FEATURE ARTICLE:

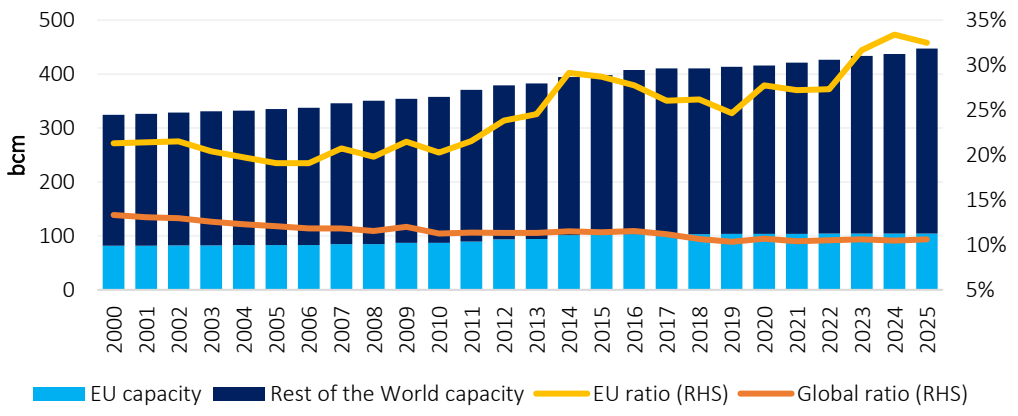
Global LNG disruption threatens to undermine EU gas storage resilience

Amid escalating conflict in the Middle East, the blockade of the Strait of Hormuz has stranded over 7 Mt of LNG per month, triggering a severe supply deficit across regional gas markets. In this context, the strategic role of gas storage, particularly underground gas storage (UGS), has immediately evolved from a market balancing instrument into a critical pillar of energy security. Historically, gas storage primarily served to mitigate seasonal demand imbalances, especially during winter heating peaks. However, in the wake of the current disruption, its function has expanded into a vital buffer against prolonged supply shocks. While storage infrastructure is generally designed to manage short-term volatility, the unprecedented duration of the current crisis is testing the resilience of inventories, particularly within the EU.

In parallel, the ongoing crisis coincides with a long-term decline in the structural leverage of gas storage within the global energy system. The adequacy of this storage is typically assessed by the ratio of working gas storage capacity to annual consumption, which serves as a key indicator of a system's resilience and capacity to withstand external shocks. Historically, this ratio has followed a steady downward trajectory, with global UGS capacity relative to consumption falling from 13.3% in 2000 to 10.6% by 2025 (Figure i). This trend reflects a widening structural imbalance where global gas demand growth has consistently outpaced the capital-intensive expansion of storage infrastructure. Because new development is heavily constrained by both geological limits and high upfront costs, the global energy system has transitioned toward an increased reliance on "just-in-time" supply, particularly flexible spot LNG. Consequently, these thinning physical buffers have diminished the system's operational ability to absorb sudden supply disruptions, leaving markets increasingly vulnerable to extreme price volatility.

Pronounced regional disparities exist in storage-to-consumption ratios, reflecting diverse market structures and historical priorities. The EU maintains the highest global ratio at 33%, a level largely supported by a marked contraction in regional gas consumption recently. Eurasia follows with a ratio of 18%, essential for balancing substantial export volumes. In North America, the ratio of 14% has become increasingly important for market balancing amid the rapid expansion of LNG exports. Conversely, Asia exhibits a notably low ratio of 3%, although this vulnerability is partially mitigated by the region's growing LNG storage.

Figure i: Trend in UGS capacity and storage-to-consumption ratio globally and in the EU



Source: GECF Secretariat based on data from Cedigaz, GIE, IGU and Snam

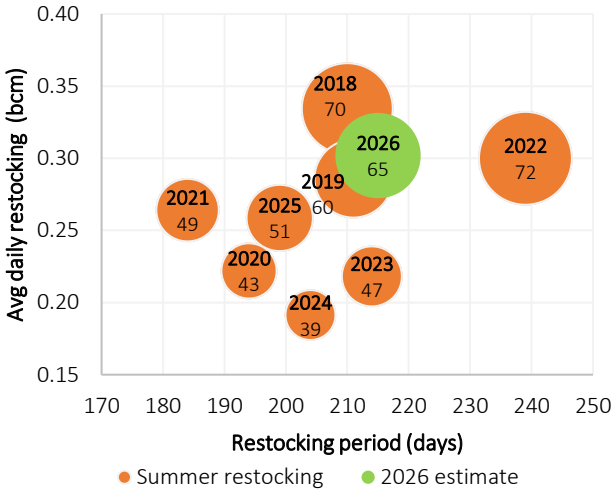
UGS serves as a cornerstone of EU energy security, particularly during the extended winter season when gas demand surges for heating across the residential and commercial sectors. In recent years, gas withdrawals from storage have accounted for approximately 40% of the total EU natural gas supply during the peak month of January, a dependency that highlights the continued dominance of gas-fired boilers within the broader heating landscape.

The EU entered the 2025/2026 winter season with a four-year inventory low of 86 bcm, a deficit primarily driven by the easing of storage mandates in 2025 following the more stringent requirements established in 2022. After seasonal withdrawals totalling 58 bcm, end-of-winter stocks declined to a critical 29 bcm, representing just 27% of the bloc's total capacity and marking the second lowest seasonal storage level in eight years (Table i). This severely depleted starting position significantly complicates the upcoming 2026 summer injection cycle, making the achievement of minimum target storage levels exceptionally challenging, even without considering the severe added pressure of the current LNG supply disruption.

Table i: EU UGS levels at the start of injection and withdrawal seasons (bcm), 2018-2026

Year	April 1	November 1
2018	17.9	87.7
2019	40.4	99.7
2020	55.9	97.9
2021	31.2	78.1
2022	26.7	96.7
2023	57.3	103.4
2024	61.1	99.7
2025	35.4	86.3
2026	28.8	…

Figure ii: EU UGS injections in summer seasons, 2018-2026e



Source: GECF Secretariat based on data from AGSI+

In March 2026, the EU's gas storage framework remained resilient despite the burgeoning LNG supply crisis during the late winter heating season. While gas demand remained elevated, pressure on inventories was mitigated by a seasonal decline in withdrawals. March withdrawals typically average only 4 bcm, which is a significant drop from the 18 bcm peak recorded in January. Furthermore, total LNG imports rose by 0.4 Mt y-o-y to 10.1 Mt, maintaining short-term stability. Although the February 28 blockade of the Strait of Hormuz caused a 0.2 Mt dip in Qatari volumes, increased deliveries from alternative suppliers, notably the US, effectively offset the shortfall. This stability was also sustained by the arrival of Qatari cargoes loaded prior to the blockade. Since shipments rerouted via the Cape of Good Hope can take up to 40 days, this transit lag effectively delayed the full impact of the disruption on EU markets.

By April 2026, the EU gas market entered the shoulder season, where moderate temperatures bridge the transition between higher winter and lower summer gas consumption. During this period, gas injections into storage facilities have averaged approximately 5 bcm over the last two years. Because Qatari LNG accounts for only 5% of EU gas consumption and 4.3% of total demand including storage injections during that timeframe, the EU remains well-positioned to avoid any immediate physical shortages during this specific seasonal transition month.

Looking ahead from May, should the LNG supply disruption persist, the EU gas storage system may enter its second major stress test in four years. The first, in 2022, was triggered by an abrupt decline in pipeline gas imports, necessitating a rapid pivot toward LNG and mandatory storage targets. While the 2022 crisis was defined by the loss of stable pipeline supply, the 2026 crisis instead undermines the global LNG market upon which the EU now increasingly relies for its baseload gas demand. This structural shift is evidenced by LNG imports surging to 108 Mt in 2025, reaching a record 45% of the gas supply mix and surpassing both pipeline imports (43%) and domestic production (12%). In a historic reversal, LNG (147 bcm) displaced pipeline gas (142 bcm) as the region's leading import source for the first time. To put this in perspective, in 2019, pipeline gas dominated at 281 bcm compared to 85 bcm of LNG (Figure iii). The transition to an LNG-reliant system has not eliminated the region's vulnerability but has shifted it to maritime risks outside the EU's direct control. With domestic production accounting for just 12% of the mix, the bloc remains almost entirely dependent on external sources to replenish inventories.

Remarkably, the EU is not as deeply dependent as Asia on LNG supply crossing the Strait of Hormuz from Qatar and the UAE. In 2025, the EU received only 8.7 Mt of LNG — all from Qatar — with the UAE supplying no LNG to the bloc at all. Although Qatar was a major historical supplier to the EU with 15 Mt in 2019, its volumes have shrunk in recent years as diversified US deliveries increased to more than 50% of the LNG supply mix, which significantly reduced the EU's reliance on flows through the Strait. In contrast, Asia imported a massive 73 Mt from these countries in 2025, consisting of 68 Mt from Qatar and 5 Mt from the UAE. In this context, Asia has already become the primary victim of the blockade. Its LNG imports dropped by 4% y-o-y to 21.1 Mt in March 2026, marking the lowest recorded level for that month since 2019.

Moreover, starting in May, the EU will enter the summer season, which brings a sharp and sustained decline in gas consumption compared to the winter months. The EU maintains the highest seasonal demand gap in the world, with a 170% difference between its peak winter and lowest summer consumption months (Figure iv). This volatility far exceeds other major markets, including South Korea at 100%, the US at 70%, Japan at 50%, and China at 16%. This dramatic reduction in summer demand provides the EU with a critical window of operational flexibility that other regions lack during the current LNG supply disruption. Domestic production, pipeline imports, and non-Qatari LNG are poised to provide a robust enough supply base to satisfy current gas consumption needs without any significant interruption.

Figure iii: Trend in EU LNG and PNG imports

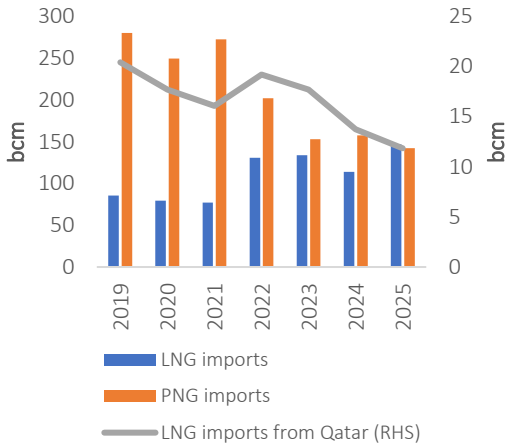
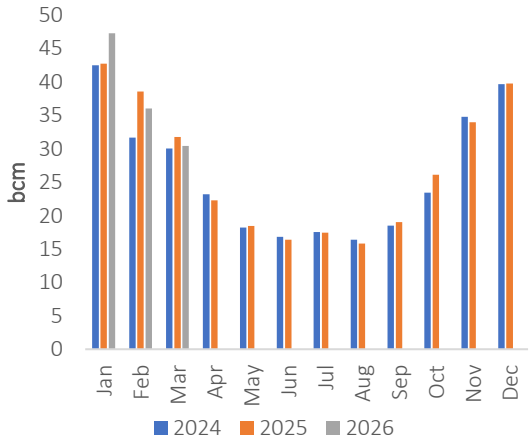


Figure iv: Trend in EU gas consumption



Source: GECF Secretariat based on data from Refinitiv and ICIS

However, the blockade will likely result in slower, more expensive restocking for the 2026/2027 winter. With limited potential to increase domestic production or pipeline gas imports, the EU's ability to refill storage will depend almost entirely on securing LNG. Losing 1 bcm/month of Qatari LNG is critical during the peak May-August injection season, when EU injections typically average 10 bcm monthly. To reach the required 90% level, the EU must inject nearly 65 bcm this summer, marking the highest restocking level in four years. The urgency of the challenge was stressed in a March 2026 letter from EU Energy Commissioner Dan Jørgensen, urging ministers to invoke the 80% storage threshold for "difficult conditions." By utilizing the regulatory flexibility to reach this target by December, the Commission aims to curb price volatility and forestall a late-summer supply scramble. Consequently, the focus has shifted from managing immediate gas consumption to securing a sufficient buffer for the year ahead.

The primary vulnerability lies in the EU's persistent reliance on the spot LNG market to satisfy storage requirements, as spot and short-term contracts accounted for nearly half of EU's LNG imports in 2025. While IOCs and major portfolio players facilitate this supply via long-term offtake agreements with LNG producers around the world, particularly in the US, these entities act as intermediaries that secure export volumes for delivery to EU consumers. However, because these players retain the strategic flexibility to reroute cargoes whenever market netbacks favour alternative regions, the EU remains structurally dependent on price competitiveness. A sustained premium in Asian LNG prices relative to the TTF can therefore divert Atlantic basin supplies, specifically from the US, away from the EU. Since the blockade of the Strait of Hormuz compels both regions to pursue the same limited pool of spot LNG cargoes to replace lost Middle Eastern volumes, the EU's ability to achieve its mandatory storage injection targets is now largely contingent upon its capacity to outbid Asian counterparts.

This competition has already triggered a sharp spike in regional spot prices. In March 2026, average European TTF prices rose by 58% m-o-m to $17.8/MMBtu, while North East Asia spot prices surged by 94% m-o-m to $20.9/MMBtu, reflecting tighter balances and diverted cargoes. With Asian JKM futures maintaining a premium of over $1/MMBtu above TTF between May and September 2026, the safety net provided by destination-flexible US LNG has begun to fray rapidly. Although the EU previously attracted US volumes by offering the highest global netback, higher Asian premiums are now offsetting the increased freight costs of traveling around the Cape of Good Hope, effectively incentivizing traders to favour lucrative Asian markets.

The precariousness of the EU's restocking environment is exacerbated further by the collapse of the winter-summer seasonal price spread, which historically provides the vital commercial incentive for injections during the summer months. Driven by the prevailing crisis, summer 2026 contracts on the European TTF as of 20 April averaged $14.2/MMBtu, whereas winter 2026/2027 contracts were valued at only $13.7/MMBtu. This unusual state of market backwardation effectively eliminates the economic rationale for storage injections, as market participants face the risky prospect of procuring gas at a premium in the immediate term only to experience a valuation decline by the 2026/2027 winter heating season.

The EU is entering the summer injection cycle at a critical four-year low, facing a challenging replenishment phase as the Hormuz blockade triggers a severe global LNG supply disruption. This storage strain is compounded by an overreliance on US LNG, whose flexible contracts allow cargoes to be rerouted to higher-priced regions amidst an intensifying spot price war. Enhancing energy security requires the EU to prioritize long-term contracts and diversify its gas supply sources, avoiding vulnerability to external supply shocks and price instability.