.347 → (’30) 0.185
- **Reduce dependence on fossil fuels**
 - **Fossil fuel share in TPES(%)**
(’06) 81.6 → (’30) 61.0
- **Foster green energy industries**
 - **Investment of 111.5 trillion Won**
- **Enhance energy self-sufficiency and welfare**
 - **Oil & gas self-sufficiency* (%)**
(’06) 3.2 → (’30) 40.0

* Total equity volume of oil & gas production secured by Korean companies
÷ Annual import volume

National Energy Mix : BAU vs Target



Source : 1st National Energy Basic Plan, 2008

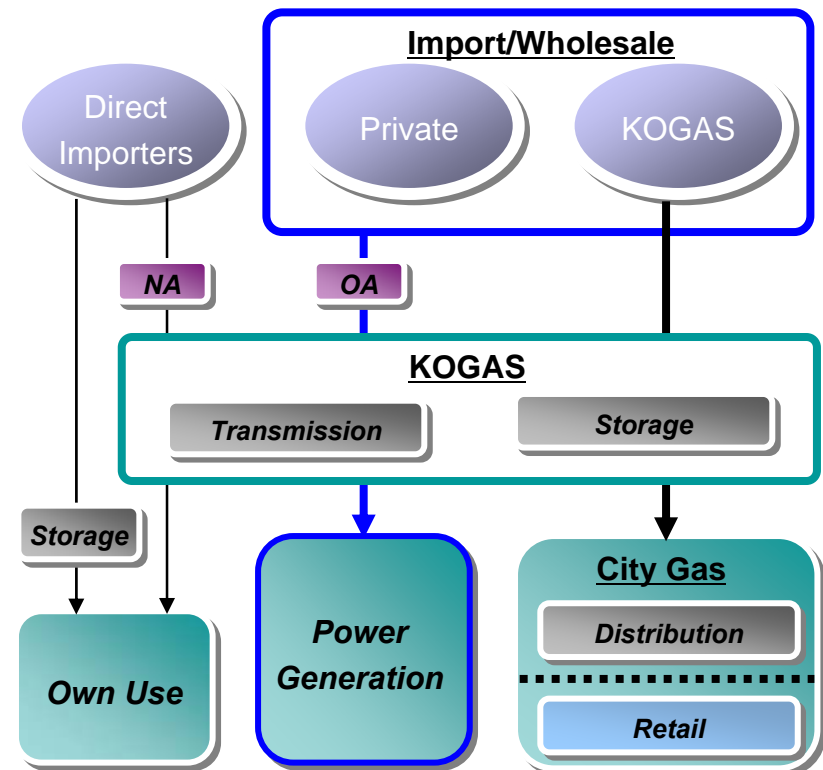
- *Natural gas policy has traditionally focused on ensuring the stable supply for economic growth*
- *The long-delayed gas competition legislation is now awaiting the National Assembly's vote*

Natural Gas Policy

Stable & Efficient Gas Supply

- **Stable gas supply**
 - Diversify supply sources; ex) Russian PNG
 - Expand further gas infrastructure
 - Enhance gas self-sufficiency
 - Promote city gas supply to remote areas
 - Support low-income class
- **Efficient gas market**
 - Phase-in competition; 1st Import/Wholesale for Power Generation
 - Create open access system to supply facilities
 - Facilitate direct imports for their own use
 - Rationalize gas tariff system
 - Establish fair competition regulatory system

1st Phase Promotion of Competition

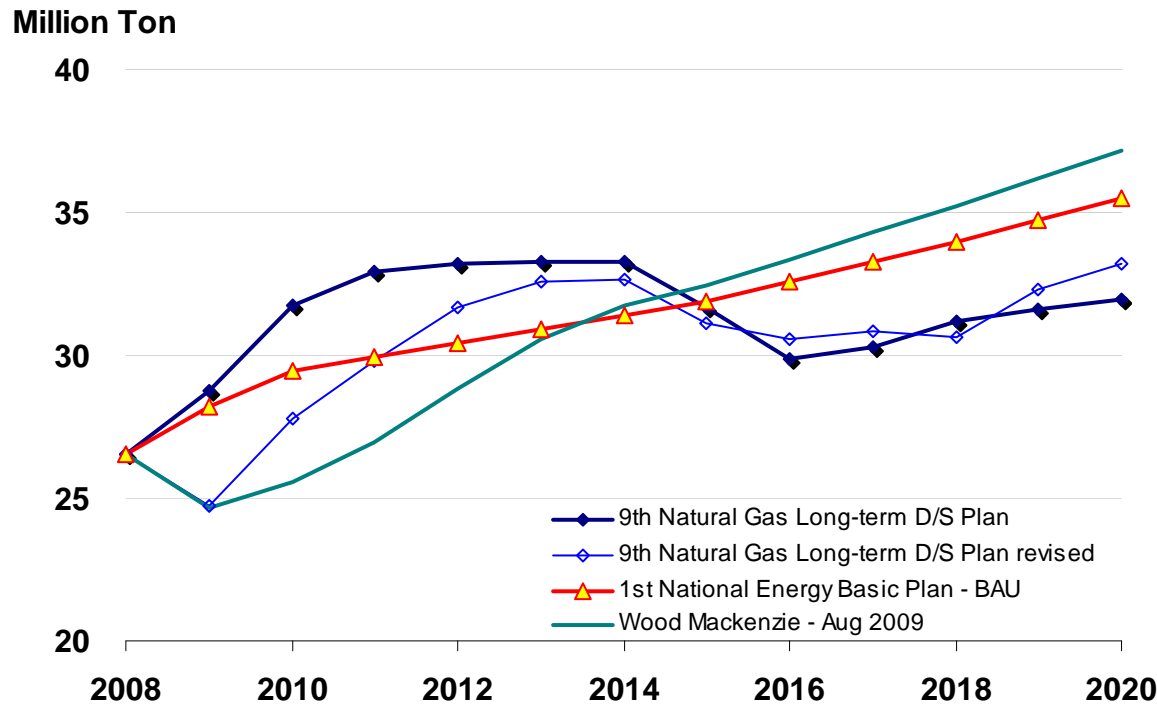


Natural Gas Demand Forecast

IEEJ: November 2009

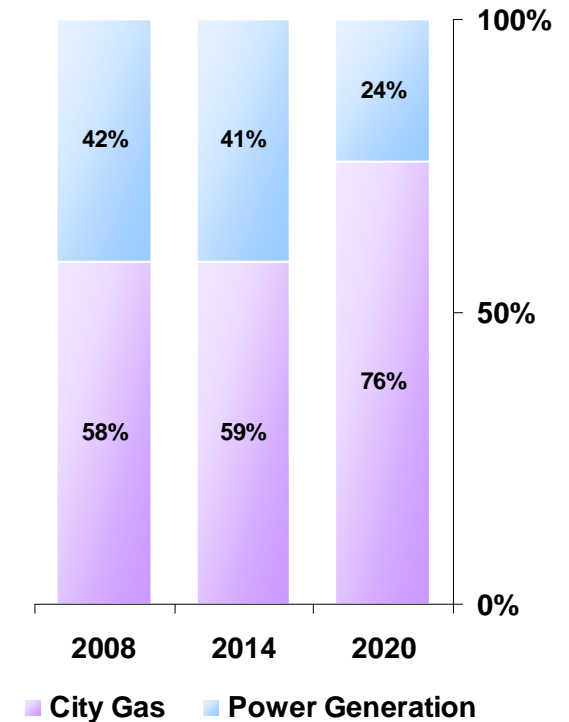
- Demand forecasts vary due to economic recession, uncertain demand for power generation
- Demand for power generation is expected to slow down and to account for 24% in total by 2020

Comparison of Natural Gas Demand



Source : KEEI, KOGAS, Wood Mackenzie

Natural Gas Demand by Use



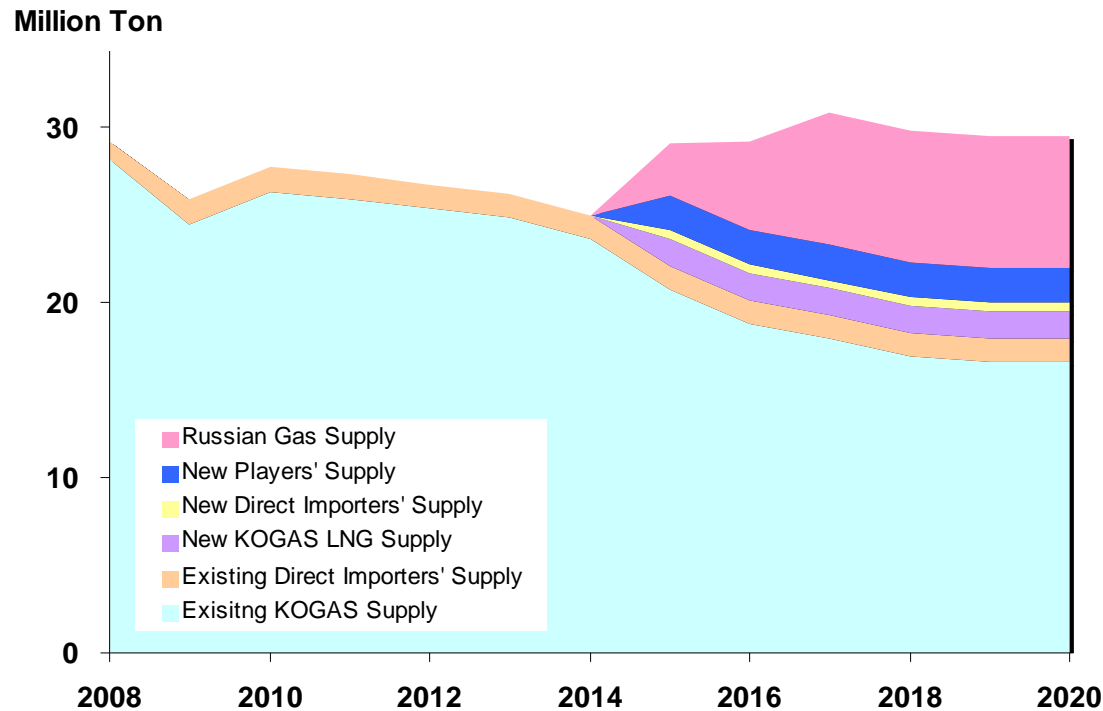
Source : 9th Natural Gas Long-term D/S Plan, 2008

Natural Gas Supply Plan

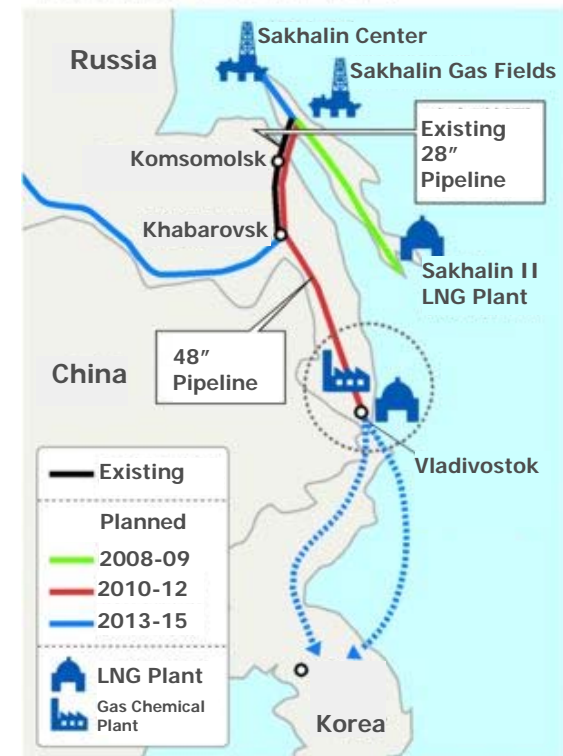
IEEJ: November 2009

- **Korea is striving to secure LNG as well as PNG in the long run for stable & self-sufficient supply**
- **KOGAS is in talks with Gazprom to buy Russian gas in various forms including PNG, LNG, CNG**

Natural Gas Supply Outlook



Russian Gas Supply

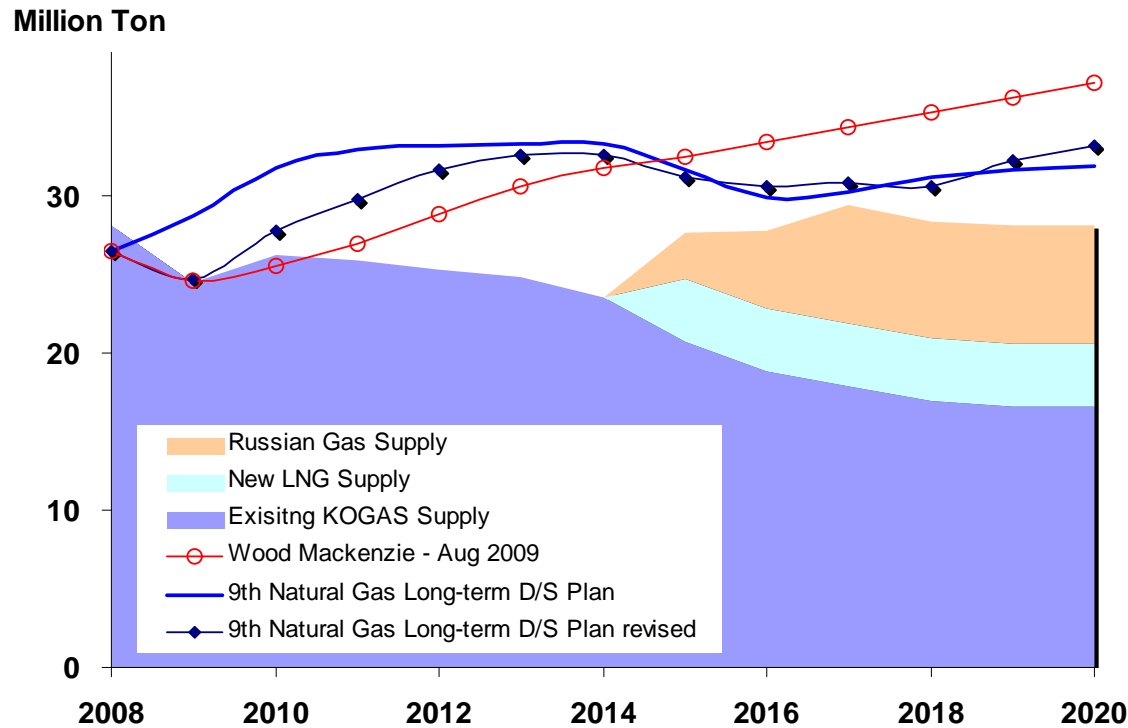


Outlook for Natural Gas D/S Balance

IEEJ: November 2009

- Korea is expected to face supply shortage during 2012-14 despite the uncertainty of gas demand
- It seems to be relatively easy to deal with it thanks to the unprecedented global LNG oversupply

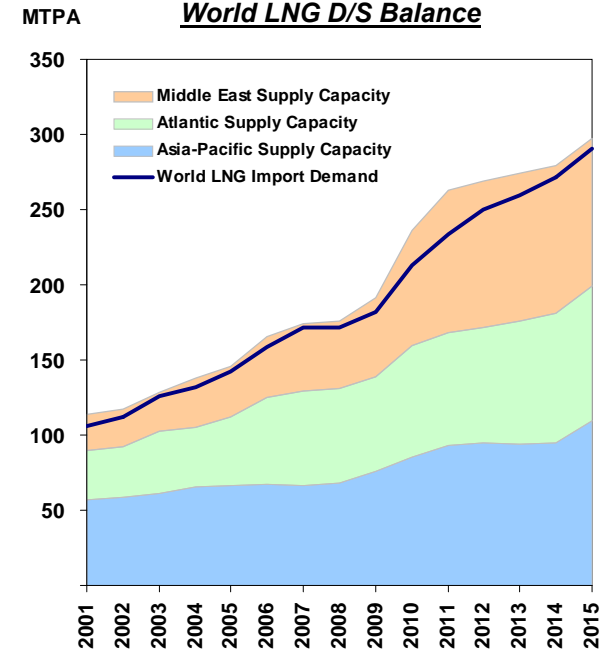
Natural Gas Demand Supply Balance



Mid-term Supply Measures

- Short or Mid-term LNG contracts
- LNG Spot & Diversion
- Stockpiling

World LNG D/S Balance



Source : Wood Mackenzie, August, 2009

● **Natural Gas, the fast-growing energy over the past two decades**

- *Contributed to energy security and environmental improvement*
- *Mostly imported in the form of LNG from diverse overseas sources*

● **New challenges to natural gas market;**

- *New aggressive energy policy targets for “low carbon green growth”*
- *Introduction of competition starting with import/wholesale for power generation sector*

● **Outlook for natural gas market**

- *Uncertain demand caused by economic recession & demand for power generation*
- *New strategic effort to secure stable & self-sufficient supply in the long run*
- *Gas supply shortage in the mid-term, but could be relatively easily coped with*

Thank You!!!

Q & A



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