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° Issue Brief

Korea's LNG Expansion Paradox:

Declining Demand, Growing Infrastructure

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Declining Demand, Growing Infrastructure

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Solutions for Our Climate (SFOC) is an independent policy research and advocacy group that aims to make emissions trajectories across Asia compatible with the Paris Agreement 1.5°C warming target.

Executive summary

The Korea Gas Corporation (KOGAS) currently operates five LNG terminals across Korea (Pyeongtaek, Incheon, Samcheok, Tongyeong, and Jeju) and is pursuing further expansion of LNG infrastructure on the grounds of energy security. One such project is the Dangjin LNG Terminal, which has been justified by the need to ensure stable gas supply to the nearby Seoul metropolitan area.

However, analysis shows that the average utilization rate of KOGAS LNG terminals are significantly low at approximately 27% over the last two years (2024–2025). Even during the high winter season, utilization rates at the two terminals serving the Seoul metropolitan region (Pyeongtaek and Incheon) averaged only 41% and 32%, respectively. Underutilization of KOGAS LNG terminals is also evident during peak transmission hours, with data showing 17% to 44% of capacity left unused during these times in 2024. These findings illustrate the need to assess Korea's LNG infrastructure needs using long-term utilization patterns rather than just looking at short-term peak-demand metrics.

Regarding storage, Korea's existing LNG terminals already exceed the government's energy security objectives. Current KOGAS storage capacity can provide approximately 55 days of gas supply based on 2025 annual transmission volumes; and 38 days of supply based on 2025 winter transmission volumes. Both figures are much higher than Korea's legal LNG stockpiling requirement of nine days.

Meanwhile Korea's 16th Long-Term Natural Gas Supply and Demand Plan projects domestic gas demand to decline by approximately 11.3% from 2026 to 2038. In this context, the inefficiencies of Korea's LNG terminals are likely to deteriorate further. As a result, even the already low utilization rate of 26% assumed in the preliminary feasibility assessment for the Dangjin LNG Terminal may prove difficult to achieve, increasing the risk that the project will fail to recover its $2.3 billion USD (₩3.4 trillion KRW) investment over its operating lifetime.

The Dangjin LNG Terminal is not an isolated case but a symptom of broader structural issues. Despite low utilization rates and excessive storage capacity, the expansion of LNG infrastructure across Korea continues, and assumptions of continued Korean gas demand remains an important justification for LNG development both domestically and internationally.

This raises questions not only for Korea's infrastructure planning, but also for the global LNG industry. Lower-than-expected Korean demand could challenge investment decisions across the LNG value chain, increasing stranded asset risks for exporters, project developers, financiers, and import infrastructure well beyond Korea. Therefore, it is important for exporters to distinguish the expansion of LNG import infrastructure in Korea in the short term from the anticipated demand decline in the medium to long term.

Importantly, the additional energy security benefits provided by the Dangjin LNG Terminal are limited, and the project has diverted financial resources away from renewable energy deployment and expansion which could have made more meaningful contributions toward both energy security and climate objectives.

On the basis of these findings, this issue brief proposes three policy recommendations:

① **Align Korea's LNG infrastructure planning with projected demand and energy transition policies**
② **Avoid overbuilding across the LNG value chain.**
③ **Prioritise energy security investments that reduce import dependence.**

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1. Background

Price volatility and supply uncertainty driven by the recent US-Iran war has highlighted the structural vulnerabilities of the LNG market. These consequences have spurred many countries, especially those heavily dependent on energy imports, to accelerate their transition towards renewable energy and decrease their use of gas in the long-term. Despite these trends in Korea, the Korea Gas Corporation (KOGAS) is continuing to expand LNG import infrastructure, fueling a wider debate on whether such infrastructure is necessary to improve energy security.

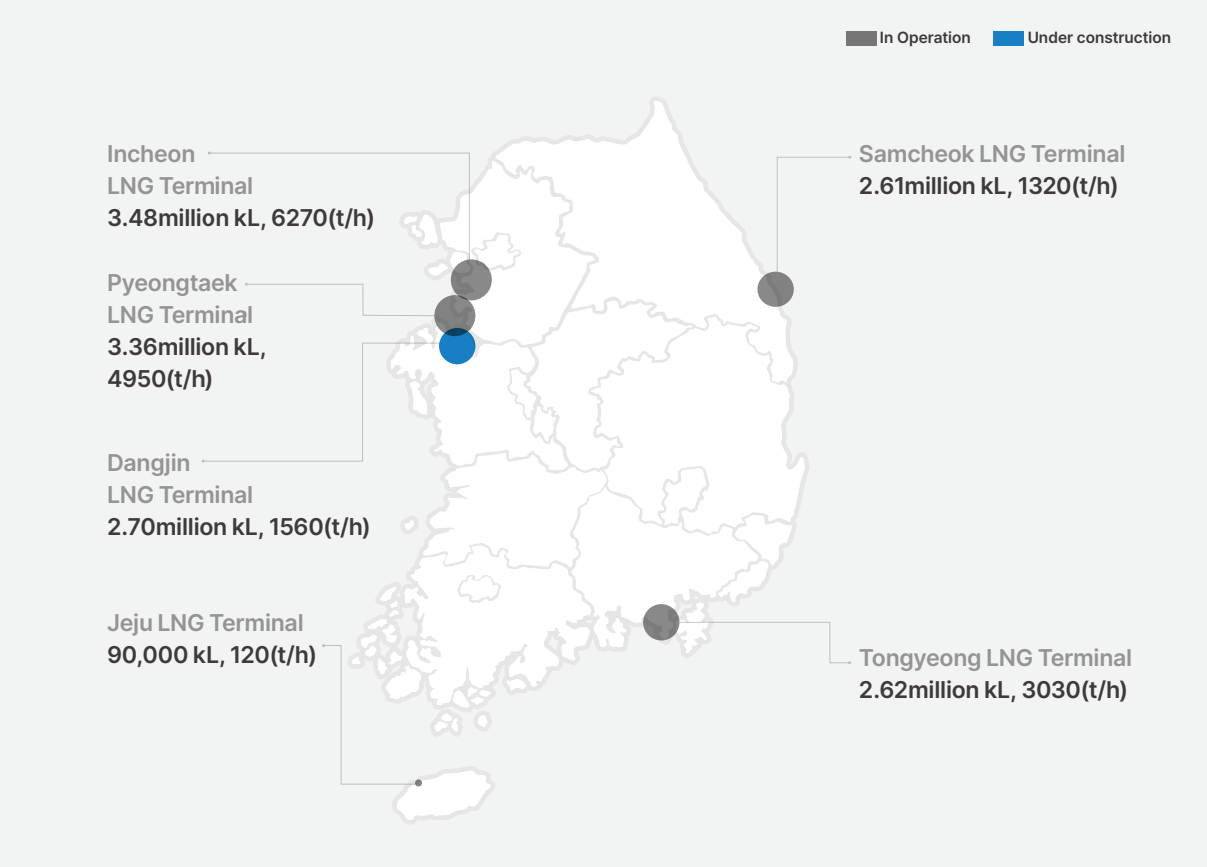
LNG terminals are complex facilities responsible for the import, storage, and supply of gas. Sometimes referred to as LNG import terminals, they receive imported LNG from overseas, unload it, store it in cryogenic tanks at around -162°C, regasify it through dedicated facilities, and then supply the gas to pipeline networks and power plants.

KOGAS is Korea's state-owned gas utility and one of the world's largest LNG buyers, making it a significant player in global LNG markets and LNG investments. It is responsible for importing and storing LNG, operating LNG terminals, and supplying gas around the country. KOGAS imports roughly 80% of all LNG imported into Korea and has driven the expansion of LNG infrastructure.[1] KOGAS operates five LNG terminals nationwide, with a total of 77 LNG storage tanks; 12.16 million kiloliters of storage capacity; and 15,690 tons per hour of regasification capacity ([Figure 1]).[2]

KOGAS is currently constructing an additional 6th LNG terminal, in Dangjin in the South Chungcheong Province. The Dangjin LNG Terminal project is by far the largest LNG terminal project currently either planned or under construction in Korea, and once completed it will add just over 22% more storage capacity to KOGAS' LNG terminal portfolio. The significant scale of this project is further illustrated by its $2.3 billion USD (₩3.4 trillion KRW) project budget, with construction expected to take more than 10 years, followed by around 40 years in operation.[3]

1 SFOC (2025). Bridge to Nowhere: The Doomed Fate of Korea's LNG Terminals. Page 8. | https://forourclimate.org/research/605.
2 KOGAS (2026). Natural Gas Business Production Status. | https://www.kogas.or.kr/site/eng/10306030100000.
3 SFOC (2025). Bridge to Nowhere: The Doomed Fate of Korea's LNG Terminals. Page 8. | https://forourclimate.org/research/605.

[Figure 1] Location, Storage Size and Regasification Capacity of KOGAS' LNG Terminals[4]



What are utilization rates and storage capacity?

Given LNG terminals are significant capital-intensive infrastructure assets, it is important to ensure they operate efficiently and align with government policy objectives. Two key indicators to assess this are terminal utilization rates and storage capacity. The utilization rate refers to the proportion of a terminal's regasification capacity that is actually used to convert LNG into gas and sent out to users and is therefore an important indicator for understanding the profitability of the LNG terminal. Storage capacity refers to the volume of imported LNG that can be stored in LNG tanks at the terminal and is a key metric for evaluating energy security.

4 KOGAS (2026). Natural Gas Business Production Status. | https://www.kogas.or.kr/site/eng/1030603010000.

LNG terminal utilization rates

While utilization rates broadly measure the proportion of LNG that is regasified for final use, they can be calculated using a variety of methodologies which result in different results.[5] This issue brief adopts the most common approach used internationally: taking actual gas transmission volumes (regasification output) divided by the terminal's maximum regasification capacity.[6]

In practice, LNG terminals are not expected to operate at 100% utilization and are intentionally designed with a spare capacity buffer.[7] This reflects two realities. Firstly, the loss that inevitably occurs technically from the handling and processing of LNG. Secondly LNG supply contracts often include provisions allowing cargo diversion or cancellation, meaning contracted volumes may not ultimately arrive and terminals must maintain flexibility.[8]

Storage capacity

Storage capacity refers to the amount of LNG held in terminal storage tanks. Despite being the infrastructure characteristic most directly connected to energy security, storage capacity is often overlooked in assessments which instead focus primarily on regasification utilization rates. While regasification capacity determines how much gas can be delivered at a given moment, storage capacity determines how long a terminal can continue supplying gas without receiving additional LNG cargoes.

Therefore, evaluating storage capacity against realistic demand and supply disruption scenarios is essential for determining whether existing infrastructure is sufficient for achieving energy security objectives and whether additional storage expansion is genuinely necessary. If current storage capacity already provides sufficient buffering against import disruptions, the rationale for further infrastructure expansion becomes significantly weaker. Excessive capacity could also divert public resources away from more pressing priorities. Accordingly,

5 This is because the various functions (physical design, commercial structure, regulatory environment) performed by LNG terminals impact how the utilization rate is calculated. For example, terminal utilization can be determined based on storage capacity, which represents the level of LNG reserves to achieve energy security policy goals. It can also be defined on the basis of delivery volume and contract capacity, which reflects the quantity of LNG that can be unloaded at the terminal. These various methodologies exist because LNG terminals perform complex functions, and different information can be obtained about the terminal's design and operation performance depending on the measurement method. The International Gas Union (IGU) calculates utilization by dividing the amount of LNG imported by the total regasification capacity. Using this method, the average LNG terminal utilization rate in Asia in 2024 was 44% and that in Korea was 33%. If this calculation method is applied to the LNG terminals of the Korea Gas Corporation, the total utilization rate in 2025 is estimated to be 25%.

6 ACER (2025). Analysis of the European LNG market developments | https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER-LNG-Monitoring-Report-2025.pdf; IEEFA (2023). South Korea's LNG overbuild | https://ieefa.org/resources/south-koreas-lng-overbuild; DET. Terminal Utilization. | https://energy-terminal.de/en/capacity-marketing/terminal_auslastung.

7 Jian Shen (2020). Maximum filling capacity of LNG storage tank | https://www.jianshentank.com/case/lng-storage-tank-filling-capacity.html.

8 Timera Energy (2021). Breaking down US LNG contract value | https://timera-energy.com/blog/breaking-down-us-lng-contract-value/.

assessing the adequacy of existing storage capacity is not merely a technical exercise but a fundamental prerequisite for infrastructure planning.

Declining demand and Korea's role in global LNG markets

As the third largest LNG importer in the world, Korea plays an important role in global LNG markets. KOGAS is both a major LNG buyer and operator of LNG infrastructure, meaning expectations regarding future Korean demand can influence investment decisions far beyond Korea's borders. LNG export projects, liquefaction facilities, and upstream gas developments are often developed on the assumption that major importers such as Korea will continue to require substantial LNG volumes for decades to come.

However, Korean gas demand is not expected to sustain long-term growth. While forecasts differ on the timing and pace of Korea's future gas demand decline, the long-term outlook across government and industry projections points in the same direction. According to the 16th Long-Term Natural Gas Supply and Demand Plan, domestic natural gas demand is expected to fall around 11.3% from 46 million tonnes in 2026 to 41 million tonnes by 2038.[9] Similar decline has been projected also for gas use in Korea's power sector. Under the 11th Basic Plan for Electricity Supply and Demand, total electricity demand is set to increase 189.1 TWh by 2038, but gas-fired generation is projected to decline by 16.2%, while renewable energy generation is expected to increase by more than 20.8%.[10]

Projections cited by KOGAS from Wood Mackenzie further support this outlook, forecasting Korean natural gas demand to decline after 2031.[11] In other words, even under a more gas-favourable industry outlook, Korean demand is expected to enter long-term decline, raising questions about the need for additional LNG infrastructure designed to operate for several decades.

While this report focuses on the Dangjin LNG Terminal and KOGAS's LNG terminals in Korea, its findings have broader implications. The evidence presented suggests Korea's gas market is entering a period characterized by declining demand and substantial spare infrastructure capacity. As governments, investors, and project developers make long-term decisions regarding LNG, Korea's experience raises important questions about demand uncertainty, infrastructure planning, and the risk of overinvestment across the global LNG value chain.

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9 Ministry of Trade, Industry and Resource (2026). 16th Long-term Natural Gas Supply and Demand Plan (2026~2038).

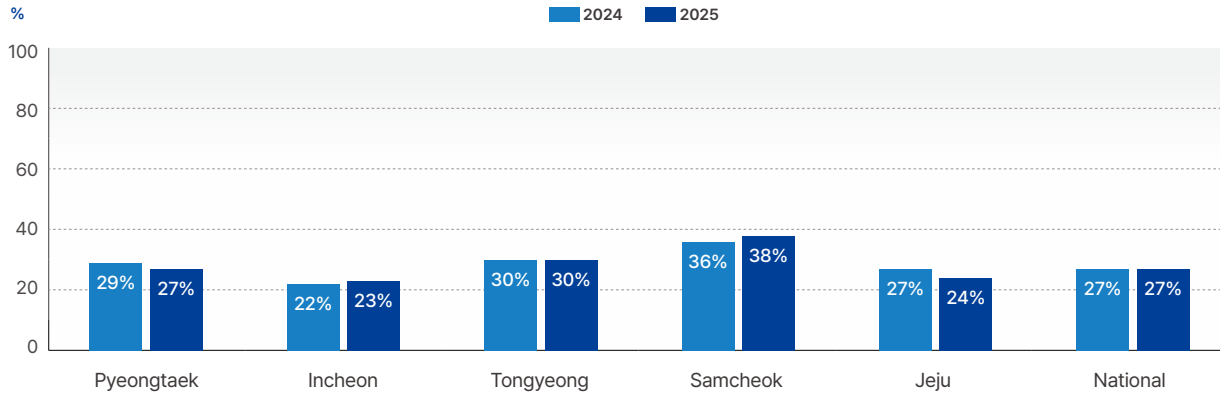
10 Ministry of Trade, Industry and Resource (2025). 11th Basic Plan for Electricity Supply and Demand (2024~2038). Page 51.

11 KOGAS Research Institute (2024). Analysis of Long-Term Natural Gas Demand and LNG Infrastructure Utilization in Korea. ; KRW/USD Bank of Korea exchange rate of 1466.6 used as of 27/07/26 (https://snapshot.bok.or.kr/dashboard/B1).

2. Analysis of KOGAS LNG Terminal Utilization Rates

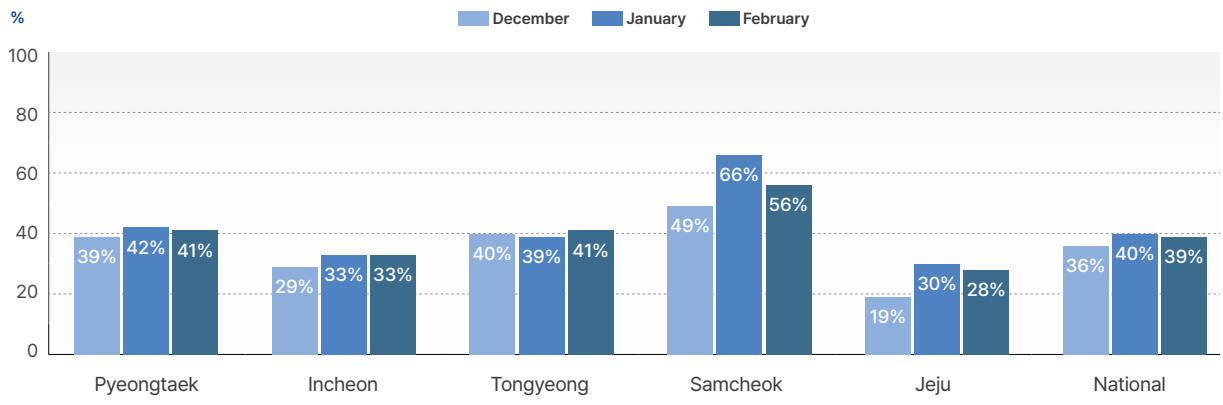
Analysis of KOGAS-operated LNG terminals reveals persistently low utilization rates and substantial unused capacity. Over the last two years (2024–2025), the nationwide average utilization rate remained around 27% ([Figure 2]).

[Figure 2] Yearly Average Utilization Rates of KOGAS LNG Terminals across 2024-25[12]



Even during winter (December–February) when gas demand was highest, the nationwide monthly average utilization rate was only 40%. This highlights the structurally low utilization of KOGAS terminals. With the exception of Samcheok, all individual terminals remained below 42% utilization even during peak demand periods ([Figure 3]).

[Figure 3] 2025 Winter Utilization Rates of KOGAS LNG Terminals[13]



12 Data submitted by KOGAS in response to the data request from the offices of Rep. Seo Wang-jin and Rep. Kim Won-i.
13 Data submitted by KOGAS in response to the data request from Rep. Seo Wang-jin's office.

According to KOGAS's hourly peak transmission volumes in 2024, terminal utilization ranged from 56% to 83% ([Table 1]). However, these figures represent only the single highest hour of operation during the year and therefore provide limited insight into overall productivity. Even during January, the month with the highest gas demand, average utilization across KOGAS LNG terminals remained only around 40% nationwide. This suggests that peak-hour statistics capture exceptional operating conditions rather than typical utilization patterns.

[Table 1] 2024 KOGAS LNG Terminal Peak Hourly Transmission Rates[14]

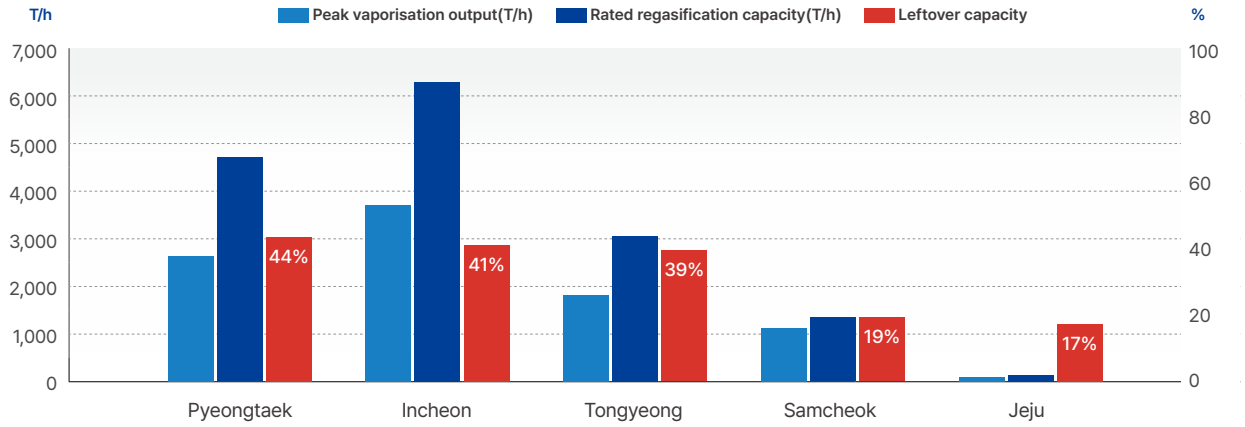
Unit: Tonne/hour

Category		Pyeongtaek	Incheon	Tongyeong	Samcheok	Jeju
Regasification capacity	Rated capacity	4,680	6,270	3,030	1,320	100
	Sea water temperature adjusted capacity	3,426	5,337	3,030	1,320	100
Peak transmission output		2,634	3,710	1,836	1,072	83
Time of peak transmission output		22/1/24 14h00	231/24 11h00	21/3/24 12h00	9/12/24 12h00	16/2/24 22h00
Utilization rate based on rated capacity		56%	59%	61%	81%	83%
Utilization rate based on sea water temperature adjusted capacity		77%	70%	61%	81%	83%

While the Korean government emphasizes the need to maintain sufficient infrastructure to meet peak demand, relying primarily on peak-hour metrics risks overstating infrastructure requirements. Despite being used to justify additional LNG infrastructure, KOGAS LNG terminals still retained approximately 17% to 44% idle capacity during peak transmission periods in 2024 ([Figure 4]).

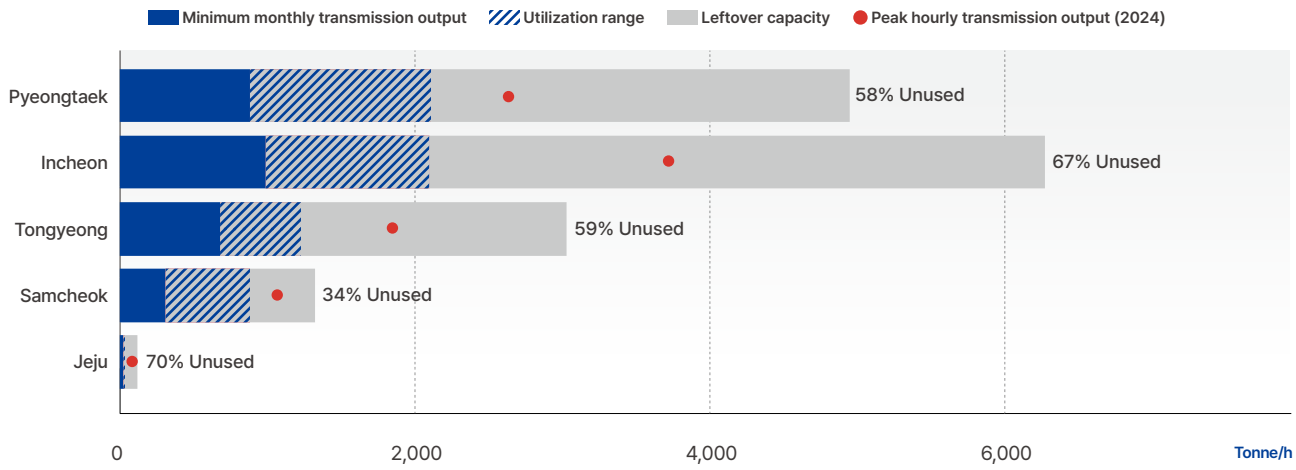
14 Data submitted by KOGAS in response to the data request from Rep. Seo Wang-jin's office.

[Figure 4] 2024 KOGAS LNG Terminal Peak Hourly Transmission Rates and Leftover Capacity[15]



Furthermore, comparison of hourly peak and monthly maximum transmission volumes shows that between 34% and 70% of terminal capacity remained unused during maximum monthly periods ([Figure 5]), with the largest volumes of spare capacity found at the metropolitan-area terminals in Pyeongtaek and Incheon.

[Figure 5] 2025 KOGAS LNG Terminal Average Utilization Rates and 2024 Peak Hourly Transmission[16]



These findings suggest that Korea's LNG system is designed to accommodate infrequent demand spikes that occur for only a limited number of hours each year, resulting in substantial infrastructure remaining underutilized, unproductive and economically inefficient for much of its operational life. This raises important questions about whether additional LNG

15 Data submitted by KOGAS in response to the data request from Rep. Seo Wang-jin's office.
16 Data submitted by KOGAS in response to the data request from Rep. Seo Wang-jin's office.

infrastructure can be justified on peak-demand grounds alone, and whether future planning should place greater weight on long-term utilization trends, existing spare capacity, and projected declines in gas demand. To address low utilization rates, KOGAS has introduced a shared-use service that leases a portion of terminal capacity to private-sector users. However, previous analyses suggest that privately leased capacity represents only 3–11% of total KOGAS capacity.[17] Therefore, the shared-use service is not a fundamental solution to the structural problem of low utilization.

The report argues that low utilization rates raise questions about the assumptions used in earlier feasibility studies. The economic assessment for the Dangjin LNG Terminal assumed a utilization rate of 26%, which is broadly similar to the current national average of 27%.[18] However, if gas demand declines by the projected 11.3% by 2038, actual utilization rates may fall below those assumptions. This suggests that demand and revenue forecasts for both the Dangjin LNG Terminal and other future LNG infrastructure investments should be fundamentally reassessed.

17 SFOC (2025). Bridge to Nowhere: The Doomed Fate of Korea's LNG Terminals. Page 8. | https://forourclimate.org/research/605.

18 Data submitted by KOGAS in response to the data request from Rep. Park Ji-hye's office. Detailed calculations can be found in the Appendix, Table 3.

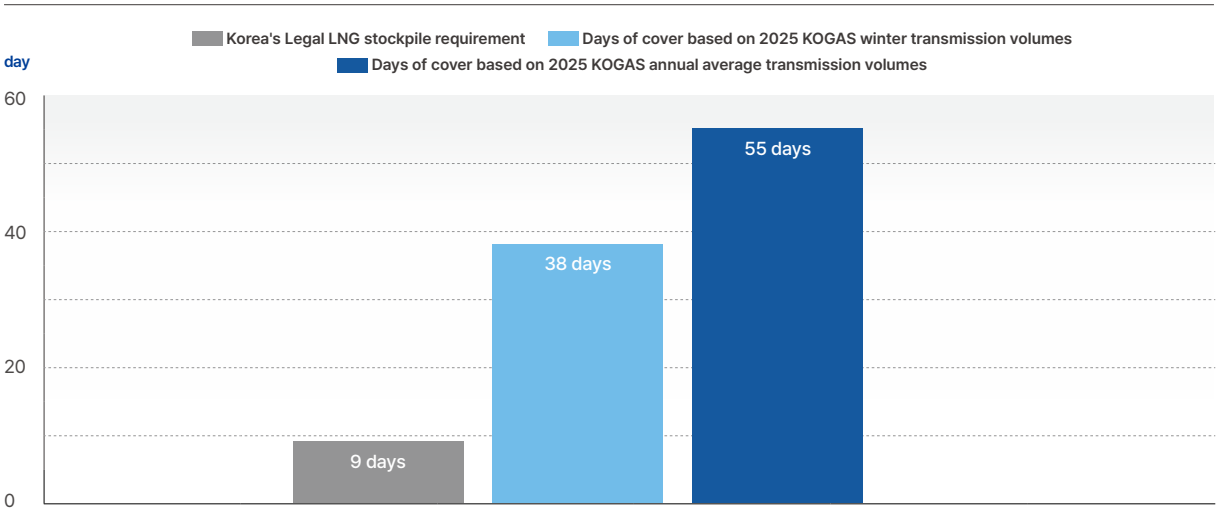
3. KOGAS LNG Terminal Storage Capacity and Energy Security

While low utilization rates raise questions about the economic efficiency of existing infrastructure, storage capacity raises a different question: does the current LNG system already fulfill the policy objective of energy security? Within the LNG industry, storage capacity is commonly evaluated using the concept of "days of cover", the number of days that gas supply can be maintained using existing stored LNG, even if no additional cargoes arrive. This is one of the most direct indicators of how resilient a country's gas system would be during a supply disruption.

The Korean government currently sets a legal LNG stockpiling requirement of 9 days based on winter volumes, but actual storage capacity substantially exceeds this target.[19] Based on KOGAS's 77 storage tanks and total storage volume of 12.16 million kl, existing terminals can provide approximately 38 days of supply based on 2025 winter transmission volumes; and 55 days of supply based on the 2025 annual average transmission volume.[20]

Both figures are far above the government's legal storage obligation of 9 days, suggesting that Korea has already well-achieved its energy security and storage objectives without the infrastructure.

[Figure 6] KOGAS LNG Terminal Max Storage Capacity[21]



19 Ministry of Trade, Industry and Resource (2021). Notification on natural gas storage obligation, Article 2 (Natural gas storage obligation). Ministry of Trade, Industry and Resource Notice No. 2021-148.

20 Detailed calculations can be found in the Appendix, Table 4.

21 Data submitted by KOGAS in response to the data request from Rep. Seo Wang-jin's office.

This apparent surplus in storage capacity raises fundamental questions about the rationale for the Dangjin LNG Terminal Phase 3 expansion project. The Phase 3 project would add three additional storage tanks, increasing storage capacity by approximately 810,000 kl.[22] If this capacity were added, Korea's LNG system would be capable of maintaining supply for more than 67 days, based on 2025 average daily transmission volumes of approximately 100,600 tonnes.[23] In practical terms, the project would add another 3–4 days of storage capacity to a system that already possesses considerable storage surplus.

Additional LNG storage capacity does not automatically translate into increased energy security. Storage tanks merely provide physical storage space - they do not guarantee access to LNG itself. The amount of LNG that can actually be secured depends on international market conditions, including prices and procurement competitiveness. During periods of supply shortages or high prices, greater storage tanks does not increase actual LNG availability if LNG cargoes cannot be obtained. Therefore, increasing storage capacity is not necessarily an effective solution to short-term energy security challenges

A common counterargument is that LNG can simply be purchased when prices are low and stored for future use. However, LNG is not well suited to long-term storage. It must be maintained at a very cold temperature of approximately –162°C, and even highly insulated tanks experience unavoidable heating, leading to gradual evaporation losses and ongoing operating costs. These limitations are particularly relevant in Korea, where LNG is stored almost exclusively in above-ground tanks. As a result, a strategy of "buying low and storing for emergencies" is considerably less practical than it may appear.

This is also one reason why LNG stockpiling policies differ fundamentally from oil stockpiling policies. While Korea maintains a legal oil stockpile equivalent to approximately 208 days, the LNG stockpiling requirement is only 9 days, reflecting LNG's technical and economic limitations as a long-term storage fuel.[24] Therefore expanding storage-tank capacity in order to increase "days of cover" does not represent a sustainable long-term strategy for strengthening Korea's energy security. Since existing storage capacity already exceeds government energy security targets, policymakers should focus not on whether more storage should be built, but rather on whether current facilities are being used effectively and whether additional LNG infrastructure remains justified in the context of declining gas demand. As Korea pursues its carbon neutrality objectives and seeks to reduce exposure to

22 Data submitted by KOGAS in response to the data request from Rep. Seo Wang-jin's office; Ministry of Trade, Industry and Resource (2023). 15th Long-term Natural Gas Supply and Demand Plan (2023~2036).

23 Data submitted by KOGAS in response to the data request from Rep. Seo Wang-jin's office. Detailed calculations can be found in the Appendix, Table 5.

24 Ministry of Trade, Industry and Resource (2023). 15th Long-term Natural Gas Supply and Demand Plan (2023~2036).

international fuel price volatility, investments in domestic renewable energy, energy storage, and electrification may provide more resilient and cost-effective energy security benefits than additional LNG storage infrastructure.

4. The Gap Between Domestic Trends and Global LNG Investment

The analysis presented throughout this issue brief points to a clear contradiction. On the one hand, Korea's existing LNG system already possesses substantial spare regasification capacity, storage capacity well above legal requirements, and long-term demand projections indicate declining gas consumption. On the other hand, LNG infrastructure expansion continues, and Korean demand remains an important justification for new LNG supply projects internationally.

The findings of this report therefore raise a broader question: are governments, project developers and investors accurately accounting for Korea's long-term demand outlook when assessing future LNG opportunities? According to the Korean government's 16th Long-Term Natural Gas Supply and Demand Plan, domestic gas demand is expected to decline by 11.3% from 2026 - 2038, and KOGAS's own research acknowledges that declining demand will result in lower utilization rates across its LNG terminals.[25]

More crucially, Korea's energy policy can be characterized by the ambition for the long-term transition away from unabated fossil fuels toward domestic renewable energy. Amidst growing volatility in the global energy market and supply uncertainty following the U.S.-Iran war, President Lee Jae-myung emphasized that "the energy situation is very serious" and that "we must transition rapidly to renewable energy." The government has also defined overall energy policy as a "point of great transition," officially recognizing the need to reorganize mid-to-long-term strategies.[26] Accordingly, the Ministry of Climate, Energy and Environment announced the "Plan for Promoting the Great Energy Transition of the People's Sovereign Government" in April 2026, setting the early achievement of 100 GW of renewable energy before 2030 and the expansion of heat pump deployment as core goals.[27]

More broadly, Korea's climate ambitions have strengthened significantly in recent years, with the government increasing its 2030 Nationally Determined Contribution (NDC) from a 26.3% reduction in greenhouse gas emissions relative to 2018 levels to a 40% reduction. Korea

25 Ministry of Trade, Industry and Resource (2026). 16th Long-term Natural Gas Supply and Demand Plan (2026~2038); KOGAS Research Institute (2024). Analysis of Long-Term Natural Gas Demand and LNG Infrastructure Utilization in Korea.

26 Yonhap Infomax (2026). President Lee: "Energy Issues So Serious They Keep Me from Sleeping... Rapid Transition to Renewable Energy"| https://news.einfomax.co.kr/news/articleView.html?idxno=4406671.

27 Republic of Korea Policy Briefing (2026). Government Innovates Energy System... Over 20% Share of Renewable Energy by 2030. | https://www.korea.kr/news/policyNewsView.do?newsId=148962165.

has also committed to achieving carbon neutrality by 2050 under the Framework Act on Carbon Neutrality and Green Growth. This policy context suggests that it is highly possible that future gas demand in Korea will decline even faster than currently forecasted. Future LNG infrastructure investments should therefore be assessed not only against historical consumption patterns, but also against the likelihood of a structurally smaller gas market in the decades ahead.

The risk of stranded LNG assets resulting from this is significant. Stranded assets refer to assets that have a lower asset value due to environmental changes or are unable to recover the return on investment costs. In particular, the Dangjin LNG Terminal is expected to be operational for around 40 years, until approximately 2070.[28] It is therefore expected that especially in the later years of operation, the demand for gas will be much lower in reality than what was assumed in the preliminary feasibility study for the new LNG terminal. As a result, the $2.3 billion USD (₩3.4 trillion KRW) capital invested in the Dangjin LNG Terminal project is at considerable risk of not being recovered within the terminal's operating period.[29]

These risks extend beyond Korea's domestic LNG infrastructure. International LNG export projects, liquefaction facilities and long-term supply arrangements may also face increasing commercial uncertainty as renewable energy and electrification reduce future demand for gas.[30] The stranded asset risk from Korea's declining demand and overbuilt LNG infrastructure is therefore not limited just to the Dangjin LNG Terminal. Infrastructure expansion based on demand assumptions that exceed actual future consumption can create financial risks across the LNG value chain. Put simply, if demand growth does not materialize in one of the world's largest LNG import markets, projects developed to serve that demand may face greater commercial risk than previously assumed.[31]

Moreover, because public investment resources are limited, the decision to commit such large sums to LNG infrastructure carries an important opportunity cost. Capital tied up in LNG infrastructure cannot be invested in renewable energy which could contribute more meaningfully to Korea's long-term energy security and climate goals. The Dangjin LNG Terminal is not an isolated case. The low utilization rates, storage capacity exceeding policy requirements, and demand projections that are not fully incorporated into investment decisions are structural features of KOGAS's broader LNG infrastructure strategy.

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28 SFOC (2025). Bridge to Nowhere: The Doomed Fate of Korea's LNG Terminals. Page 8. | https://forourclimate.org/research/605.

29 Data submitted by KOGAS in response to the data request from Rep. Park Ji-hye's office.; KRW/USD Bank of Korea exchange rate of 1466.6 used as of 27/07/26 (https://snapshot.bok.or.kr/dashboard/B1).

30 IEA (2025). Gas 2025. | https://www.iea.org/reports/gas-2025; Energy Institute (2026). Statistical Review of World Energy 2026. | https://www.energyinst.org/statistical-review.

31 Steven Haig and Nichole Dusyk, IISD (2025). Why Canadian LNG Is Not a Path to Global Energy Security or a Stronger Domestic Economy. | https://www.iisd.org/articles/deep-dive/canadian-lng-is-not-path-to-energy-security-stronger-domestic-economy.

The energy security benefits achievable through the construction of additional LNG terminals are limited. While LNG prices and supply conditions may stabilise temporarily, global LNG markets remain inherently exposed to geopolitical disruptions, extreme weather events, and other supply shocks that can trigger renewed volatility and energy security risks.[32] Under these circumstances, continuously expanding LNG infrastructure could result in further reinforcing a vulnerable system of energy security dependent on imports.

Therefore, the decision to expand LNG infrastructure needs to be re-examined from the perspective of mid-to-long-term energy security and structural risk management, rather than merely as a response to short-term supply instability. The question is no longer whether Korea can build more LNG infrastructure, but whether doing so remains justified in a market characterized by declining demand, substantial spare capacity, and an accelerating energy transition.

Korea may serve as an early warning sign of how LNG demand assumptions can diverge from actual market outcomes during an energy transition. The underutilization of LNG infrastructure despite continuing expansion, illustrates the risks of planning around growth assumptions rather than realistic market fundamentals. While this report highlights these risks in the context of the Dangjin LNG Terminal, the issues it raises extend far beyond a single project. As governments, investors, and project developers continue to evaluate new LNG infrastructure and supply investments, the Korean experience underscores the importance of testing demand assumptions against evolving energy policies and demand trends. This is particularly relevant as many countries accelerate their transition away from fossil fuels. Failure to do so could contribute to stranded asset risks across the global LNG value chain.

Based on the findings of this issue brief, the following policy proposals are made:

- **Align Korea's LNG infrastructure planning with projected demand and energy transition policies**

  KOGAS and policymakers should ensure that future LNG infrastructure planning is aligned with Korea's projected decline in natural gas demand and broader energy transition objectives. Future infrastructure proposals should be assessed against the latest government demand forecasts and evaluated in the context of existing spare regasification and storage capacity. In particular, the proposed Phase 3 expansion of the Dangjin LNG Terminal should be reassessed. Infrastructure planning should also be made consistent with Korea's carbon neutrality commitments, renewable energy expansion plans, and long-term decarbonization pathways.

32 Clark Williams-Derry, IEEFA (2026). Price volatility: A double-edged sword for the LNG industry. | https://ieefa.org/resources/price-volatility-double-edged-sword-lng-industry.

- **Avoid overbuilding across the LNG supply chain**

  Governments, project developers, export credit agencies, and investors should critically evaluate assumptions regarding future Korean LNG demand when assessing new LNG supply projects and investments. As many LNG importing countries pursue policies aimed at reducing fossil fuel dependence and accelerating the clean energy transition, historical demand trends may become an increasingly unreliable guide to future LNG consumption. Long-term LNG investment decisions should therefore incorporate the risks associated with evolving energy policies, changing demand patterns, and the potential for faster-than-expected declines in gas consumption. Failure to account for these trends could contribute to overbuilding across the LNG supply chain, increasing stranded asset risks not only for import infrastructure in Korea, but also for LNG export projects, liquefaction facilities, and upstream gas developments in exporting countries.

- **Prioritise energy security investments that reduce import dependence**

  True energy security comes from reducing import dependence through domestic renewable production, storage, grid flexibility, and electrification. Rather than expanding LNG infrastructure, policymakers should prioritise investments such as domestic renewable energy generation, which strengthen energy security by reducing reliance on imported fuels. Compared with additional LNG storage and import capacity, these measures can provide more durable energy security benefits while reducing exposure to international fuel price volatility and supply disruptions.

Appendix

[Table 1] Monthly Utilization Rates by KOGAS LNG Terminal in 2024

Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Yearly average
Pyeongtaek	41%	32%	34%	25%	23%	23%	26%	27%	22%	22%	30%	40%	**29%**
Incheon	35%	26%	26%	17%	16%	17%	19%	21%	18%	15%	20%	31%	**22%**
Tongyeong	43%	35%	33%	23%	24%	23%	30%	27%	24%	26%	28%	38%	**30%**
Samcheok	62%	59%	46%	25%	29%	25%	21%	24%	22%	26%	28%	58%	**36%**
Jeju	32%	29%	24%	26%	28%	27%	31%	36%	26%	19%	16%	24%	**27%**
National	41%	33%	32%	22%	21%	21%	24%	24%	21%	20%	26%	37%	**27%**

∗The monthly utilization rate is derived by dividing the monthly transmission volume by the regasification capacity on the KOGAS website.

Source: Data submitted by KOGAS in response to a data request from Rep. Kim Won-i's office

[Table 2] Monthly Utilization Rates by KOGAS LNG Terminal in 2025

Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Yearly average
Pyeongtaek	42%	41%	30%	27%	19%	18%	21%	19%	18%	21%	30%	39%	**27%**
Incheon	33%	33%	27%	21%	21%	18%	20%	20%	16%	19%	23%	29%	**23%**
Tongyeong	39%	41%	34%	24%	26%	23%	27%	27%	22%	22%	32%	40%	**30%**
Samcheok	66%	56%	50%	36%	29%	23%	23%	33%	29%	28%	38%	49%	**38%**
Jeju	30%	28%	24%	22%	19%	30%	28%	26%	21%	16%	20%	19%	**24%**
National	40%	39%	31%	25%	22%	19%	22%	22%	19%	21%	28%	36%	**27%**

∗The monthly utilization rate is derived by dividing the monthly transmission volume by the regasification capacity on the KOGAS website.

Source: Data submitted by KOGAS in response to a data request from Rep. Seo Wang-jin's office

[Figure 1] Monthly Transmission and Peak Transmission Volumes by LNG Terminal in 2024

Source: Data submitted by KOGAS in response to data requests from the offices of Rep. Kim Won-i and Seo Wang-jin

[Table 3] Estimation of Supply Volume in the Dangjin LNG Terminal Preliminary Feasibility Study Report and Calculation of Expected Utilization Rate

Year	Estimated supply (Tonne) (A)	Regasification capacity (Tonne/h)	Regasification capacity (Tonne/year) (B)	Forecasted regasification utilization rate
(A÷ B)	2,904,842	1,560	13,665,600	**21%**
2027	2,904,842	1,560	13,665,600	**21%**
2028	3,362,359	1,560	13,665,600	**25%**
2029	3,557,609	1,560	13,665,600	**26%**
2030	3,529,465	1,560	13,665,600	**26%**
2031	3,561,127	1,560	13,665,600	**26%**
....	....	....	....	**....**
2060	3,561,127	1,560	13,665,600	**26%**
2061	3,561,127	1,560	13,665,600	**26%**

Source: Data submitted by KOGAS in response to a data request from Rep. Park Ji-hye's office

[Table 4] Calculation of KOGAS LNG Terminal Storage Capacity

Based on KOGAS' 2025 winter transmission volume

Category	Methodology	Result
KOGAS LNG terminal national storage capacity	Source: KOGAS website	**5,544,960 Tonnes**
KOGAS 2025 winter transmission volume	Source: Data submitted by KOGAS in response to the data request from Rep. Seo Wang-jin's office	**12,999,764 Tonnes**
2025 daily winter transmission volume	(2025 winter transmission volume ÷ 90 days)	**144,442 Tonnes**
Days of cover possible based on 2025 winter transmission volume	(National storage capacity ÷ daily winter transmission volume)	**38 days**

Based on KOGAS' 2025 average annual transmission volume

Category	Methodology	Result
KOGAS LNG terminal national storage capacity	Source: KOGAS website	**5,544,960 Tonnes**
KOGAS 2025 transmission volume	Source: Data submitted by KOGAS in response to the data request from Rep. Seo Wang-jin's office	**36,713,606 Tonnes**
2025 daily transmission volume	(2025 transmission volume ÷ 365 days)	**100,585 Tonnes**
Days of cover possible based on 2025 transmission volume	(National storage capacity ÷ daily transmission volume)	**55 days**

[Table 5] Calculation of Storage Capacity Based including Dangjin LNG Terminal Storage Capacity

Category	Methodology	Result
KOGAS LNG terminal national storage capacity + expected storage capacity from Dangjin LNG terminal	Source: KOGAS website + Ministry of Trade, Industry and Resource 15th Long-term Natural Gas Supply and Demand Plan (2023~2036)	**6,752,670 Tonnes**
KOGAS 2025 transmission volume	Source: Data submitted by KOGAS in response to the data request from Rep. Seo Wang-jin's office	**36,713,605 Tonnes**
2025 daily transmission volume	(2025 transmission volume ÷ 365 days)	**100,585 Tonnes**
Days of cover possible based on 2025 transmission volume (including storage capacity from Dangjin LNG terminal)	(National storage capacity including Dangjin LNG terminal ÷ daily transmission volume)	**67 days**

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Solutions for Our Climate (SFOC) is an independent policy research and advocacy group that aims to make emissions trajectories across Asia compatible with the Paris Agreement 1.5°C warming target.