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European Union Agency for the Cooperation of Energy Regulators

Key developments in European gas wholesale markets

Gas winter season 2024-2025

2025 Monitoring Report

16 April 2025

Report in PowerPoint format

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European Union Agency for the Cooperation of Energy Regulators

About this report

The report provides an overview of **EU wholesale gas markets trends in the gas winter season 2024-2025** (i.e., from the start of October until end of March)

Specifically, it addresses:

- Gas price evolution and drivers;
- Gas consumption and its components;
- Gas supply trends;
- Gas infrastructure utilisation;
- Gas trading developments.

It also includes considerations about gas storage developments in winter 2024/2025 and outlook for summer 2025

Explore the market monitoring section of the ACER website for additional information about European energy markets.

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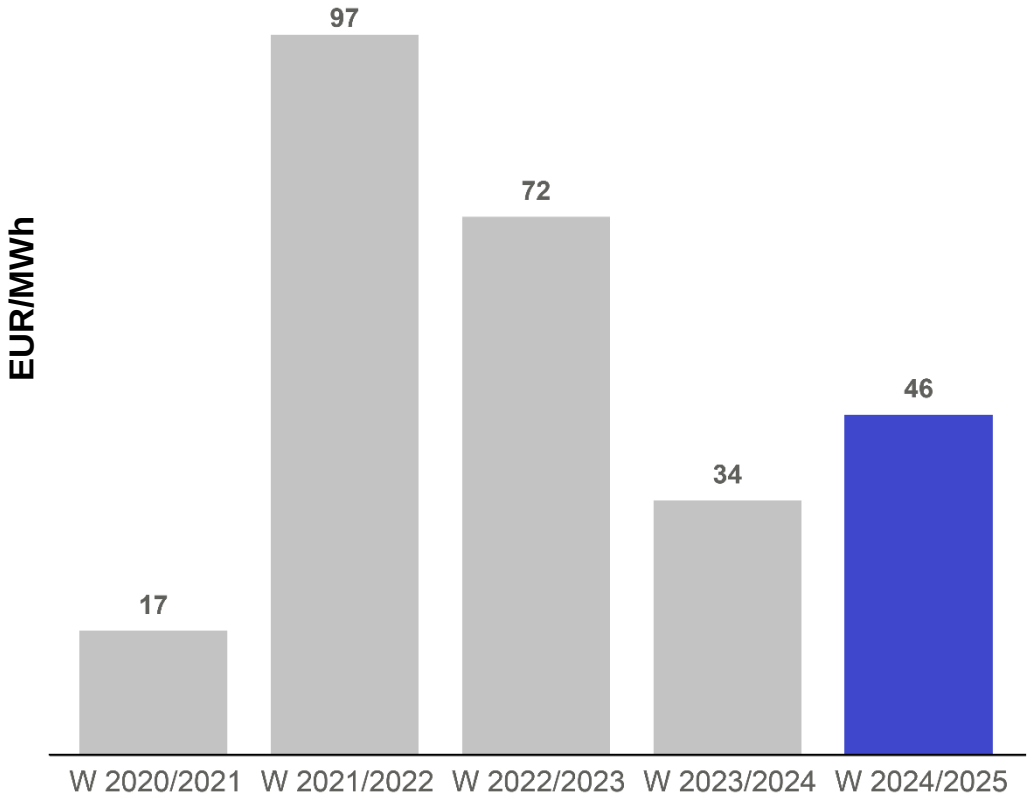
EU gas wholesale markets in gas winter season 2024-2025

Prices, hub convergence, and trading activity

Gas markets were more strained compared with last winter

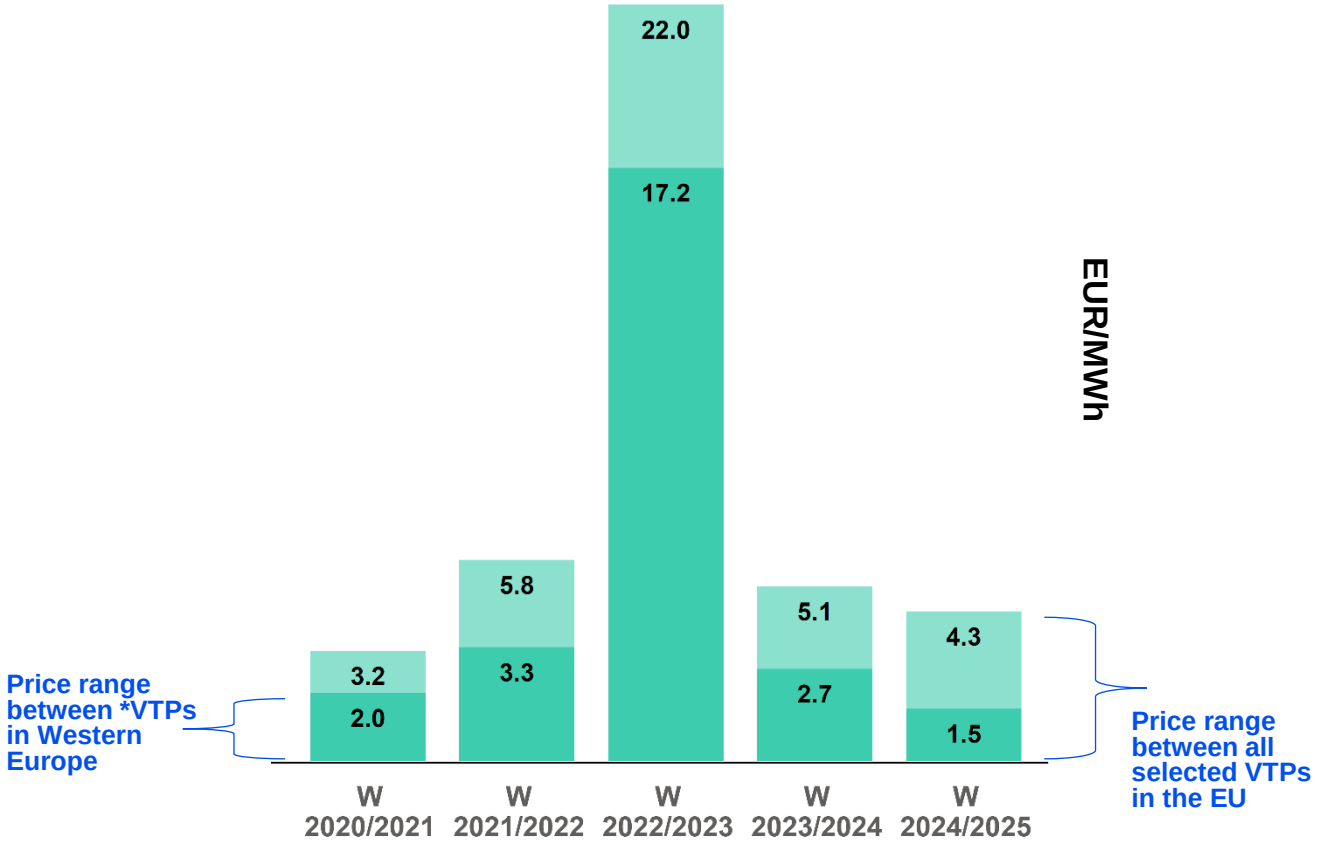
Day-ahead prices were higher compared with last winter…

Average gas day-ahead prices, selected EU virtual trading points, winter period 2020-2025 (EUR/MWh)



… but regional price variation was lower

Average range of gas day-ahead prices between selected EU virtual trading points, winter period 2020-2025 (EUR/MWh)

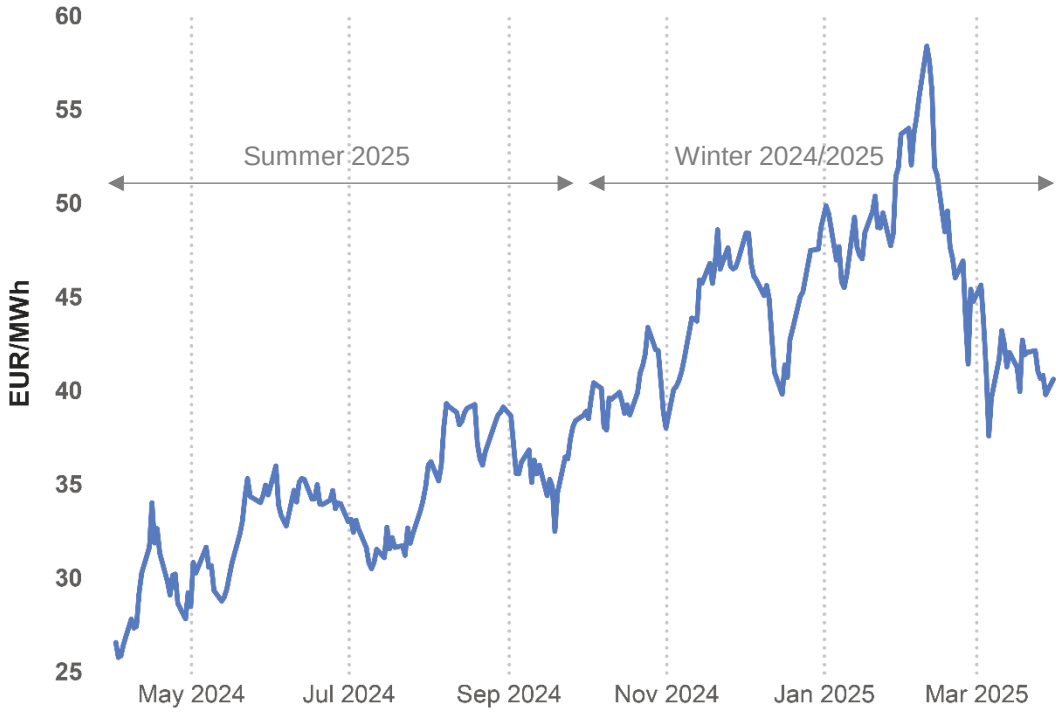


Source: ACER based on ICIS data.
*Note: VTP stands for virtual trading point.

Tighter fundamentals and uncertainties fed price volatility

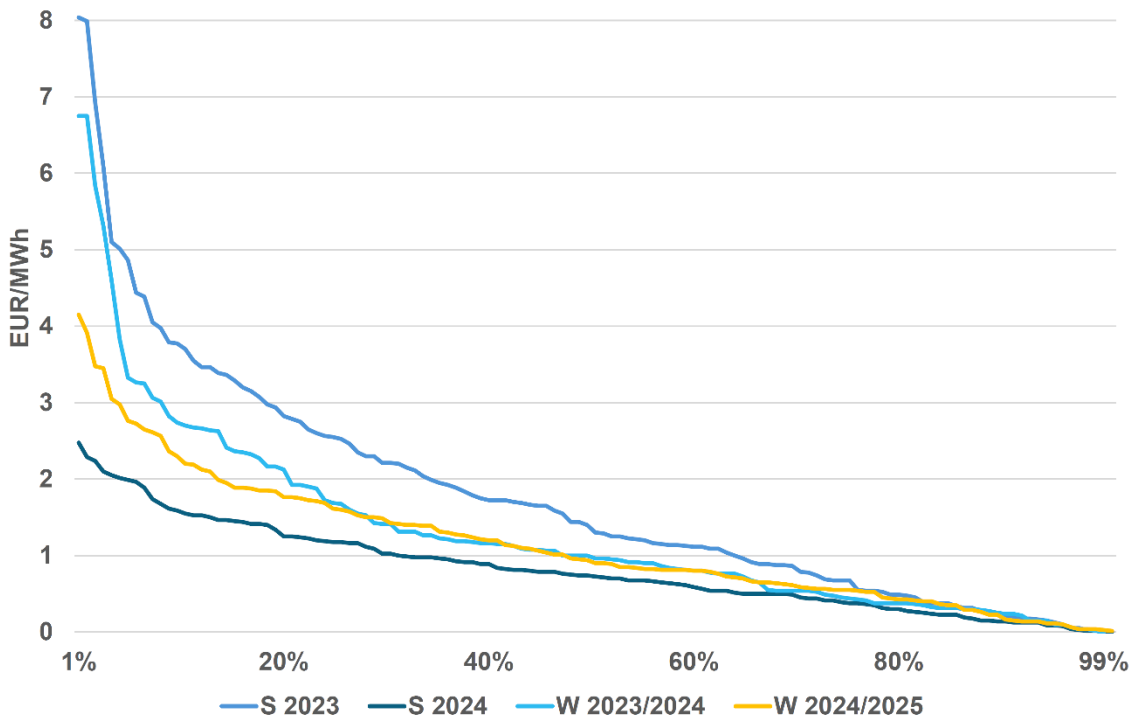
Prices grew for most of winter before falling sharply

TTF gas day-ahead prices, May 2024 – April 2025 (EUR/MWh)



Volatility was high but lower compared with last winter

Range of TTF gas day-ahead price changes, change of price to previous trading session close, May 2023 – April 2025 (EUR/MWh)

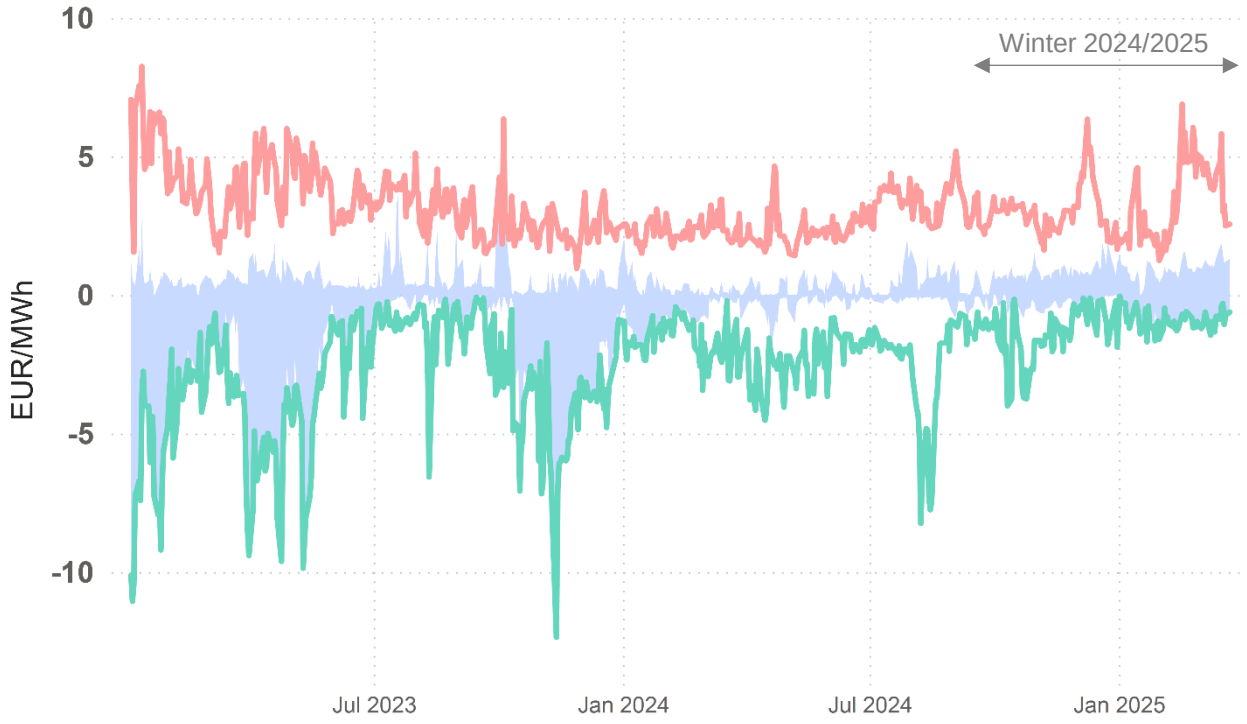


Compared to last winter, the European gas market faced tighter conditions, with lower supply and higher demand. Prices were also influenced by geopolitical uncertainties, including from instability of trade, foreign and security policy. Increased use of gas storages over winter has affected summer gas demand in Europe, adding further complexity to an already tight market.

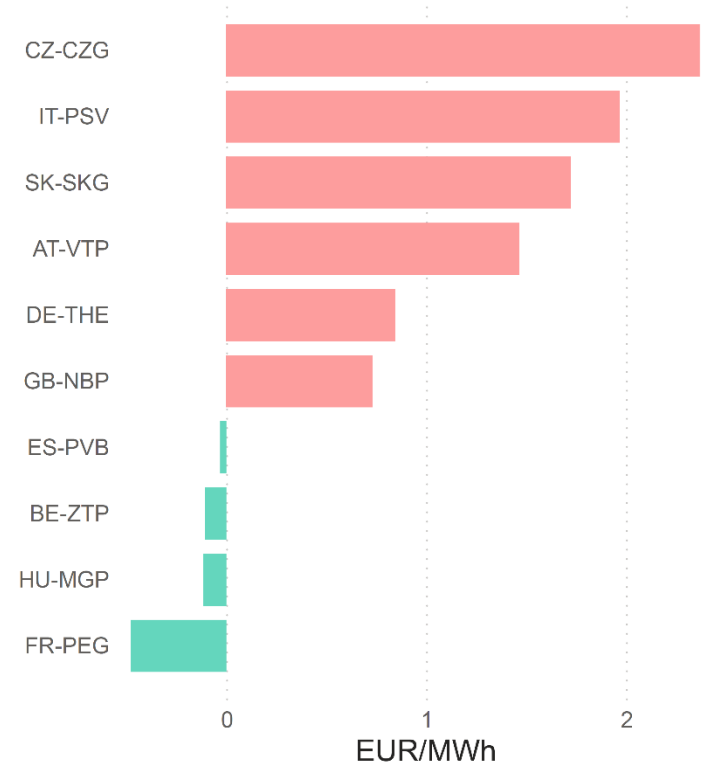
Source: ACER based on ICIS data.
Note: TTF stands for Title Transfer Facility, the virtual gas trading point in the Netherlands used as benchmark for EU natural gas prices.

Gas market prices across Europe traded in a narrower range

Range between hubs with cheapest and most expensive spot price, January 2023 - March 2025 (EUR/MWh)



Average spread to TTF, winter 2024/2025 (EUR/MWh)



Gas spot prices rose together across European hubs this winter, with no market facing the oversupply seen in Spain and France last year. As a result, the daily price range remained relatively narrow and lower than last winter. Strong infrastructure connections between markets and the low cost of cross-border trade helped keep price differences small at western European gas hubs.

Source: ACER based on ICIS data.
Note: The listed hubs correspond to Austria, Belgium, Czech Republic, France, Germany, Hungary, Italy, Slovakia, Spain and United Kingdom Virtual Trading points.

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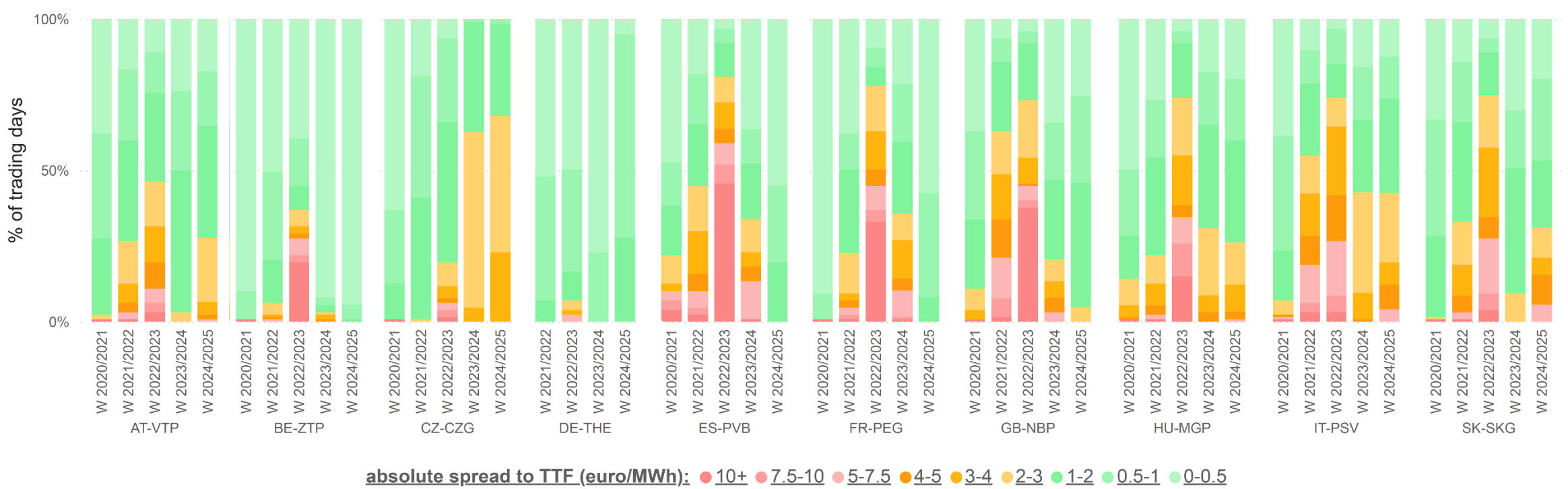
Some markets priced at a premium to attract flows

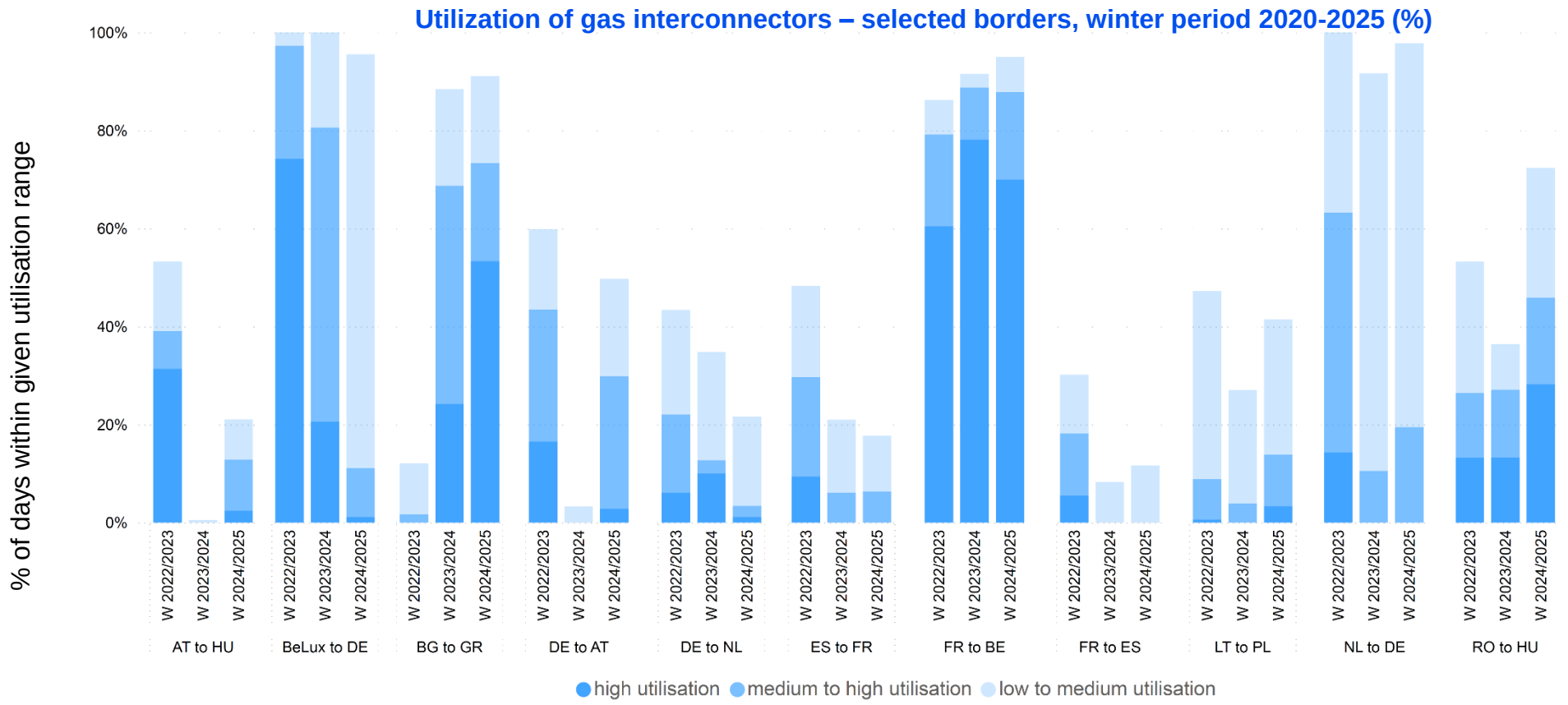
Natural gas price hub convergence, winter period 2020-2025 (% of trading days with spreads in the price range (selected hubs vs TTF, day-ahead contract))



When winter demand peaked in January and February, the Italian and Central European markets priced at relevant premiums to attract spot LNG cargoes (Italy) and cross-border flows from Western Europe (CEE).

Source: ACER based on ICIS data. Note: The analysis highlights absolute hub price spread differences but does not specify which hub is at a premium or discount. Historically, the NL-TTF hub has typically set the lowest price reference. However, since mid-2022, LNG reliant and less congested hubs such as FR-PEG or SP-PVB have often quoted at a (relevant) discount. This shift accounts for the relative increase in 'red price ranges' in the graph, while indicating that French or Spanish hub prices were often at a discount.

Interconnection availability helped market price integration



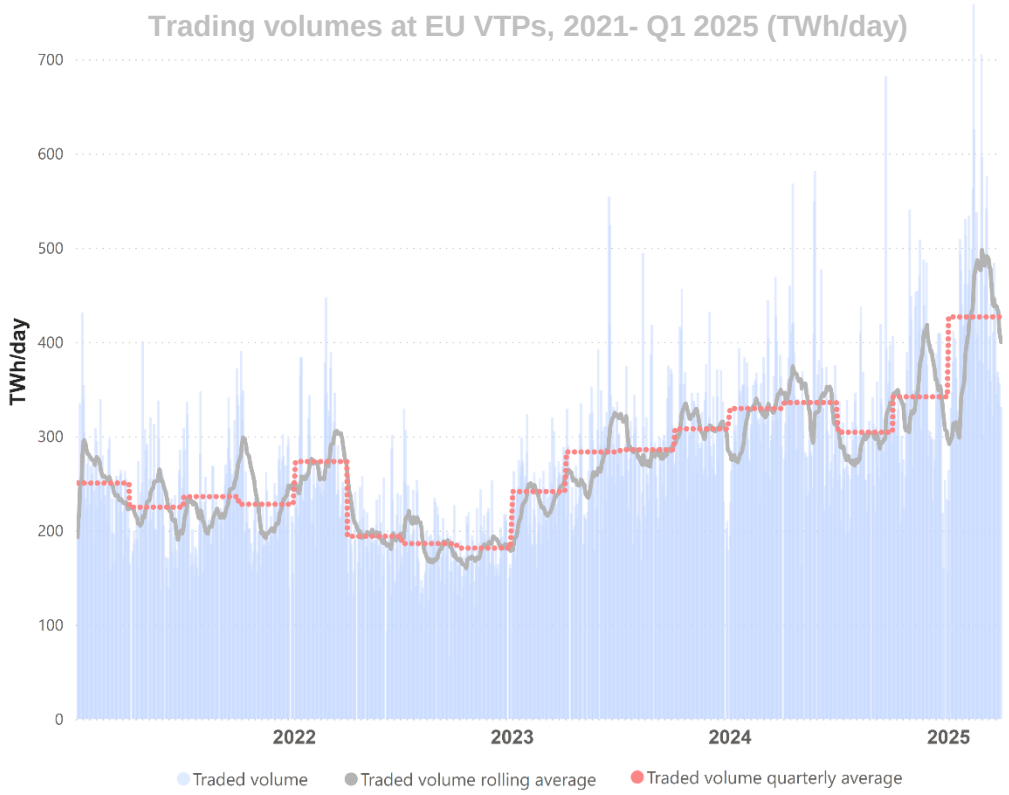
Infrastructure enhancements (*e.g.*, new LNG terminals) and structurally lower gas consumption, have helped prevent a similar network congestion as seen at the peak of the 2022 energy crisis from repeating. This winter, despite increased demand due to colder weather and the halt of Russian gas flows via Ukraine, which particularly affected Central and Eastern Europe, gas networks remained able to handle supply. This was partly due to gas storage stockpile at the start of winter which reduced the call on cross-border flows.

Source: ACER based on European Network of Transmission System Operators Gas transparency platform data
Note: low to medium utilisation = 25-50%; medium to high utilisation = 50-75%; high utilisation = 75-100%.

Record volumes of gas were traded at European hubs

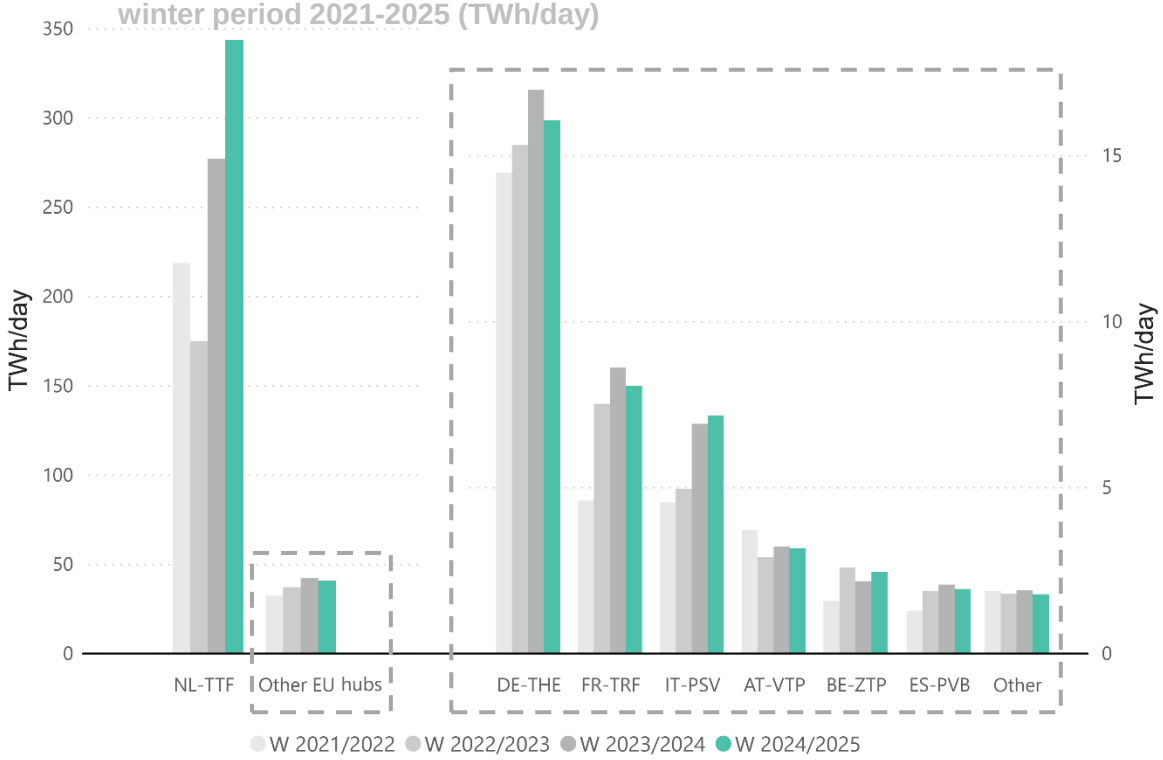
Trading volumes continued to increase

Trading volumes at EU VTPs, 2021- Q1 2025 (TWh/day)



Almost all the growth was related to TTF trading

TTF and other EU VTPs traded volumes comparison, winter period 2021-2025 (TWh/day)



Liquid trading hubs allow market participants to effectively manage price risks associated with gas supply making them a key component of the EU gas market. Gas trading activity grew strongly over the gas winter season 2024/2025, with most of the increase related to products for delivery at the Dutch TTF.

Source: ACER based on REMIT data.
Note: The analysis considers volumes traded via exchanges or brokers. TTF stands for Title Transfer Facility, the virtual gas trading point in the Netherlands. VTPs stands for Virtual Trading Points. The bid–ask spread is the difference between the prices quoted for sale and purchase for a contract. Open interest refers to the total number of outstanding derivative contracts that have not been settled.

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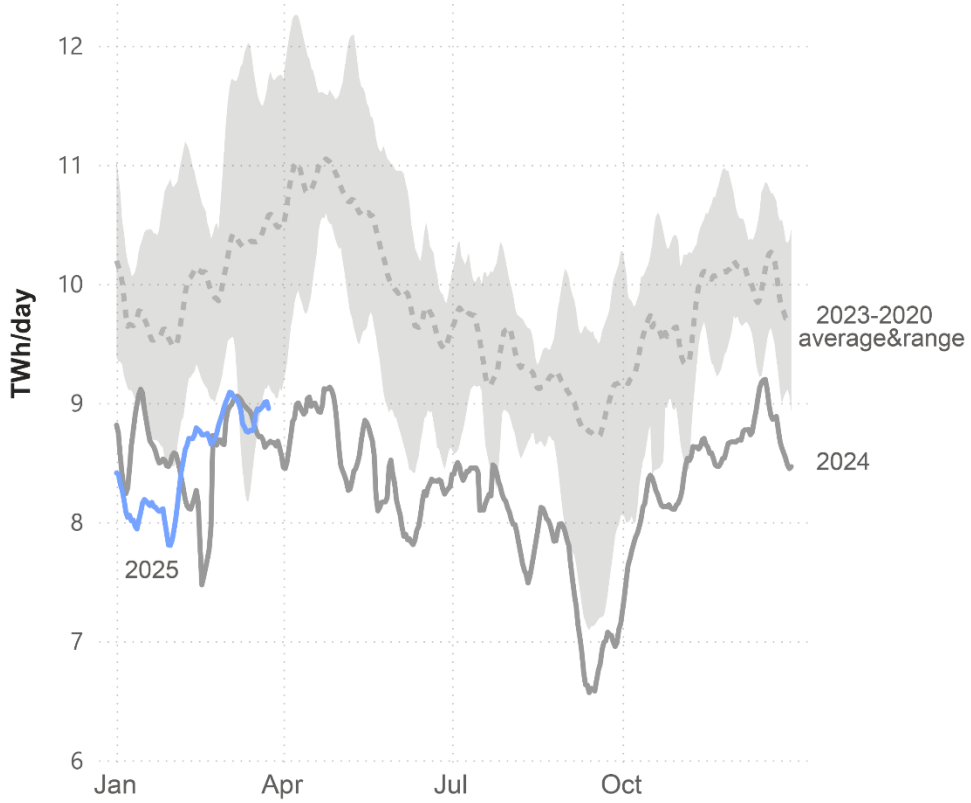
Gas fundamentals in in the gas winter season 2024-2025

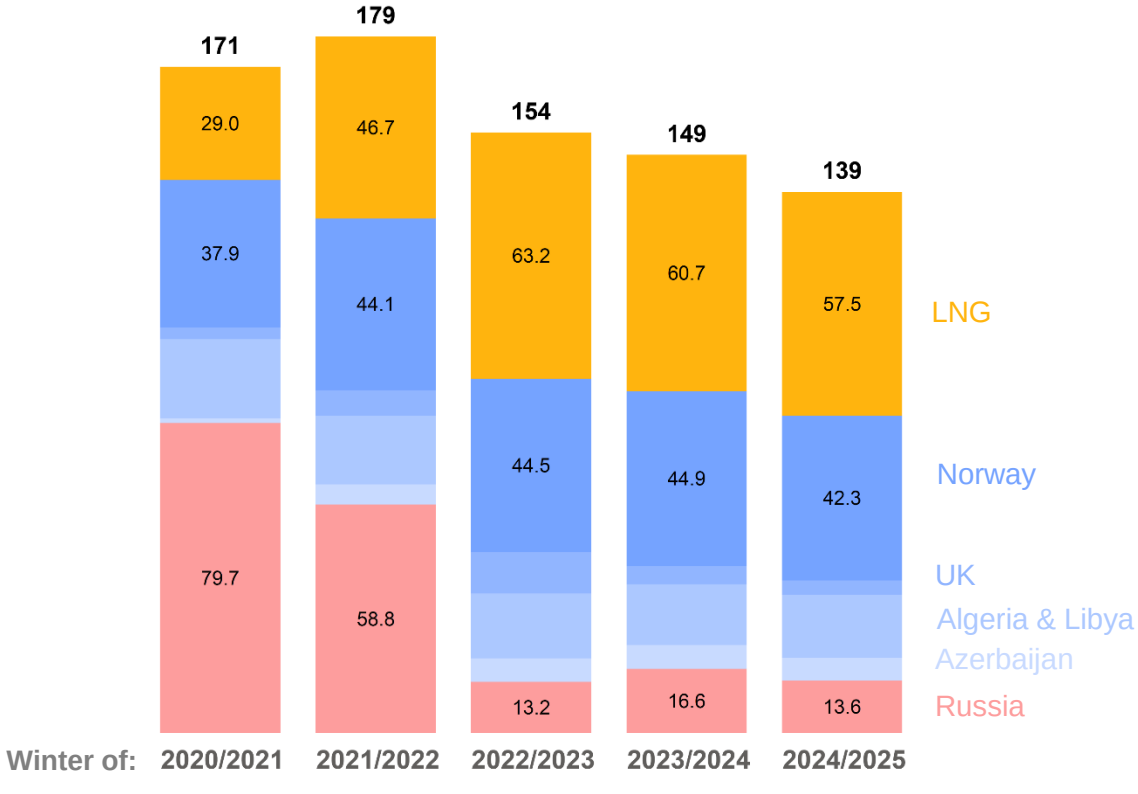
Supply, LNG, and a focus on gas demand

EU gas imports were lower compared with last winter

EU pipeline and LNG import flows, 2020-2025 (TWh/day)



EU gas imports per source, winter period 2020-2025 (bcm)

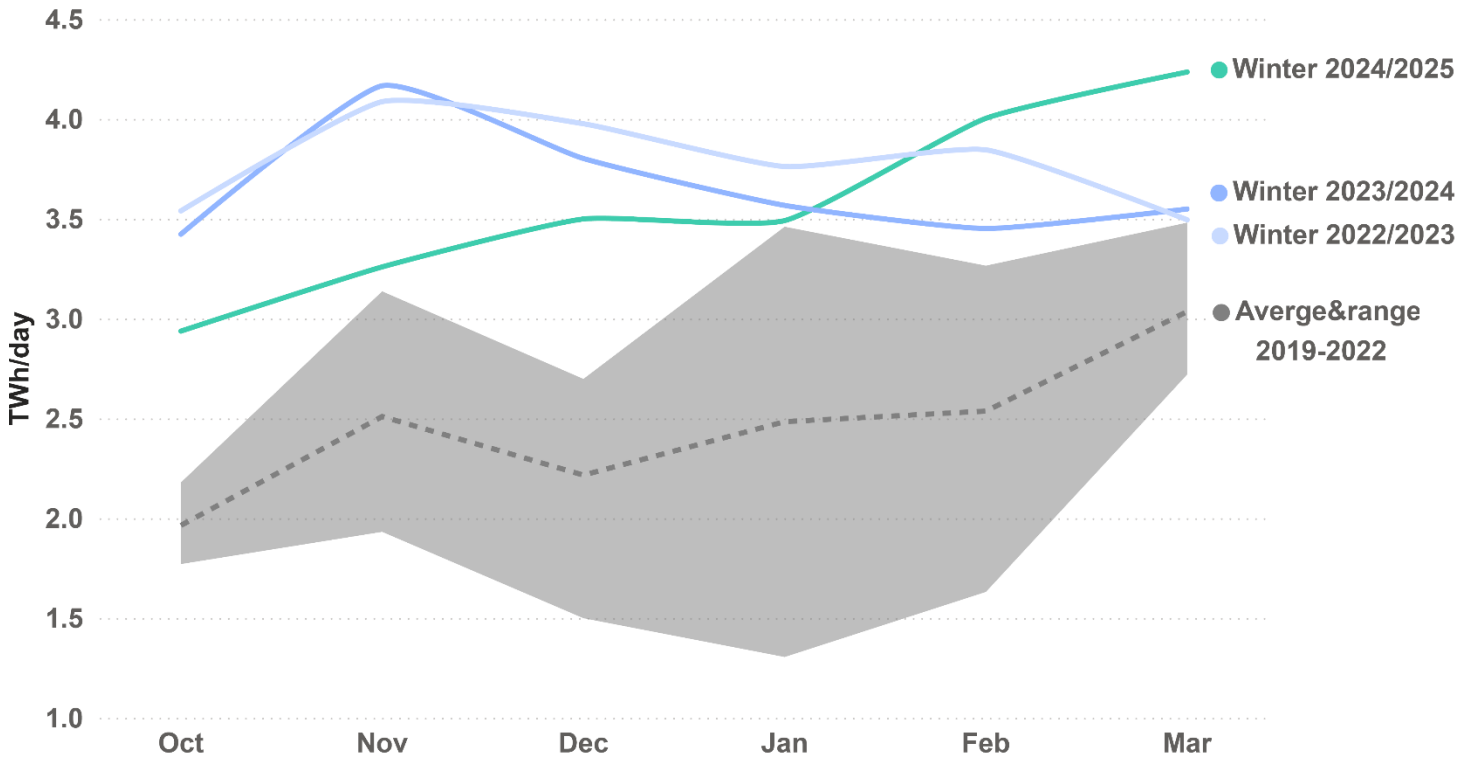


Gas imports to the EU from all major supply sources decreased compared to last winter, apart from pipeline supply from North Africa. The biggest structural change to supply was the stop of Russian flows transiting Ukraine at the end of 2024. The Turkstream pipeline is the only remaining major active outlet for Russian gas to the EU.

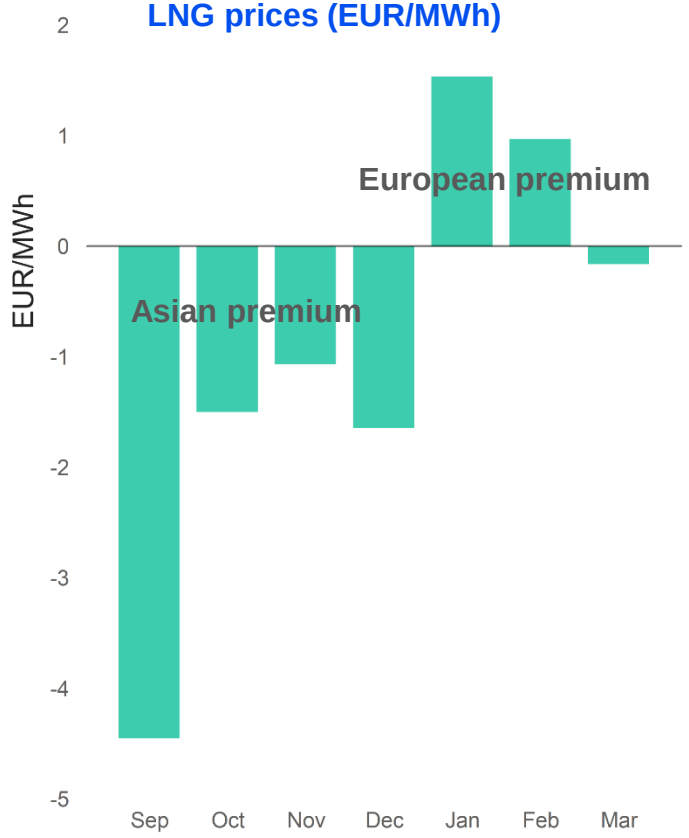
Source: ACER based on Gas Infrastructure Europe and European Network of Transmission System Operators Gas transparency platform data.
Note: Values in the figure 'EU gas imports' are seven day rolling averages.

LNG arrivals lifted decisively only at end of winter

EU LNG send-out, winter period 2019-2025 (TWh/day)



Comparison of TTF Month-ahead with Asian spot LNG prices (EUR/MWh)

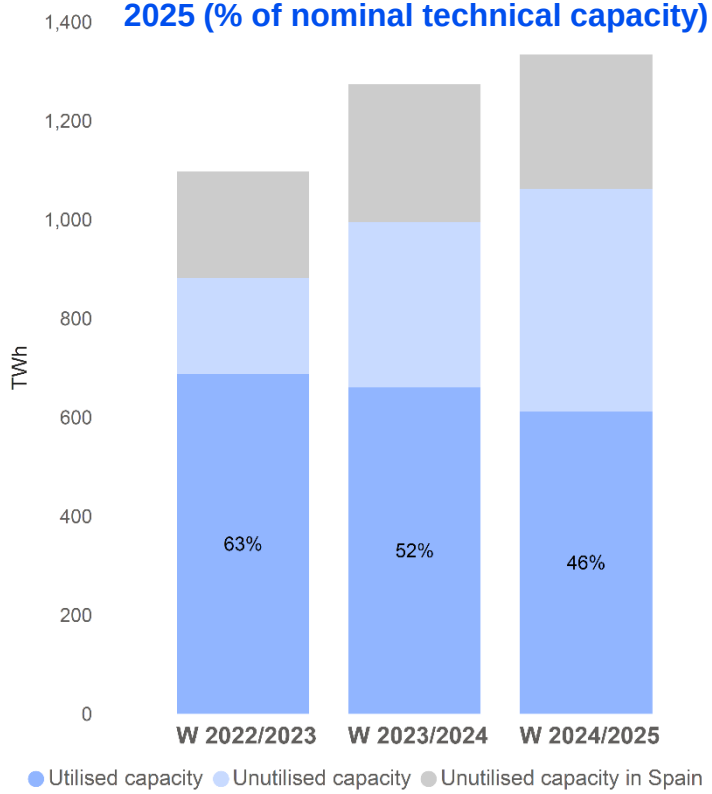


At the start of the winter season, LNG imports lifted seasonally but remained below import levels observed at the same time last year. This remained the case even as increased demand necessitated higher storage withdrawals. Towards the end of winter, with European markets pricing at a distinctive premium to Asian spot LNG markets and new gas liquification capacity starting to produce LNG in the US, EU LNG imports lifted to record highs.

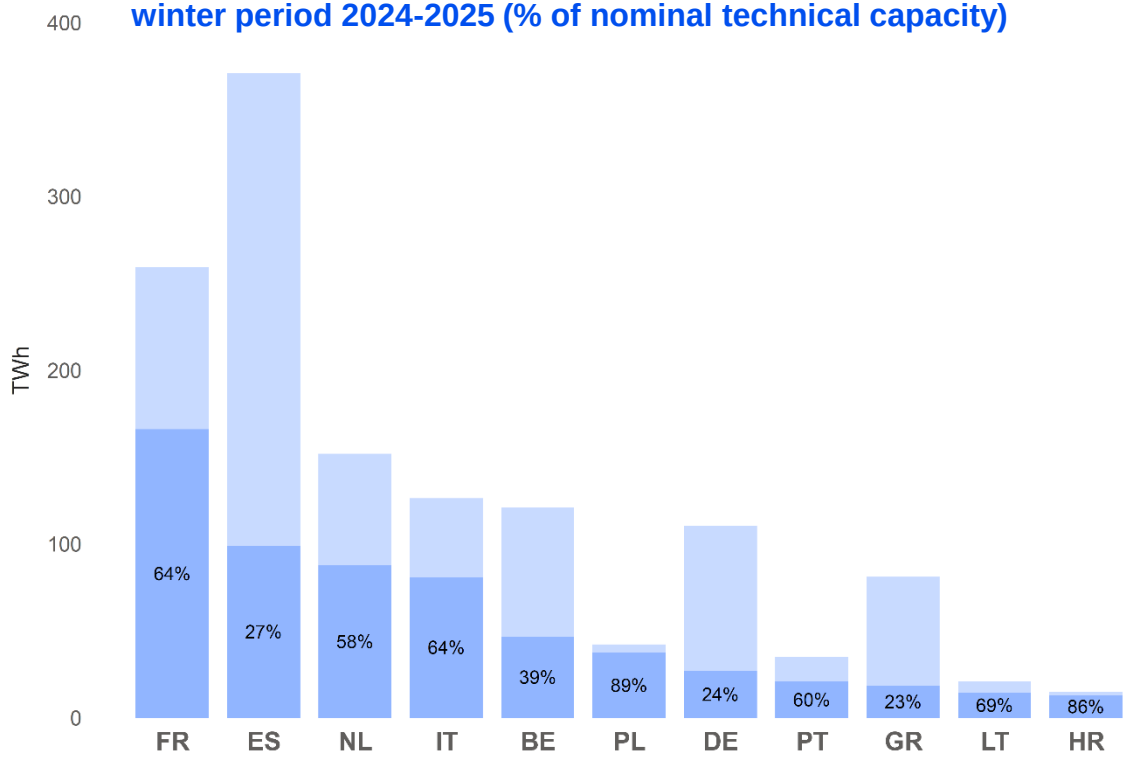
Source: ACER based on Gas Infrastructure Europe transparency platform and Platts data.

LNG terminals' capacity was not a barrier to imports

Utilisation of LNG terminals in the EU, winter period 2022-2025 (% of nominal technical capacity)



Utilisation of LNG terminals per Member State, winter period 2024-2025 (% of nominal technical capacity)

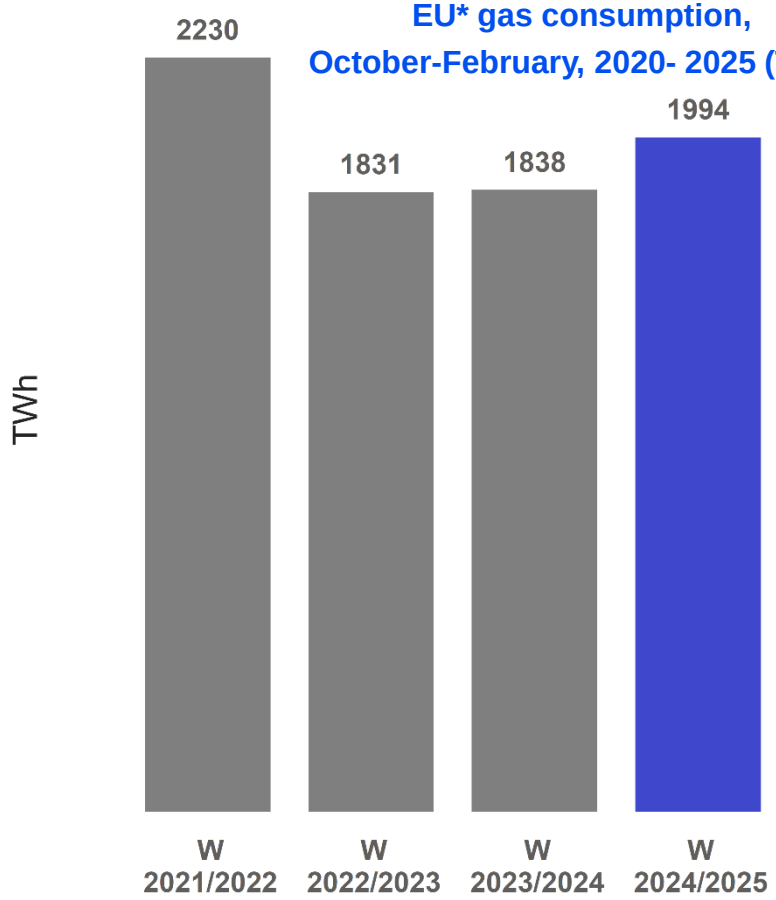


EU LNG import infrastructure increased compared with last winter as new LNG terminals (in Greece and Germany) and capacity expansions at existing terminals (in Poland and Belgium) together added approximately 0.5 TWh per day of regasification capacity. On average, utilization of EU LNG terminals decreased as less LNG was imported compared with last winter. However, the substantial import capacity was able to accommodate record monthly LNG imports in March providing much needed supply flexibility without resulting in congestion.

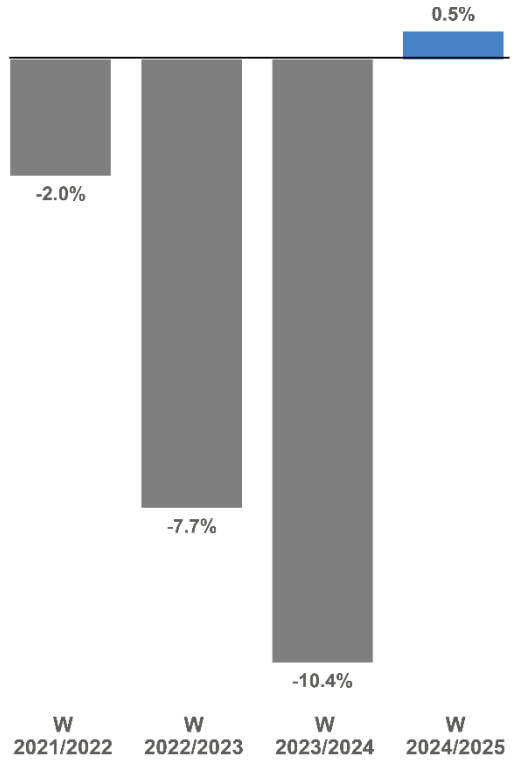
Source: ACER based on Gas Infrastructure Europe data.
Note 1: Utilisation calculated as ratio between technical nominal capacity and send-out volumes. See expanded considerations on the subject in ACER's LNG Market Monitoring Report (April 2024).
Note 2: In some gas markets (e.g., Spain, Greece) that lack capacity sufficient gas supply flexibility (UGS, interconnector capacity), LNG terminals are dimensioned to meet peak winter demand.

Consumption increased compared with past two winters

EU* gas consumption, October-February, 2020- 2025 (TWh)



Heating degree days deviations from long-term average, Germany October-February, 2020- 2025 (%)

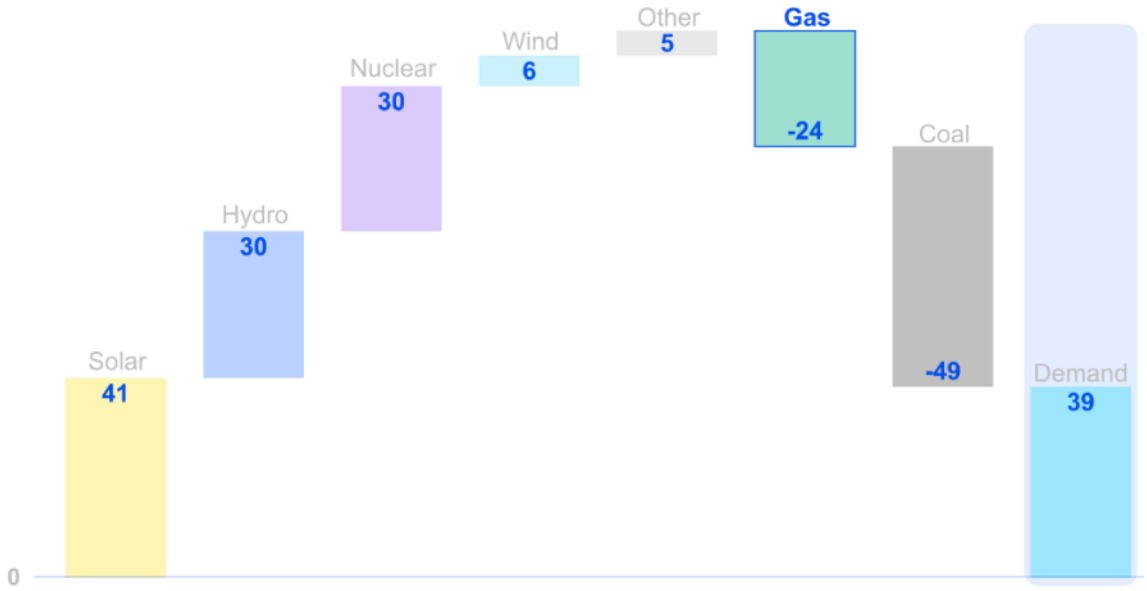


Gas consumption increased just by 0.5% in 2024 compared with 2023. However, Q4 2024 levels were 8-9% higher than in the same period of 2022-2023. Based on a sectoral breakdown of 12 EU countries covering 83% of 2024 EU gas consumption, there was a 17.6% increase in gas use for power in Q4 2024 vs Q4 2023, while demand increased by 6% in both industrial sector and households/commerce.

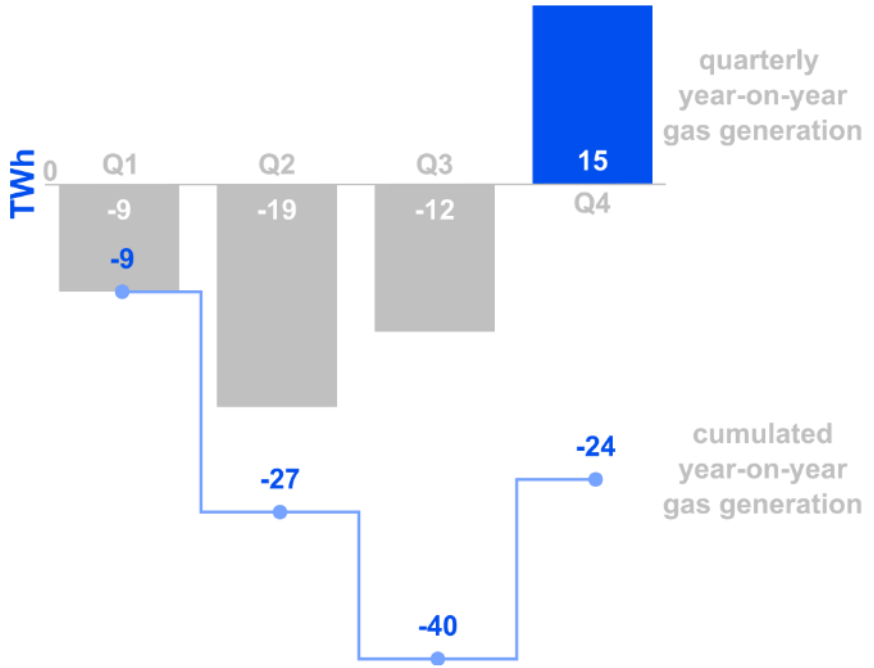
Source: ACER based on Eurostat and and Platts data.
Note*: Estimated based on Eurostat data, including preliminary data. Data for Slovakia, Estonia and Sweden not included in any period.

Demand for gas power generation was highly variable in 2024

Year-on-year changes for the main generation technologies, EU-27/EEA(Norway), 2024 (TWh)



Year-on-year changes for gas generation, EU-27/EEA(Norway), 2024 (TWh)

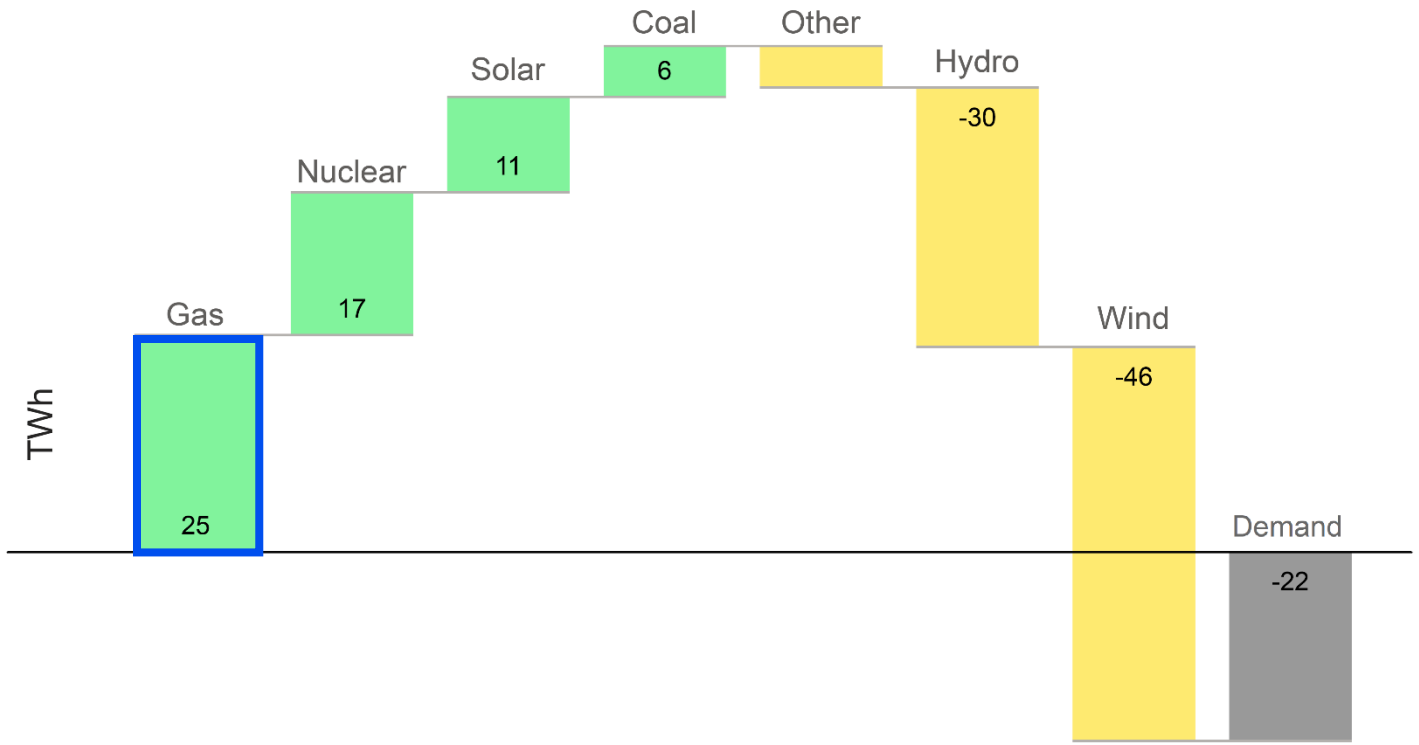


Source: ACER calculations based on European Network of Transmission System Operators for Electricity (ENTSO-E) data

Note: Hydro does not include hydro-pumped storage. Hydro-pumped storage, biomass, and other generation sources were accounted for separately, with other generation sources, for which the aggregated variation in generation for 2023 was zero.

Winter 2024-25 saw gas compensating low wind output

Year-on-year change for main electricity generation technologies, EU-27, winter 2024-2025 (TWh)

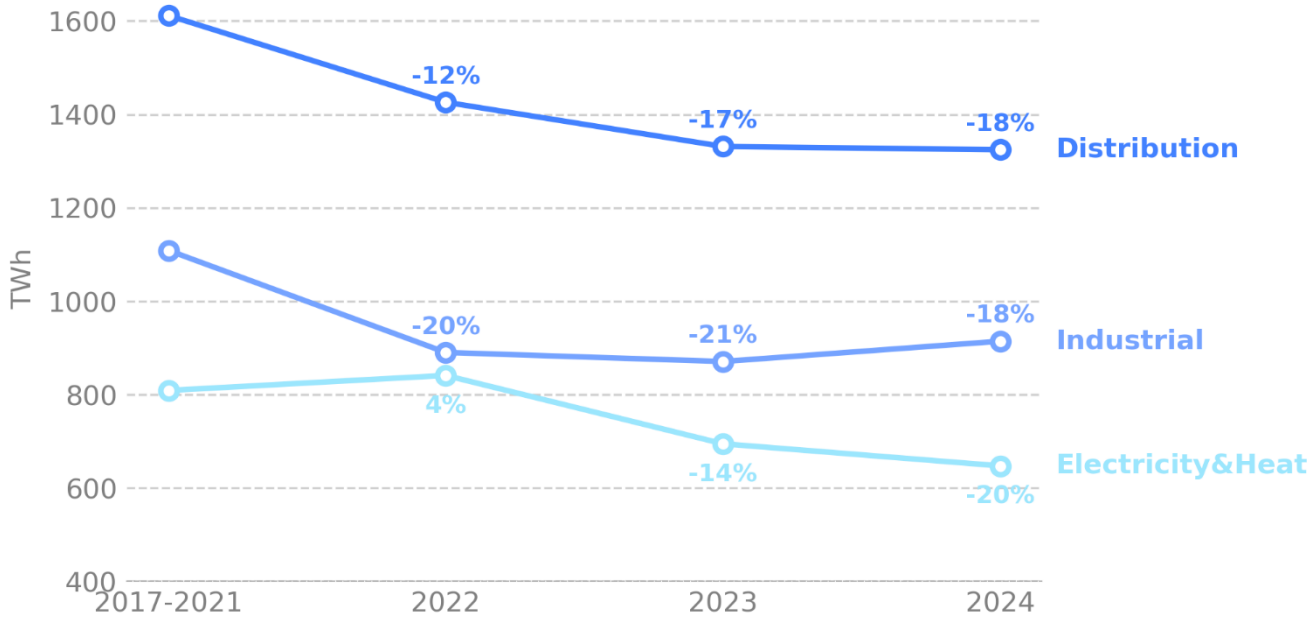


One of the drivers of increased gas consumption this winter was the larger demand for gas fired power generation compared with the winter 2023-2024. While both wind and solar renewable electricity generation have been growing strongly in the past years, historically poor wind conditions this winter necessitated a substantial lift in output of other generation technologies.

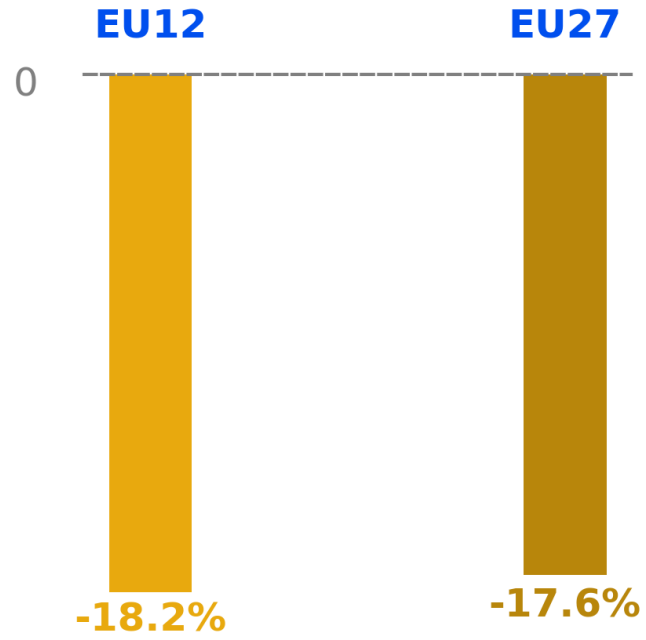
Source: ACER calculations based on European Network of Transmission System Operators for Electricity (ENTSO-E) data.
Note: Hydro does not include hydro-pumped storage. Hydro-pumped storage, biomass and other generation sources were accounted for separately, under the category 'Other'.
'Demand' combines consumption and net imports from countries outside the EU.

Focus on 2024 : industry consumption up, power down in the EU

EU gas consumption evolution per sector in a selection of 12 Member States, 2017-2021 vs 2022, 2023 and 2024 (TWh) -



Demand reduction in 2024 compared with 2017-2021 average, (%)

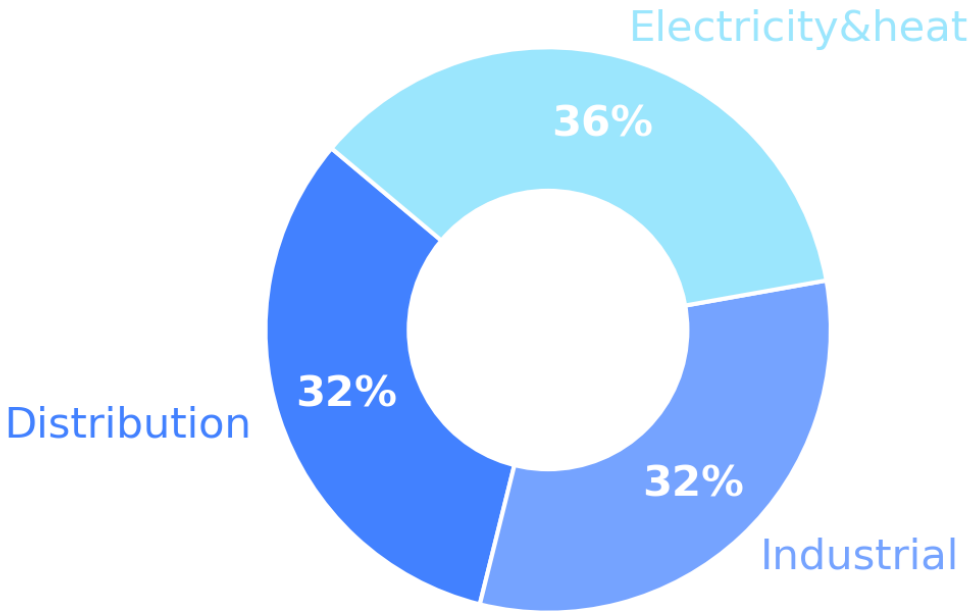


Despite the increase of gas use for power in Q4 2024, electricity sector demand fell by 7% in 2024 compared to 2023. Gas demand rose by 5% in the industrial sector. Heating demand (households and commerce) remained stable and still well below the average 2017-2021 gas demand.

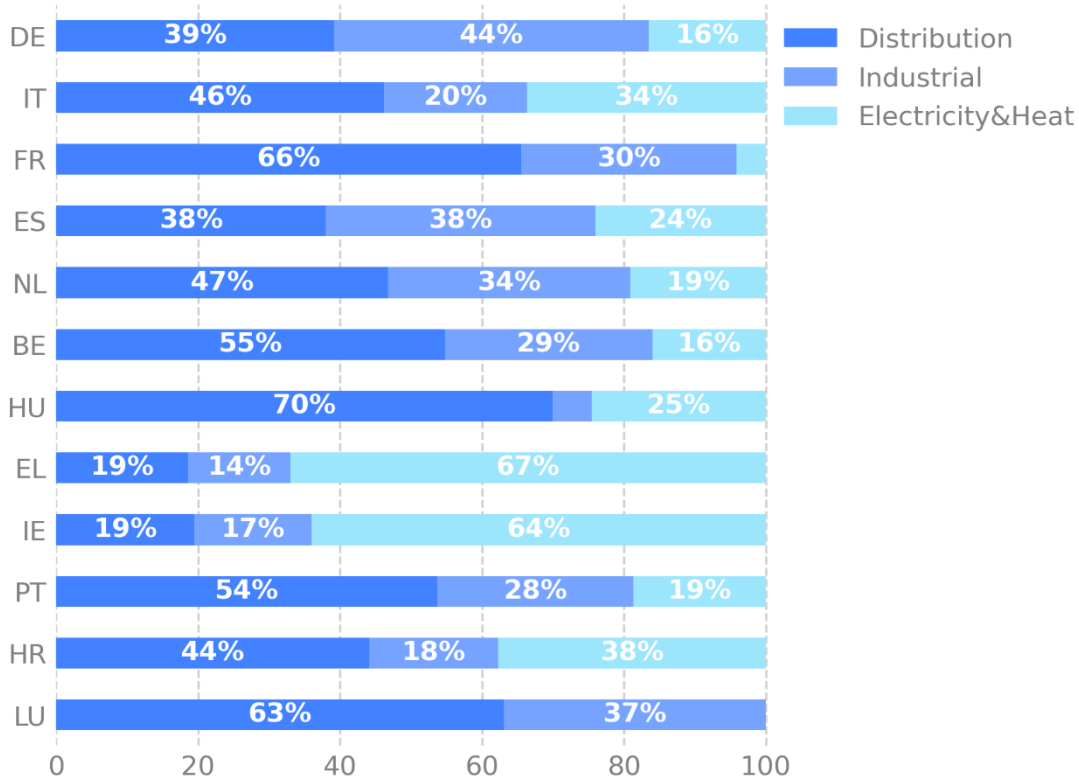
Source: ACER based on Eurostat and JRC's ENaGaD.
Note*: Estimated sectoral breakdown. The sectoral breakdown is based on 12 countries (BE, DE, EL, ES, FR, HR, HU, IE, IT, LU, NL, PT) which covered 83% of the 2024 EU gas consumption.

Focus on 2024: evenly distributed sectoral gas demand reduction

EU gas demand reduction contribution, 2024, (%)



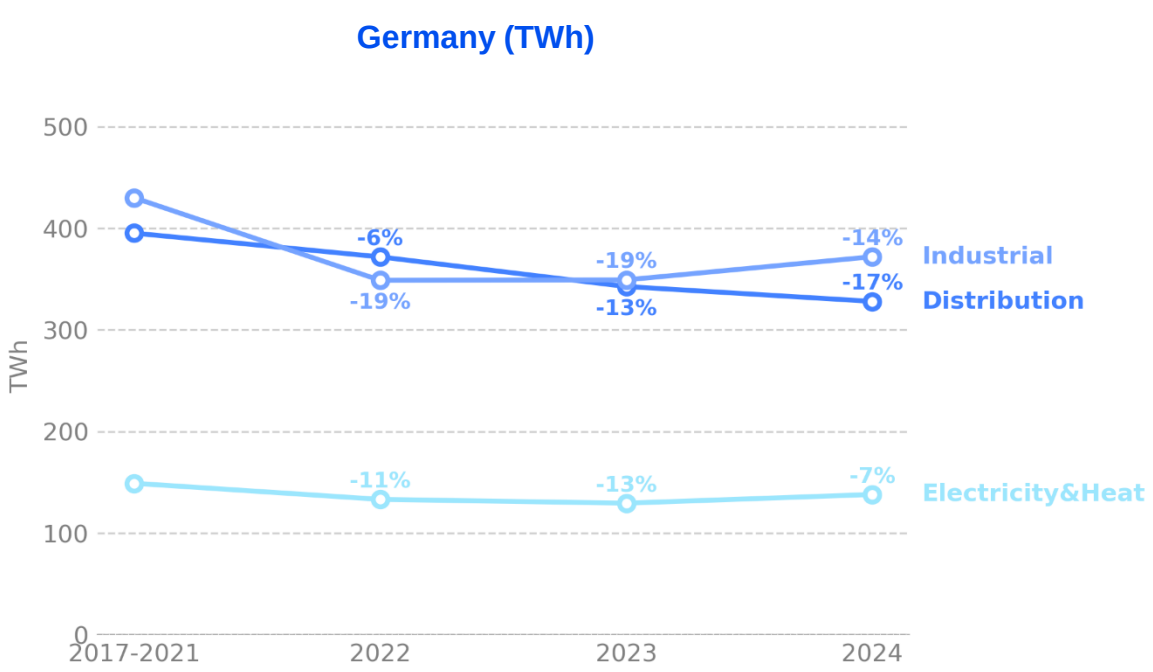
Sectoral gas demand breakdown, 2024, (%)

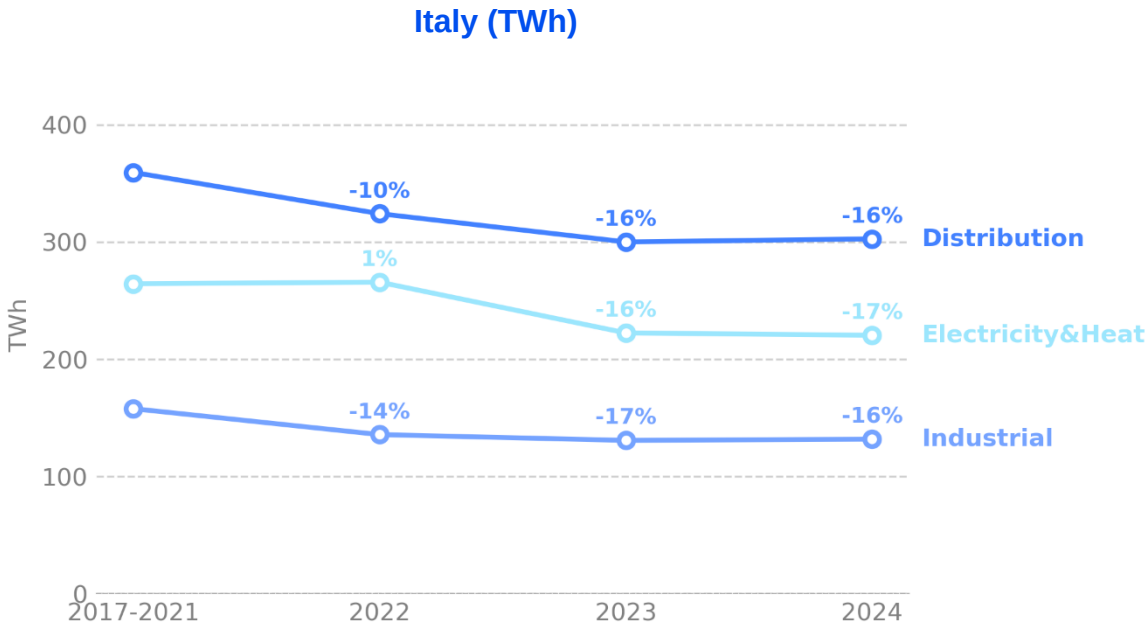


Gas demand in 2024 dropped 17.6% compared to the 2017-2021 average, slightly less than in 2023. The reduction was evenly distributed across households/commerce, industry, and electricity sectors. The breakdown of gas consumption per sector highlights the diverse dynamics of gas in the various national markets. Key influencing factors include overall economic growth, weather fluctuations, while more structural factors relate to households' heating needs, industrial activity, and the electricity mix.

Source: ACER based on Eurostat and JRC's ENaGaD.
Note*: Estimated sectoral breakdown. The sectoral breakdown is based on 12 countries (BE, DE, EL, ES, FR, HR, HU, IE, IT, LU, NL, PT) which covered 83% of the 2024 EU gas consumption.

Focus on 2024: role of gas influences consumption change





The evolution of sectoral gas consumption depends on the national gas market and the role played by gas in the energy sector and wider economy. Germany and Italy account for ~40% of the EU gas demand. In Germany, industrial demand is slowly recovering but remains 14% lower than in 2017-2021. Heating demand continues to decline. Compared to 2023, Germany's gas demand increased by 6.6% in both industry and electricity sector but fell by 4.2% in households and commerce. Italy has stronger electricity-gas interdependency. In 2024, the sectoral decomposition remained stable. Industrial and distribution grid demand rose by 1%, while gas use for electricity generation fell by 1% year-on-year.

Source: ACER based on Eurostat and JRC's ENaGaD.
Note*: Estimated sectoral breakdown.

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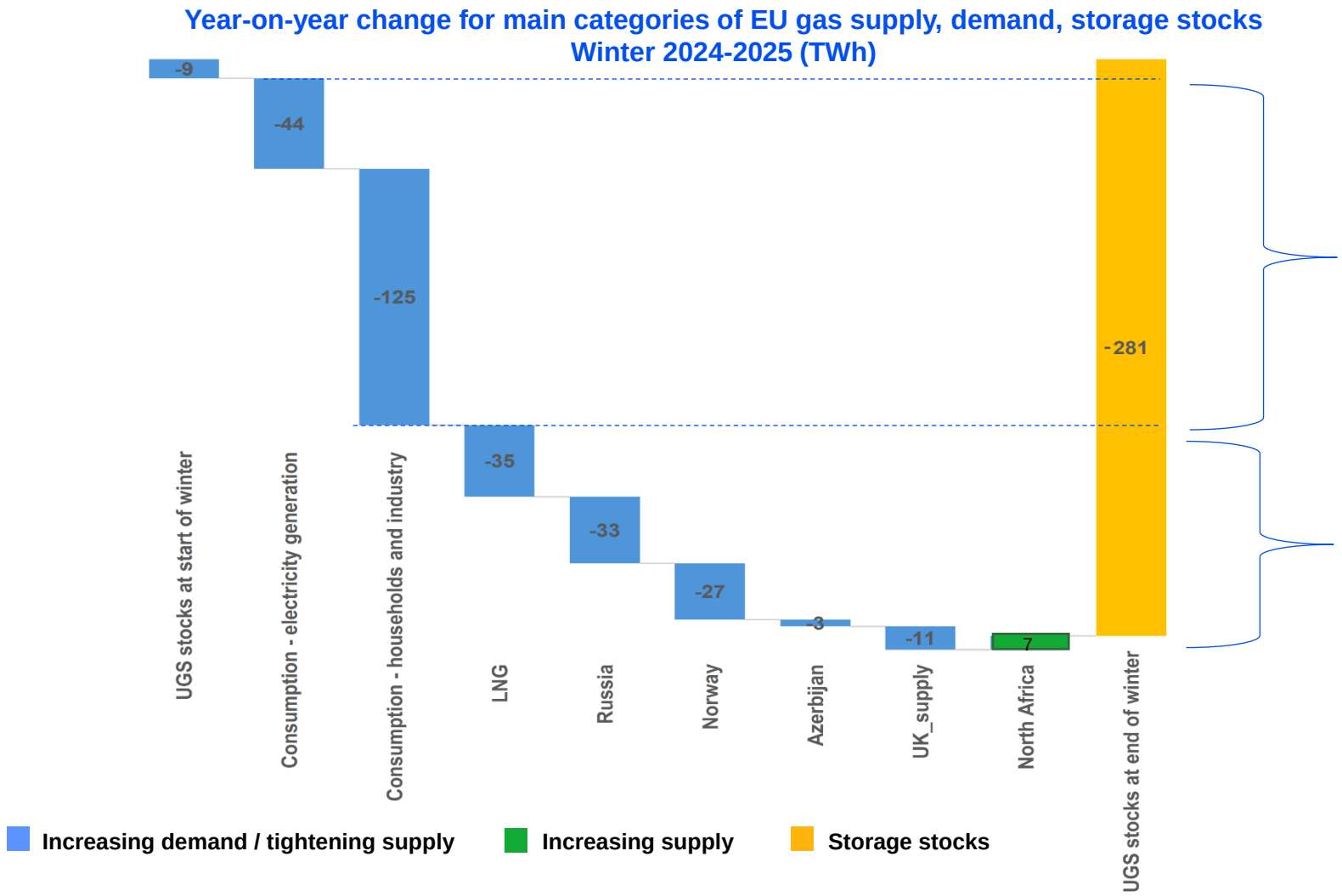
Storage developments

Overview of market developments in winter 2024/2025 and outlook for summer 2025

Winter 2024/2025: storages balanced higher demand, lower supply



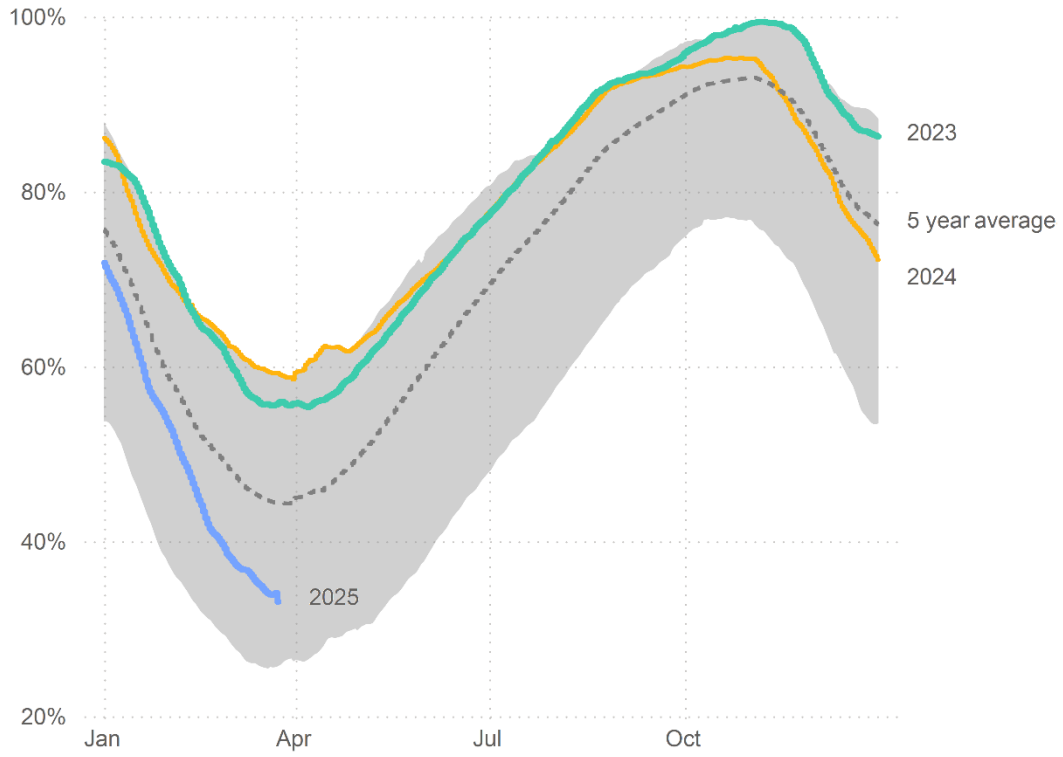
Weather driven increase of gas consumption accounted for more than half of the difference to last years' gas storage stocks at the end of winter.

Supply from all major sources decreased compared to last winter, except for pipeline supply from North Africa.

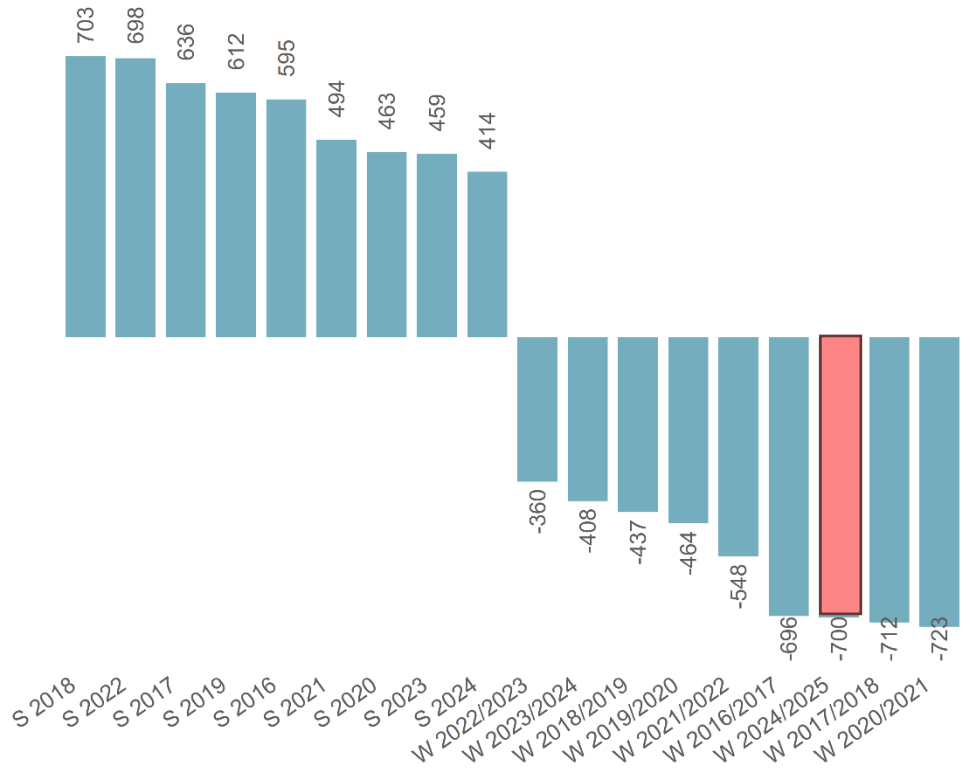
Source: ACER based on Gas Infrastructure Europe and European Network of Transmission System Operators.
Note: UGS stands for underground gas storage.

With withdrawals reaching multi-year highs

EU gas storage levels, 2018-2025 (% of working gas volume)



EU gas storage injections and withdrawals per season, 2017-2025 (TWh)

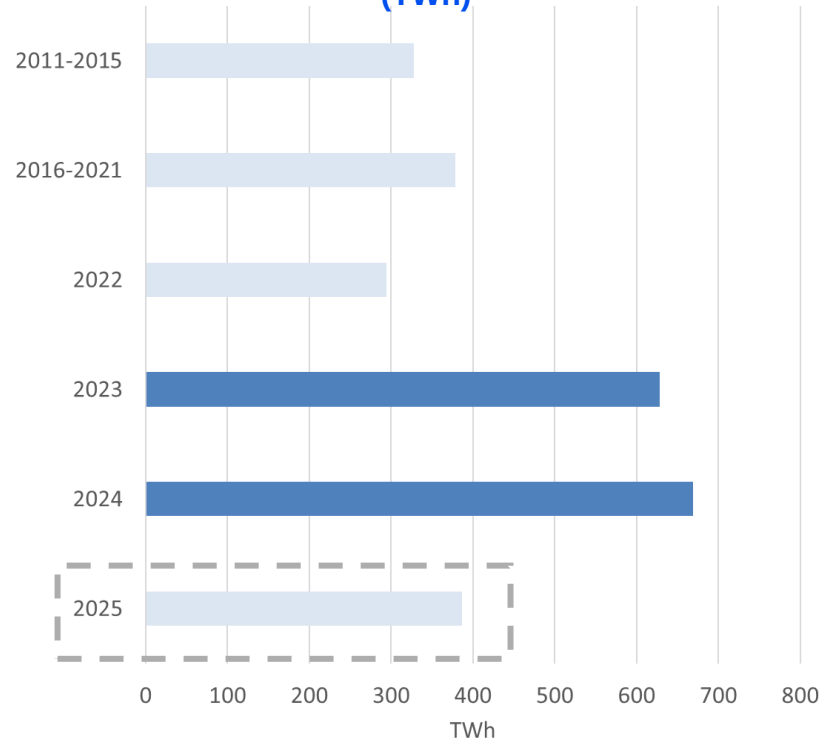


Underground storage levels were high at the end of summer 2024, meeting targets of EU storage regulation[1]. However, withdrawals during winter 2024/2025 surged due to an early and colder-than-average season, increased gas-fired power plant consumption amid weak renewable generation, and high LNG prices partly limiting imports.

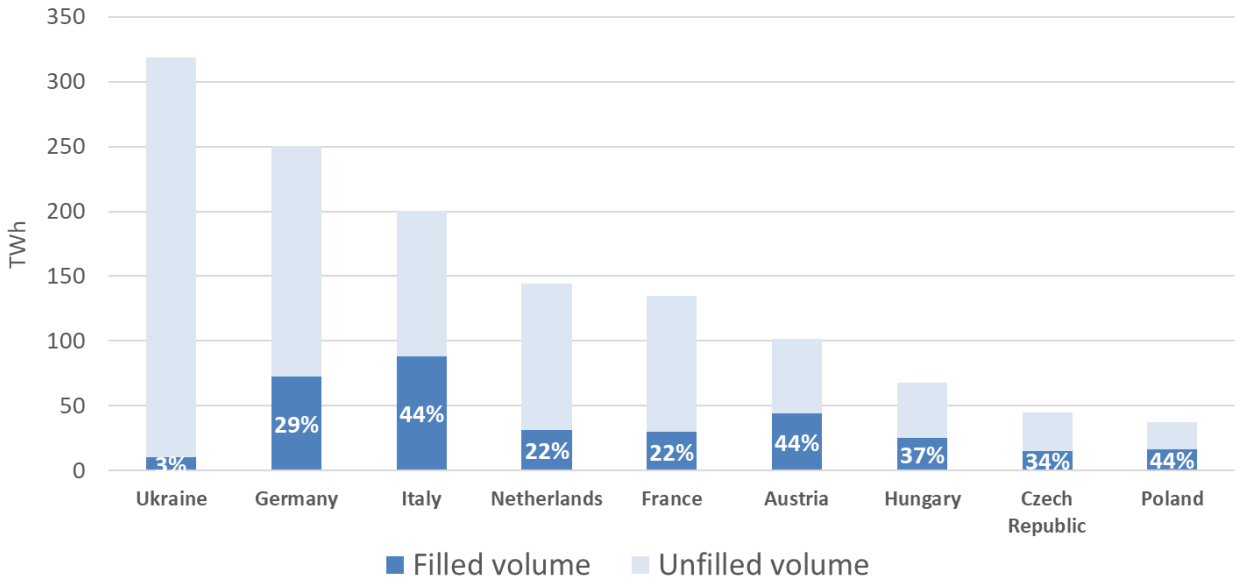
Source: ACER based on Gas Infrastructure Europe data.
Note 1: The EU adopted the Gas Storage Regulation (Regulation (EU) 2022/1032) in June 2022 mandating Member States to fill storage facilities to at least 80% of their capacity by 1 November 2022, and up to 90% by 1 November in subsequent years. Storage filling targets for 2024 were set in Regulation (EU) 2023/2633:

By April 2025 stocks were well below 2024, but closer to historical records

EU aggregate storage filling levels by 1 April – 2011 - 2025 (TWh)



Storage capacity and relative filling levels per Member State and Ukraine - 1 April 2025 – (TWh and %)

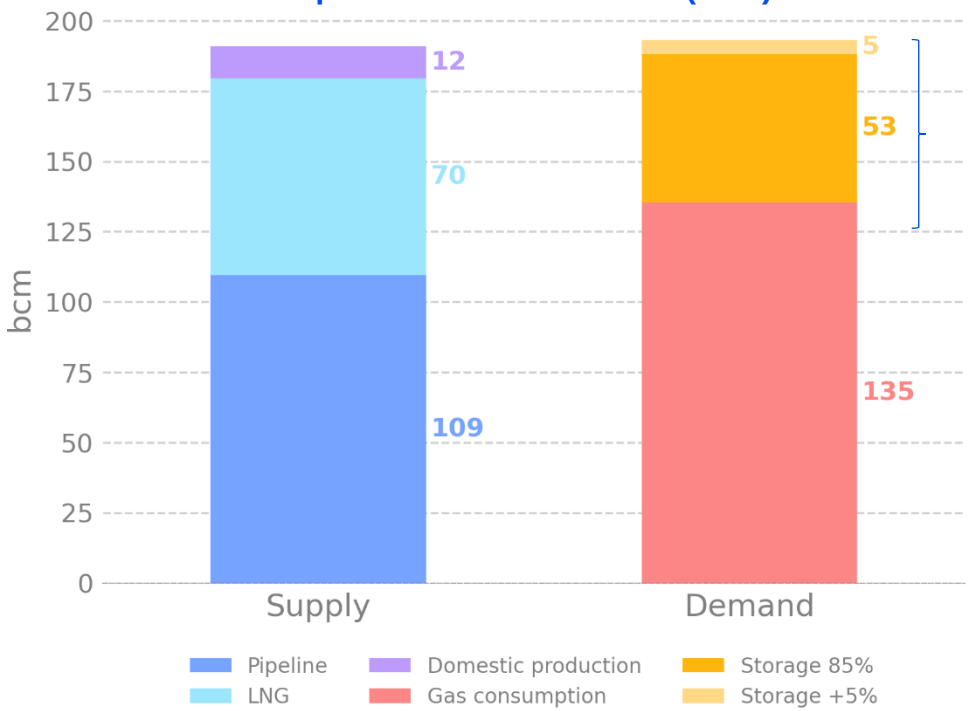


EU underground storage sites ended 34% full by 1 April 2025. Significant variations are observed among Member States.
Overall, EU gas stored volumes are aligned with the pre- 2022 averages. However, they are well below 2023 and 2024 levels.

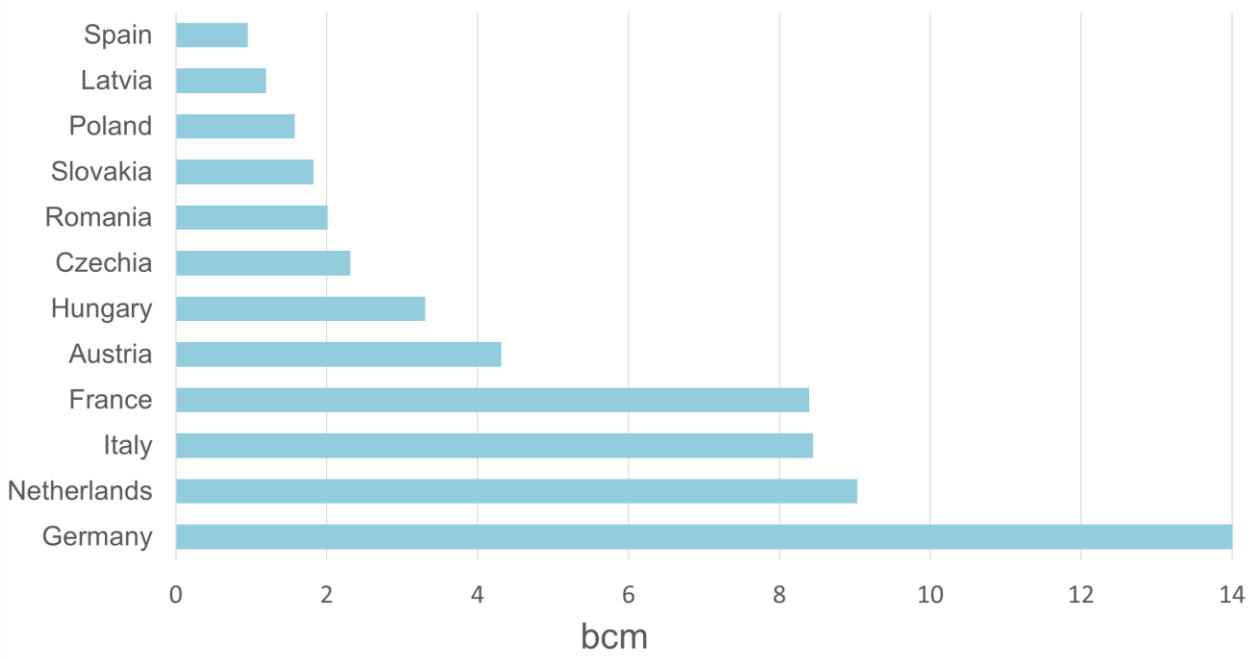
Source. ACER based on Gas Infrastructure Europe data

Summer 2025: achieving the 90% target requires large LNG imports

EU projected supply-demand balance in (extended) summer 2025 – 1 April to 1 November 2025 (bcm)



Injection needs per Member State to meet the 90% 1 November 2025 storage target – 1 April 2025 - (bcm)



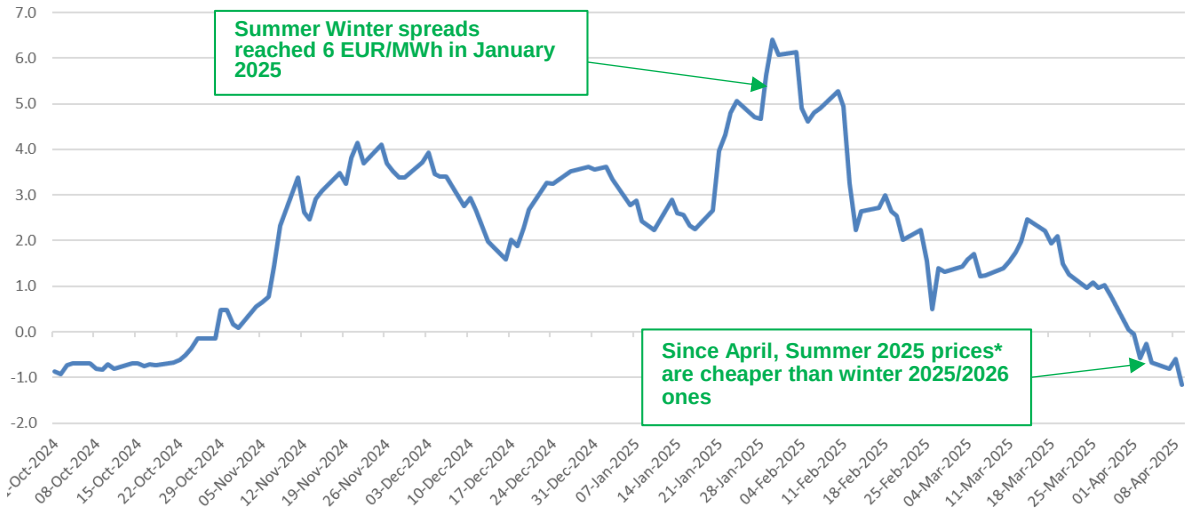
Meeting both summer 2025 consumption needs and refilling storages to 90% will only be feasible if pipeline supplies operate at a high-level range and LNG imports increase around 20% above 2024 levels(*). Forward prices in early April 2025 indicate that those LNG imports will arrive at some higher costs than in preceding years, due to a tighter global LNG market. Germany will need the most injections, followed by the Netherlands, Italy and France.

Source. ACER based on Gas Infrastructure Europe, Eurostat and European Network of Transmission System Summer supply outlook.
Note: The figure accounts for the maximum 30-day rolling average supply across the Algerian, Libyan, and Caspian routes in summer 2024 and Norwegian gas imports at five-year season-highs. LNG supply is assumed to average 10 bcm/month, in line with 2023 trends. This is 22% above (extended) summer 2024. Part of these extra volumes have been already contracted to offset the drop in Ukrainian Russian pipeline flows. TurkStream pipeline flows from Russia are considered to be operating at full capacity, while domestic production is set to winter 2024-2025 levels. Demand projections align with 2024 figures. Extended flexibility could result in the 90% target being met by 1 December, somewhat reducing supply stiffness.

Unfavourable seasonal spreads may deter summer injections

Natural gas price turn-out (TTF day-ahead) and market price expectation (TTF basket of forward products), Jan 2023 to 1 April 2025 (EUR/MWh)

Evolution of summer 2025 minus winter 2025/2026 season prices – October 2024 to 10 April 2025 - (EUR/MWh)



While the market has been highly volatile, summer 2025 prices have consistently exceeded winter 2025/2026 prices in last months. The seasonal spread peaked in January 2025 at 6 EUR/MWh. Although the spread settled in the last part of the winter at 1 to 2 EUR/MWh, it discouraged injections for summer 2025. In April 2025 summer 2025 prices have reversed to a slight discount, even if the price difference is still thinner than storage costs.

The causes of this unfavourable price spread remain debated. Primarily, they were driven by supply tightness and by the low storage stocks requiring higher injections. Geopolitical instability and reducing gas supply flexibility are additional factors contributing to push summer prices higher. Finally, storage filling targets, and arguably, inefficient subsidies to support injections may be additional contributing factors.

Source: ACER based on ICIS.
Note: Backwardation occurs when the spot / short-term price of gas surpasses its futures market prices. This is often due to higher demand in the present compared to contracts maturing later. Backwardation often arises in markets experiencing supply shortages. The summer-winter spreads eased in the last winter months, staying at 2 EUR/MWh above winter prices, amid warmer and windier predictions. In fact, since April 2025, when considering month-ahead (i.e., proxy of summer 2025) prices vs season ahead winter 2025/2026 prices, the spread is again in negative values (contango) being more supportive for injections.

The extension of the 90% storage targets attracts debate

Discussions have emerged about the suitability of the 90% EU storage filling target by 1 November 2025 and whether the measure is putting undue upward pressure on prices. Stakeholders and Member States are expressing differing views about their continuation

Unfavourable to targets

- The current negative seasonal spread is driven by an excessive risk perception, the extension of large storage filling targets and possibly ineffective injection subsidies. Lowering the filling target would ease the spread and reduce summer 2025 prices.
- A 90% storage level is less critical in 2025 that it was in the past, as demand has dropped over 20% since 2022.
- Capacity-based subsidies could be more efficient than commodity support ones.
- If commodity support is also necessary, it should be better implemented through tenders rather than fully covering the summer-winter spread . The latter approach risks being more directly reflected in market prices.

Favourable to targets

- Revising the storage targets would set a risky precedent, undermining trust in regulations and creating significant risks for companies that have already made financial commitments.
- Higher summer prices are necessary to attract sufficient gas this summer. While they may cause some short-term harm, they help prevent a more severe crisis caused by insufficient storage driving gas prices even higher next winter.
- While the final target should be maintained, flexibility in filling trajectories can be explored. Rising the deviation percentage of the intermediary filling trajectories or prolonging the final target period could be considered.

The European Commission has proposed to extend the current targets until 2027, while conceding more flexibility to meet the intermediary storage filling targets. At the time of publication, the proposal is being discussed with the Council and European Parliament.

Note: While the revised Security of gas Supply Regulation 2022 sets a referential storage filling target of 90% by November 1, the actual EU-level target is slightly below 80% as the Regulation grants derogations to several Member States, including Austria, Hungary, Czechia, the Netherlands, Slovakia, and Latvia.

European Union Agency for the Cooperation
of Energy Regulators

info@acer.europa.eu
acer.europa.eu
@eu_acer
linkedin.com/company/EU-ACER/