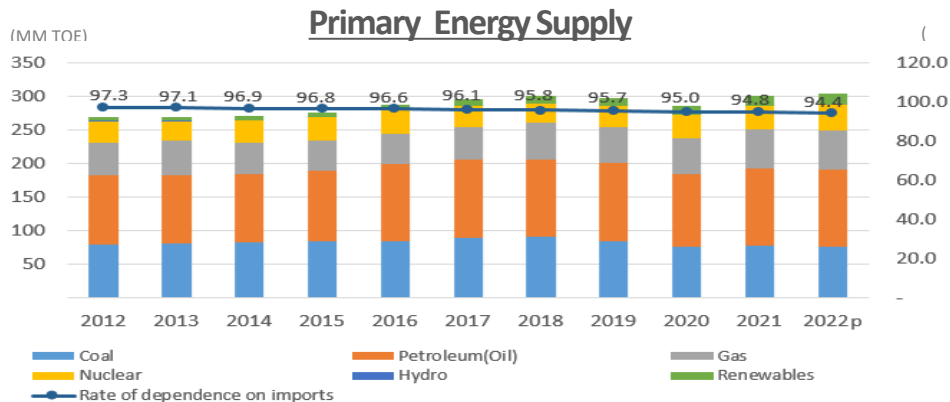


Update of KOREA'S OIL AND GAS SECURITY

**Tae Heon Kim, Senior Research Fellow
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Oil & Gas Supply-Demand Situation

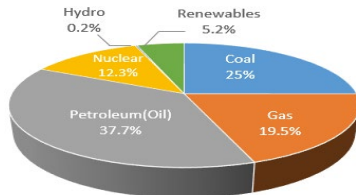
1. Supply and Demand of Oil & Gas



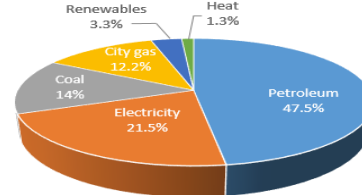
- Primary energy supply has increased annually by **1.2%** over the past decade
- Share of LNG** has increased from **18.4%** to **19.5%**, while **share of oil** has decreased from **38.2%** to **37.7%** in primary energy supply
- Import dependency** has decreased to **94.4%** in 2022 compared to that of 2012 (97.3%) due to the increase in renewable energy supply

- In 2022, **Oil and LNG** are dominant sectors consisting **57%** of the total primary supply (**304 MM TOE**)
- Oil and City Gas** are also dominant sectors covering **60%** of total final energy demand (**214 MM TOE**)

Shares of Primary Energy Supply (2022)



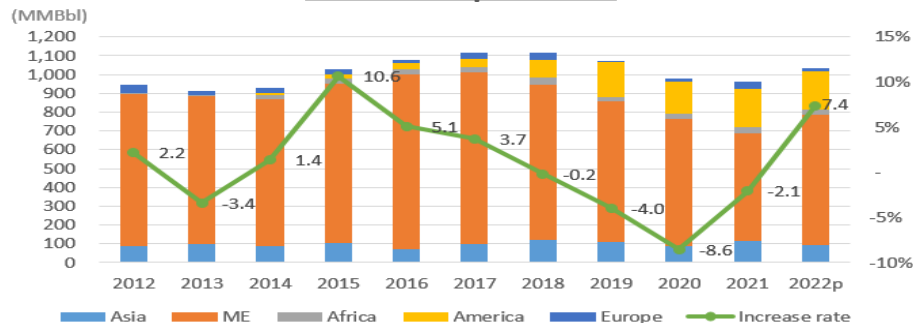
Shares of Final Energy Consumption (2022)



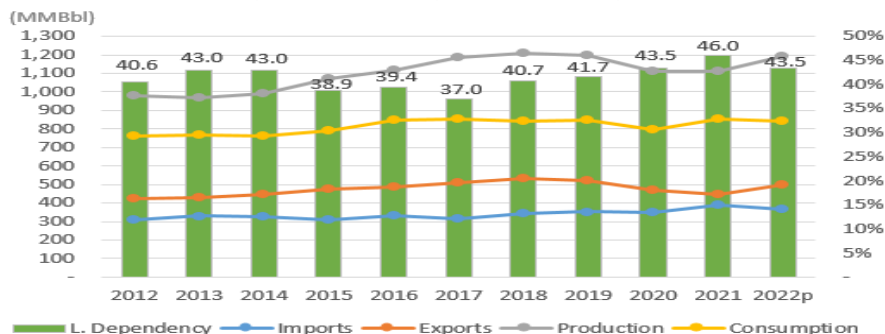
Oil & Gas Supply-Demand Situation

2. Imports & Exports of Crude Oil and Oil Products

Crude oil import trend



Oil products export and import trend



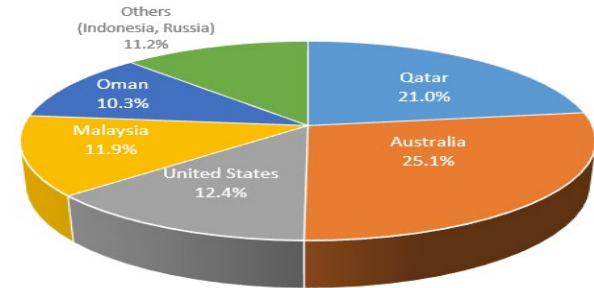
- Crude oil import has increased annually by **0.9%** over the last 10 years
- Share of imports from the ME decreased to about 67% in 2022, while the share from the U.S. increased substantially reaching around 20%
- Korea does **not** export **any crude oil**
- Import dependency of crude oil is 100%
- Production of oil products has increased annually by **2.0%** over the last 10 years
- Oil product exports have grown annually by **1.6%**, and imports have increased by **1.7%** in the past decade.
- Exports surpass imports as domestic production of oil products exceeds consumption

3. Natural Gas Supply & Demand Situation

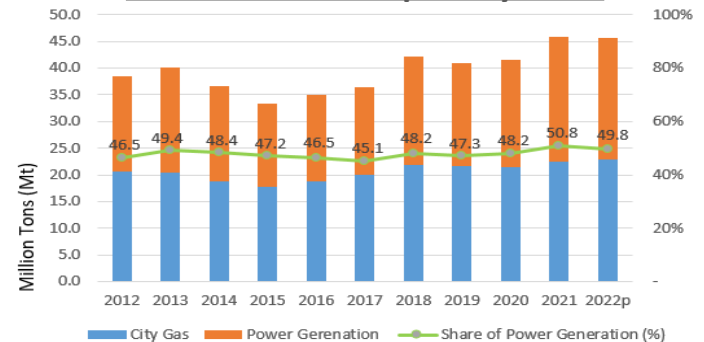
- In 2022, natural gas(LNG) imports was at **46.4 million tons** from 19 countries
- **Australia** is the largest supplier to Korea (25% share), supplying over 11.6 million tons in 2022
- **Qatar** was the largest supplier until 2021, but its share declined as the imports from Australia and the U.S. increased
- Since 2018, LNG imports from the U.S. have surged substantially

- Natural Gas demand has increased annually by **1.7%** over the last 10 years
- **City gas** demand is relatively stable, but demand for **power generation** fluctuates depending on the power generation mix
- **Gas demand** from 2023 to 2036 is expected to increase by **1.4%** annually (MOTIE's 15th Long-term Natural Gas Supply and Demand Plan, 2023)

LNG Imports by Source in 2022

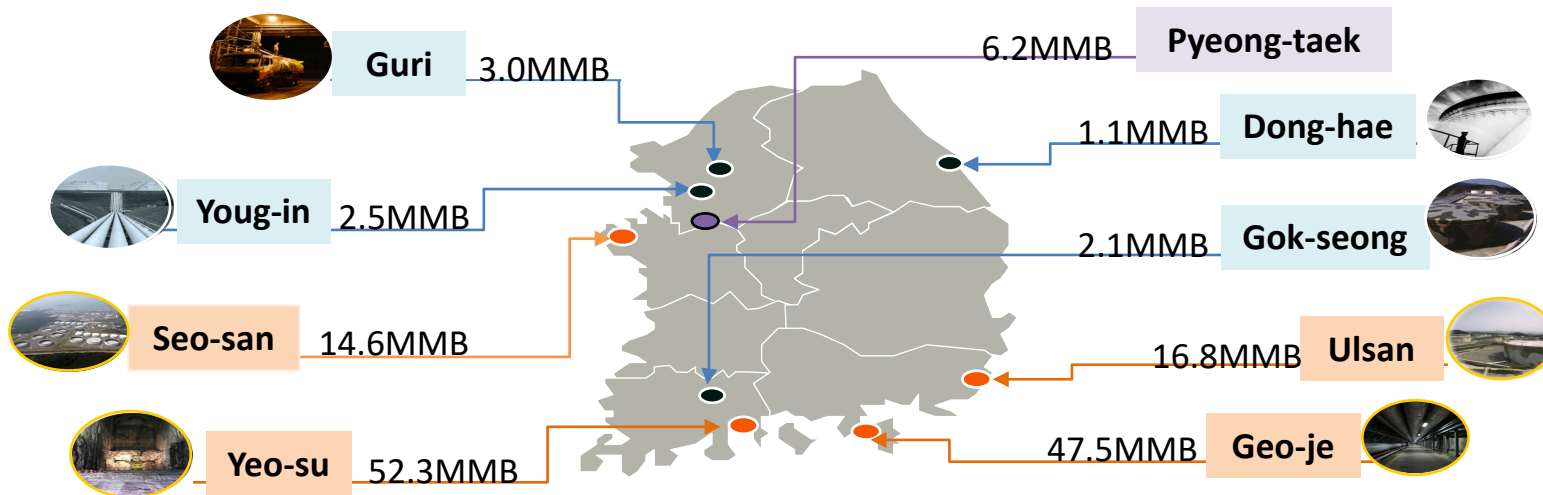


Natural Gas Consumption by Sector



4. Emergency Oil and Oil Stockpiling Facilities

- Oil Stockpiling Facilities



- Oil Stocks

(as of Nov. 2023)

Category	Government	Private	Total
Stock days (standard of IEA)	121	108	229

5. Natural Gas Infrastructures (1)

7 LNG Regasification Terminals in Operation

- KOGAS, a state-owned company, operates **5 LNG regasification terminals** (in Pyeongtaek, Incheon, Tongyeong, Samcheok, and Jeju) with a **total storage capacity of 12.16 million kl**
- POSCO owns a terminal in Gwangyang (0.73 million kl)
- A joint venture between GS Energy and SK E&S operates the terminal in Boryeong (1.20 million kl)

New Terminals and Capacity Expansion in Progress

- KOGAS is constructing a new LNG terminal (Dangjin) with a capacity of **2.7 million kl**.
- Private companies are constructing two terminals (Ulsan, Yeosu) with a total capacity of **1.7 million kl**.
- The Gwangyang and Boryeong terminals are to be expanded by 0.6 million kl and 0.2 million kl, respectively

LNG Regasification Terminals and Gas Pipelines



Source: IEA(2023)

5. Natural Gas Infrastructures (2)

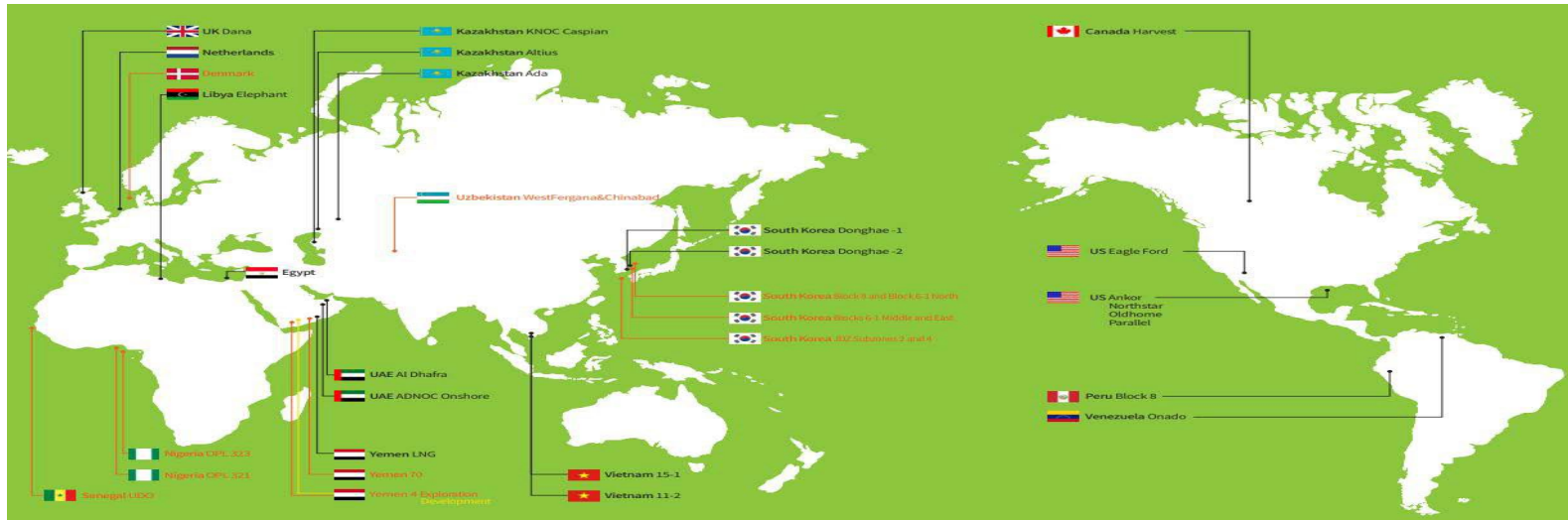
● Natural Gas Transmission Network owned by KOGAS

- Regulated Third Party Access(TPA) rule is applied for the transmission Network (a total length of 5,105 km).

No. of LNG Terminals/Jetties	Storage Capacity (Million kl)	Gasification facility (t/h)	Pipeline length (km)
7 / 11	1,409 kl	17,460 ton/h	5,105 km (Main) 50,191 km (LDC)

6. Overseas Exploration & Production (E&P)

- Developing overseas exploration and production (E&P) projects is one of the policy measures to enhance energy security of Korea with a long-term perspective
- KNOC is engaging in 32 oil projects across 16 countries, producing around **135,000 b/d**, with reserves of 950 million boe (as of October 2023).



7. National Resource Security Law (Feb. 2024)

- Form 'Resource Security Council' and draw up 'Resource Security Master Plan'
- Setting up an 'Early Warning System' for Resource Security
- Request submission of data to resource supply and demand agencies

Key Policy Measures

Normal Times

- Diversification of import sources
- Expansion of Emergency Stockpiling
- Assess National Resource Security Situation
- Expansion of domestic & overseas production base
- Support for recycling and development of alternative materials
- Designate Essential Supply and Demand Entities to effectively respond to crisis

Emergency

- Resource security crisis warning issued
- Forming Emergency Headquarter
- Issue of supply & demand stabilization measures
- Order to import overseas-developed resources
- Import levy reduction/waiver
- Release of reserve resources

Thank you for your attention