

Quarterly report

On European gas markets



Market Observatory for Energy
DG Energy

Volume 17

(issue 2, covering second quarter of 2024)

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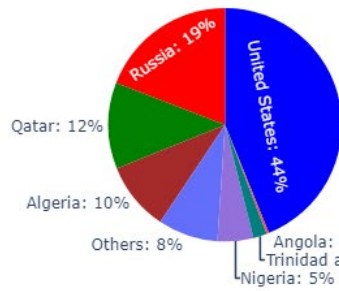
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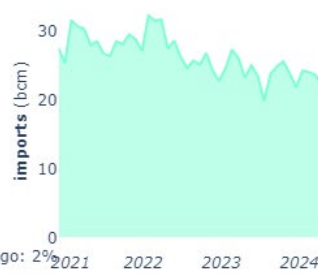
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Gas market fundamentals in Q2 2024 and year-on-year comparison



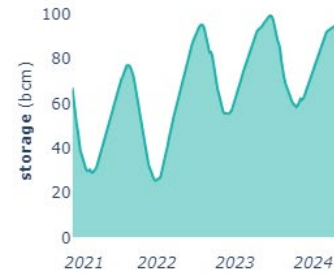
LNG: 25.4 bcm



Gas imports

70bcm

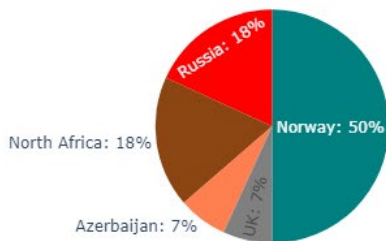
▼-6bcm



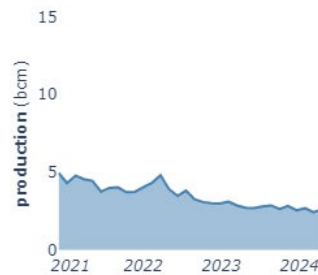
Gas storage

69bcm

▼-2bcm



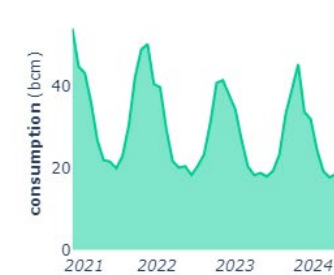
Pipelines: 44.2 bcm



Gas production

8bcm

▼-2bcm



Gas consumption

61bcm

▼-4bcm

Headline prices in Q2 2024 and year-on-year comparison



Wholesale prices

32 €/MWh

▼-3€/MWh

Change y-o-y

-10%



Retail prices

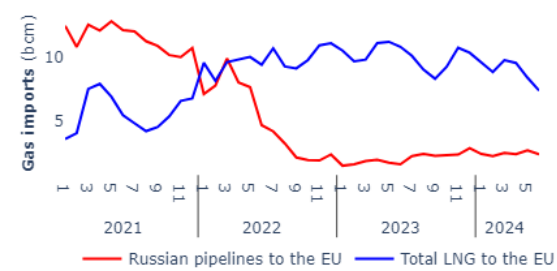
101 €/MWh

▼-11€/MWh

Change y-o-y

-10%

Focus of the Quarter: Imports of Russian Pipelines and US LNG



LNG share of EU imports

36%
▼ -5%

US share in LNG imports

44%
▼ -2%

Pipelines share of EU imports

64%
▲ 5%

Russian share in pipelines imports

17%
▲ 3%

Source: ENTSO-G, LSEG, VaasaETT, EUROSTAT, AGSI, Platts.

HIGHLIGHTS OF THE REPORT

EU gas consumption, production, and storage in Q2 2024

- **EU gas consumption** was **61¹ bcm**, a **decrease of 6 %** (-3.8 bcm) **year-on-year** indicating a **continued contraction** of EU gas consumption driven partially by a **22% decline in gas input for power generation**. **Quarter-on-quarter, consumption declined 45%** (-49.4 bcm) following the end of the winter heating season.
- **EU domestic gas production further declined** to almost **8 bcm** quarterly production, a **decrease of 8 %** compared to the **previous quarter**, and **18% less** than in the **previous year**. **Romania** (2.3 bcm) **became the largest EU producer** for the first time, followed by the Netherlands (2.2 bcm) on the second and Germany (0.9 bcm) on the third position.
- **EU gas storage level** reached the highest level since 2021 and stood at **67%**, by 3% higher than in Q2-2023. Compared to the first quarter, the storage filling rate declined by 1% reflecting seasonal withdrawals for heating.

EU gas imports in Q2 2024

- **EU gas imports** amounted to almost **70 bcm, unchanged** compared to the **previous quarter** and a **decline of 9 %** compared to the **previous year**. **Pipeline gas** constituted **64 % of imports** (44 bcm) and **LNG** was **36 %** (25 bcm). **Norway** remained the **EU's biggest gas supplier** (34 %, 23.3 bcm), followed by **Russia** (18 %, 12.4 bcm), the **US** (16 %, 11 bcm), **North Africa** (15 %, 10.8 bcm), **Qatar** (4 %, 3 bcm) and **Azerbaijan** (4 %, 3 bcm).
- **EU pipelines imports increased by 7%** compared to the **previous quarter** and by **2%** compared to the **previous year**. **Norway supplied half of the EU's pipeline imports (50%)**, followed by **North-Africa** (19%), **Russia** (17%) and **Azerbaijan** (7%).
- **EU's total gross LNG import decreased by 10 %** (-3 bcm) **quarter-on-quarter** and **by a significant 23 %** (-8 bcm) **year-on-year**. **France remained the largest EU importer** with a share of around **one fifth** (21 %) of LNG, followed by Spain (17 %) and the Netherlands (17 %). The **United States** remained the **biggest EU LNG supplier** accounting for 44 % of the EU LNG imports, followed by **Russia** (19 %) and **Qatar** (12 %).
- **Russian gas represented 18 % of EU's total gas imports**, a decrease of one percentage points compared to the previous quarter and four percentage points increase year-on-year. **Total Russian gas imports**, combining pipeline and LNG, was **12.6 bcm**, a **decline of 3 %** (-0.4 bcm) **quarter-on-quarter** and an **increase of 25 %** (+2.6 bcm) **year-on-year**. **Compared to 2021** (the last year before Russia's invasion of Ukraine), the quarterly Russian **gas imports declined by 70 %**.

EU wholesale gas prices and markets in Q2 2024

- **European wholesale gas prices** averaged **32 €/MWh** in the second quarter of 2024, an **increase of 16 %** compared to the **previous quarter** and a **10 % decrease year-on-year**. May 2024 registered the lowest wholesale price in the quarter (29 EUR/MWh), comparable to the price in June in the second quarter of 2021.
- **Asian prices** were **13 %** or **4 €/MWh higher than European prices** as a quarterly average. Their premium increased throughout the quarter from 3 €/MWh (+10 %) in April, to 4 €/MWh (+12 %) in May and +5 €/MWh (+16 %) in June. The **Henry Hub in the United States** recorded an average price of **7.42 €/MWh** with a **difference of 24.3 €/MWh compared to Europe's TTF benchmark** signaling a growing gap compared to the previous quarter (20.9 €/MWh) but a reduction in the price difference from 27.9 €/MWh a year ago.

EU retail gas prices in Q2 2024

- **Retail gas prices fell by 4 %** compared to the previous quarter and **by 10 % year-on-year**. The EU average retail price was **101 €/MWh**. May 2024 registered the lowest retail price (100 EUR/MWh) in the quarter and **since the start of the energy crisis** in 2022.
- **Retail prices continued to diverge** across the EU and **ranged between 26 €/MWh** (Hungary) and **173 €/MWh** (the Netherlands) (disregarding Sweden, 334 €/MWh, which has little gas use in households). Compared to the previous year, prices declined in most of the Member States.

Methodological Note: The rapid changes in gas and electricity markets happening through the energy transition as well as the significant restructuring of the EU's energy supply following the energy crisis, call for reviewing the Quarterly Reports of the European Electricity and Gas Markets so as to make them best fit for purpose. The aim is to ensure a timelier publication, modernise presentation, increase data transparency and an easier access to the data used to produce the reports. All this should increase usability for readers. The process of the review is planned to be carried out gradually attending the feedback we receive on it. As the Commission advances with its review, the quarterly reports will progressively reflect the methodological, technical, and editing changes as well as the comments received from stakeholders.

¹ Numbers in the highlights are rounded to the nearest integer when practicable for ease of reading.

1. Gas market fundamentals

1.1 Consumption

Gas consumption in the EU and year-on-year comparison

Q2 2024

61 bcm

▼-6%

Q2 2023

65 bcm

▼-8%

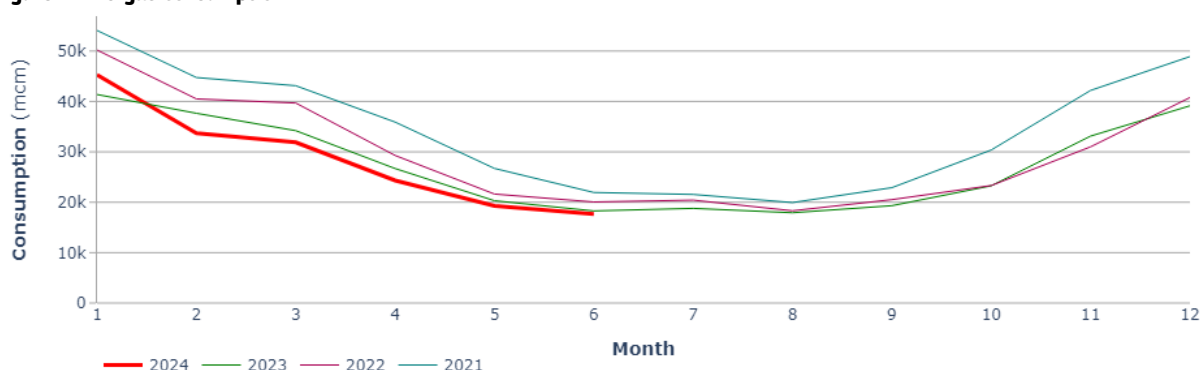
Q2 2022

71 bcm

▼-16%

- EU gas consumption² in the second quarter of 2024 was 61 bcm, a decrease of 45% (- 49.4 bcm) quarter-on-quarter reflecting the move to the summer season from the winter heating's peak consumption period. Year-on-year, quarterly consumption decreased by 6% (-3.8 bcm) indicating a continued contraction of EU gas consumption compared to historical levels.

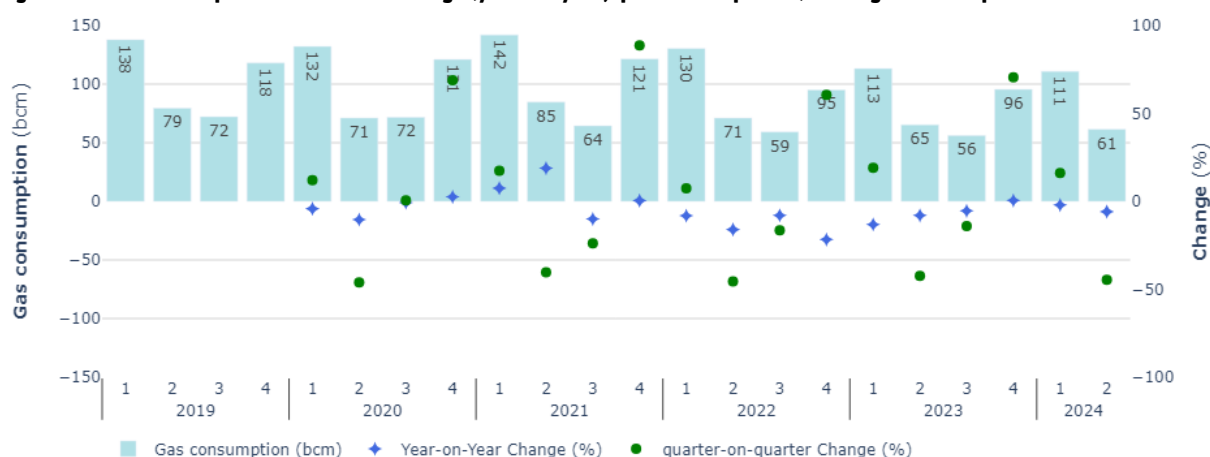
Figure 1 - EU gas consumption



Source: Eurostat.

- Figures 2** shows the yearly and quarterly changes of the EU's gas consumption in each quarter. Regarding year-on-year changes, the continuous year-on-year decline in the consumption of each second quarter experienced since 2022 continued in the second quarter of 2024 although the decline has moderated after the large drops in 2022 and 2023.
- Regarding the quarter-on-quarter variations in the EU's gas consumption, in the second quarter of 2024, the EU consumed 45% (-49.4 bcm) less natural gas than in the first quarter of 2024, in line with the low heating demand seen in between April and June, as demonstrated by Figure 2.

Figure 2 – Gas consumption volumes and change (year-on-year, quarter-on-quarter) of EU gas consumption



Source: Eurostat.

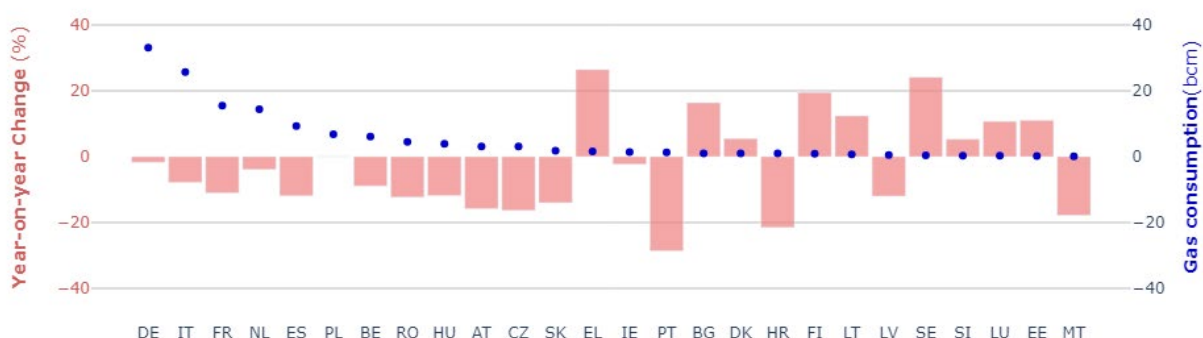
- In a quarter-on-quarter comparison, **gas consumption decreased in all Member States**. The largest quarter-on-quarter decrease was observed in Latvia (-79%), while the smallest decrease occurred in Malta (-7%). The decline was over 60% in Romania (-62%) and Estonia (-60%), above 50% in France (-56%), Czechia (-55%), Hungary (-55%), Slovakia (-53%) and Austria (-50%), above 40% in eight Member States (Germany, Croatia, Italy, Belgium,

² EU aggregates, unless otherwise indicated, refer to EU-27, and in order to ensure comparability over time, values of earlier periods and year-on-year comparison indices also refer to EU aggregates without the United Kingdom. Therefore, in comparison to earlier editions, total EU aggregate numbers might differ in the current report.

Luxembourg, Denmark, Poland, and the Netherlands). More than 30% decline was observed in three Member States (Finland, Slovenia, Lithuania) and more than 20% in four Member States (Sweden, Portugal, Bulgaria, Spain). ³

- As shown in **Figure 3**, year-on-year consumption decreased in sixteen Member States by between 29% (Portugal) and 1% (Germany), while consumption increased in nine Member States by between 5% (Slovenia) and 29% (Greece). Above 20% consumption drop was reported from Portugal (29%) and Croatia (22%), while the smallest single digit decreases were observed in Germany (-1%), Ireland (-2%) and the Netherlands (-4%).
- As **Figure 3** equally shows, the five biggest EU gas consumers in the second quarter of 2024 remained Germany (14 bcm), Italy (11 bcm), the Netherlands (6.3 bcm) and Spain (5.9 bcm), and France (5.1 bcm).

Figure 3 - Year-on-year change in Member States' gas consumption in the second quarter of 2024



Source: Eurostat.

- EU registered a modest increase in real GDP which amounted to 0.24% quarter-on-quarter and 0.83% year-on-year. The overall EU GDP amounted to 3.31 trillion EUR (in 2010 inflation adjusted EUR) in Q2 2024 compared to 3.30 trillion EUR in Q1 of 2024 and 3.28 trillion EUR in Q2 2023⁴.

Figure 4– Change in EU27 real GDP in year-on-year comparison



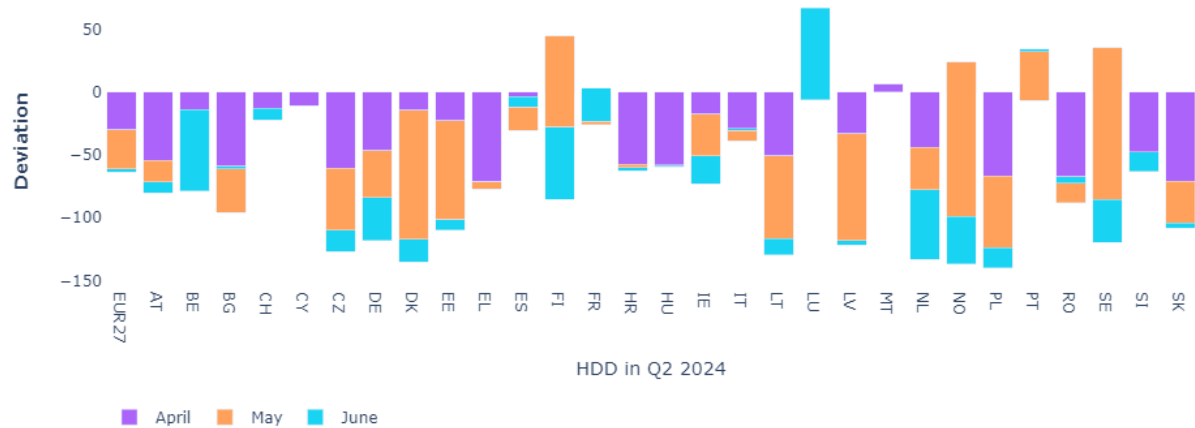
Source: Eurostat.

- **Figure 5 & 6** illustrates the monthly deviation of actual Heating Degree Days (HDDs) and Cooling Degree Says (CDD) from the long-term average (a period between 1979 and the last calendar year completed) in the second quarter of 2024. In most of Europe, milder than usual temperatures resulted in less HDDs during Q2 2024 continuing the prevailing trend of recent years.
- However, **June 2024 was one of the rainiest on record in the EU** due to climate change, yet the figure clearly shows a significant increase in Cooling Degree Days (CDDs) for the month.

³ Cyprus currently does not have statistically reported gas consumption.

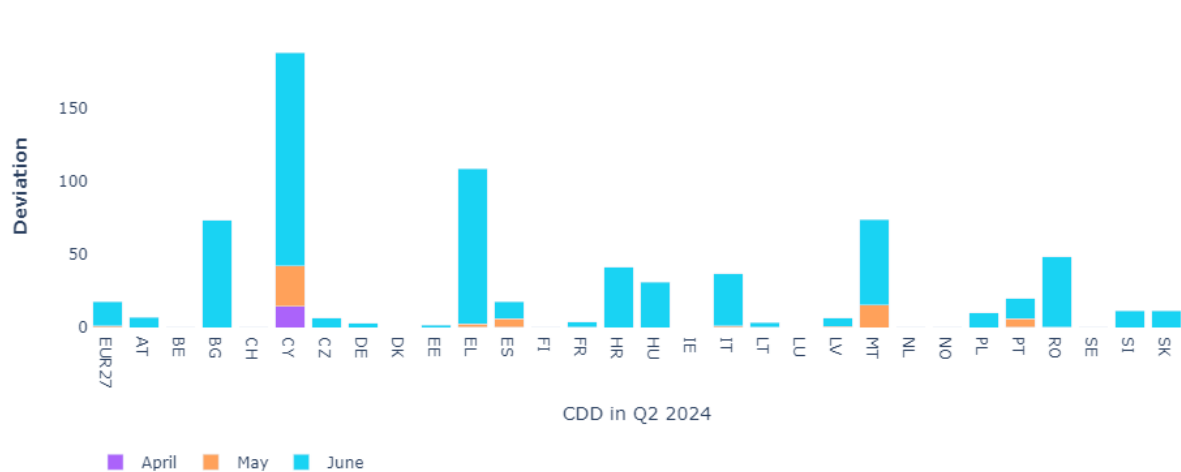
⁴ Chain linked volumes (2010) in million euro, seasonally and calendar adjusted gross domestic product at market prices.

Figure 5 – Deviation of actual Heating Degree Days (HDD) from the long-term average in Q2 of 2024



Source: Joint Research Center (JRC).

Figure 6 – Deviation of actual Cooling Degree Day (CDD) from the long-term average in Q2 of 2024



Source: Joint Research Center (JRC).

1.2 Production

Gas production in the EU and year-on-year comparison

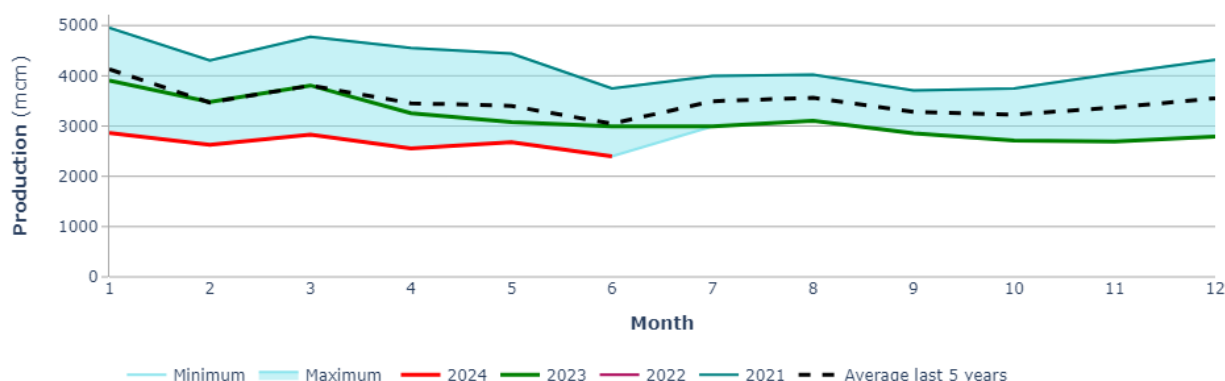
Q2 2024	Q2 2023	Q2 2022
8 bcm	9 bcm	11 bcm
▼-18%	▼-18%	▼-10%

Gas demand reduction in the EU

Q2 2024	Q2 2023	Q2 2022
12 %	14 %	16 %

- The **EU's domestic gas production** was 7.7 bcm⁵, a decrease of 8% compared to the previous quarter (8.3 bcm) and a 18% decline year-on-year (from 9.3 bcm)⁶. Average monthly production was 2.56 bcm, 8% decrease compared to the previous quarter (2.77 bcm), and 18% less than in the same quarter of 2023 (when the monthly average was 3.1 bcm).
- The **EU's domestic production covered 13% of the EU's consumption** in the second quarter of 2024. This was up from 7% in the first quarter of 2024, the increase was due to the 45% decline in consumption, which outpaced the 8% decline in production) but down from 14% in second quarter of 2023.

Figure 7 - Monthly domestic gas production in the EU



Source: Eurostat.

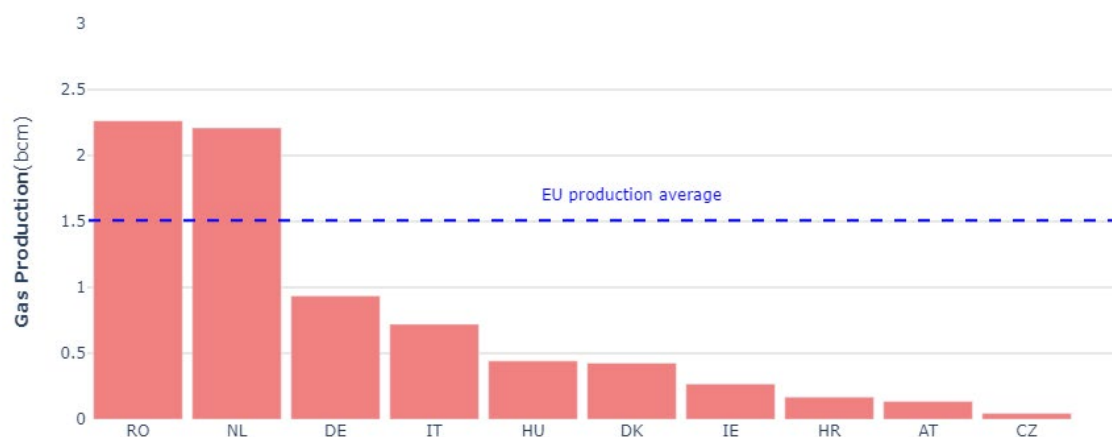
- In the EU, 18 Member States produce gas, while nine Member States (Finland, Estonia, Latvia, Lithuania, Luxembourg, Malta, Portugal, Sweden, Cyprus) do not have gas production in their territories.
- The **biggest EU gas producers** in the second quarter of 2024 **became Romania** for the very first time, with a total quarterly production of 2.3 bcm, a decrease of 4% since the last quarter and an increase of 1% year-on-year. The formerly number one domestic producer, the Netherlands continued to phase out its gas production and recorded a quarterly decline of 18% and a year-on-year decline of 17%, producing 2.23 bcm. The third largest producer remained Germany (0.9 bcm), followed by Italy (0.7 bcm) on the fourth place and Hungary (0.4 bcm) on the fifth place.
- In a **year-on-year** comparison, **production increased in seven Member States** (Denmark: + 37%, Spain: +21%, Greece: +16%, Hungary: +12%, Belgium: +10%, Czechia: +3%, Romania: +1%), while **decreased in the nine Member States** by between 46% (France) and 1% (Italy). Production in Austria remained unchanged (+0.46%). Compared to the previous quarter, production grew in five Member States (DK, HU, ES, HR, SI) by 1% (SI) and 34% (DK), while in twelve Member States there was a decline of between -2% (IT) and -74% (FR)⁷.

⁵ Figures in the infographics are rounded to the nearest integer when practicable for the ease of reading.

⁶ Domestic gas production in Poland is not included in Eurostat statistics since September 2023.

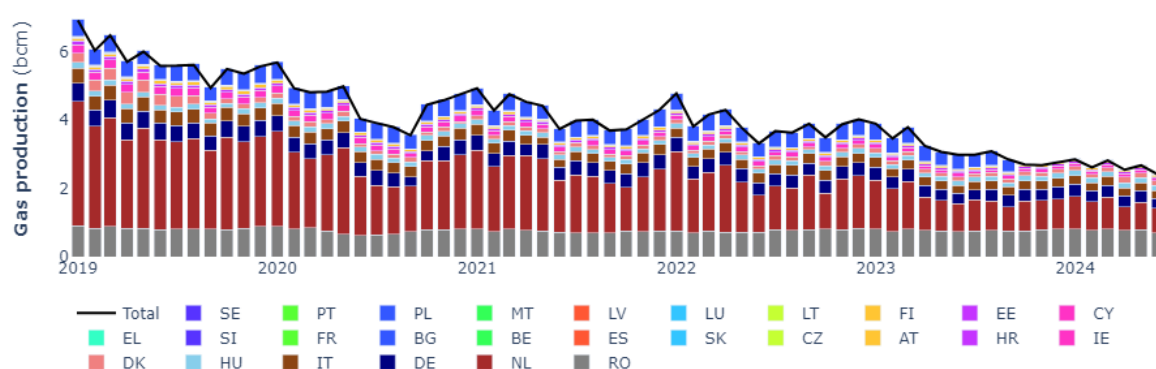
⁷ Statistical data on domestic gas production is available for 17 Member States as Poland no longer makes such data available via Eurostat since the fourth quarter of 2023.

Figure 8 - Quarterly gas production in EU Member States in Q2 of 2024



Source: Eurostat.

Figure 9 - Monthly gas production in the EU



Source: Eurostat.

- **Electricity generation from natural gas** amounted to **59 TWh** in the second quarter of 2024, a **decrease of 36 % compared to the previous quarter** (93 TWh) and **24% less than a year ago** in the same quarter. Electricity generation from natural gas constituted 10% of total electricity generation in the quarter, compared to 14% in the Q1-2024 and 14% compared to Q2 of 2023. The decreasing year-on-year gas-fired power generation volume combined with its decreasing share in the EU power mix indicates a diminishing role of gas as fuel for electricity production and coincides with a year-on-year increase in the volume and shares of renewable power generation. In the second quarter of 2024, especially solar power generation increased a lot, by 136% compared to the previous quarter reflecting also the usual summer surge, while its annual growth was 20% following the 37% growth in off-shore wind and 21% growth in hydro generation.
- **Gas input for electricity generation** amounted to **12.6 bcm** in Q2-2024, a **decrease of 36% compared to the previous quarter** (19.6 bcm) and **22% less than in the same quarter in 2023** (16 bcm). Year-on-year, gas input to power production declined in 18 Member States between 1% (Germany) and 88% (France), the biggest annual declines being registered in France (-88%), Portugal (-72%), Austria (-69%), Latvia (-49%), Spain (-41%) and Romania (-41%). In six Member States gas consumption for electricity generation increased by between 1% (Slovakia) and 306% (Sweden), the biggest increases taking place in Estonia (65%), Denmark (41%) and Greece (+32%), outside of Sweden which registered a fourfold increase year-on-year.
- **Gas input for electricity generation constituted 20% of the EU gas consumption** in the second quarter. This was an increase of 2 percentage points compared to Q1-2024 (18%) and a decrease of 5 percentage points compared to the same quarter in 2023 (25%).
- In Q2-2024, the five highest shares of gas-fired power generation were recorded in Malta (100%), Greece (73%), Ireland (59%), Estonia (48%) and Croatia (42%). The five lowest shares were reported from France (1%), Denmark (4%), Austria (5%), Lithuania (6%) and Luxembourg (7%).

Figure 10- Monthly electricity generation in the EU

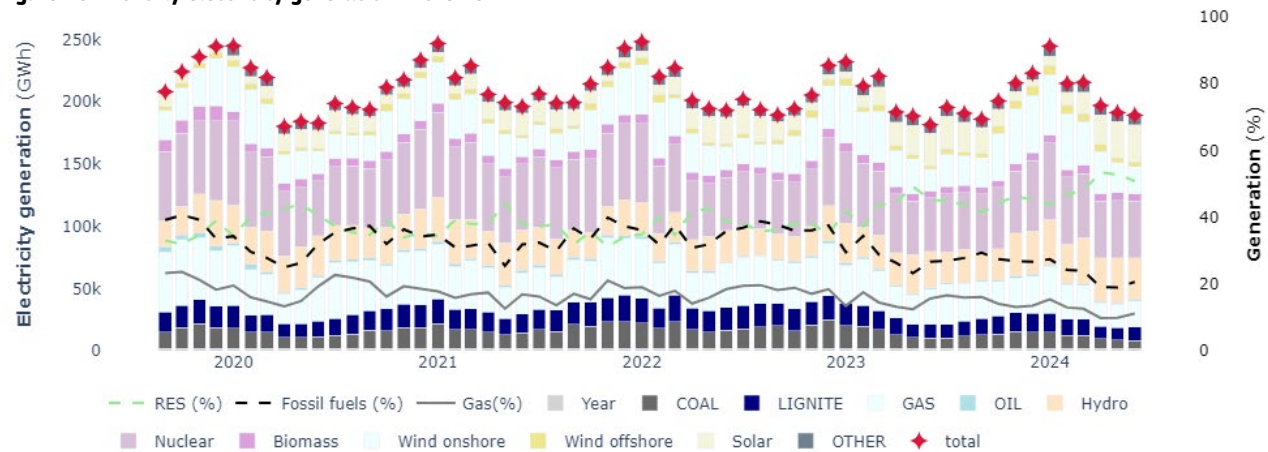
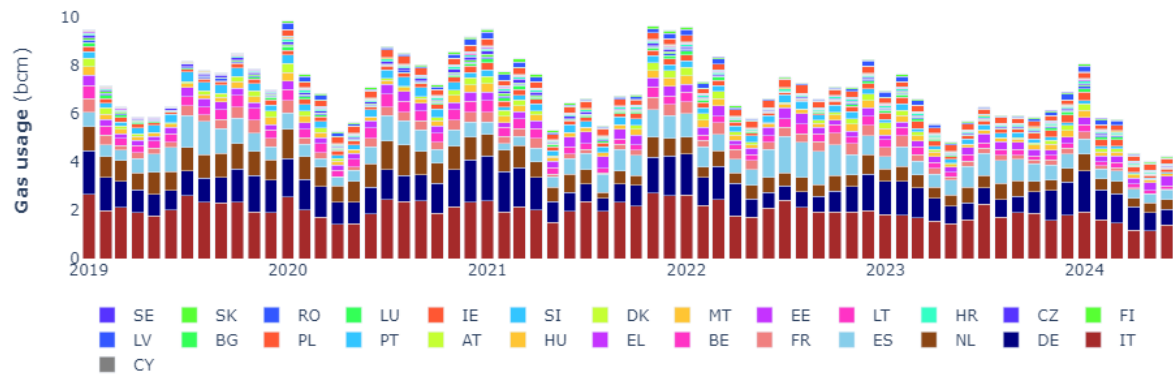


Figure 11 - Monthly gas usage in power generation

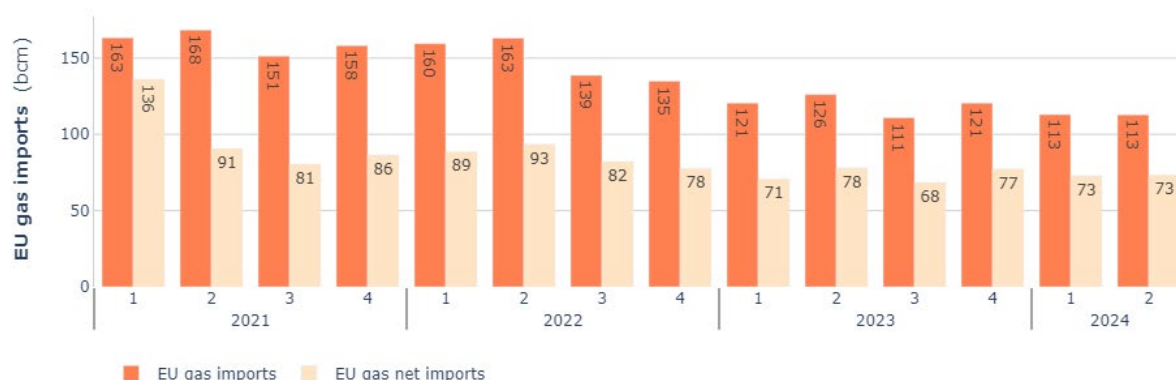


Source: Eurostat.

1.3 Imports

- According to **Eurostat**, total gas import in the EU remained practically unchanged compared to the previous quarter and amounted to 113 bcm in terms of gross imports, a decline of 11% (-13.3 bcm) compared to the same quarter in 2023. Net imports⁸ amounted to 73.5 bcm, almost the same amount as in the first quarter of 2024 (73.96 bcm), reflecting 39.4 bcm exports⁹. Net imports decreased by 6% (-4.5 bcm) year-on-year.

Figure 12 - EU imports of natural gas (gross and net)



Source: Eurostat.

1.3.1. Total EU imports¹⁰

Total EU imports and year-on-year comparison

Q2 2024	Q2 2023	Q2 2022
70 bcm	76 bcm	90 bcm
▼-8%	▼-16%	▲1%

- According to **ENTSO-G**, which tracks all gas flows into and out of the EU, total **gas imports** by EU Member States amounted to **70 bcm** in the second quarter of 2024, which was the **same volume** than the **previous quarter**, and a **9% decrease** compared to the second quarter of 2023.
- In the second quarter of 2024, the **share of the LNG in the total gas imports was 36%**, a decrease of 5 percentage points compared from 41% in Q1-2024, and a 7 percentage points decrease from 43% in the same period of the previous year.
- Norway remained the biggest gas supplier** of the EU (34 %, 23.3 bcm), followed by **Russia** in the **second** place (18 %, 12.4 bcm), **the US** (16%, 11 bcm) on the **third** place and **North Africa** (15 %, 10.8 bcm) on the **fourth** place. The ranking shifted compared to previous quarters with the US (LNG) and Russia (LNG & pipelines) swapping their positions as the second and third largest gas suppliers. The change in ranking was due to a 10% quarter-on-quarter decrease in overall EU LNG imports (from 28.3 bcm in Q1-2024 to 25.4 bcm in Q2-2024) combined with a 20% (-2.75 bcm) quarter-

⁸ Net imports equal imports minus exports and do not account for stock changes.

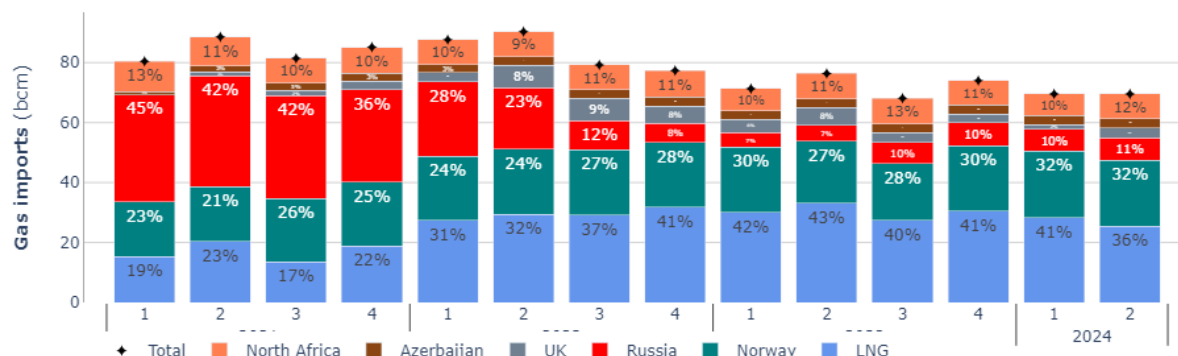
⁹ Intra-EU exports of gas between Member States represent transport of gas from EU gas entry points at the EU borders for pipelines and LNG terminals on the EU maritime costs, as well as commercial and other cross-border exchanges of gas in the EU highly integrated gas networks.

¹⁰ Net imports

in-quarter decrease in US LNG imports (from 13.86 bcm in Q1-2024 to 11.11 bcm in Q2-2024), while at the same time there was a 7% increase in pipeline imports in Q2 2024 (to 44.2 bcm in Q2-2024 from 41.3 bcm in Q1-2024).

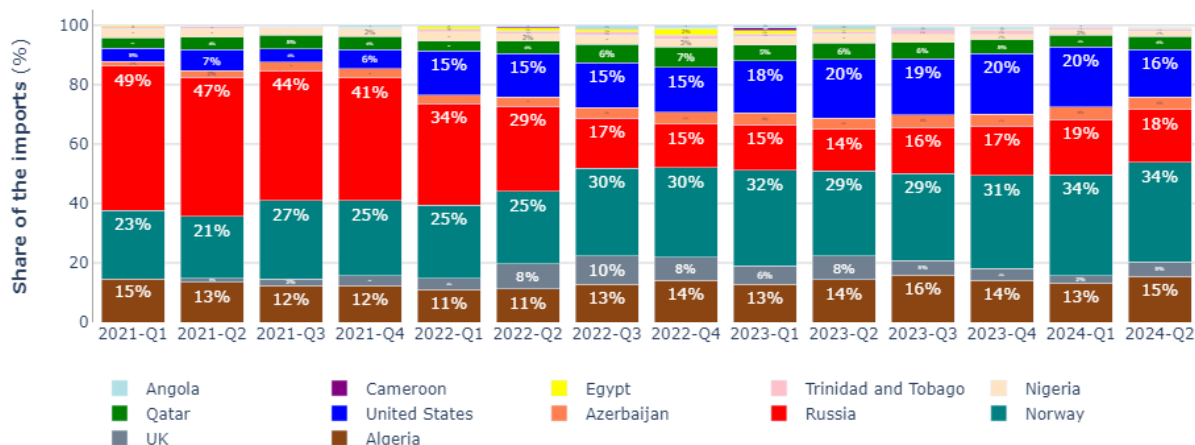
- Since **Russia** also exports **pipeline gas** to the EU via Ukraine (pipeline flows from Russia through Ukraine may be reduced or even stop at the end of 2024¹¹) and TurkStream, the combined pipeline gas and LNG imports from Russia was slightly more (+1.3 bcm) than the US LNG exports to the EU, which has decreased by 20% quarter-on-quarter and 26% year-on-year. (The US only export LNG to the EU).

Figure 13 – EU imports of natural gas (share of pipeline imports by country and share of LNG)



Source: ENTSO-G.

Figure 14 – Quarterly share of gas imports within the total, combining both pipeline and LNG imports



Source: Commission calculation based on ENTSO-G and LSEG.

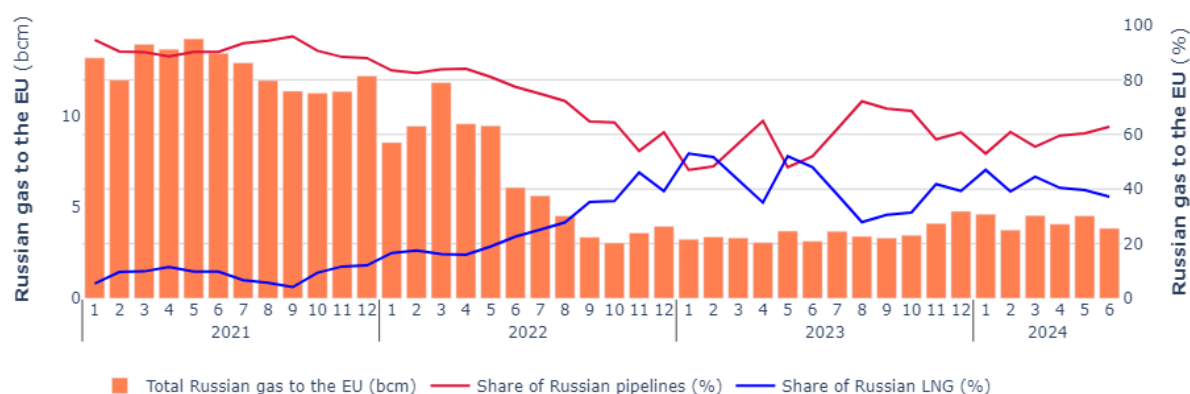
- In the second quarter of 2024, the **EU imports of pipeline gas were 44.2 bcm**, an **increase of 7%** (+2.8 bcm) **quarter-on-quarter** and **2%** (+1 bcm) **increase year-on-year**.
- **Total Russian gas imports**, combining pipeline and LNG, was **12.6 bcm**, a **decline of 3%** (-0.4 bcm) **quarter-on-quarter** and an **increase of 25%** (+2.6 bcm) **year-on-year**. Compared to the second quarter of 2022, Russian gas imports halved (-50%, - 13 bcm), and **compared to 2021** (the last year before Russia's invasion of Ukraine), the quarterly Russian **gas imports declined by 70%** (-29 bcm).
- The **share of total Russian gas imports** arriving through pipelines and LNG cargoes represented **18% of the total EU gas imports** in the second quarter, **a decrease of one percentage point** quarter-on-quarter and an **increase four percentage points year-on-year**. Compared to the same quarter in 2021 (pre-war), the share decreased by 29 percentage points (from 47%).
- **Russian pipeline gas exports** amounted to **7.6 bcm** or 17% of the total EU pipeline imports. This represented a one percentage point decrease in the share of Russian pipeline gas compared to the previous quarter and a five percentage point increase compared to the second quarter of 2023. In terms of volumes, Russian pipeline gas imports increased by 4% (+0.3 bcm) quarter-on-quarter and 41% (+2 bcm) year-on-year.
- **Russian LNG exports** to the EU amounted to **5 bcm**, a **decline of 12%** (-0.7 bcm) **compared to the previous quarter** and an **increase of 10%** (+0.5 bcm) year-on-year. The share of Russian LNG remained 20%, the same as in the previous quarter, despite the 12% decrease in its volume, as overall EU LNG imports also declined by 10% in the second quarter compared to Q1-2024. Year-on-year, the Russian LNG share increased by six

¹¹ Due to the non-renewal of transit agreement between Ukraine and Russia, which expires at the end of 2024.

percentage points from 14% in Q2 2023, in the context of significantly lower overall EU LNG imports, which registered a 23% annual decline (from 33 bcm in Q2-2023 to 25 bcm in Q2-2024). Due to the 8 bcm year-on-year decrease in overall EU LNG imports in Q2 2024, the half bcm Russian LNG increase resulted in a six percentage points rise in its import share, i.e. from 14% in Q2 2023 to 20% in Q2 2024.

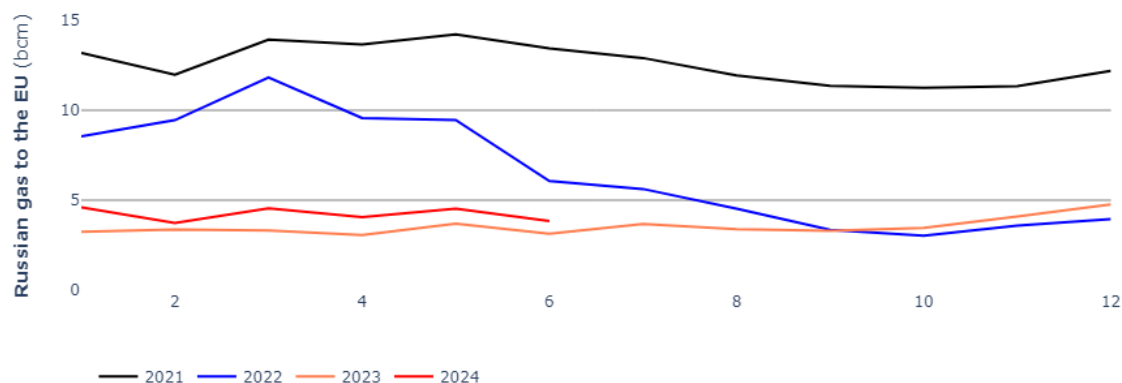
- The **share of pipeline gas in total Russian gas imports continued to rise back** and was 60% in quarterly average versus 40% LNG. Within the quarter, the share of pipeline started with a 58% share in April and rose to 61% in May and June. The share of LNG reached the highest level in the first quarter of 2023 when it was 50% as a quarterly average with shares as high as 54% in January and 53% in February 2023. In the second quarter of 2023, the quarterly average share of LNG was 46% with the May's share reaching again 53%. From that point onward, LNG share gradually declined in overall Russian gas imports. In Q1-2024 it was 44% versus 56% pipelines and rose further to 60% on Q2-2023, as mentioned above.
- The lowest annual Russian gas volume was registered in 2023, while import flows slightly increased in the first and second quarter of 2024, but remained significantly lower than in 2022 and the 'historic' volumes in 2021.

Figure 15 – Monthly pipeline and LNG imports from Russia



Source: Commission calculation based on ENTSO-G and LSEG (Refinitiv).

Figure 16 – Monthly pipeline and LNG imports from Russia, year and year comparisons



Source: Commission calculation based on ENTSO-G and LSEG (Refinitiv).

1.3.2 Pipeline imports

EU pipelines imports and year-on-year comparison

Q2 2024

44 bcm

▲2%

Q2 2023

43 bcm

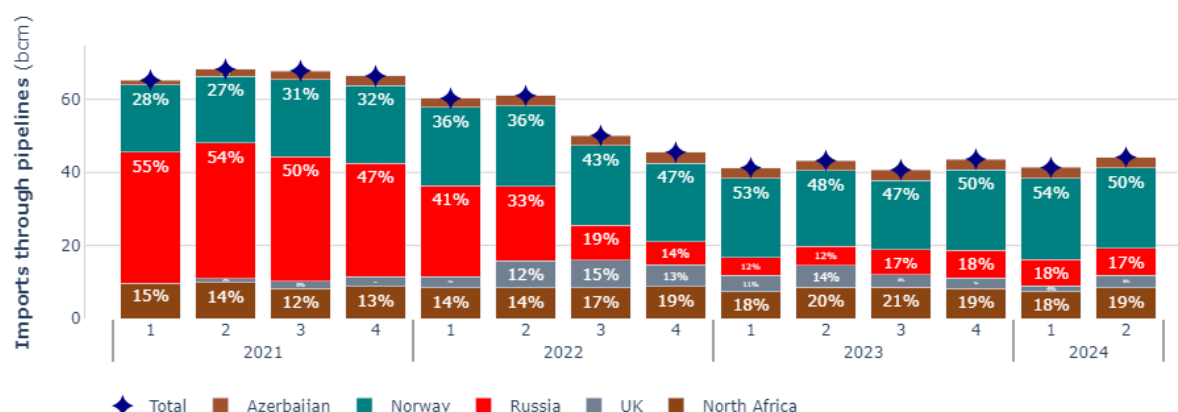
▼-29%

Q2 2022

61 bcm

▼-4%

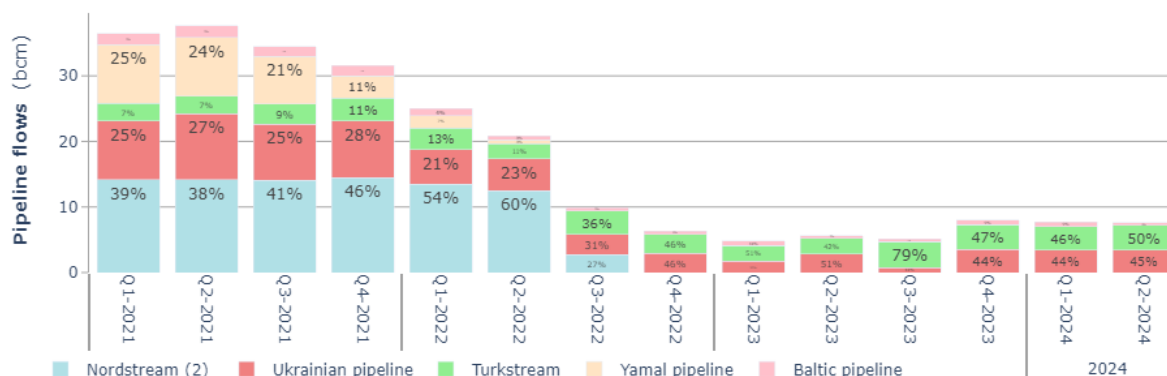
- In the second quarter of 2024, **EU pipelines import** was 44 bcm, an increase of 7% compared to the previous quarter (+2.8 bcm) and +2% (+1 bcm) compared to the same quarter in 2023.
- Norway remained the **EU's biggest pipeline gas supplier**, representing **50% of the EU's pipeline imports** (22 bcm), losing 4 percentage points from the previous quarter but gaining 2 percentage points compared to the previous year. **North Africa was the second largest gas pipeline exporter** with a 19% share (8.4 bcm), followed by Russia with a 17% share (7.6 bcm). The UK accounted for 8% (3.8 bcm) and Azerbaijan 7% (3 bcm).
- Figure 17 – Quarterly EU imports of natural gas from pipelines**



Source: Based on data from the ENTSO-G Transparency Platform.

- In the second quarter of 2024, the **two main remaining transit routes for Russian pipeline gas exports through Ukraine and Turkey** transported **45% and 50%** of the Russian gas volumes, **respectively**, followed by the Baltic pipeline (5%)¹². Flows through TurkStream was higher in the second quarter, just like they were higher in the first quarter, while the Ukraine route was more important in Q2-2023. Flows on the other main Russian pipeline routes coming to Europe (*Nordstream*, and *Yamal*) remained zero.

Figure 18 – Quarterly EU imports of natural gas from Russia by supply route



Source: Based on data from the ENTSO-G Transparency Platform

¹² Flows are net of re-export from the EU.

1.3.3 LNG imports

EU LNG imports and year-on-year comparison

Q2 2024

25 bcm

▼ -23%

Q2 2023

34 bcm

▲ 14%

Q2 2022

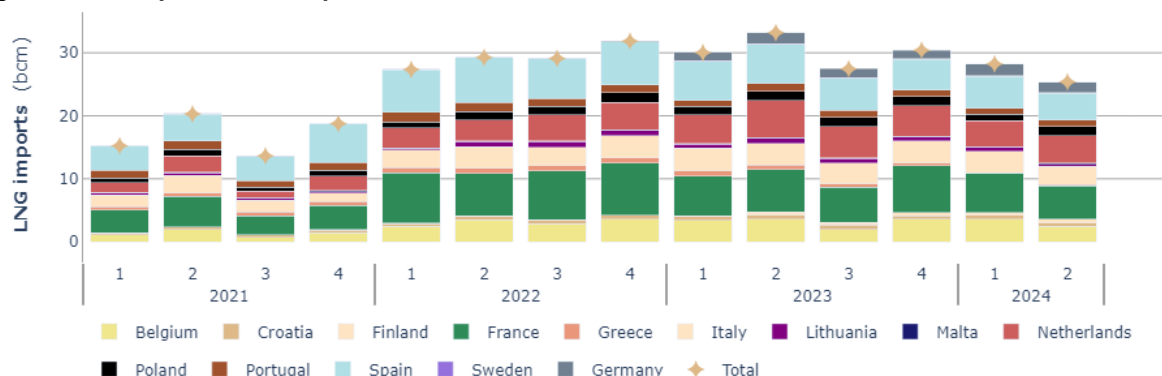
30 bcm

▲ 45%

In the second quarter of 2024, **total EU LNG import** was **25.4 bcm**, a decrease of 10% (-3 bcm) compared to the previous quarter and a decrease of 23.5 % (-8 bcm) year-on-year. **France** kept and strengthened its **number one position** in **EU LNG imports** by importing **21 % (5.4 bcm)** of the EU's LNG, that was one percentage point less than in the previous quarter and one percentage point more than in the previous year. The second largest EU LNG importer was **the Netherlands (17%, 4.4 bcm)**, followed by Spain (**16%, 4.2 bcm**), **Italy** (12 %, 2.9 bcm) and **Belgium** (10 %, 2.5 bcm).

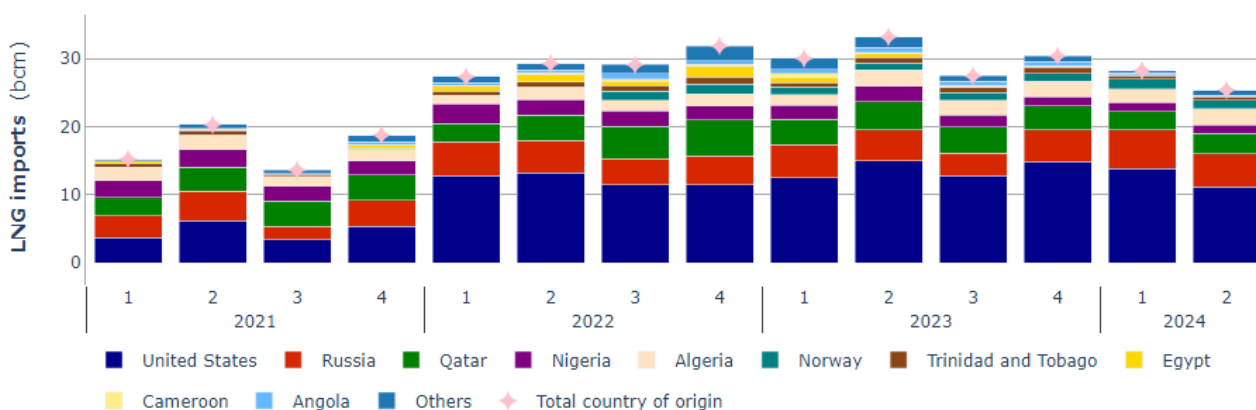
- In the second quarter of 2024, the **United States** remained the **largest supplier of LNG to the EU**, accounting for 44% of EU LNG imports (11 bcm). This represents a 5 percentage point (pp) decrease compared to the previous quarter (49%), and 1 percentage point less than in the previous year (45%). The US exported less to the EU than in the previous quarter (-24%, -2.6 bcm) and less than a year ago (-27%, -4.2 bcm). The decrease had been driven by a maintenance in Freeport LNG (one of the main US LNG terminal) and heat waves in Asia, leading to higher demand and higher prices there.
- **Russia** was the **second largest LNG supplier** with a share of **19%**, (4.9 bcm), which was **a decline of 1 percentage point** (pp) compared to the **previous quarter** (20%) and **4 pp increase** compared to the **previous year** (14%). Compared to the previous quarter, the volume of Russia's LNG exports to the EU **decreased by 12% (- 0.7 bcm)**. Compared to the previous year, **Russian LNG imports increased by 10% (+0.5 bcm)**.
- **Qatar** provided **12%** (3 bcm) of the EU's LNG imports and remained the **third largest LNG supplier** to the EU. Qatar's imports increased by 10% quarter-on-quarter but decreased by 30% year-on-year. Qatar's share in EU imports grew 2 pp quarter-on-quarter and declined one pp year-on-year. **Algeria** provided **9%** of EU LNG supply, and increased its export volumes by 24% (+0.5 bcm) quarter-on-quarter and by 1% year-on-year. **Norway** (1.3 bcm) and **Nigeria** (1.25 bcm) provided **5%** of EU LNG supplies, each.

Figure 19 - LNG imports to the EU by Member States



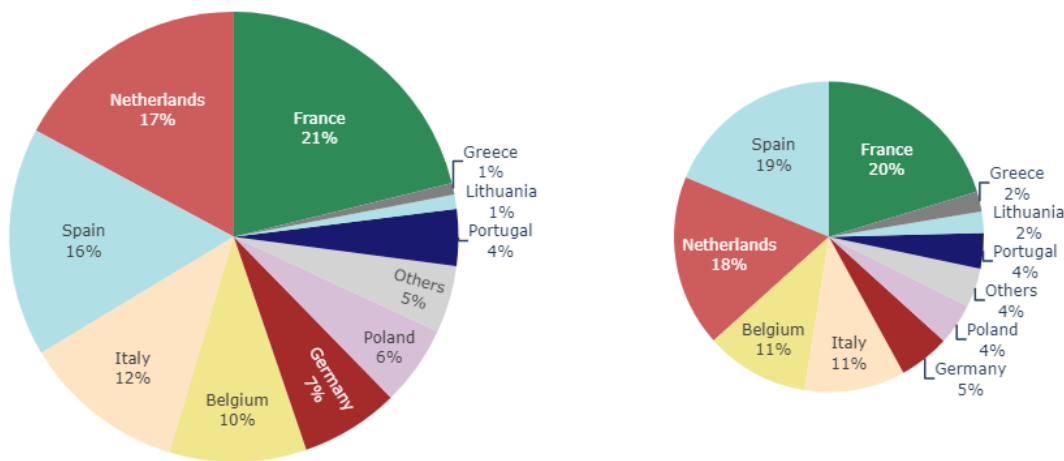
Source: European Commission calculation based on LSEG (Refinitiv) and ENTSO-G.

Figure 20 - LNG imports to the EU by supplier countries



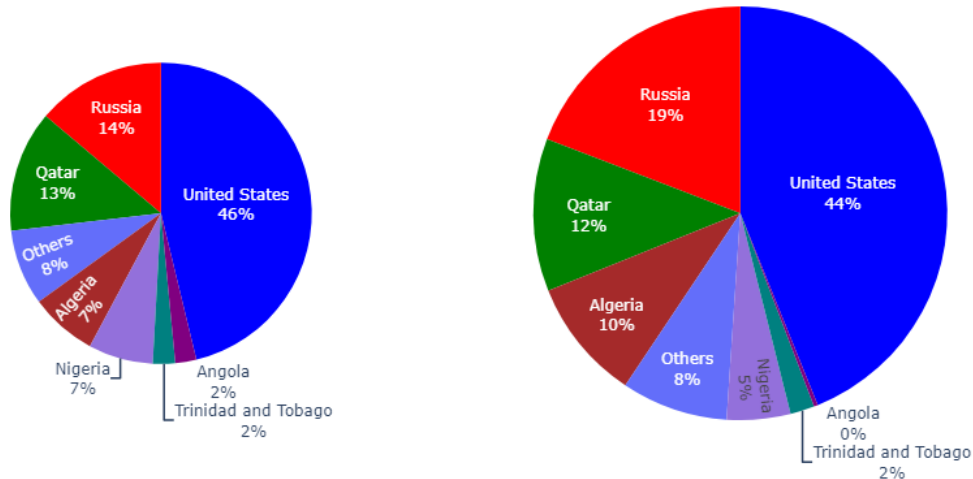
Source: European Commission calculation based on LSEG (Refinitiv) and ENTSO-G.

Figure 21 – Share of Member States in EU LNG imports in Q2 2024 (left) and Q2 2023 (right)



Source: Commission calculation based on LSEG (Refinitiv) and ENTSO-G. 'Others' includes Croatia, Finland, Malta and Sweden.

Figure 22 – Share of exporters in EU LNG imports in Q2 2024 (right) and Q2 2023 (left)

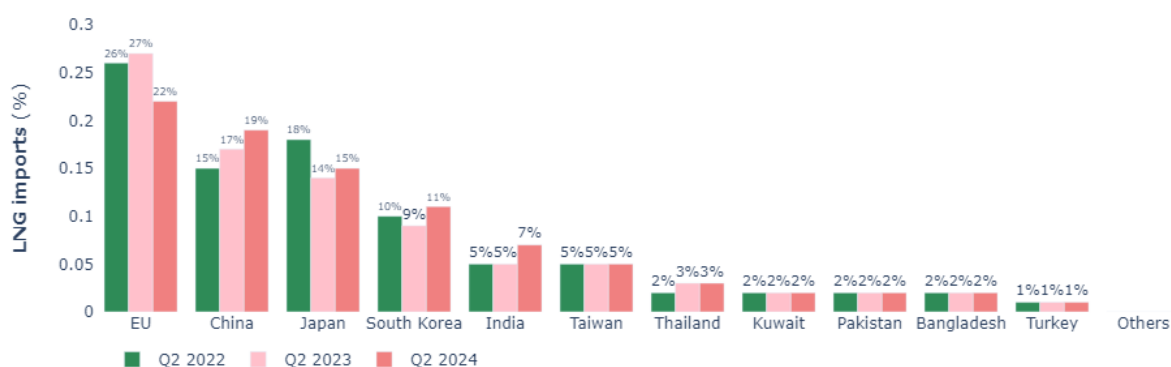


Source: Commission calculation based on LSEG (Refinitiv) and ENTSO-G.

2. Global LNG Trade

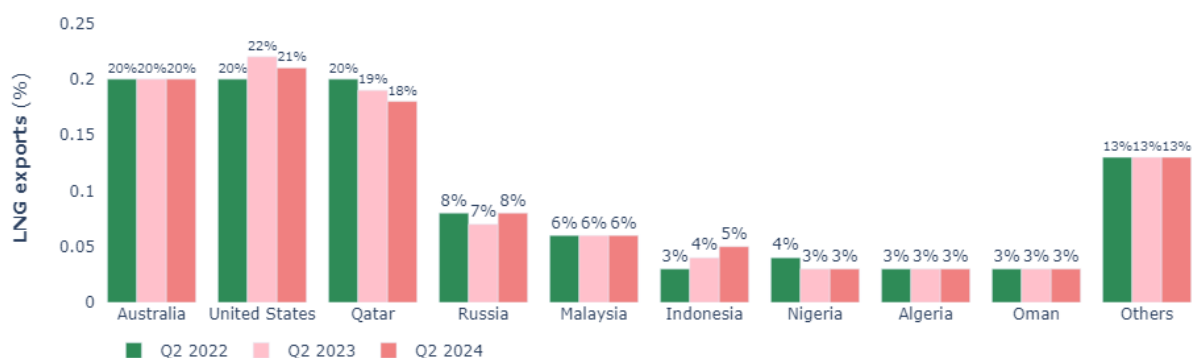
- In the second quarter of 2024, the **EU** continued to be **the world's largest importer of LNG** with a **22% share in global imports**, ahead of China (19%), Japan (15%), and South Korea (11%). Both China and Japan increased their imports in Q2-2024 compared to the previous years, driven by unusual heat waves due to climate change.
- The **biggest LNG exporter** remained the **United States by 21% share**, followed by Australia (20%) and Qatar (18%). These three countries together supplied close to three-quarters (60%) of the world's LNG demand.
- Far behind the leading trio, Russia (8%), Malaysia (6%) and Indonesia (5%) secured the fourth, fifth and sixth position, respectively.

Figure 23 – Main global LNG importers in Q2 2024



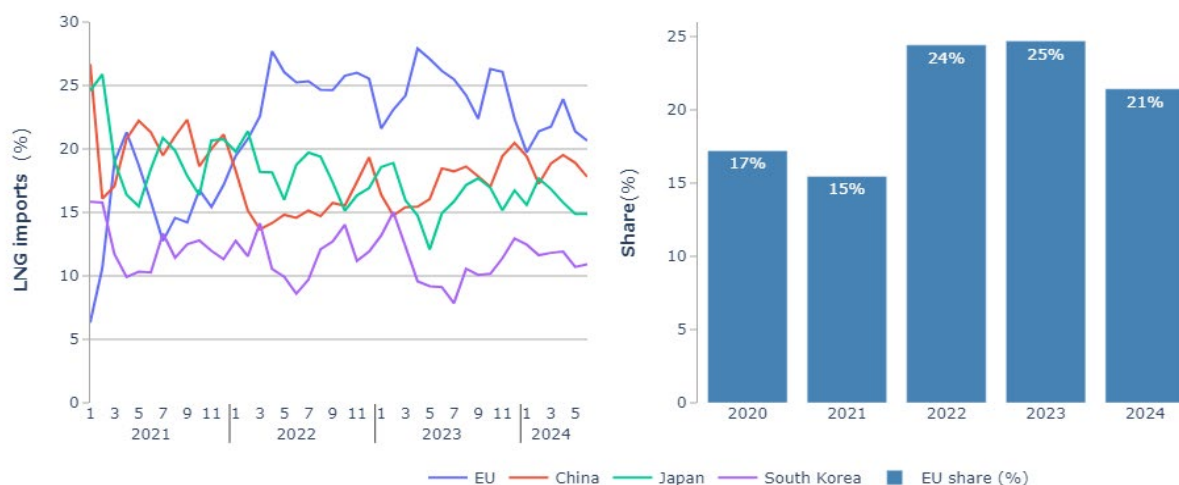
Source: European Commission calculation based on LSEG (Refinitiv) and ENTSO-G.

Figure 24 – Main global LNG exporters in Q2 2024



Source: European Commission calculation based on LSEG (Refinitiv) and ENTSO-G.

Figure 25 – The most important global LNG importers and evolution of the EU's annual LNG imports share



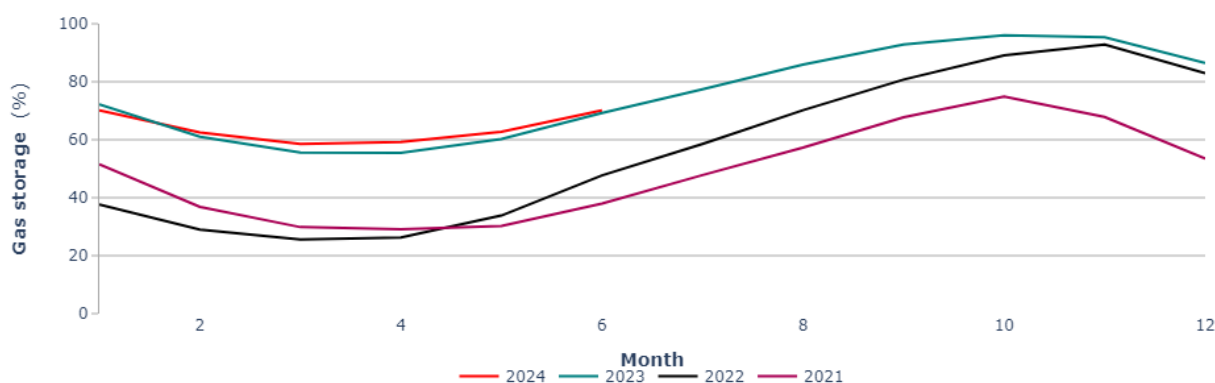
Source: European Commission calculation based on LSEG (Refinitiv) and ENTSO-G.

3. Storage and LNG terminals

3.1 Storage

- The EU's maximum technical gas storage capacity is 1147 TWh (102.5 bcm) corresponding to around one third of the European Union's total gas consumption in 2023.¹³
- Gas storage levels in the second quarter of 2024 **reached a new record level compared to any previous second quarter** in the last fourteen year (since the tracking of EU storage levels begun) and stood at 61%, which is 1 percentage point more than in 2023 and 25 percentage points more than in 2022. Compared to the previous quarters, it was 1% lower than in Q1 of 2024 due to the drawdowns in the heating season.
- The monthly averages were 59%, 63% and 70% for April, May and June 2024, respectively, surpassing the monthly averages reached the same respective months in the previous year (55%, 60% and 69%).

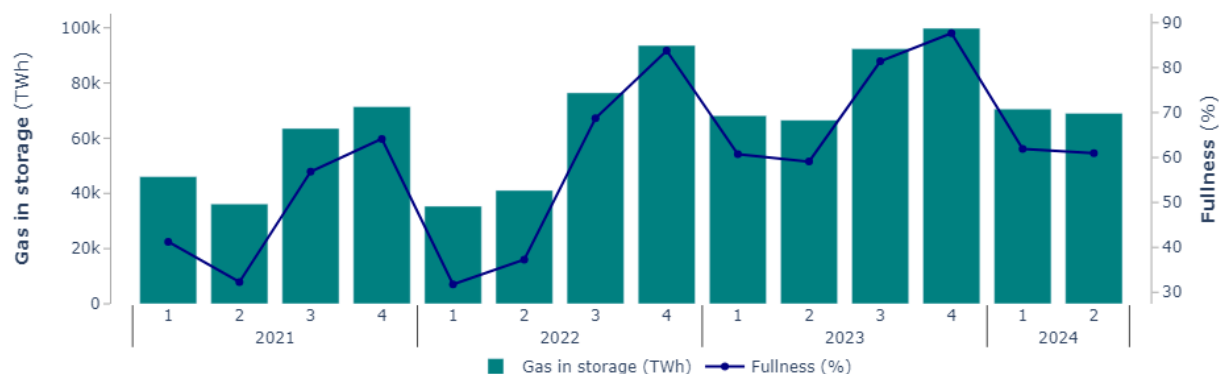
Figure 26 - Gas storage levels by month



Source: Gas Storage Europe AGSI.

¹³ Gas Infrastructure Europe - AGSI (gie.eu) - data published under the Storage Transparency Platform, shows 1147.2031 TWh (102.4288 bcm with a conversion factor of 11.2 used by Joint Research Center of the European Union) of technical working capacity as of 12 October 2024. This technical storage capacity is equivalent with 31% of the EU's 2023 annual consumption (330 bcm) and 29% of the EU's 2022 consumption (357 bcm).

Figure 27 – Gas storage levels by quarters

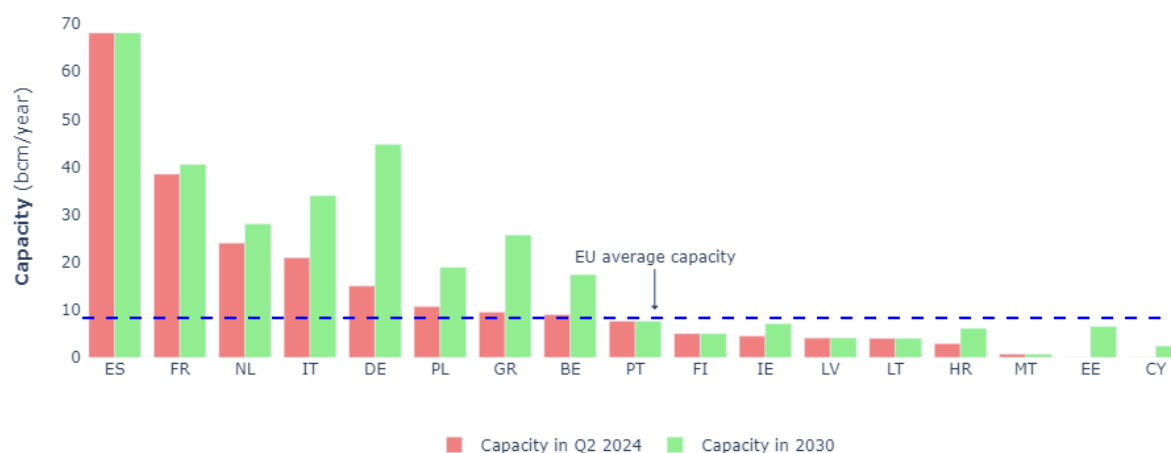


Source: Gas Storage Europe AGSI+ Aggregated Gas Storage Inventory. See explanations on data coverage at <https://agsi.gie.eu/#faq>.

3.2 LNG Terminals

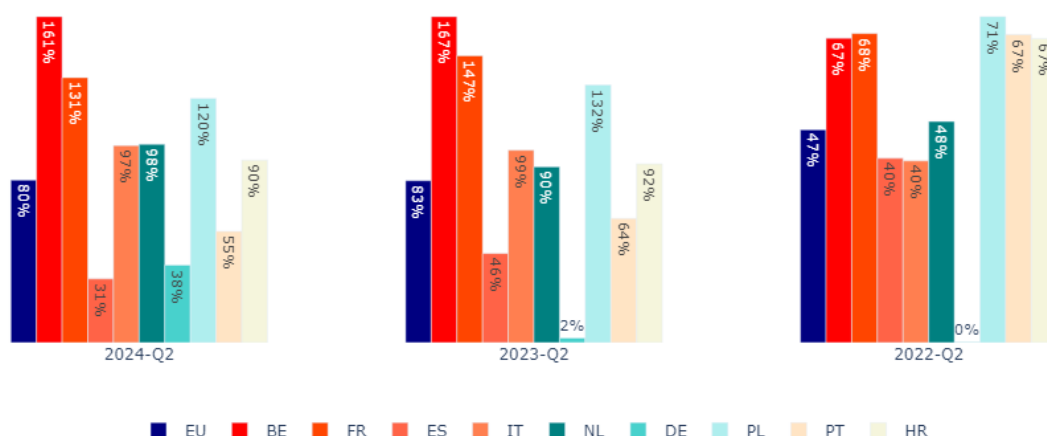
- In Q2 2024, the **EU had a total terminal capacity of nearly 225 bcm**, with Spain, France, the Netherlands, and Italy having the largest LNG terminal capacities, with 68 bcm, 28 bcm, 24 bcm, and 21 bcm per year, respectively.
- **LNG terminals' utilisations rates for regasification continued to show a wide variety across Europe during the quarter.** The highest utilisation rate (161%), was recorded in Belgium, followed by France (131%) and Poland (120%). At the opposite end, Spain had a very low regasification utilisation rate (30%).
- Compared to Q2 2022, LNG import utilization rates in Q2 2024 have risen for most of the target importers. Between Q2-2022 and Q2-2024, Belgium's rate increased by nearly 100 percentage points (pp), France's by 60 points, Italy nearly 50 pp and Poland's by almost 40 pp. This shows a significant acceleration in LNG imports across the EU between 2022 and 2024.

Figure 28 – LNG terminal capacities in Q2 2024 and in 2030 in the EU



Source: IEEFA

Figure 29 – Regasification capacity utilisation rates in Q2 2024, 2023 and 2022

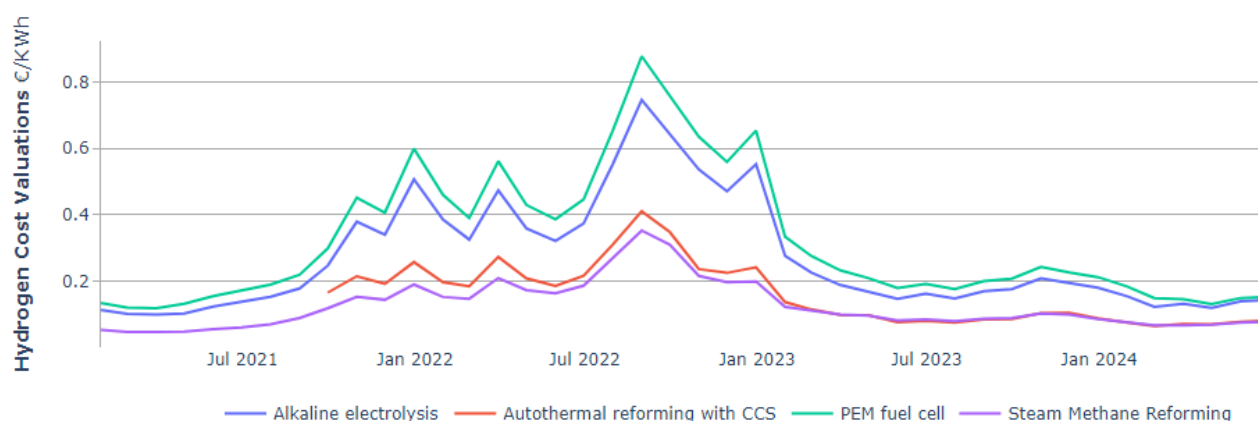


Source: LSEG (Refinitiv).

3.3 Hydrogen market developments

- The chart shows estimated production costs for hydrogen using four main technologies: water-based (alkaline water electrolysis (AWE) and polymer electrolyte membrane (PEM)) and gas-based (steam methane reforming (SMR) and autothermal reforming (ATR)). For renewable hydrogen, AWE and PEM must use renewable electricity, time- and geo-correlated with production. ATR and SMR must use renewable gas or carbon capture and storage (CCS) to qualify as green hydrogen. The chart includes ATR costs with CCS and SMR without CCS for comparison. Analysis of SMR with CCS is also provided in this chapter.
- Whereas AWE and PEM electrolysis technology costs predominantly depend on the electricity price, the costs of SMR and ATR technology are driven by natural gas costs used for producing hydrogen. AWE and PEM are related to renewable power, whereas costs of SMR and ATR hydrogen generation is based on costs of natural gas. CCS costs is added to the ATR production cost and to low-carbon hydrogen produced from SMR with CCS.
- In the secondquarter of 2024, the **price of AWE declined by 2% and that of PEM declined by 10%**, whereas **the price of ATR increased by 8% and that of SMR rose by 5% compared to the previous quarter**. The **decline affected those technologies that have electricity as feedstock**, while the **gas-based technologies registered an increase in price**. **Year-on-year, the costs declined for all technologies**. The biggest annual decrease was 25% for PEM, followed by 16% for AWE, 15% for SMR, and 9% for ATR. PEM continued to have the highest average price in Q2 2024 at 145 €/MWh, closely followed by AWE at 134 €/MWh. The gas price-based ATR costs were significantly lower, averaging 77 €/MWh, while the costs of SMR averaged 74 €/MWh.

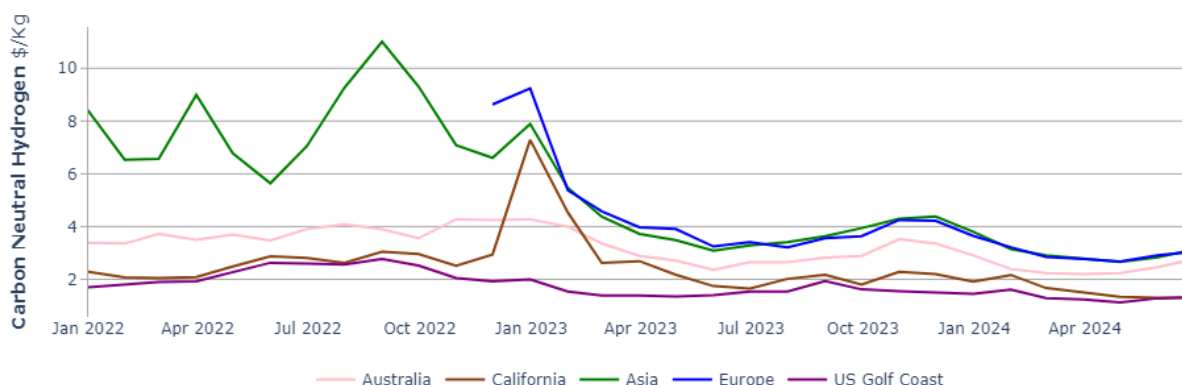
Figure 30 – Production cost-based hydrogen price assessment for different technologies (including CCS)



Source: S&P Global (Platts).

- The next chart shows the price assessments for carbon-neutral hydrogen¹⁴ in different regions of the world: Australia, Far East Asia, Northwestern Europe, California, and the US Gulf Coast. Compared to the first quarter of 2024, prices in all regions but Australia decreased by 3% in Far East Asia and North West Europe, -11% in US Gulf Coast and -26% in California. As an exception to the falling trend, prices increased by 9% in Australia. Year-on-year, prices in all regions decreased by between 4% (Australia) and 29% in California. The decrease in North-western Europe was 18%, 14% in the US Gulf Coast and 12% in Far East Asia.
- Far East Asia and Northwestern Europe continued to have the highest hydrogen prices at \$2.9/kg with Europe being slightly more expensive, mostly driven by high production costs and import reliance. Australia followed at a relative quarterly average high price of \$2.5/kg due to substantial investments in renewable hydrogen, which are offset by high production and transportation costs. California's price continued its steep decline from \$1.8/kg in Q1-2024 to \$1.3/kg in Q2-2024 (the price was at \$2.1/kg) and approached the price in the cheapest carbon-neutral hydrogen globally, that of the US Gulf Coast. The price in the US Gulf Coast further declined to \$1.2/kg, the lowest level in the last two years.

Figure 31 – Carbon-neutral hydrogen prices in different regions of the world



Source: S&P Global (Platts).

4. Wholesale Gas Prices

4.1. Wholesale gas prices at the EU level

Gas spot prices in Q2 2024 and year-on-year comparison

EU (TTF) 31.7 EUR/MWh ▼-10%	US (Henry Hub) 5.9 EUR/MWh ▼-10%	Asia (JKM) 33.4 EUR/MWh ▼-3%
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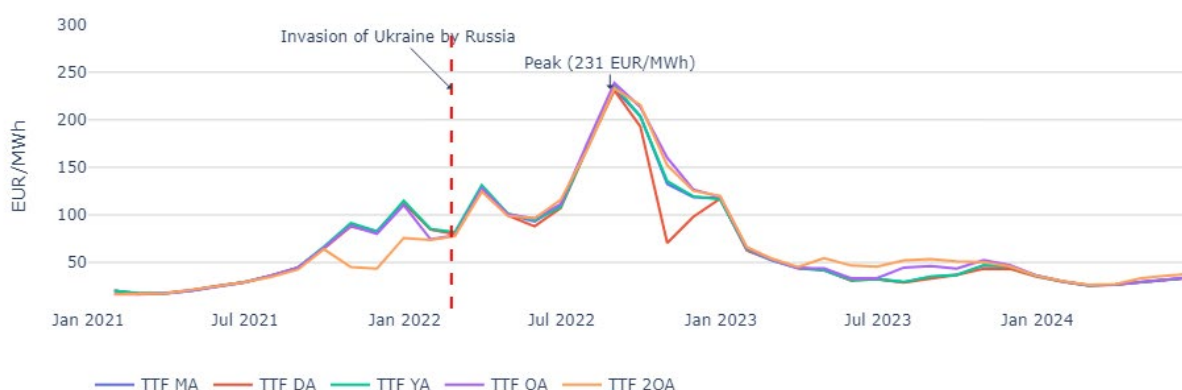
- In the second quarter of 2024, **European spot prices (TTF day-ahead) rose by 16% to 31.7 EUR/MWh** as a quarterly average **compared to the previous quarter**, from 27.4 EUR/MWh. **Compared to the previous year, spot prices decreased by 10%** and were 68% lower than in 2022. The second quarter was characterised by gradually rising prices, reversing the declining trend dominating the first quarter of the year. From price levels in the first quarter, which was similar to those seen in the first half of 2021 (before the crisis), prices gradually rose starting in March

¹⁴ The definition of carbon neutral hydrogen by Platts is significantly broader than the definition of renewable hydrogen under the EU Renewable Energy Directive (RED). Platts' definition covers but is not limited to renewable hydrogen as defined under the RED, which – for hydrogen produced via electrolysis – requires the use of renewable electricity off-grid (dedicated renewable power production for the electrolysis) or, if on-grid, to meet certain criteria regarding origin of electricity combined with temporal and geographical correlations of the electricity production with the electrolysis. Platts definition reflects "the value of hydrogen as it leaves the production facility" and includes the following factors: "the market value of hydrogen in which emissions have been, in order of priority: avoided where possible through the use of low emissions generation, removed through the use of carbon capture and storage, and offset through the use of carbon credits or equivalent instruments. In addition to spot market activity, power-purchase agreements and hydrogen offtake agreements may be considered for assessment purposes, but normalised for terms, periods, and other factors. Platts also considers cost of production factors, which provide baseline inputs in the absence of market activity. These costs incorporate renewable power prices and carbon capture and storage costs with any remaining accounted emissions offset using relevant carbon instruments."

and through April, May and June. The average price in April was 29.2 EUR/MWh. It rose to 31.7 EUR/MWh in May and to 34.4 EUR/MWh in June 2024.

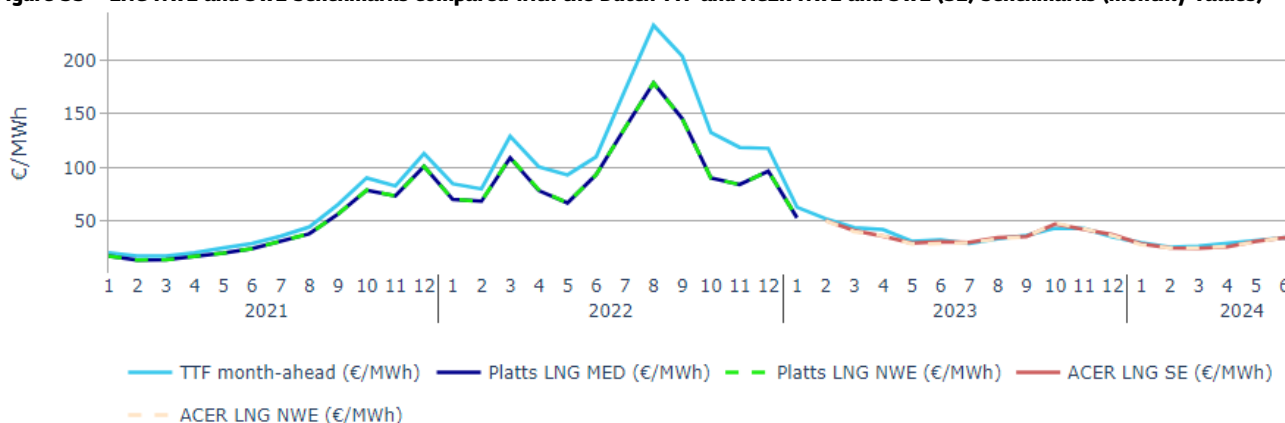
- **Forward contracts** also **rose by between 6% and 28%** compared to the previous quarter. The biggest increase of 28% was registered for the two quarters ahead contract, followed by a 17% increase for the one quarter ahead contract and 15% for the year ahead contract. The two years and three years ahead contract displayed a relatively smaller increase of 9% and 6% increase, respectively, indicating moderating prices further ahead. Year-on-year, all forward contract decreased by between 9% and 31%, the biggest decline affecting the year ahead contracts followed by the two years ahead (28%), the two quarters ahead (-26%) and the three years ahead (-24%) contracts. The month ahead contract declined only 9%.
- **Forward contracts** indicated **relatively stable prices in the next three month** but **steeper increases later in the last quarter of 2024** and **price decline farther ahead**. The one quarter ahead contract sold at only 2% premium compared to both the spot price and the month ahead price (almost identical as quarterly average), but the two-quarters ahead sold at 12% premium. The premiums for contract terms beyond the two quarters ahead started to show a progressively decreasing premium, which turned to price drops towards the longer timeframe ahead. Accordingly, while the front year contract displayed a 11% premium and the year ahead contract a 6% premium, the price decline on the longer term was corroborated by the two years ahead contract selling at a 1% discount and the three-years ahead contract selling at a 7% discount compared to the month ahead contract.
- **LNG prices in Northwestern Europe and Southern Europe increased by between 18% and 22%**. The biggest increase of 22% was registered for the Platts Northwestern Europe (LNG NWE) benchmark and the Platts Southern Europe (LNG MED) benchmark, while the ACER European LNG benchmark for North-West Europe (ACER NWE) increased by 20% and the ACER European LNG benchmark for South-Europe (ACER SE) rose by 18%. The TTF spot price and TTF month ahead price displayed the same value of 31.7 EUR/MWh (as quarterly average) and both were higher than the Platts LNG NWE (by +1%) and the MED (by +1.1%) benchmarks, as well as the ACER NWE (by +1.3%) and ACER SE (by +1.8%) European LNG benchmarks.
- **LNG prices in Northwestern Europe and Southern Europe converged strongly**. As a quarterly average, there was a mere 0.1% price difference between Platts Northwestern Europe (LNG NWE) and Platts Southern Europe (LNG MED). This difference was only 0.5% between ACER North-West Europe (ACER NWE) and ACER South Europe (ACER SE) benchmarks.
- The **ACER EU price benchmark**, which reflects all 27 EU Member States's prices areas **was 2% (-0.53 EUR/MWh) cheaper** on average **than the Dutch TTF** month-ahead contract in the second quarter of 2024. This price difference narrowed by three percentage points from a 5% in the previous quarter.

Figure 32 – TTF day-ahead prices compared with TTF month-ahead and year-ahead prices (monthly averages)



Source: S&P Global (Platts).

Figure 33 – LNG NWE and SWE benchmarks compared with the Dutch TTF and ACER NWE and SWE (SE) benchmarks (monthly values)

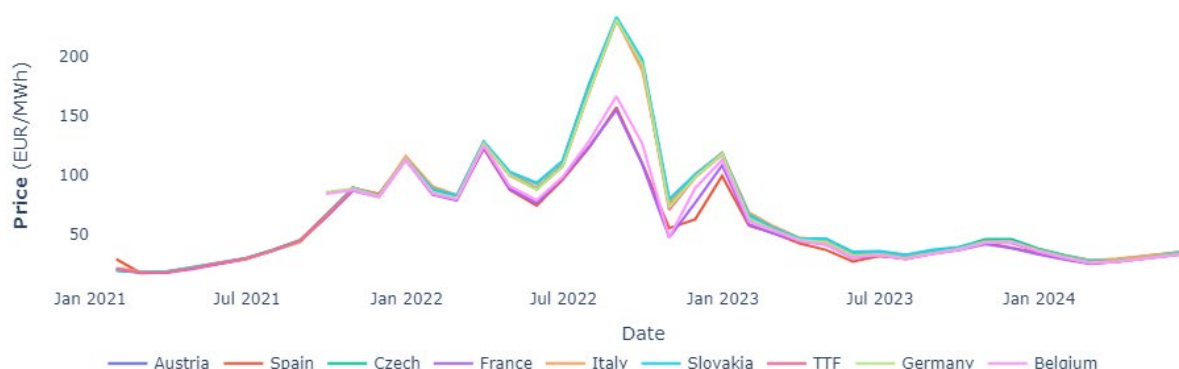


Sources: Global S&P (Platts), ACER.

4.2 European hubs

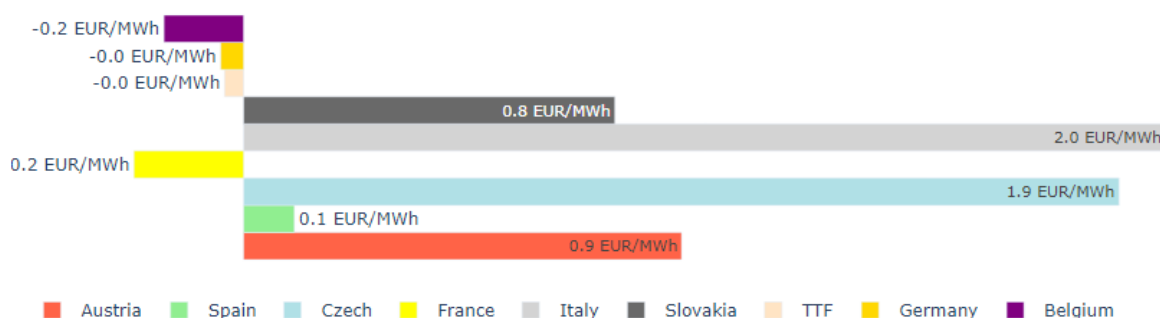
- In the **second quarter of 2024** and compared to the first quarter of 2024, **prices in European gas hubs increased by** around of **16%** (across hubs, quarterly average). The lowest increase had been observed in Czechia (+14%) and the largest one in France (+19%).
- In a **year-on-year** comparison **eight of the nine hubs registered a decrease**, which averaged **9%**. The Spanish hub was the only hub to show a yearly increase (+1%) while the Slovak hub displayed the highest decrease (-16%), followed by the hub in Austria (-12%).
- In terms of price, **the Italian hub was the most expensive at 34 EUR/MWh**, reflecting a 15% increase quarter-on-quarter. Czechia followed closely at 34 EUR/MWh, and Austria at 33 EUR/MWh. Western European hubs continued to sell gas at lower prices compared to the rest of Europe, with France, Belgium and Germany priced just below the TTF at 32 EUR/MWh, while Spain was slightly above the TTF.
- The TTF recorded a quarterly average of 32 EUR/MWh in Q2 2024. The Italian and Czech hubs showed the largest deviations from this value, with both registering a 6% difference.
- This pattern suggests that the **highest prices are concentrated in Central Europe, while Western Europe maintains relatively stable** with lower prices in Germany, France and Belgium, being the most competitive hubs in the second quarter of 2024.

Figure 34 - Price developments in some of the major European gas hubs



Source: Global S&P (Platts).

Figure 35 - Price differentials of EU gas hubs compared to the benchmark Dutch TTF in the second quarter of 2024

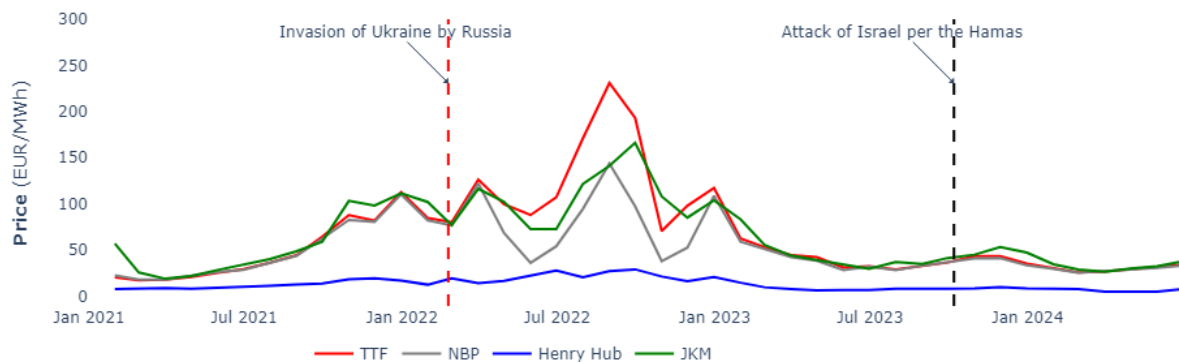


Source: S&P Global (Platts).

4.3. Wholesale gas prices at international level

- In the second quarter of 2024, the **US Henry Hub (HH)** remained the **lowest priced hub** with a quarterly average price of **7.42 EUR/MWh**, its low price levels stemming from being a producer/exporter hub. Amongst the importers' hub the cheapest was the UK National Balancing Point (NBP) with 31 EUR/MWh¹⁵, while the most expensive was the **Japan Korea Marker (JKM)** with **35.8 EUR/MWh**, with the Dutch Title Transfer Facility (TTF) being in the middle with 32 EUR/MWh.
- Compared to the previous quarter, international hubs displayed prices increases of between 23% (JKM) and 13% (HH) with the Dutch TTF being up 16%. Year-on-year, prices decreased by between 10% (TTF) and 2% (HH).**

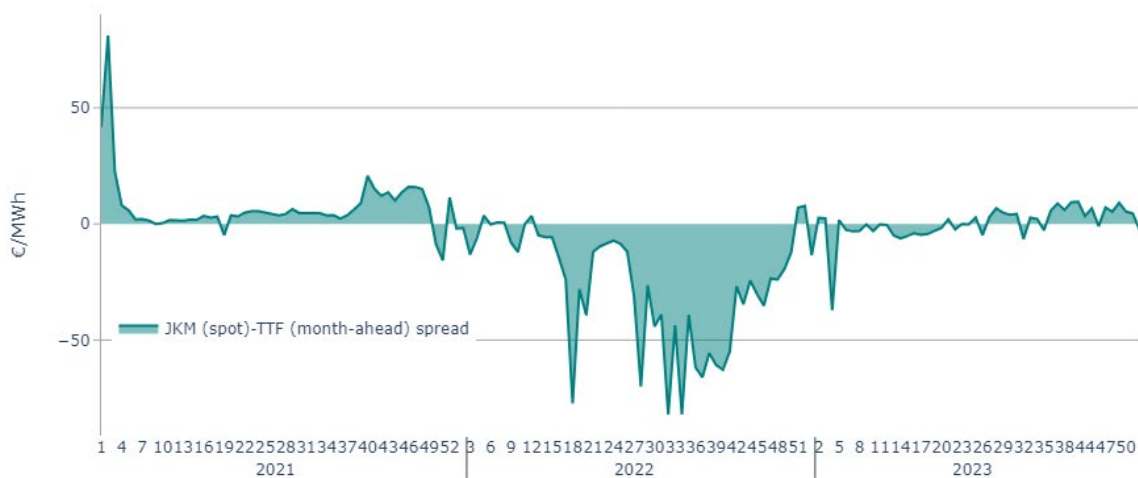
Figure 36– Comparison of monthly average prices on the Dutch TTF, UK NBP, the US Henry Hub and the Asian JKM



Source: S&P Global (Platts).

- In the second quarter of 2024, **Asia continued to display higher prices than Europe**, and the quarterly average **price differential increased** from 1.7€/MWh to **4€/MWh**. The higher Asian prices are depicted as positive price differentials between the European TTF benchmark and the Asian JKM benchmark in the chart below.
- The price differentials **remained positive throughout the quarter**, meaning prices on the Dutch TTF in Europe were lower than those on the Asian JKM during the entire quarter. On a monthly basis, the Asian mark-up was 3€/MWh in April, 3.7€/MWh in May and 5.5€/MWh in June 2024.

Figure 37 – Prices differences between the Asian JKM and the Dutch TTF (EUR/MWh) benchmarks



Source: S&P Global (Platts).

¹⁵ Prices are quarterly averages.

Figure 38 – Prices differences between the Asian JKM and the Dutch TTF (EUR/MWh) benchmarks – last 18 months



Source: S&P Global (Platts).

4.4 Gas trade on the EU hubs

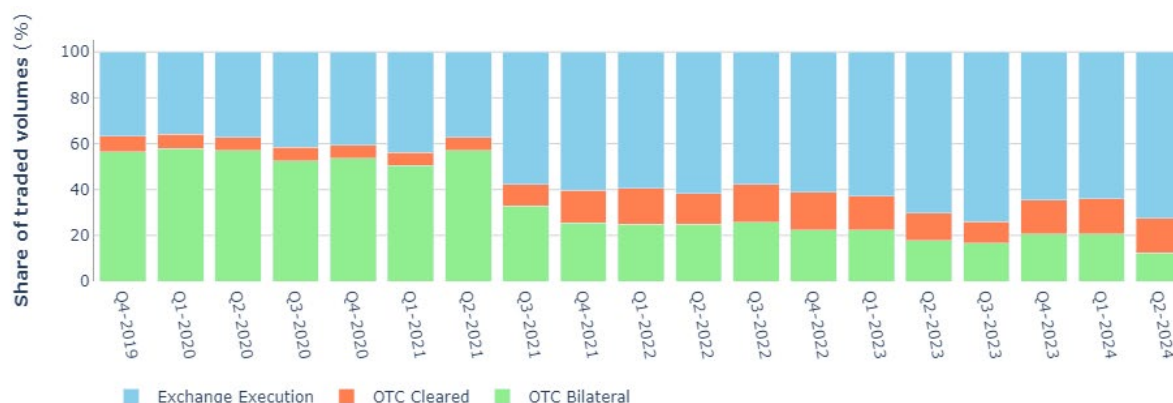
- In the second quarter of 2024, **total traded volumes increased by 1% quarter-on-quarter** and by **21% year-on-year** continuing an overall growth trend prevailing since in the last five years.
- The **share of exchange executed trade** grew to **67%** from 64% in the previous quarter and 66% in the second quarter of 2023 continuing a general growth trend since 2019. The **share of the over-the-counter (OTC) bilateral transactions** declined to **18%** from 21% in the previous quarter and remained unchanged year-on-year, while the **share of OTC cleared trade** remained unchanged at **15%** quarter-on-quarter but increased from 12% a year before.
- Compared to the previous quarter, the **volume of exchange executed trade increased by 5%**, while the **volume of OTC bilateral trade decreased by 11%** and **OTC cleared transactions decreased by 2%**. Year-on-year, all three types of organised trades increased significantly. OTC cleared transactions grew by 53%; exchange executed trade increased by 22% and OTC bilateral trade rose by 27%.

Figure 39 – Over-the-counter (OTC, bilateral and cleared) and exchange executed trade on European gas hubs



Sources: Trayport Commodities Report, LEBA Monthly Energy Volume Report and Analysis.

Figure 40 – Share of OTC and exchange executed trade on European gas hubs



Sources: Trayport Commodities Report, LEBA Monthly Energy Volume Report and Analysis.

The chart covers the following trading hubs: Netherlands: TTF (Title Transfer Facility); Germany: THE (Trading Hub Europe); France: PEG (Point d'Exchange de Gas); Italy: PSV (Punto di Scambio Virtuale); Spain: PVB (Virtual Balancing Point); Austria: Virtual Trading Point (VTP); Belgium: ZTE (Zeebrugge Trading Point) (which merged with the Belgian Zeebrugge Beach Trading Point in June 2023). UK: NBP (National Balancing Point)

5. Retail gas prices

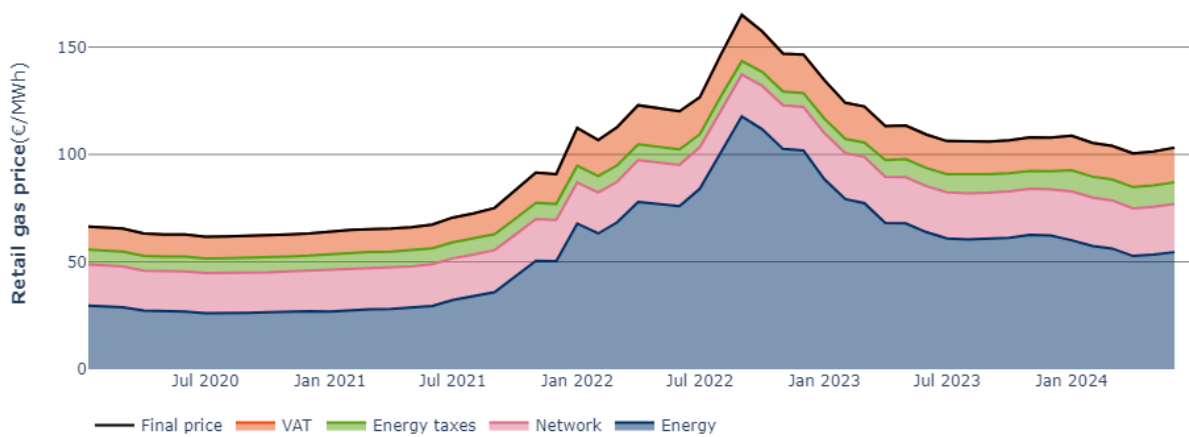
EU retail prices and year-on-year comparison

Q2 2024	Q2 2023	Q2 2022
101 EUR/MWh	112 EUR/MWh	121 EUR/MWh
▼-10%	▼-8%	▲83%

- In the second quarter of 2024, average **gas retail prices for household consumers decreased by 4 %** to reach an average of **101¹⁶ €/MWh** from 106 €/MWh in the previous quarter. Year-on-year, the quarterly average EU retail prices was 10% lower than in Q2 of 2023, but 53% higher than in the Q1 of 2021 (pre-crisis period).
- The **energy component** amounted to 53 €/MWh, constituting **53% of the retail prices** compared to 55% during the previous quarter but to 43% in Q2 2021. **Network costs** constituted **22%** (22 €/MWh) of the total end user price, **energy taxes 10%** (10 €/MWh), and **value added tax (VAT) is 16%** (16 €/MWh).

¹⁶ Translated from 10.13 eurocents/kWh (quarterly average in Q2-2024) to make it comparable with the wholesale price. Retail prices quoted in this section are translated from eurocents/kWh and rounded for the sake of easier comparison with wholesale prices.

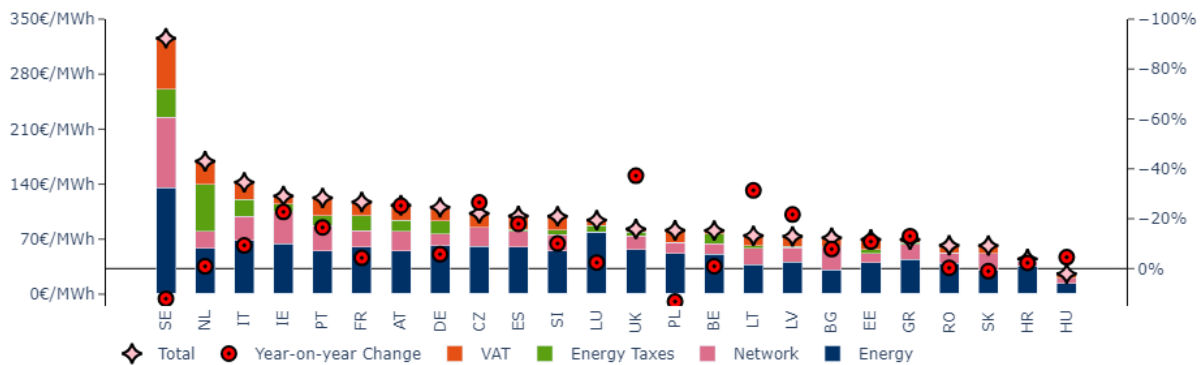
Figure 41 – Monthly average gas price in the EU paid by typical household customers (in EUR/MWh)



Source: VaasaETT. EU average represents an aggregate average of prices in the EU Member States' capital cities.

- Year-on-year, retail price drops were registered in 18 EU Member States. The biggest year-on-year drops were registered in Lithuania (-31%), Czechia (-26%) and Latvia (-22%). However some countries saw their retail prices slightly increased compared to the first quarter of 2023, among them Poland (+13%), Slovenia (+12%) and Slovakia (+1%).

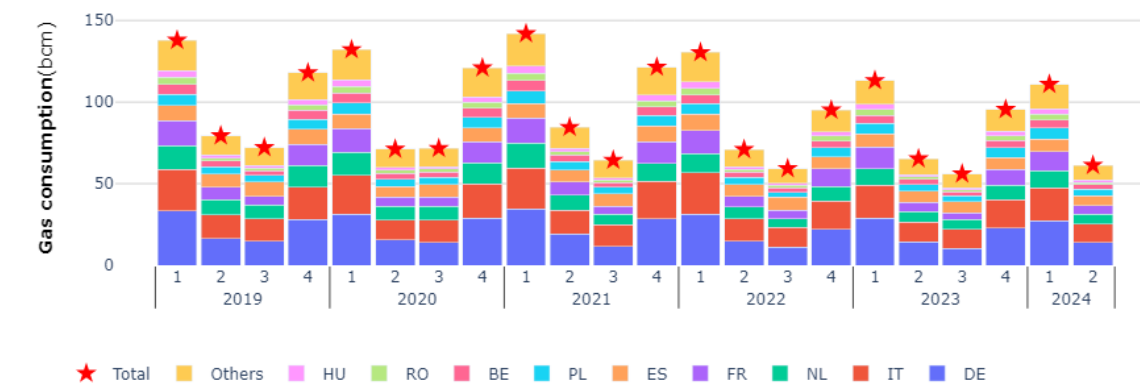
Figure 42- Breakdown of gas price paid by households in European capitals and annual change in prices, Q2 2024



Source: VaasaETT.

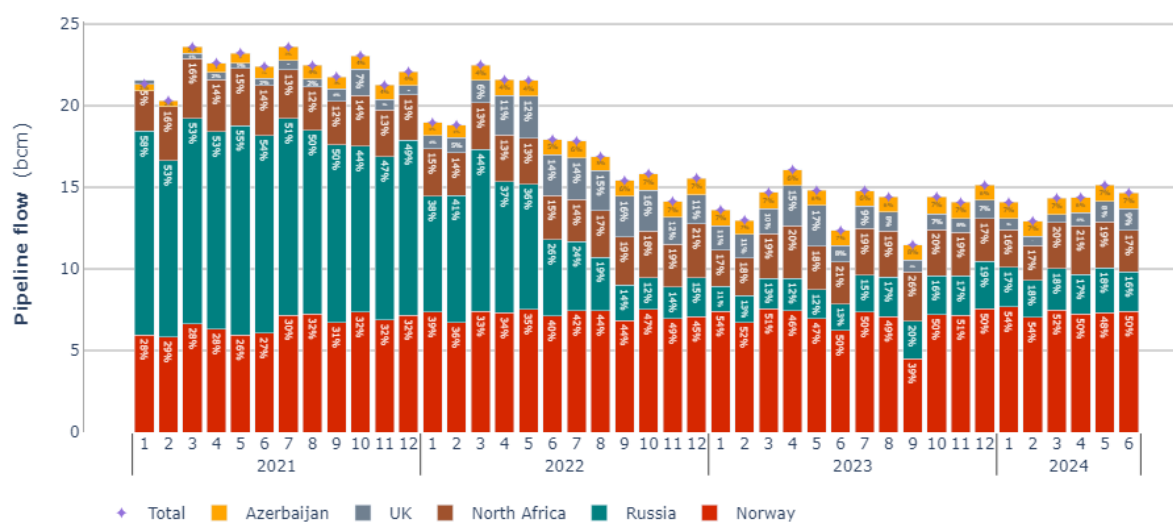
6. Appendix – charts providing further details on market developments

Figure 1 – Quarterly gas consumption per Member States



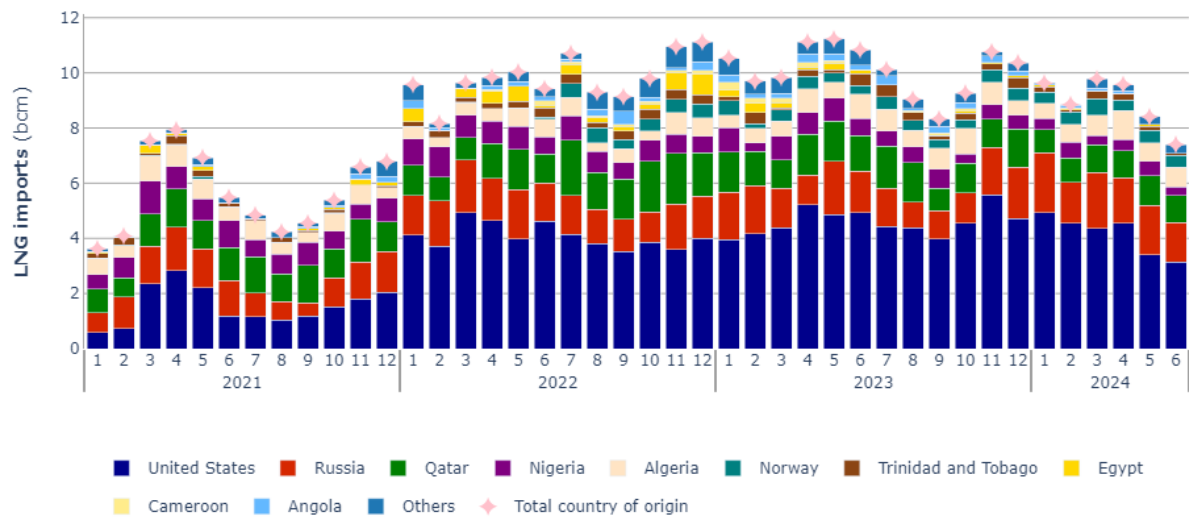
Source: Eurostat.

Figure 2 – Monthly EU imports of natural gas from pipelines



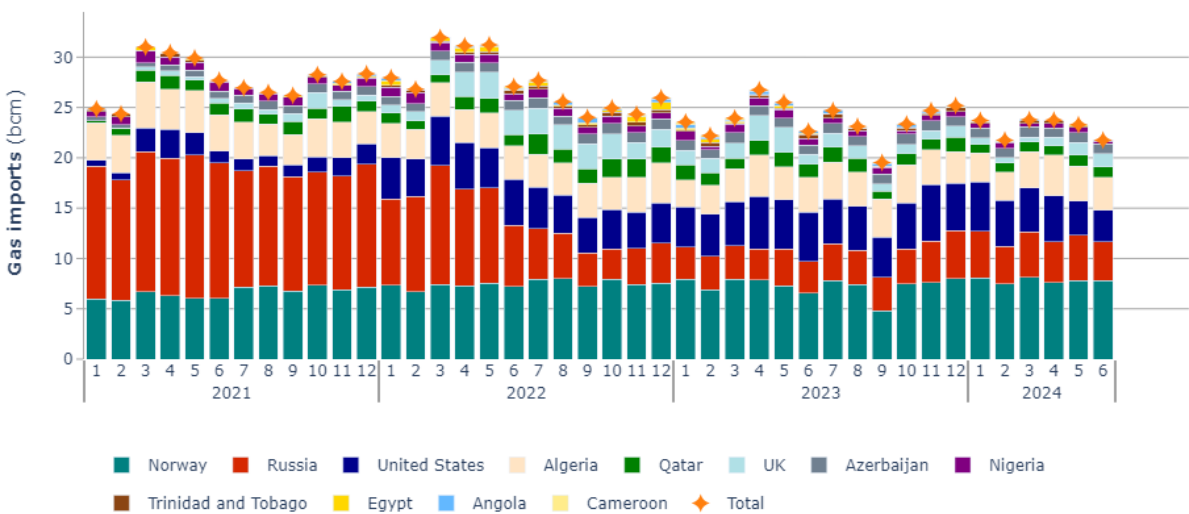
Source: European Commission calculation based on LSEG (Refinitiv) and ENTSO-G.

Figure 3 – Monthly gross LNG imports to the EU per suppliers



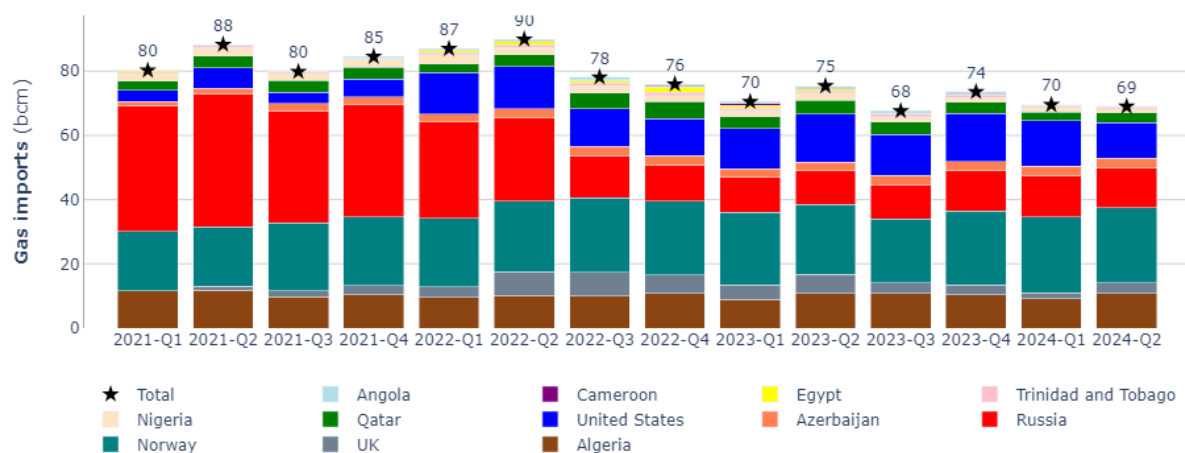
Source: European Commission calculation based on LSEG (Refinitiv) and ENTSO-G.

Figure 4 – Monthly gas (pipe and/or LNG) imports to the EU per suppliers



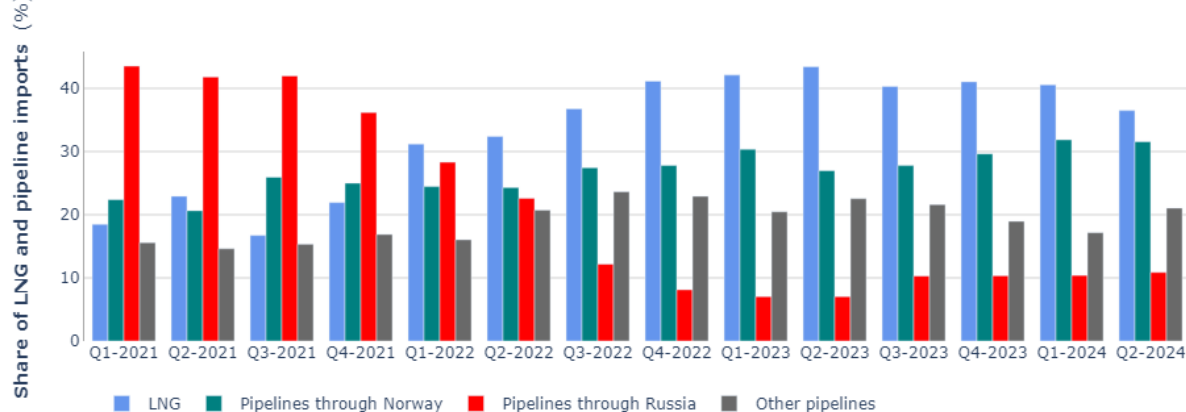
Source: European Commission calculation based on LSEG (Refinitiv) and ENTSO-G.

Figure 5 – Quarterly EU gas imports (pipeline and LNG) per suppliers



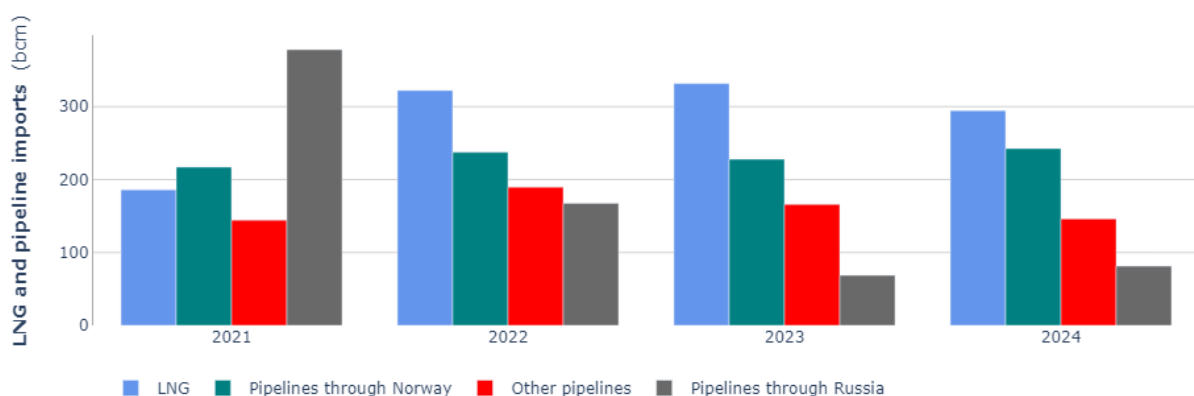
Source: European Commission calculation based on LSEG (Refinitiv) and ENTSO-G.

Figure 6 – Pipeline and LNG shares in the EU gas imports by quarters



Source: Based on data from the ENTSO-G Transparency Platform.

Figure 7 – Yearly pipeline and LNG imports from the EU main gas import sources



Source: Based on data from the ENTSO-G Transparency Platform.

Figure 8 – LNG NWE and SWE benchmarks compared with the Dutch TTF and ACER NWE and SWE (SE) benchmarks (daily values)



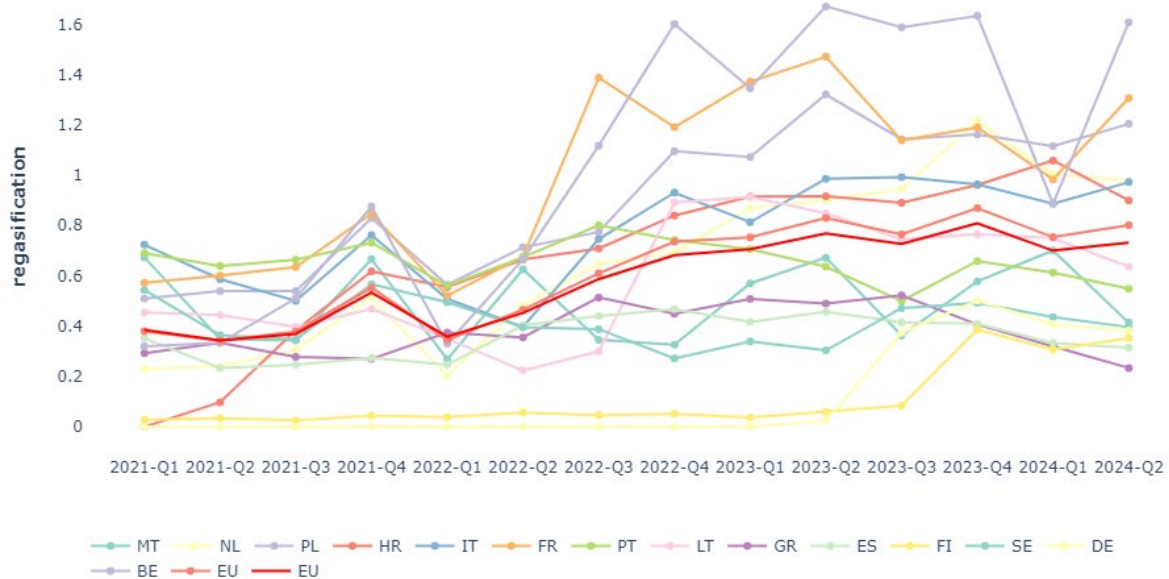
Sources: Global S&P (Platts), ACER.

Figure 9 – Comparison of TTF month-ahead, day-ahead and year-ahead prices (daily values)



Source: S&P Global (Platts).

Figure 10 – Monthly regasification terminal utilisation rates in the EU



Source: S&P Global (Platts).