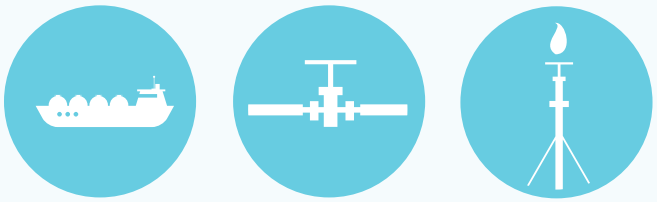
European Commission

ENERGY

Quarterly report

on European gas markets



Market Observatory for Energy
DG Energy

Volume 17
(issue 4, covering fourth quarter of 2024)

With focus on annual overview for 2024

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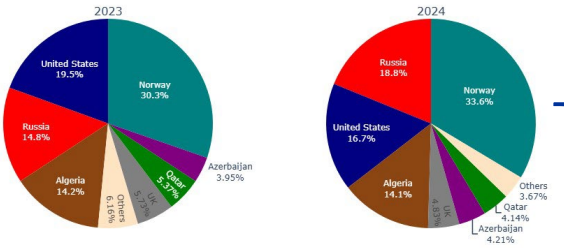
Yearly **Gas consumption** in the EU and year-on-year comparison

2024	2023	2022
332 bcm	330 bcm	356 bcm
▲0%	▼−7%	▼−14%

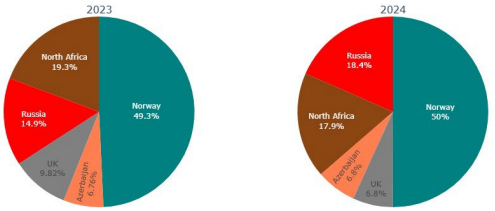
Total EU imports and year-on-year comparison

2024	2023	2022
273 bcm	290 bcm	334 bcm
▼−6%	▼−13%	▼0%



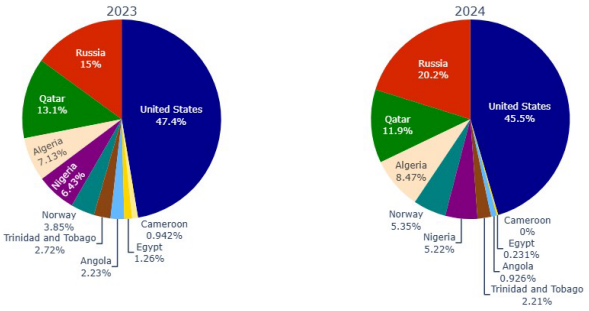
Total EU pipeline imports and year-on-year comparison

2024	2023	2022
172 bcm	169 bcm	216 bcm
▲2%	▼−22%	▼−19%



EU LNG imports and year-on-year comparison

2024	2023	2022
101 bcm	121 bcm	118 bcm
▼−16%	▲3%	▲73%



Source: ENTSO-G, LSEG Refinitiv.

Yearly average **gas prices** in the EU and year-on-year comparison

2024	2023	2022
35 EUR/MWh	41 EUR/MWh	132 EUR/MWh
▼−16%	▼−69%	▲180%

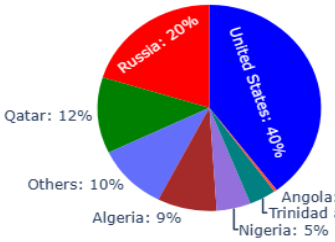
Source: S&P Global (Platts).

EU retail prices and year-on-year comparison

2024	2023	2022
104 EUR/MWh	113 EUR/MWh	132 EUR/MWh
▼−8%	▼−14%	▲81%

Source: VaasaETT.

Gas market fundamentals in Q4 2024 and year-on-year comparison

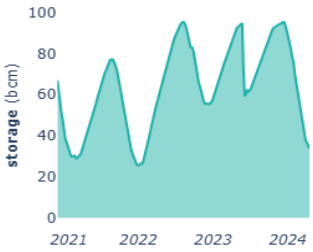


LNG: 26 bcm

Gas imports

70bcm

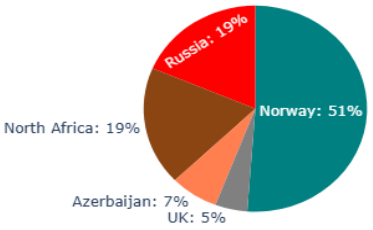
▼−4



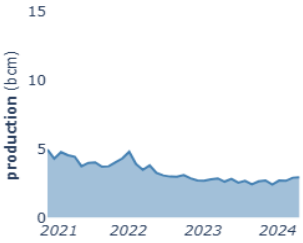
Gas storage

81bcm

▼0



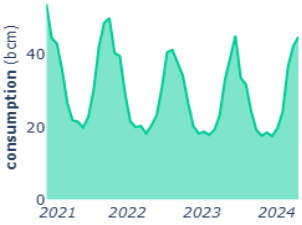
Pipelines: 44 bcm



Gas production

8bcm

▲0

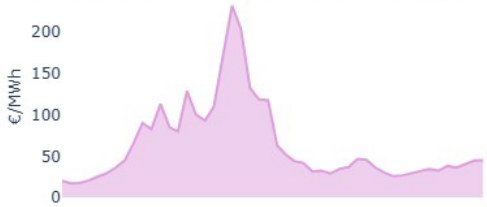


Gas consumption

103bcm

▲7

Headline prices in Q4 2024 and year-on-year comparison



Wholesale prices

43 €/Mwh

-

Change y-o-y

0%

Retail prices

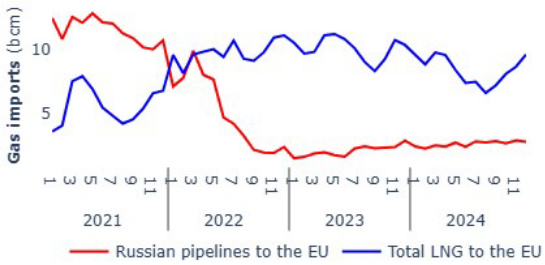
106 €/MWh

▼−7

Change y-o-y

−6%

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



LNG share of EU imports

38%

▼−3

US share in LNG imports

43%

▼−7

Pipelines share of EU imports

62%

▲3

Russian share in pipelines imports

19%

▲1

Source: Eurostat, VaasaETT, S&P, ENTSO-G, LSEG (Refinitiv).

HIGHLIGHTS OF THE REPORT

Highlights of the 4th quarter of 2024:

EU gas consumption, production and storage in Q4 2024

- **EU gas consumption** was **103 bcm,** an **increase of 8% year-on-year** and **85% increase quarter-on-quarter** reflecting the usual higher winter demand and in line with long-term seasonal cyclicality[1].
- **EU domestic gas production increased both year-on-year and quarter-on-quarter.** It was **8.3 bcm, 7% more than in the previous quarter** and **1% more than in Q4 2023. The Netherlands was again** the **largest producer** accounting for one-third (30%) of EU production (2.5 bcm), **followed by Romania** (2.4 bcm, 29%) and **Germany** (1 bcm, 12%). The three largest EU producer were responsible for 70% of EU total domestic gas production.
- **EU gas storage levels came down from the new record highs reached in 2023, but were still above the average of 2016-2020 and significantly above 2021 filling rates.** Storage filling rate was **95% in October**, **91% in November** and **78% in December.** The **average filling rate for the quarter was 88%**, the same as in the previous quarter and 8% lower compared to the fourth quarter of 2023. On the last day of 2024, storage filling rate stood at 72%, which was 16% lower than on 31 December 2023 (86%).

EU gas imports in Q4 2024

- **EU gas imports** amounted to **70 bcm,** a **9% increase quarter-on-quarter** and **6% decrease year-on-year. Pipeline gas** constituted **62% of imports** and **LNG** was **38%.**
- **EU pipelines imports** amounted to **43 bcm,** an **increase of 2% compared to the previous quarter,** and little changed **compared to the previous year** (-1%). **Norway** remained the **EU's biggest pipeline gas supplier** with a **share of 50%**, followed by **North-Africa** (19%), **Russia** (19%) and **Azerbaijan** (7%)**.**
- **EU's total gross LNG import was 26 bcm**, an **increase of 24% quarter-on-quarter** and a **decrease of 13% year-on-year. France remained** the **largest EU importer, followed** by**Spain and the Netherlands.**
- The **United States remained the EU's biggest LNG supplier with a 43% share in EU LNG imports** (an increase of 2 percentage points from 41% in the previous quarter, and a decrease of 7 percentage points from 50% in Q4 of 2023). **Russia was second** with 19% share and **Qatar third** with 13% share in EU LNG imports.
- **Russian gas** represented **19% of the EU's total gas imports** (13.4 bcm), an increase of one percentage points from 18% compared to the previous quarter and an increase of two percentage points from 17% in the fourth quarter of 2023. In terms of volume, imports from Russia increased by 5% quarter-on-quarter and by 8% year-on-year.

EU wholesale gas prices and markets in Q4 2024

- European **wholesale gas prices** were characterised by a steady increase, continuing the rising trend observed already in the third quarter of 2024. The gas wholesale price rose **to 40 €/MWh in October, to 44€/MWh in November** and **45€/MWh** in December 2024. The quarterly average wholesale gas price was **43€/MWh** in Q4 2024, 21% higher than in the previous quarter, but **unchanged on annual basis**.
- Asia continued to offer a limited price premium compared to **European gas prices,** which on average were 1,4 €/MWh **cheaper than Asian prices**. This marked a reduction in spread compared to the fourth quarter of 2023, when EU prices were 5.4 €/MWh lower. **Quarter-on-quarter**, **prices increased on** all major **international benchmarks by** between **7% and 33%**, the biggest increase being registered in the UK and the smallest in Asia. **Year-on-year international benchmarks declined by 16% in Europe, 19% in Asia and 17% in the US**.

EU retail gas prices in Q4 2024

- The steady increase in **gas retail prices for household consumers that already started in the 3rd quarter** continued **in the 4th quarter of 2024.** The **quarterly average retail price was 106 €/MWh**, **2% higher** than in the 3rd quarter and **6% lower year-on-year.** Compared to the same quarter in 2021, retail prices were 20% higher; they were **61% higher compared to pre-crisis prices** (2021's first half). The **energy component** constituted **53%** of the price, while **network costs** amounted to **22%,** energy **taxes 10%** and **value added tax** (VAT) **16%,** as EU average.
- **Retail prices continued to diverge** across the EU and **ranged between 25 €/MWh** (Hungary) and **172 €/MWh** (the Netherlands) amongst those Member States, where natural gas is an important part of the energy mix for residential customers. The highest price (324 €/MWh) was registered in Sweden, where gas use at retail level is marginal.

[1] Values (volumes and percentages) are rounded to the nearest integer or, when needed for the purposes of clarity, to the nearest one or two decimales in the Highlights. Due to the rounding of partial amounts, their addition may result in totals that are higher or lower than 100%.

Highlights of the year 2024:

EU gas consumption, production, and storage in 2024

- In 2024, the **EU's total gas consumption** was **332 bcm**, a small **increase of 1% compared to 2023** (330 bcm) and **a decrease of 7% compared to 2022 (356 bcm). Compared to 2021 (pre-crisis), the EU gas consumption declined by 20%** (412 bcm). 2024 was the first year since 2021 when EU gas consumption did not decline.
- **At Member States level**, the **change in gas consumption ranged from a decline of 17%** to an **increase of 30%**. **In 2024, gas consumption decreased in 10 Member States compared to 2023,** while in **16 Member States it increased.** Compared to 2021, **all Member States experienced declines in gas consumption** ranging **from 36% to 1%**.
- **EU's gas production was 32 bcm** in 2024, a **decline of 15% compared to 2023** (38 bcm) and **32% less than in 2022** (47 bcm). **Domestic gas production** covered **10% of domestic gas consumption in 2024**, 1%-points less than in 2023 (11%). The **number one producer** continued to be **the Netherlands** accounting for **one third** (9.7 bcm), followed by **Romania** (9.4 bcm) and **Germany** (3.9 bcm).
- **In 2024, the average gas storage filling rate was 78%** (79 bcm), **1% less than in 2023** (79%, 80 bcm) and **31% higher** (61%, 60 bcm) **compared to the level in 2022**.

EU gas imports in 2024

- **Total EU gas imports** amounted to **273 bcm,** a **6% decline** compared to **2023** (289 bcm) and **18% less than in 2022** (333 bcm)**. Norway** provided **33%,** Russia 19%, the **United States 17%,** North-Africa 14%, UK 4%, Qatar 4%, Azerbaijan 4%, Nigeria 2%, Trinidad & Tobago 1%, and other LNG suppliers 1% **of the EU's total gas imports** in 2024.
- **The share of LNG in 2024** was **37%,** while **the share of pipeline gas** was **63%. Total EU LNG imports** were **101 bcm,** a **decrease of 16%** compared to 2023 (121 bcm) and a decrease of 14% compared to 2022 (118 bcm). **The US remained the EU's largest LNG supplier with 45% share.** It was followed by **Russia** (20%), **Qatar** (12%), **Algeria** (8%), **Nigeria** (5%) and **Norway** (5%).
- **The EU's total pipeline gas imports** were **172 bcm in 2024,** a **2% decrease** compared to **2023** (169 bcm) and **21% decrease** compared to **2022** (216 bcm). **Norway supplied half** (50%) **of the EU's** pipeline gas imports. It was followed by **Russia** (18%), **North-Africa** (18%), **Azerbaijan** (7%) and the UK (7%).
- **Total global LNG trade** was **564 bcm** in 2024, almost unchanged (+2 bcm) **compared to 2023** (562 bcm) and **2% increase** compared to **2022** (556 bcm).
- In 2024, the **world's largest LNG exporters** remained the **same with the number one United States (22%)** followed by **Australia (20%)** and **Qatar (19%)** on the second and third places. Russia (8%), Malaysia (7%) and Indonesia (4%) occupied the fourth, fifth and sixth position.
- The **world's largest LNG importer** was the **EU** (**20%)**, followed by **China** (19%) and **Japan** (16%)**.**

EU wholesale & retail gas prices in 2024

- The **annual average gas wholesale price** was **35€/MWh**, a **decrease of 16% compared to 2023** (41€/MWh) and a **decrease of 26% compared to 2021** (47€/MWh).
- **The annual average gas retail price was 104€/MWh**, a **decrease of 8% compared to 2023** (113€/MWh) and **38% higher than the price in 2021** (75€/MWh).

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. Gas market fundamentals

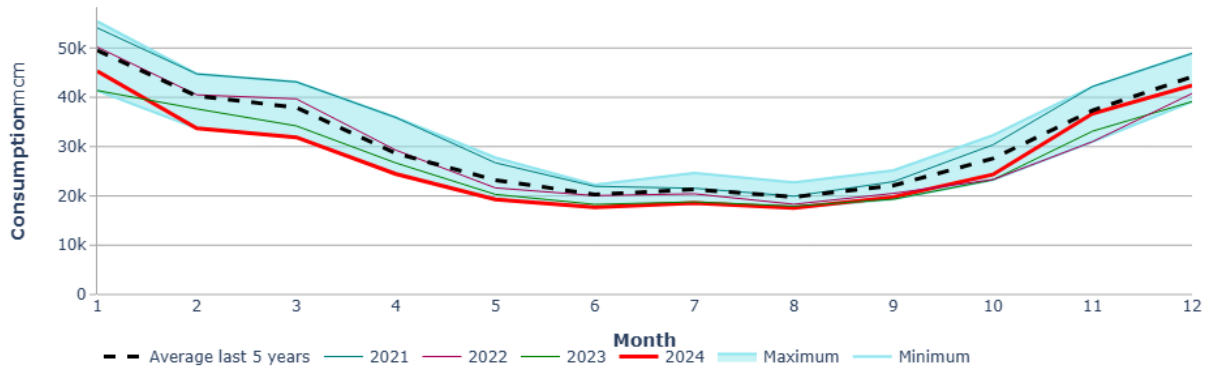
1.1 Consumption

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

Q4 2024	Q4 2023	Q4 2022
103 bcm	96 bcm	95 bcm
▲8%	▲0%	▼−22%

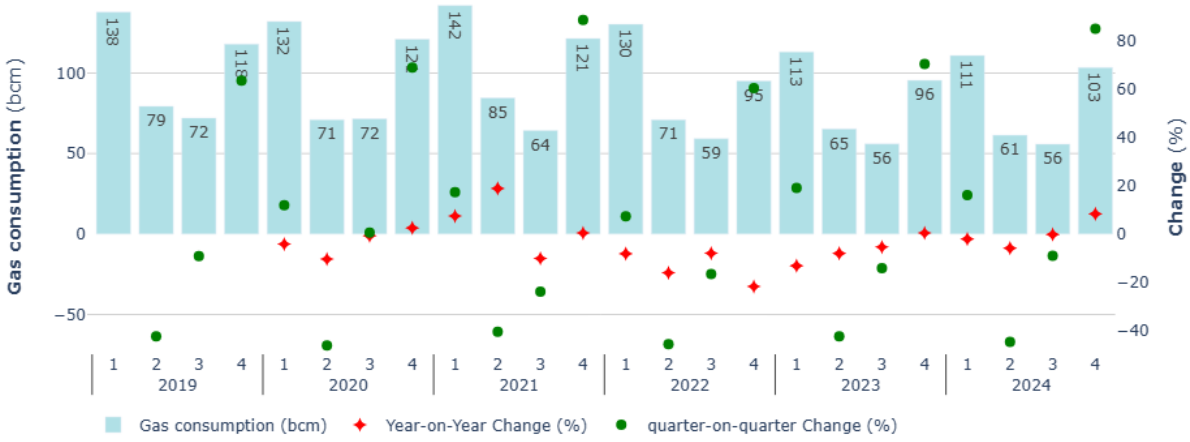
- **Figure 2** shows the change in EU's gas consumption year-on-year in each quarter. Figure 3 highlights the quarter-on-quarter variations in the EU's gas consumption. Gas consumption in the last quarter of 2024 was of 103 bcm, which is 8% more than the same period last year, but 47 bcm more than the previous month (+84%) as we were entering in the winter season.
- In a year-on-year comparison, gas consumption increased in 14 Member State, decreased in 9 Member States[2]. The largest increase was recorded in Slovakia (+23%) and the largest decrease in Portugal (-29%).

Figure 1 - EU gas consumption



Source: Eurostat.

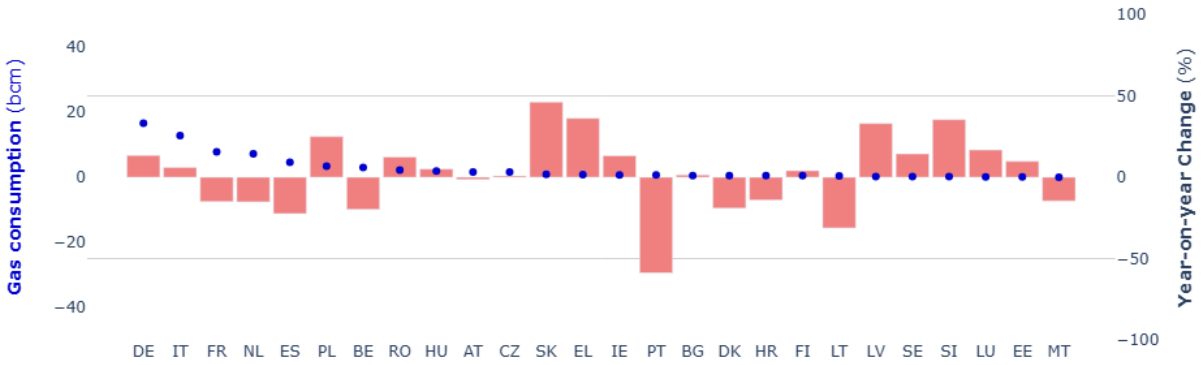
Figure 2 – Gas volumes and change (year-on-year, quarter-on-quarter) of EU gas consumption



Source: Eurostat.

[2] Cyprus currently does not have statistically reported gas consumption.

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



Source: Eurostat.

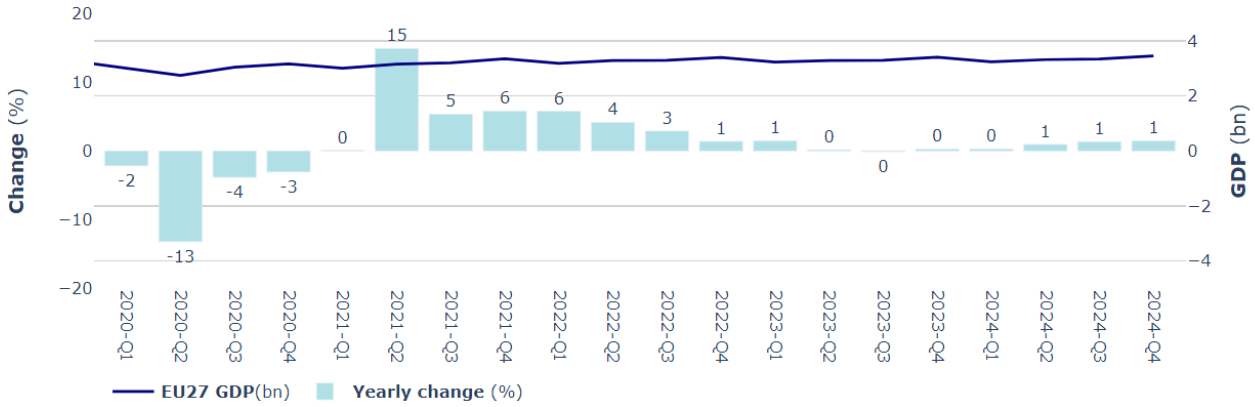
- ***Annual overview of EU gas consumption in 2024:***

Source: Eurostat.

- In 2024, **the EU's total gas consumption** remained stable compared to the previous year, amounting to 332 bcm (+2 bcm, +0.5%).

The EU's real GDP registered a moderate increase in the fourth quarter of 2024 compared to the previous quarter and a similar small increase compared to the same quarter in 2023.

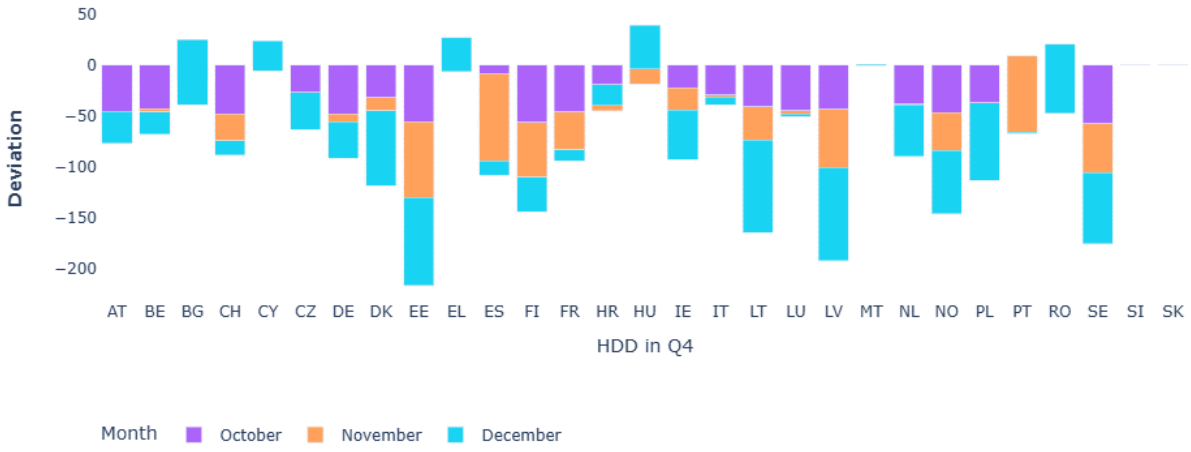
Figure 4 – Change in EU27 real GDP in year-on-year comparison



Source: Eurostat.

- **Figure 5** illustrates the monthly deviation of actual Heating Degree Days (HDDs) from the long-term average (a period between 1979 and the last calendar year completed) in the fourth quarter of 2024. In most of Europe, milder than usual temperatures resulted in less HDDs during Q4 2024 continuing the prevailing trend of recent years.

Figure 5 – Deviation of actual Heating Degree Day (HDD) from the long-term average in Q4 of 2024

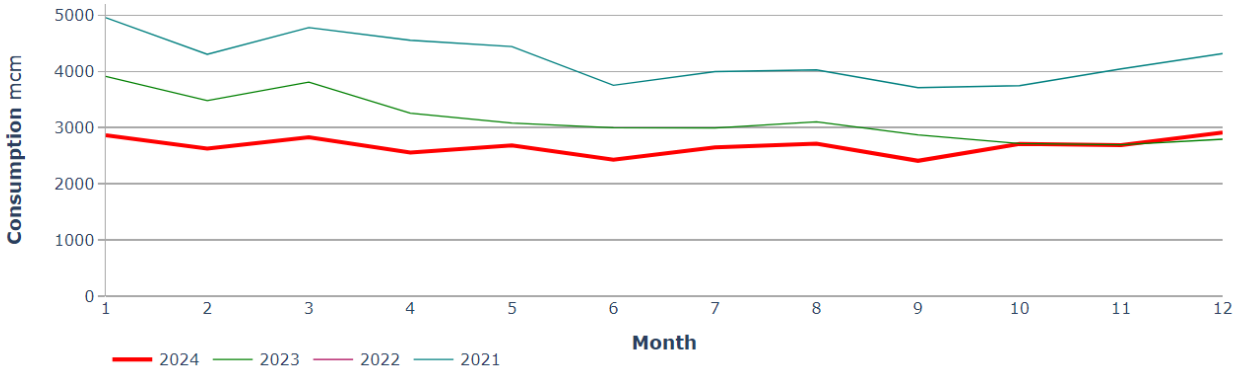


Source: European Commission, Joint Research Centre.

1.2 Production

The EU's domestic gas production was 8.3 bcm, an increase of 7% compared to the previous quarter (7.8 bcm) and an increase of 1.3% year-on-year (8.2 bcm)3. Since 2014, the EU's Q4 domestic gas production declined by 75% (-25.2 bcm) from 33.5 bcm to 8.3 bcm.

Figure 6- Monthly domestic gas production in the EU



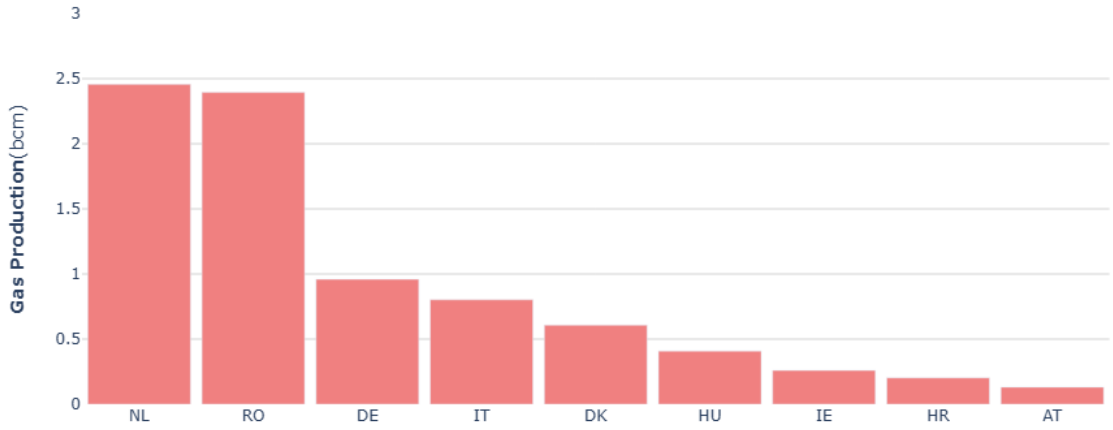
Source: Eurostat.

- In the EU, **18 Member States conduct domestic gas production**, while nine Member States (Finland, Estonia, Latvia, Lithuania, Luxembourg, Malta, Portugal, Sweden, Cyprus) do not produce gas in their territories.

[3] Domestic gas production in Poland is not included in Eurostat statistics since September 2023.

- The biggest EU gas producer in the fourth quarter of 2024 remained the Netherlands with a total quarterly production of 2.5 bcm, a increase of 7% since the last quarter and a decrease of 6% year-on-year. Romania kept its second place (2.4 bcm) followed by Germany (1.0 bcm). They were followed by Italy (0.8 bcm), Denmark (0.6 bcm), Hungary (0.4 bcm) and Ireland (0.3 bcm).
- In a year-on-year comparison, production in 10 Member States fell by between -26% (Greece) and -4% (Slovenia), while it increased in 7 Member States by between 81% (Denmark) and 1% (Romania).

Figure 7 - The biggest domestic gas producer Member States in the EU in Q4 of 2024

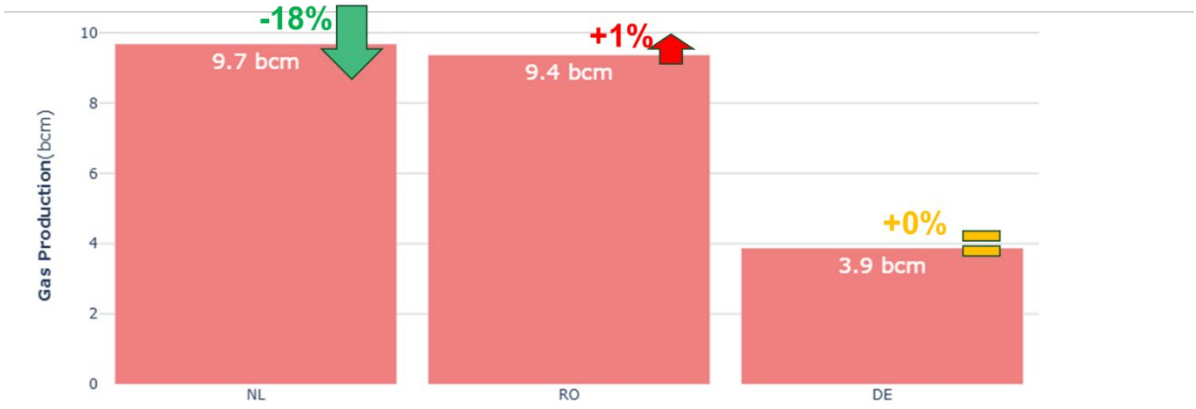


Source: Eurostat.

Annual overview of domestic gas production in 2024:

Source: Eurostat.

Figure 8 – Top 3 Gas Producers in the EU in 2024 compared to 2023



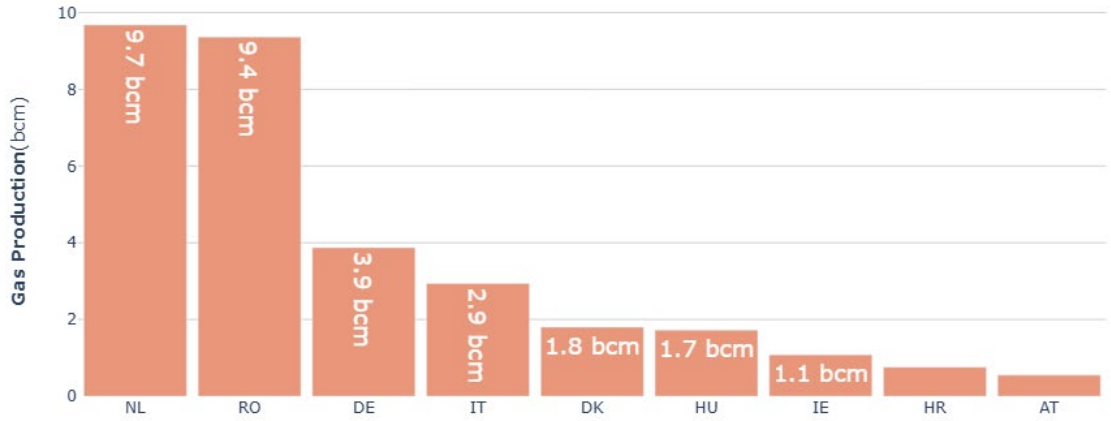
Source: Eurostat.

- On annual basis, **the EU 2024 gas production amounted to 32 bcm** covering **10% of the EU's gas consumption in 2024**. This was 1%-point less than in 2023, when the EU's domestic production covered 11% of EU consumption, and 2%-point less than in 2022, when it covered 13% of consumption.
- **On an annual basis**, the number one producer continued to be **the Netherlands accounting for close to one third** (30%, 9.7 bcm) **of EU domestic gas production**. Romania kept its second position (9.4 bcm, 29%), and Germany kept its third place (3.9 bcm, 12%)[4]. The fourth, fifth and sixth places were occupied by Italy (2.9 bcm, 9%), Denmark (1.8 bcm, 6%) and Hungary (1.7 bcm, 5%) in 2024. They were followed by Ireland (1.1 bcm, 3%), Croatia

[4] Poland's domestic gas production is not reported in EU statistics since September 2023. This is reflected in all relevant figures and Poland is not included in Member States' count as of October 2023.

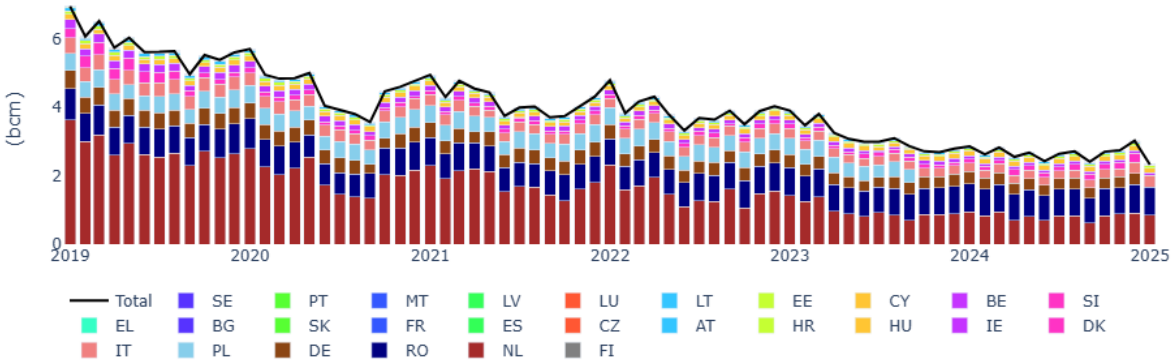
(0.8 bcm, 2%), Austria (0.5 bcm, 2%) and the Czech Republic (0.2 bcm, 1%). The remaining seven Member States supplied less then one percent each, and together they constituted 0.3% of the EU domestic gas production in 2024.

Figure 9 – The biggest domestic gas producer Member States in the EU in 2024



Source: Eurostat.

Figure 10 – Monthly gas production in the EU

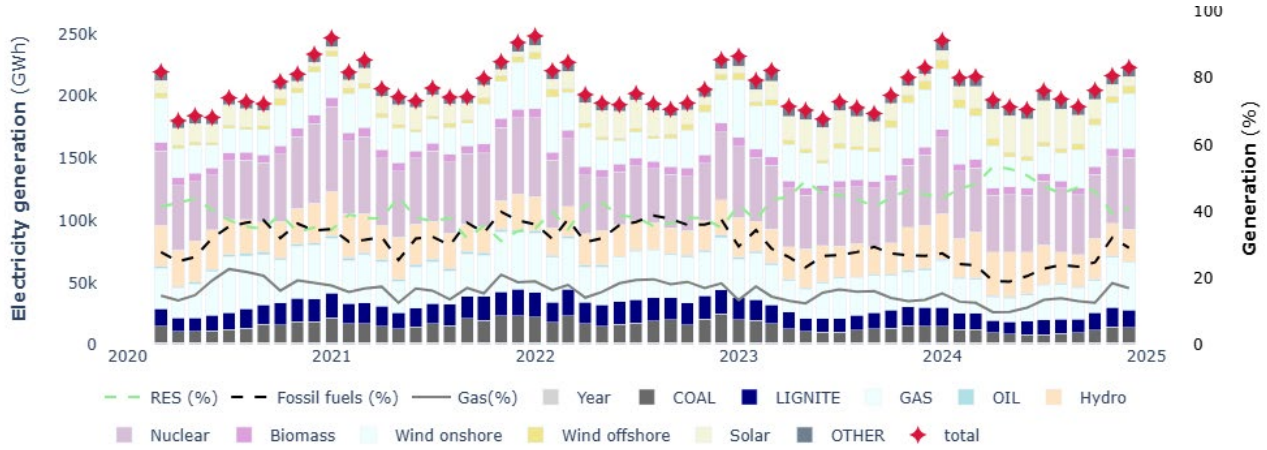


Source: Eurostat.

- Electricity generation from natural gas amounted to 103 TWh in the fourth quarter of 2024, a increase of 29% compared to the previous quarter (80 TWh) and an increase of 20% year-on-year (86 TWh)[5].
- Gas input for power and heat generation by main activity producers was 22 bcm, an increase of 38% compared to the previous quarter and 17% more than in the same quarter of the previous year. This transformation input for electricity production, including for combined heat and power generation, constituted 21% of the EU's total gas consumption in the fourth quarter of 2024, 8%-points less than in the third quarter of 2024 (29%) and 1%-point more than in the fourth quarter of 2023 (20%).

[5] Data retrieved from ENTSO-E Transparency Platform.

Figure 11 - Monthly electricity generation in the EU

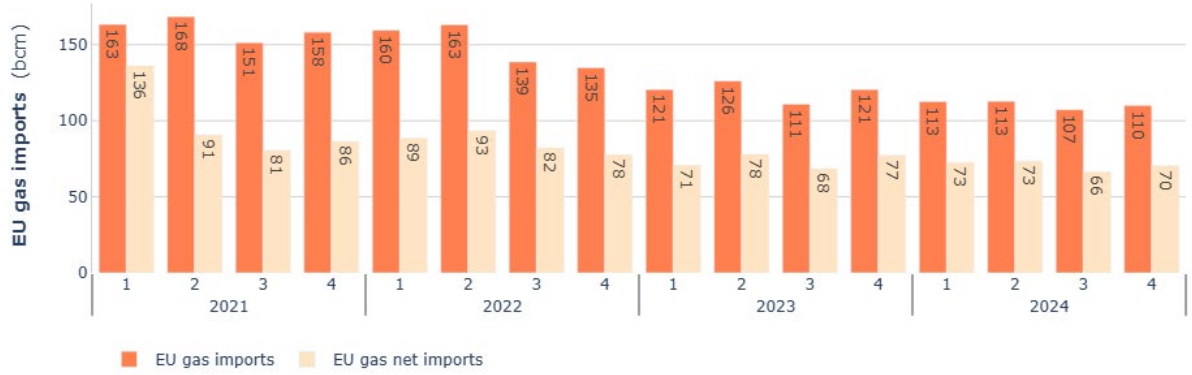


Source: ENTSO-E.

1.3 Imports

- According to Eurostat, total gross gas import in the EU amounted to 110 bcm[6] in the fourth quarter of 2024, a 9% decrease compared to the previous year and 2.8% increase compared to the previous quarter. Net imports[7] amounted to 70 bcm exports of 40 bcm.

Figure 12 - EU gas imports (gross and net) by quarters



Source: Eurostat, nrg_cb_gasm, monthly data.

[6] Gross imports by Member States including intra-EU exchanges as reported by Member States on monthly gas imports to Eurostat in the nrg_cb_gasm data series.
[7] Net imports equal imports minus exports reported by Member States on monthly gas exports to Eurostat in the nrg_cb_gasm series and do not account for stock changes.

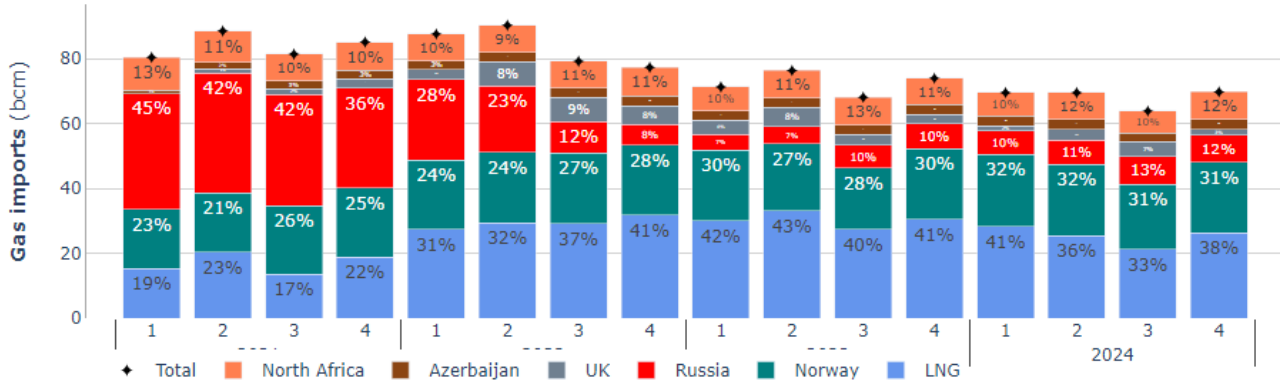
1.3.1. Total EU imports

Total EU imports and year-on-year comparison

Q4 2024	Q4 2023	Q4 2022
70 bcm	74 bcm	77 bcm
▼−6%	▼−4%	▼−9%

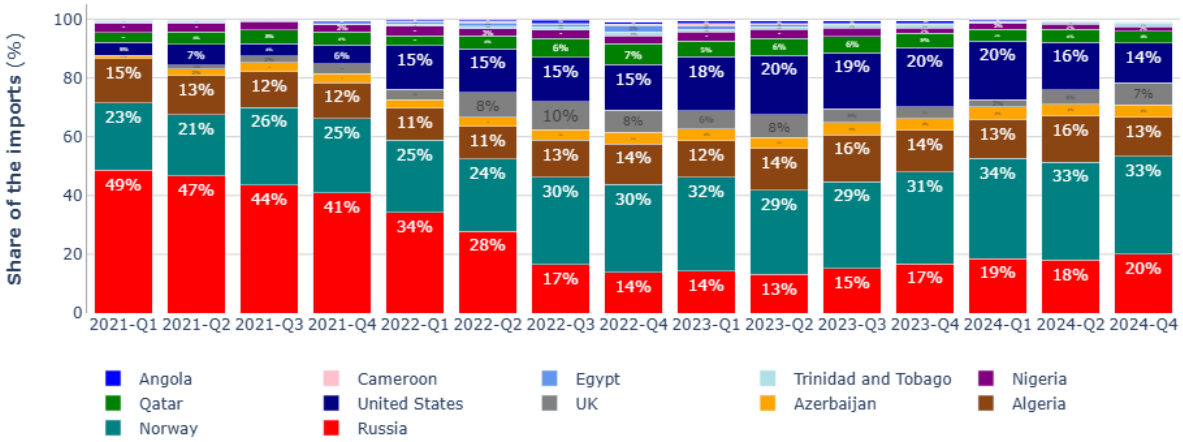
- According to ENTSO-G, which tracks all the physical flows in- and out of the EU, total gas imports[8] by EU Member States amounted to 70 bcm in the fourth quarter of 2024, a 9% increase compared to the previous quarter and 6% decrease compared to the same quarter in 2023.
- The share of LNG in total EU gas imports increased compared to the third quarter of 2024, when it was 33%. Compared to 2021, the share of LNG increased even more significantly. In 2021, LNG represented 22% of the EU gas supply, while it represented 38 % in Q4 of 2024. However, compared to the last quarters of 2022 and 2023, when it was 41%, the share of LNG decreased.

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



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

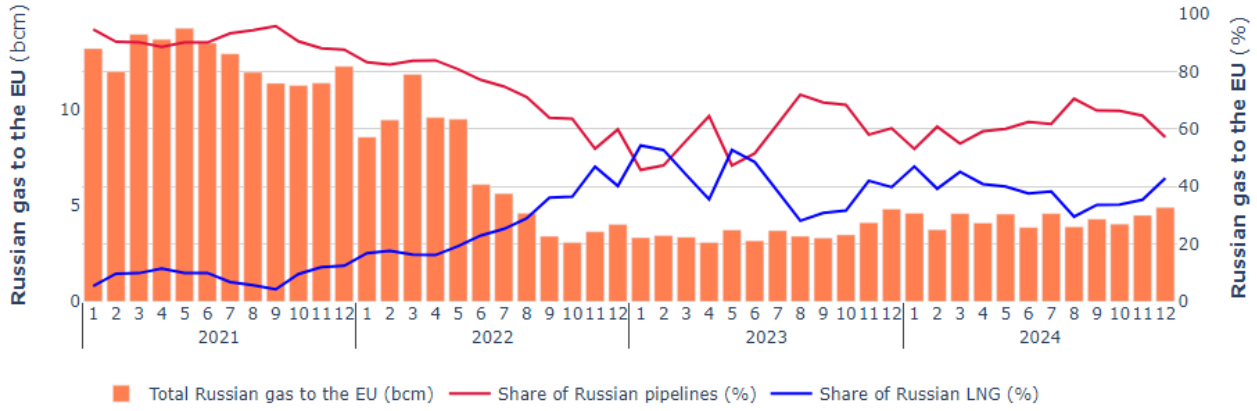
Figure 14 – Quarterly share of gas imports within the total, combining both pipeline and LNG imports



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

[8] Physical flows into the EU through its external borders as measured by gas transmission system operators and reported to ENTSO-G Transparency Platform are used as proxies for net gas imports.

Figure 15 – Monthly pipeline and LNG imports from Russia



Source: Based on data from LSEG (Refinitiv) and from the ENTSO-G Transparency Platform

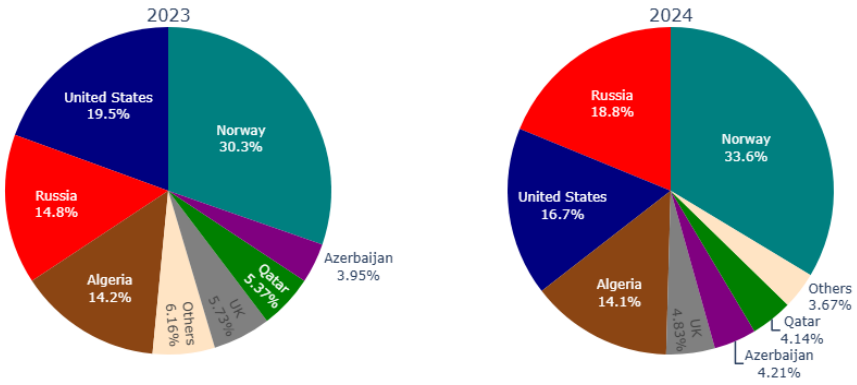
Annual overview of the EU's total gas imports in 2024:

Total EU imports and year-on-year comparison

2024	2023	2022
273 bcm	290 bcm	334 bcm
▼−6%	▼−13%	▼0%

- Total EU gas imports amounted to 273 bcm in 2024. This was a 6% decrease compared to 2023 and 18% less than in 2022 and 2021. In 2024, Norway provided one third of the EU's total gas imports, followed by Russia (19%) and the US (17%). North Africa and Qatar were also important suppliers.

Figure 16 - Total EU gas imports (pipeline + LNG) by suppliers



Source: ENTSO-G, LSEG (Refinitiv).

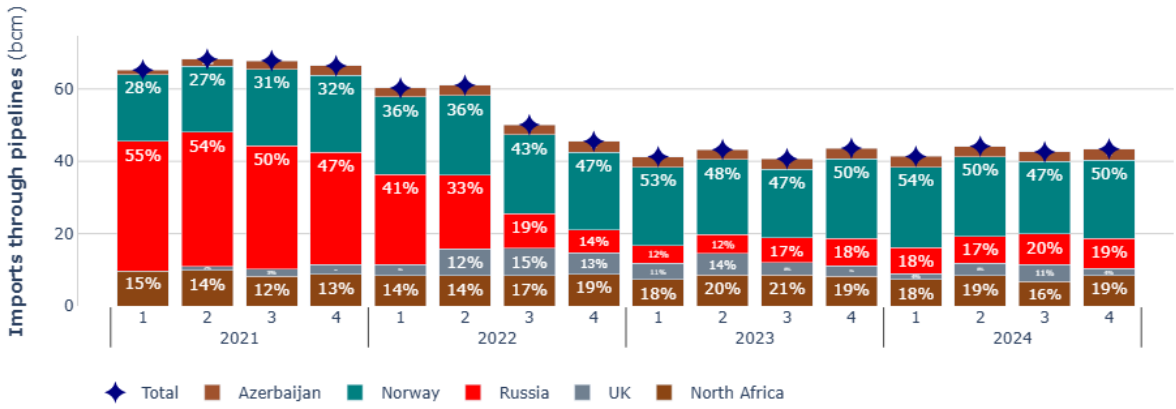
1.3.2 Pipeline imports

Total EU pipeline imports and year-on-year comparison

Q4 2024	Q4 2023	Q4 2022
43 bcm	44 bcm	46 bcm
▼0%	▼−4%	▼−31%

- EU pipelines import remained relatively stable in the fourth quarter of 2024 compared to the previous quarter and compared to the same quarter in the previous year. It was 43.4 bcm in Q4 of 2024, a 2% increase compared to Q3 of 2024 (42.6 bcm) and it slightly decreased (-0.5%, -0.23 bcm) compared to Q4 of 2023.
- During the fourth quarter of 2024, Norway remained the EU's biggest pipeline gas exporter with a 50% share, followed by North Africa (18%, 8 bcm), Russia (18%, 8 bcm) and Azerbaijan (7%, 3 bcm).

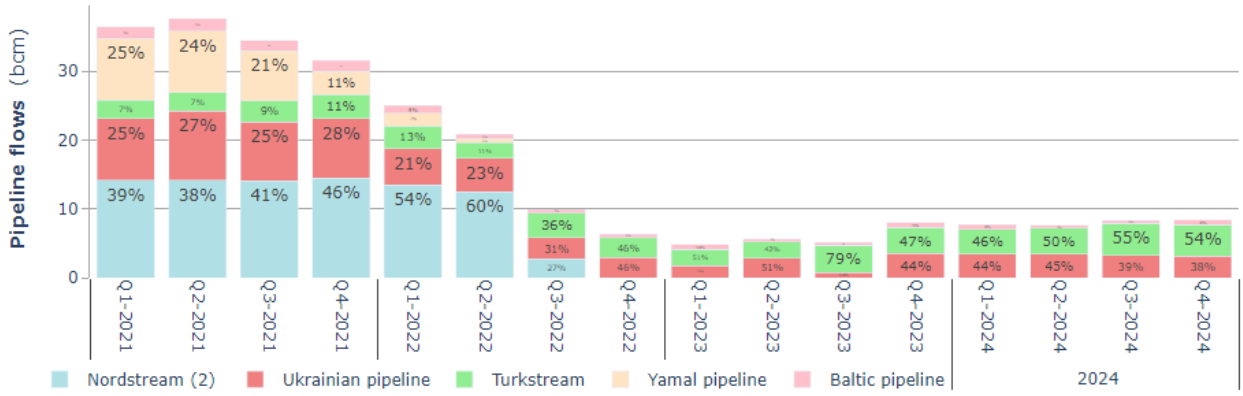
Figure 17 – Quarterly EU imports of natural gas from pipelines



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

- In the fourth quarter of 2024, the two main remaining transit routes for Russian pipeline gas exports through Ukraine and Turkey transported 38% and 54% of the Russian gas volumes, respectively.

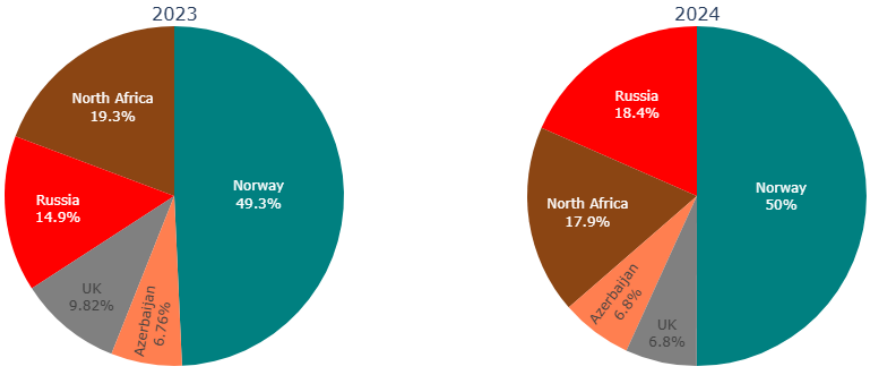
Figure 18 –Quarterly EU imports of natural gas from Russia by supply route



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

Annual overview of the EU's pipeline imports in 2024:

Figure 19 - Pipeline gas imports in 2023 and 2024



1.3.3 LNG imports

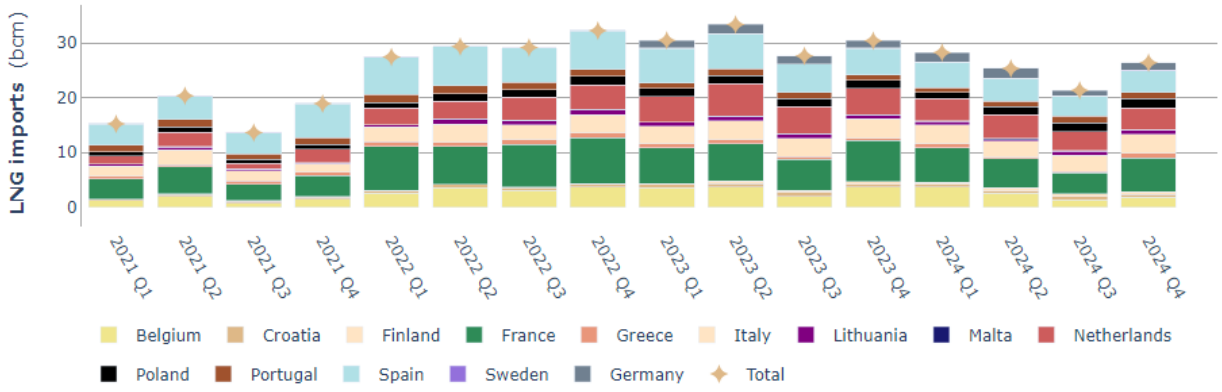
EU LNG imports and year-on-year comparison

Q4 2024	Q4 2023	Q4 2022
26 bcm	30 bcm	32 bcm
▼−13%	▼−6%	▲70%

In the fourth quarter of 2024, total gross EU LNG import was 26 bcm, an increase of 24% compared to the previous quarter, and a decrease of 13% compared to fourth quarter of 2023. France kept and strengthened its number one position, followed by the Netherland and Spain.

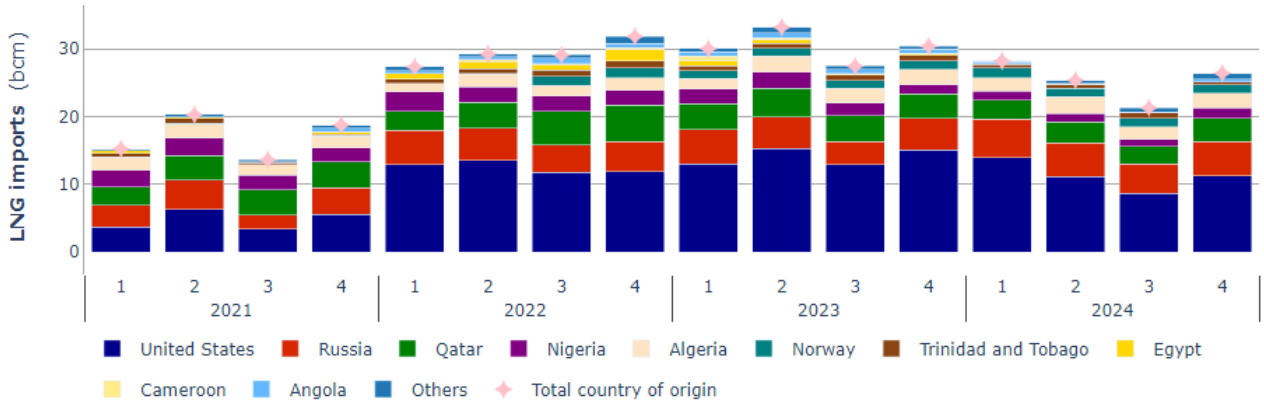
- In the fourth quarter of 2024, the United States increased its share in EU LNG imports from 41% in the previous quarter to 43% in the fourth quarter of 2024. Year-on-year, however the US's share decreased by 4%-points, from 47% in the fourth quarter of 2023. Notwithstanding, the US remained the largest EU LNG exporter by far and was followed by Russia (19%) and Qatar (13%) in the second and third places. Algeria (8%), Nigeria (6%), Norway (5%) supplied the fourth, fifth and sixth largest share of the EU's LNG imports.

Figure 20 - LNG imports to the EU by Member States



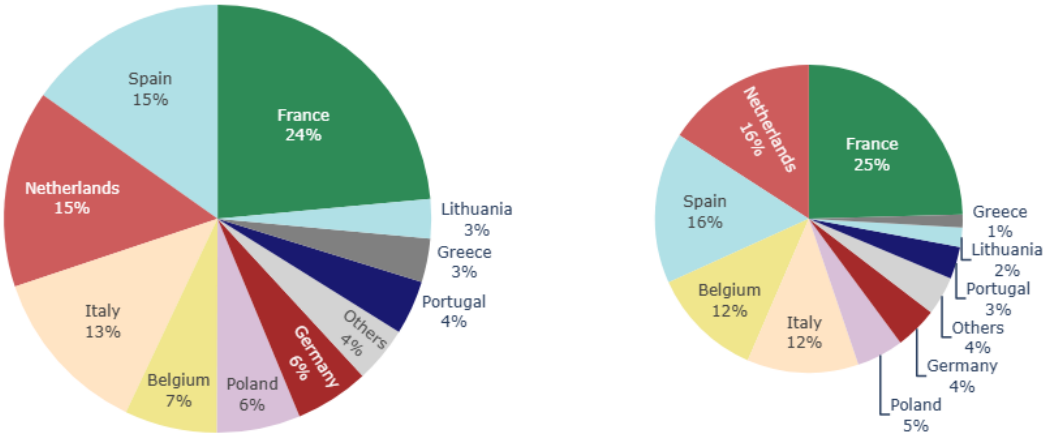
Source: European Commission calculation based on LSEG (Refinitiv) and ENTSO-G.

Figure 21 - LNG imports to the EU by supplier countries



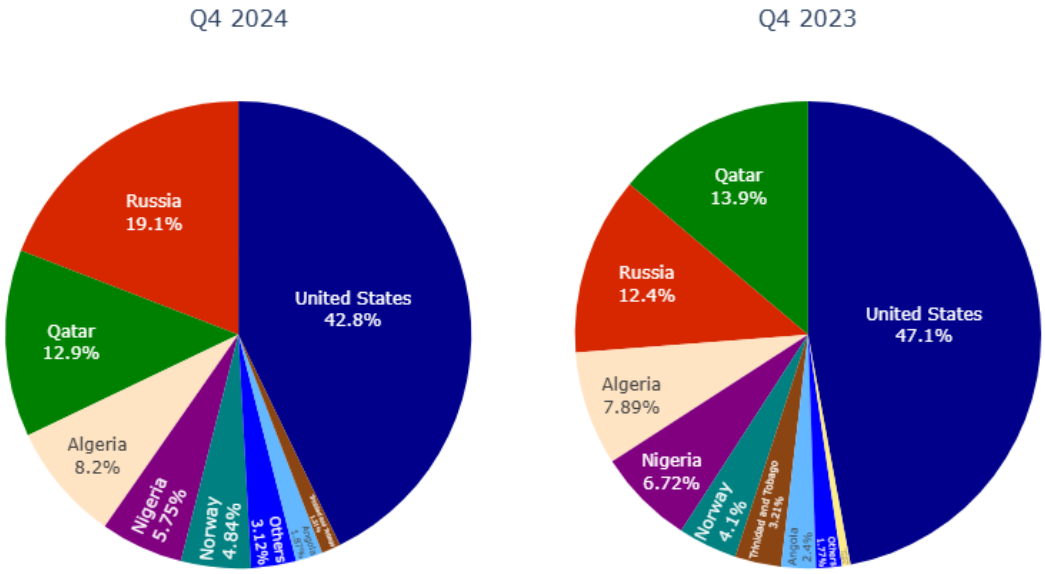
Source: European Commission calculation based on LSEG (Refinitiv) and ENTSO-G.

Figure 22– Share of Member States in EU LNG imports in Q4 2023 (right) and Q4 2024 (left)



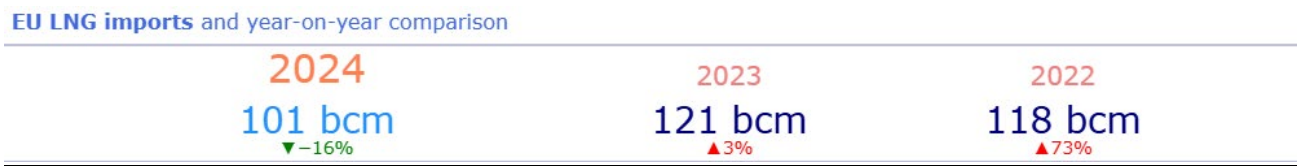
Source: LSEG (Refinitiv), 'Others' includes Croatia, Finland, Malta and Sweden.

Figure 23 – Share of exporters in EU LNG imports in Q4 2023 (right) and Q4 2024 (left)



Source: LSEG (Refinitiv).

Annual overview of EU LNG imports for 2024:



Source: LSEG (Refinitiv).

In 2024, **EU LNG imports declined by 16%** compared to 2023 and amounted to **101 bcm**.

- The US reduced its market share by 1 pp to 45%, whereas Russia expanded its share by 5 percentage points to reach 20%.
- In term of volumes, US imports decreased by 20% (-11 bcm) while Russian imports increased by 12% (+2 bcm).
- In the international LNG markets, the EU's global LNG share dropped to 20% in 2024 from 24% in 2023, reflecting a slowdown in EU LNG imports.

2. Global LNG Trade

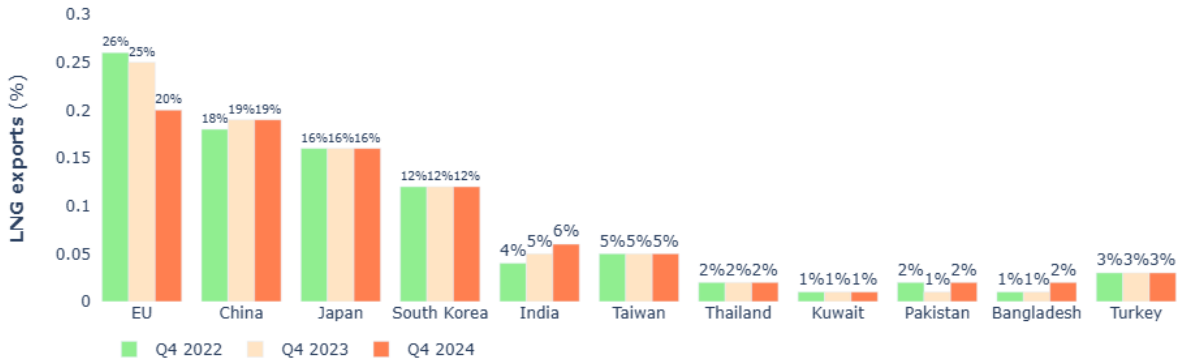
- In the fourth quarter of 2024, the EU continued to hold the number one position as the world's largest importer of LNG with a 20% share in global imports. China was the second largest LNG importer with a 19% share, followed by Japan with 16%, South-Korea with 12% and India with 6%. The EU's import share decreased by 5 percentage points (from 25%) compared to Q4-2023, while China maintained its 19% share it had in the same period in 2023. Japan's market share remained 16%, the same as in Q4-2023.

- In the fourth quarter of 2024, global LNG exports amounted to 144 bcm, a 6% (+8 bcm) increase compared to the previous quarter and a decrease of 2% (-3 bcm) year-on-year.

- The biggest LNG exporter remained the United States by 22% share in global LNG exports, followed by Australia (19%) and Qatar (18%). These three countries together supplied 59% of the world's LNG demand.

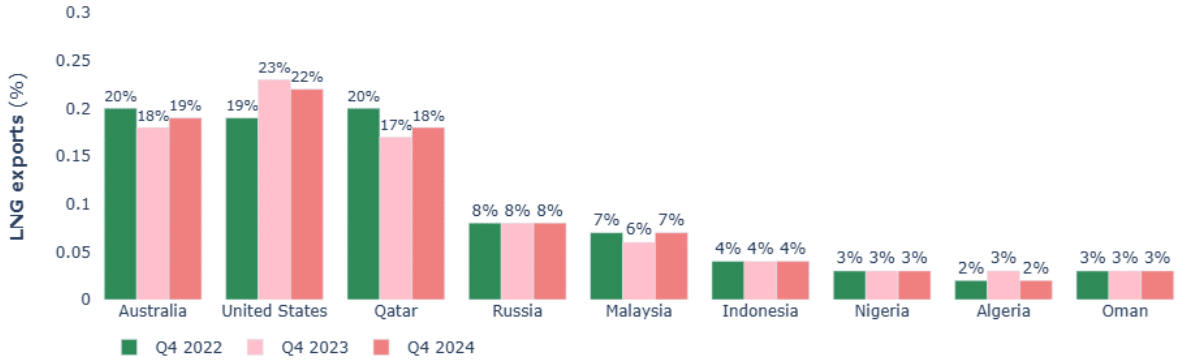
- Behind the leading trio, Russia (8.3%, 12 bcm), Malaysia (7%, 11 bcm) and Indonesia (4%, 6 bcm) secured the fourth, fifth and sixth position, respectively, in global LNG exports with single digit shares. Nigeria (3%, 4.5 bcm), Algeria (2%) were also important exporters in global LNG trade.

Figure 24 – Main global LNG importers in Q4 2024



Source: LSEG (Refinitiv).

Figure 25 – Main global LNG exporters in Q4 2024



Source: LSEG (Refinitiv).

Annual overview of global LNG trade in 2024:

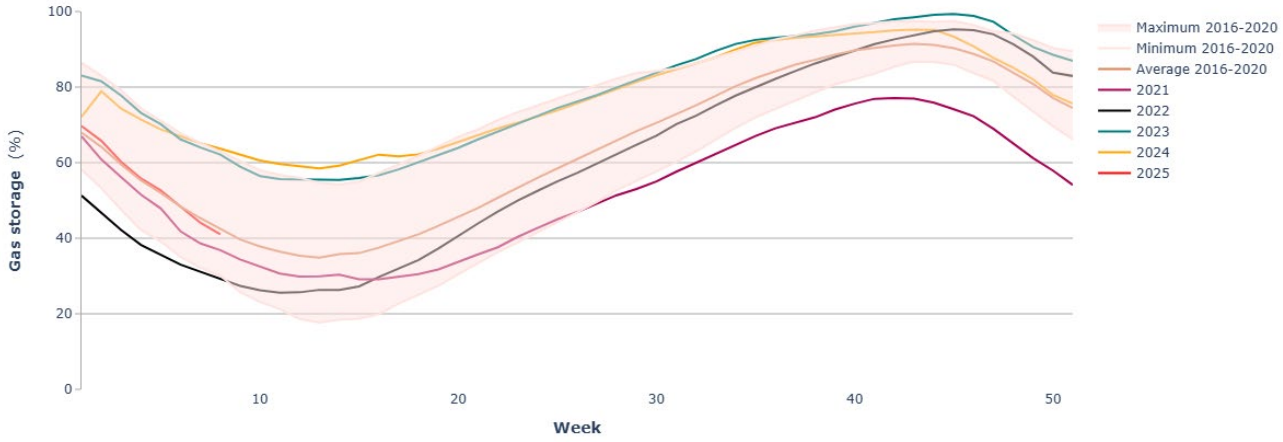
- Total global LNG trade was 564 bcm, an increase of 0.3% compared to 2023 (562 bcm), and 1.5% increase compared to 2022 (556 bcm).
- In 2024, the largest LNG exporter was the United States with a share of 22%, followed by Australia with 20% and Qatar with 19%. The next three biggest suppliers were Russia (8%), Malaysia (7%) and Indonesia (4.5%).
- On the importers side, the EU kept its number one position with 20% as the world's largest LNG buyer, a position it acquired in 2022, when the EU replaced the bulk of its Russian pipeline imports with LNG. China kept the second position with 19%, followed by Japan with 16%. South-Korea and India occupied the fourth and fifth place with 12% and 6% shares, respectively, followed by Taiwan (5%), France (4%) and Turkey (2%).
- Compared to 2023, the EU's share in global LNG imports decreased by 4%-points from 24% in 2023, while China increased its imports by 2%-points from 17% to 19%, while South-Korea and India increased their shares by 1%-point from 11% to 12% and from 4% to 5%, respectively. In absolute volumes, the EU's gross LNG imports decreased by 18%, while that of China grew by 10% and that of Japan by 1%. South-Korea increased its LNG imports by 5% and India by 21%.

3. Storage and LNG terminals

3.1 Storage

- The EU's maximum technical gas storage capacity is 1147 TWh (102 bcm) corresponding to more than one third of the European Union's total gas consumption in 2024.[9]
- Gas storage levels were 72% full on 31 of December 2024, 16% below the filling rate on the same day a year ago (i.e. 86% on 31 December 2023). The filling rate was 85% on 30 of November 2024 (versus 95% on 30 of November 2023) and 95% on 31 of October 2024 (versus 99% on 31 of October 2023). EU gas filling rate was 95% as a monthly average in October 2024; it was 91% in November and 78% in December 2024. The average filling rate for the fourth quarter stood at 88%, practically the same as in the previous quarter, and 8% lower compared to the fourth quarter of 2023 (when the quarterly average was 95%).

Figure 26 - Gas storage levels



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

Annual overview for 2024:

- In 2024, the average storage filling rate was 78% (887 TWh, 79 bcm), 1% lower compared to 2023 (79%, 896 TWh or 80 bcm), but 31% higher (61%, 676 TWh, 60 bcm) than in 2022, and 49% higher (53%, 597 TWh, 53 bcm) than in 2021.

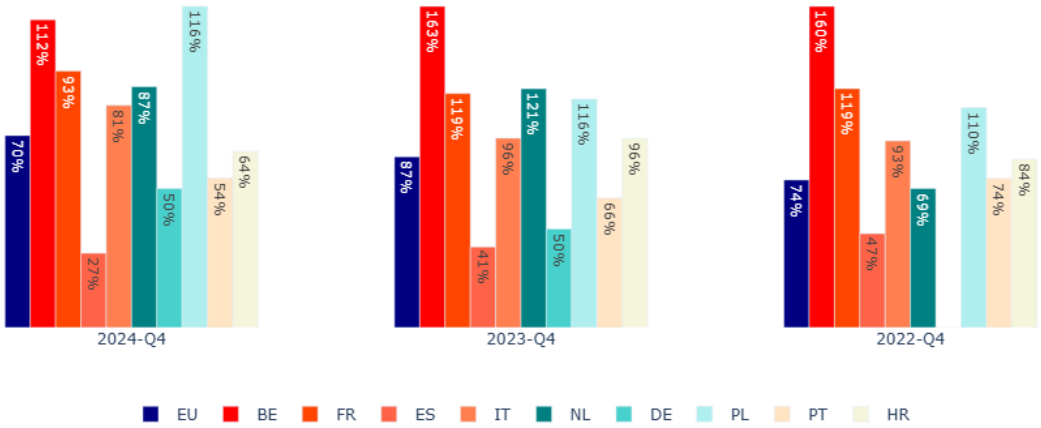
3.2 LNG Terminals

- In Q4 2024, the EU had a total terminal regasification capacity of nearly 250 bcm, with Spain, France, the Netherlands, and Italy having the largest LNG regasification capacities, with 68 bcm, 38.5 bcm, 24 bcm, and 21 bcm per year, respectively.
- LNG terminals' utilisations rates for regasification varied considerably across Europe during the quarter. Poland displayed the highest utilisation rate (116%). The second highest utilisation rate was recorded in Belgium (112%), followed by France (93%), the Netherlands (127%), Italy (87%) and Croatia (64%).
- Most LNG terminals in the EU's main LNG importers operated below nameplate capacity. In Germany, LNG terminals started operating only in 2023 and the aggregate utilisation rate of the country was 50% in the fourth quarter of 2024. Regasification capacity utilisation rates were below nameplate capacity also in Portugal (54%) and Spain (27%).

[9] Gas Infrastructure Europe - AGSI (gie.eu) - data published under the Storage Transparency Platform, shows 1146.5651 TWh (102 bcm using 11.2 coonversion factor to translate TWh to bcm) of technical working capacity as of 18 March 2025. This technical storage capacity is equivalent with 31% of the EU's 2024 annual consumption (332 bcm).

- Quarter-on-quarter, utilisation rates decreased in seven LNG importing Member states and increased in five LNG importing Member states. In Germany the utilisation rate remained unchanged. The largest increase occurred in Malta (+38pp) followed by Poland (+28pp) and France (+13pp). The largest decreases were observed in Belgium (-51pp), Greece, Sweden and Croatia (each -29pp)
- Year-on-year, utilisation rates decreased in nine of the LNG importing Member States by between 51pp and 11pp: namely in Belgium (-51pp), the Netherlands (- 34pp), Croatia (-32pp), Sweden (-28pp), Greece (-28pp), France (-26pp), Italy (-15pp), Spain (-14pp) and Portugal (-11pp). Utilisation rates increased in Finland (+3pp) and Malta (+25pp). In two Member states, namely Germany and Poland, utilisation rates remained unchanged.

Figure 27 - Regasification capacity utilisation rates in Q4 2024, 2023 and 2022



Source: LSEG (Refinitiv).

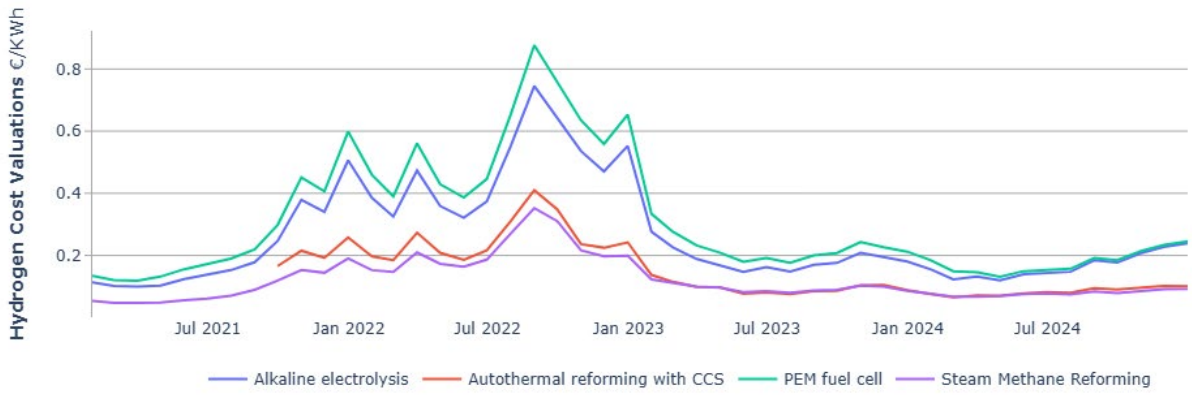
3.3 Hydrogen market developments

- The next chart shows the production cost-based estimated prices for hydrogen generated by the four main technologies used to produce green hydrogen. These technologies take either water or methane as the main feedstock from which to generate hydrogen. The water-based technologies are alkaline water electrolysis (AWE) and polymer electrolyte membrane (PEM). For these to produce renewable hydrogen, EU regulation requires the use of renewable electricity, the production of which must be time- and geo-correlated with the hydrogen production. The gas based technologies are steam methane reforming (SMR) and autothermal reforming (ATR).[10] The gas-based production paths should use renewable gas or/and be combined with carbon capture and storage (CCS) so as to result in green hydrogen. Current international price assessments for carbon-neutral hydrogen incorporate many elements of the criteria defined by EU legislation for renewable hydrogen in a market based, practice oriented approach. For the ATR technology, the chart below includes the costs of Carbon Capture and Storage (CCS), while SMR without CCS is included in the chart for the sake of comparison. Nevertheless, analysis of the price assessments for SMR with CCS are 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 fourth quarter of 2024, the price of all technologies increased compared to the previous quarter. The cost of AWE increased the most, by 33%, followed by the price of PEM (+30%), ATR (+14%) and SMR (+13%). This reflected the temporary upward trend in prices of both natural gas and electricity.
- In a year-on-year comparison, the costs of all technologies were significantly lower in 2024 than in 2023. PEM were 20% lower SMR 18% lower, ATR 12% and Alkaline 11%.

[10] Alkaline water electrolysis (AWE) is a type of electrolyser characterised by the presence of two electrodes operating in a liquid alkaline electrolyte solution of potassium hydroxide or sodium hydroxide. A fuel cell is an electrochemical device that directly converts the chemical energy of reactants (a fuel and an oxidant) into electricity. electrolysis is the electrolysis of water in a cell equipped with a solid polymer electrolyte that is responsible for the conduction of protons, separation of product gases, and electrical insulation of the electrodes. Steam methane reforming (SMR) refers to a technology for producing hydrogen from natural gas. Autothermal reforming (ATR) combines steam reforming and partial oxidation processes. ATR creates a thermally neutral process by utilizing steam reforming to boost hydrogen production while using the partial oxidation to generate heat. This process does not require an external heat source for the reactor because this partial oxidation is exothermic. However, to provide pure oxygen to the reactor, it either needs an expensive and complicated oxygen separation device, or the resulting gas is diluted with nitrogen, necessitating gas separation and purification procedures.

- During the last quarter of 2024, the prices of PEM and Alkaline increased and joined each others, while the prices of the CCS and the SMR remained stable and were also very similar.

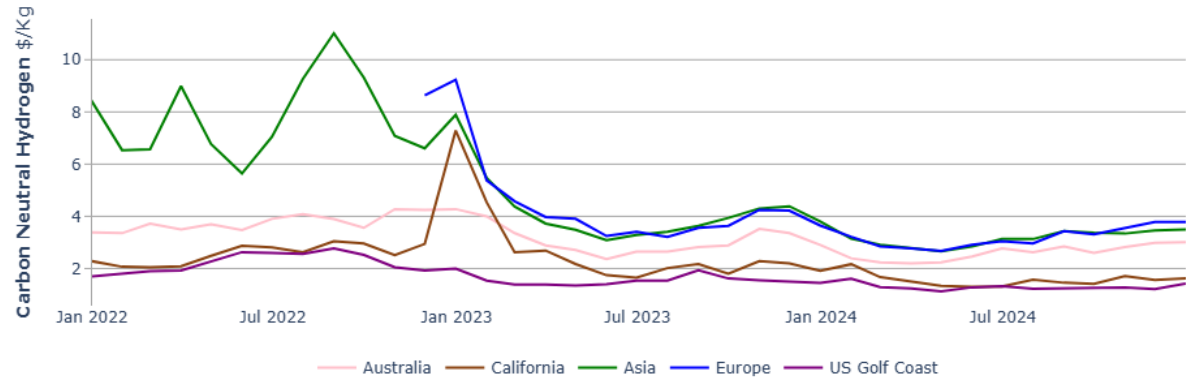
Figure 28 – Production cost based hydrogen price assessment for different technologies (including CCS)



Source: S&P Global (Platts).

- The next chart shows the price assessments for carbon-neutral hydrogen [11] in different regions of the world: Australia, Far East Asia, Northwestern Europe, California, and the US Gulf Coast. Quarter-on-quarter, all prices increased. The highest increase was registered in NWE (+15%), followed by California (+10%), while in Australia the price increase was +9%, in the US Gulf Coast it was +4% and in Far East Asia +3%..
- In a year-on-year comparison, the price in all major producing regions declined. The biggest decline was registered in California (-24%) and Far East Asia (-18%), while the price of carbon-neutral hydrogen in the US Gulf Coast declined by 14%, and that of Australia declined by 11%. The lowest decline was in new, where the prices declined by 8%.
- The highest price region was NWE (3.7 $/Kg), followed by Far East Asia (3.4 $/Kg), Australia (2.9 $/Kg) and California (1.6$/Kg). The US Guld Coast (1.3$/kg) continued to remain the lowest priced region.

Figure 29 – Carbon-neutral hydrogen prices in different regions of the world



Source: S&P Global (Platts).

[11] 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 corelations 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."

4. Wholesale Gas Prices

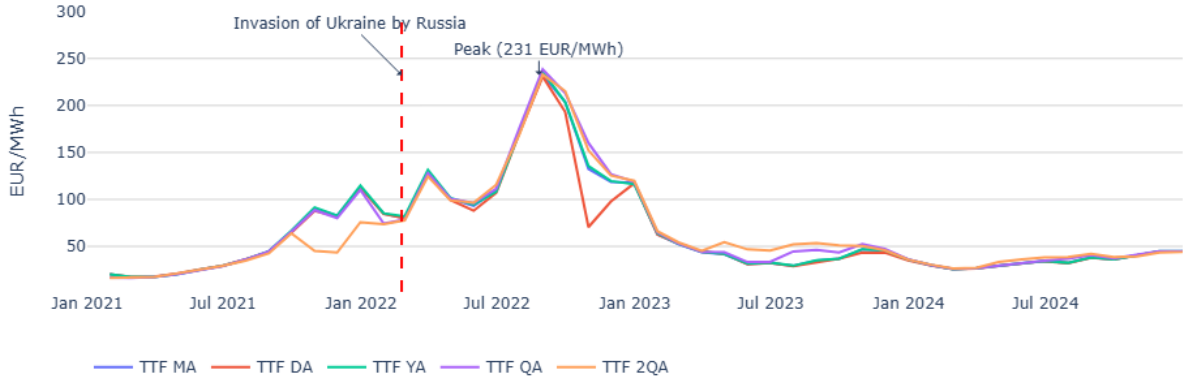
4.1. Wholesale gas prices at the EU level

Quarterly average **gas prices** in the EU and year-on-year comparison

Q4 2024	Q4 2023	Q4 2022
43 EUR/MWh	43 EUR/MWh	123 EUR/MWh
▲0%	▼−65%	▲29%

- The fourth quarter of 2024 was characterised by a steady increase in the wholesale price of gas, which continued the rising trend observed already in the third quarter of 2024. The gas wholesale price rose to 40 €/MWh in October, to 44€/MWh in November and 45€/MWh in December 2024. Thus, the quarterly average wholesale gas price was 43€/MWh in Q4 2024, 21% higher than in the previous quarter, but unchanged compared to the same quarter in 2023.
- Forward contracts indicated lower prices ahead with the exception of the quarter ahead price (this was selling at a premium of 35 eurocent/MWh as a quarterly average). Gas on the two quarters ahead contract sold 1€/MWh cheaper than gas on the month-ahead contract and spot market. The discount on other futures contracts was even steeper, 3€/MWh on the year-ahead contract (40€/MWh), 7€/MWh on the two years ahead contract (36€/MWh) and 10€/MWh on the three years ahead contracts (33€/MWh).
- The LNG Northwestern Europe (NWE) (42.7€/MWh) and the LNG Mediterranean[12] (42.6€/MWh) benchmarks converged closely together. There quarterly average difference was a mere 7 eurocent/MWh, with LNG in Southern European being cheaper. Both regional benchmark price increased by 22% quarter-on-quarter and by 2% year-on-year.
- As of January 2023, the LNG NWE and LNG SWE/MED benchmarks were replaced by the new ACER Northwest Europe (NWE) and South Europe (SE/SWE) LNG benchmarks[13]. ACER LNG benchmark prices were cheaper by 60 eurocent/MWh in Northwestern Europe (42.1€/MWh) and 81 eurocent/MWh in Southern Europe (41.8€/MWh). However, the two ACER regional benchmark prices also converged closely. Their spread was a narrow 27 eurocent/MWh on average in the fourth quarter of 2024.
- The ACER European benchmark price, which encompasses the entire EU price area, was 42€/MWh on a quarterly average basis.

Figure 30 – Comparison of TTF month-ahead, day-ahead and year-ahead prices (daily values)



[12] As of September 2019, Platts renamed the Southwest European Marker (SWE) to Mediterranean Marker (MED). This change has been reflected in the price quotation codes.

[13] ACER South-Europe (SE) is marked as ACER SWE on the charts to facilitate comparison with Platts LNG SWE; Platts LNG SWE marking is kept for the same reason.

Figure 31 – Comparison of TTF month-ahead, day-ahead and year-ahead prices (daily values)

Source: S&P Global (Platts).

Annual overview of gas wholesale prices for 2024:

Source: S&P Global (Platts).

- The annual average of the gas wholesale price was 35€/MWh[14] in 2024, a decrease of 16% compared to 2023 (41€/MWh) and 73% lower compared to 2022 (132€/MWh).[15]

4.2 European hubs

- In the fourth quarter of 2024, prices increased in all European hubs compared to the previous quarter by between 17% and 22%. They were also higher in a year-on-year comparison by between 5% and 13%. The highest quarter-on-quarter increase was observed on the Dutch TTF (+22%) and the loweston the Italian PSV (+17%). In a year-on-year comparison, the highest increase was registered on the French PEG (+13%) and the lowest (+5%) on the Dutch TTF.

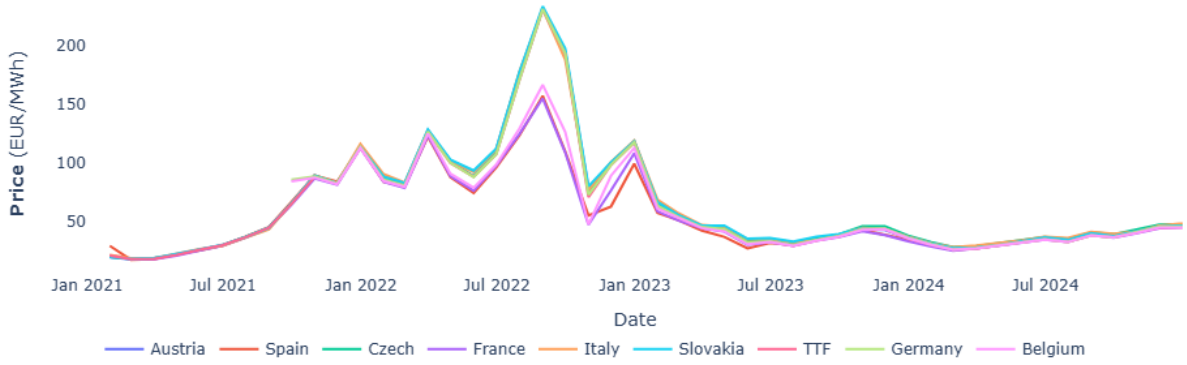
- Prices moved closely together. The price differential between the lowest and the highest priced hub was 3.1€/MWh as a quarterly average, 3% smaller than in the previous quarter (3.2€/MWh) and 43% smaller than in the same quarter of 2023 (5.5€/MWh). While this indicated strengthening convergence, it was still an increase of 40% in divergence compared to Q2-2024, when the price difference was the smallest in the period of the last two years. The French PEG (42.6€/MWh) displayed the lowest gas price on average, while the Czech VTP (45.7€/MWh) proved to be the most expensive EU hub in the fourth quarter of 2024.

- Compared to the Dutch TTF, which serves as European price benchmark, five EU hubs (DE THE, SK VTP, AT VTP, IT PSV and CZ VTP) were more expensive by between 0.8€/MWh and 2.8€/MWh, while two hubs were less expensive by between 0.3€/MWh (FR PEG) and 1€/MWh (HU MGP). The the Belgian ZTP and Spanish PVB displayed almost identical price levels in terms of quarterly average.

Figure 32 - Price developments in some of the major European gas hubs

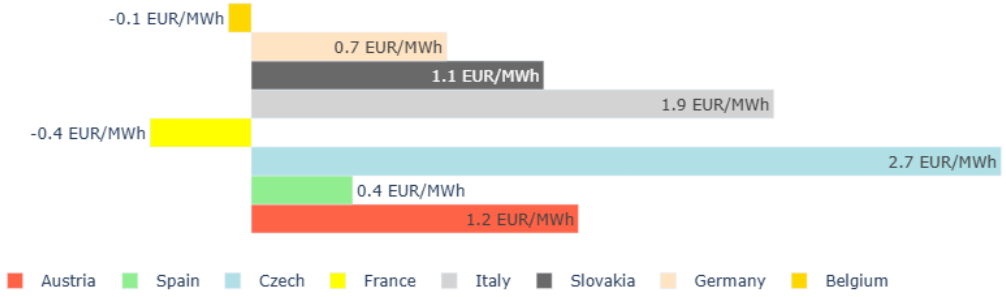
[14] The annual average was calculated on the basis of the Dutch TTF day-ahead prices.

[15] Please note that in the infographic text box, the comparison is between a year and its previous year, while in the text the average wholesale price of 2023 is compared with the price of 2022 and 2021.



Source: Global S&P (Platts).

Figure 33 - Price differentials of EU gas hubs compared to the benchmark Dutch TTF in the fourth quarter of 2024

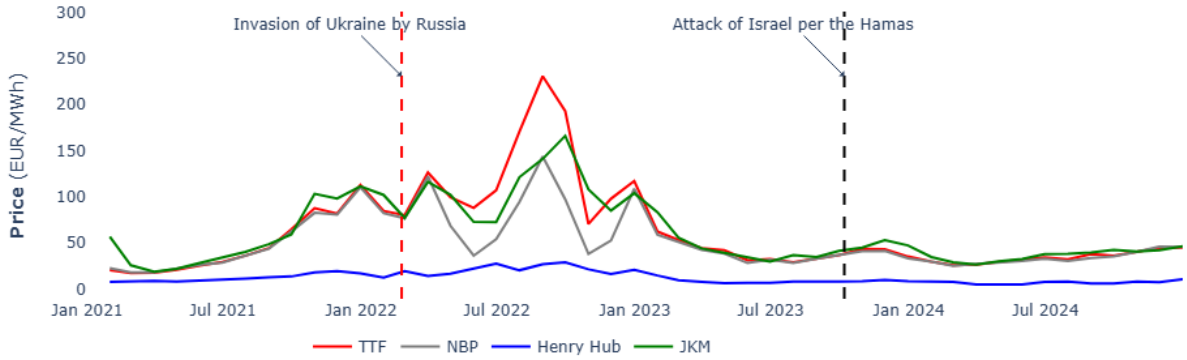


Source: S&P Global (Platts).

4.3. Wholesale gas prices at international level

- In the fourth quarter 2024, prices increased in all international hubs compared to the previous quarter by between 7% and 33%. On the European Dutch Title Trasfer Facility (TTF) prices increased by 21%. The strongest price increase, +33% was registered on the UK National Balancing Point (NBP), followed closely by the US Henri Hub (HH), +29%. On the Japan Korean Marker (JKM) Asian benchmark, prices went up by 7%.
- Year-on-year prices displayed a considerable decline in all international benchmarks. The largest decline was observed in the Dutch TTF, where prices fell by 16%; however, similar large declines occurred on the other international hubs. Prices on the UK NBP dropped by 13%, while prices on HH declined by 17% and on JKM by 19%.
- In the fourth quarter of 2024, prices on the Dutch TTF, UK NBP and Asian LNG prices displayed close price convergence. UK NBP prices were the highest, but only 2% or about 1€ higher than those on the Dutch TTF and the Asian LNG. The cheapest hub by far remained the US Henry Hub, which was around 80% cheaper than the Dutch TTF, the UK NBP and the Asian JKM.

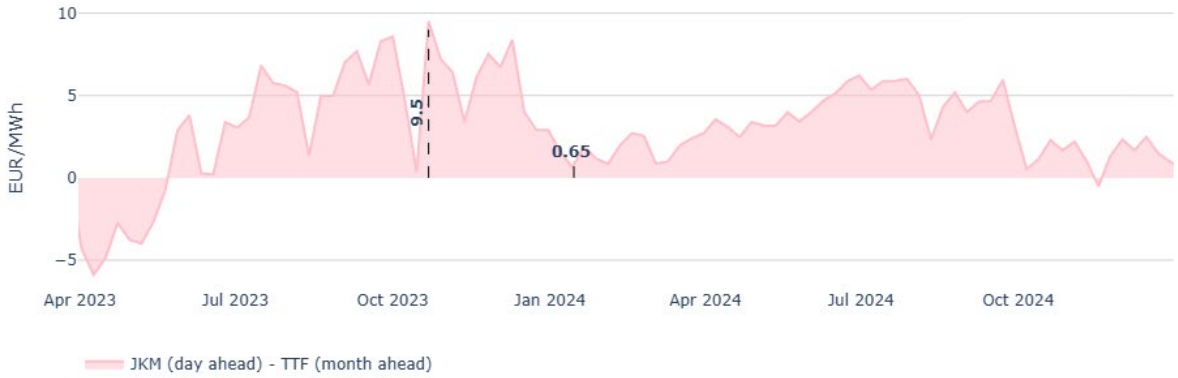
Figure 34 – Comparison of monthly average prices on the Dutch TTF, UK NBP, the US Henry Hub and the Asian JKM



Source: S&P Global (Platts).

- In the fourth quarter of 2024, the Asian JKM benchmark displayed similar prices as Europe on average, with Asian price differentials remaining positive overall (meaning higher prices in Asia than in Europe), hence Asia remained the most attractive market for LNG cargoes.
- On a quarterly average basis, this Asian price premium was 1.4 €/MWh. On a monthly basis, Asian prices were higher by 1.4€/MWh in October, 1.0€/MWh in November and 1.8€/MWh in December. In the third week of November, the differentials between Asian prices and the European TTF price temporarily turned negative, with Asian prices being 0.5 €/MWh cheaper than the European prices. However, this European price premium was short-lived and the Asian-European price differential turned positive again thereafter for the rest of the year.

Figure 35 – Prices differences between the Asian JKM and the Dutch TTF (EUR/MWh) benchmarks

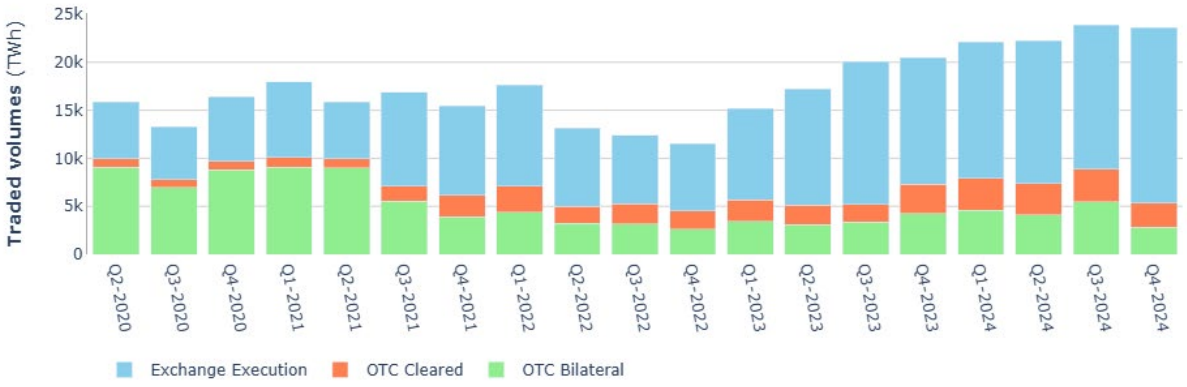


Source: S&P Global (Platts).

4.4 Gas trade on the EU hubs

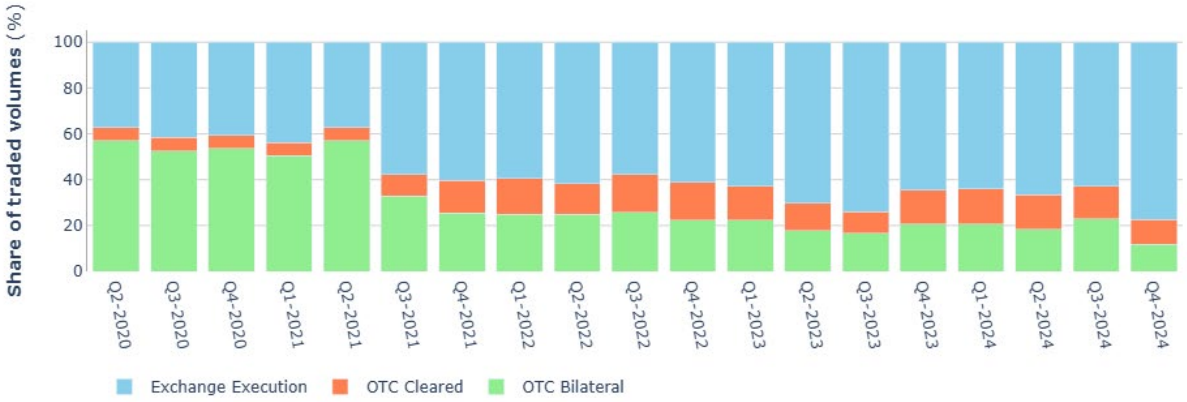
- In the fourth quarter of 2024, **total traded volumes slightly decreased by 1% quarter-on-quarter** but **grew by 15% year-on-year.**
- The **share of exchange traded volumes** increased to **70%** from 63% in the previous quarter and from 64% in the same quarter of 2023. The **share of the over the counter** (OTC) **bilateral transactions** decreased to **17%** from 23% in the previous quarter and from 21% in the fourth quarter of 2023. The **share of OTC cleared trade** was **13%**, a decrease of 1 percentage point quarter-on-quarter (from 14%) and a decrease of 2 percentage points (from 15%) in the same quarter of 2023.
- Compared to the previous quarter, the **exchange traded volumes increased by 9%**, while the volumes of OTC bilateral trade decreased by 25% and that of the OTC cleared transactions decreased by 8%. **Year-on-year, exchange executed trade increased by 25%**, OTC cleared transactions grew by 2%, while the volumes of OTC bilateral trade dropped by 3%.

Figure 36 – 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 37 – Share of OTC and exchange executed trade on European gas hubs



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

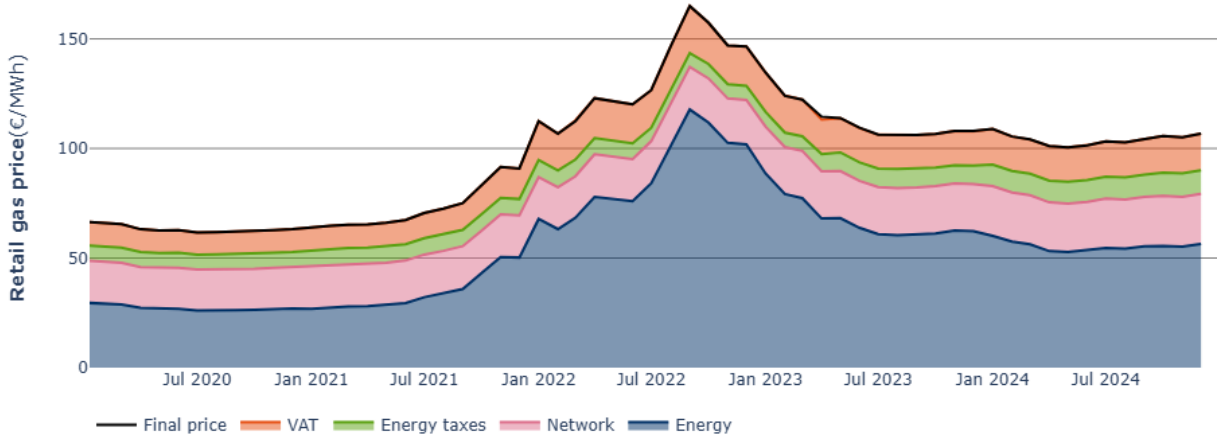
5. Retail gas prices

EU retail prices and year-on-year comparison

Q4 2024	Q4 2023	Q4 2022
106 EUR/MWh	108 EUR/MWh	150 EUR/MWh
▼−2%	▼−28%	▲70%

- In the fourth quarter of 2024, average quarterly gas retail price for household consumers increased by 2% to 106 €/MWh from 103 €/MWh in the previous quarter. Year-on-year, the quarterly average EU retail prices was 3% lower than in Q4 of 2023, but 13% higher than in the Q4 of 2021 (pre-crisis period).
- The energy component amounted to 56 €/MWh as a quarterly average and constituted 53% of the price, the same as in the previous quarter, but significantly lower than in Q4 2022, when it was 69%. The price of the energy component increased by 2% quarter-on-quarter, but decreased 9% year-on-year. Network costs constituted 22% (23 €/MWh) of the total end user price paid by the retail consumer, while energy taxes 10% (10 €/MWh), and value added tax (VAT) 16% (17 €/MWh).
- Despite this significant fall, the energy price component was still 101% higher in Q4 2024 than in the first half of 2021 ('historical' price pre-crisis period), while the total end-user retail price was 55% higher than the pre-crisis 'historical' price. The VAT component increased by 2% quarter-on-quarter and 2% year-on-year, the network component increased 2% quarter-on-quarter and 3% year-on-year, while tax component increased 3% quarter-on-quarter and 9% year-on-year.

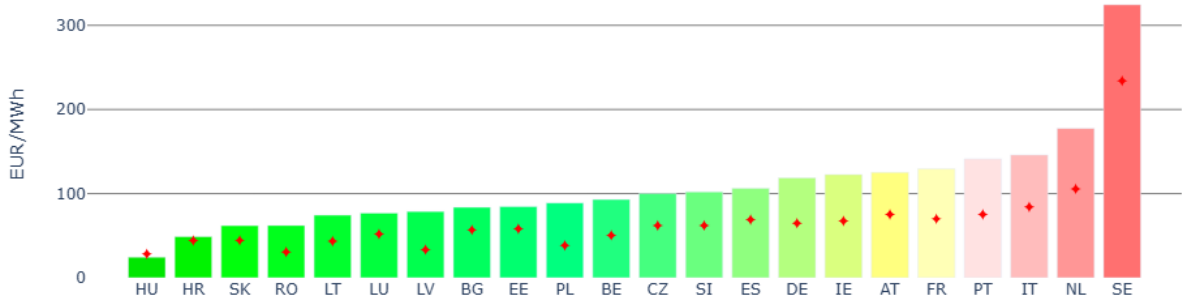
Figure 38 – Monthly average gas price in the EU paid by typical household customers (in EUR/MWh)



Source: VaasaETT. EU-27 represents an aggregate average of the 27 capital cities.[16]

- Year-on-year, retail prices decreased in 13 EU Member States, while price rose in 9 Member States. The year-on-year price decrease were especially significant in Lithuania (-28%), Ireland (-20%), Luxembourg (-13%), Austria (-13%), Slovenia (-9%) and Belgium (-8%). Observable increases were noted in Poland (+20%), Sweden (+14%), France (+11%), Germany (+9%) and Estonia (+8%).
- Retail prices continued to diverge across the EU and ranged between 25 €/MWh (Hungary) and 172 €/MWh (the Netherlands) (disregarding Sweden, 326 €/MWh, which has little gas use in households). Compared to the previous quarter, prices decreased in 4 Member States and increased in 14 Member States, remained unchanged in 5 Member States and increased in 14 Member States.
- Compared to the first 6 months of 2021 (pre-crisis period), prices were between 11% and 132% higher in Q4 of 2024 in all but one Member State. In Hungary, the quarterly average retail price in the fourth quarter of 2024 was 13% lower than in the the first half of 2021. The EU's average retail gas price was still 55% higher in Q4 2024 than in H1 of 2021.

Figure 39 – Retail prices in Q4 2024 compared to the first half of 2021 in EU Member States



Source: VaasaETT.

Annual overview of retail price developments in 2024:

Source: VaasaETT.

- The annual average gas retail price was 104€/MWh, a decrease of 8% compared to 2023 (113€/MWh), 21% lower than the price in 2022 (132€/MWh) and 38% higher than the price in 2021 (75€/MWh).

6. Appendix – charts providing further details on market developments

Figure 1 - Quarterly gas consumption by Member States

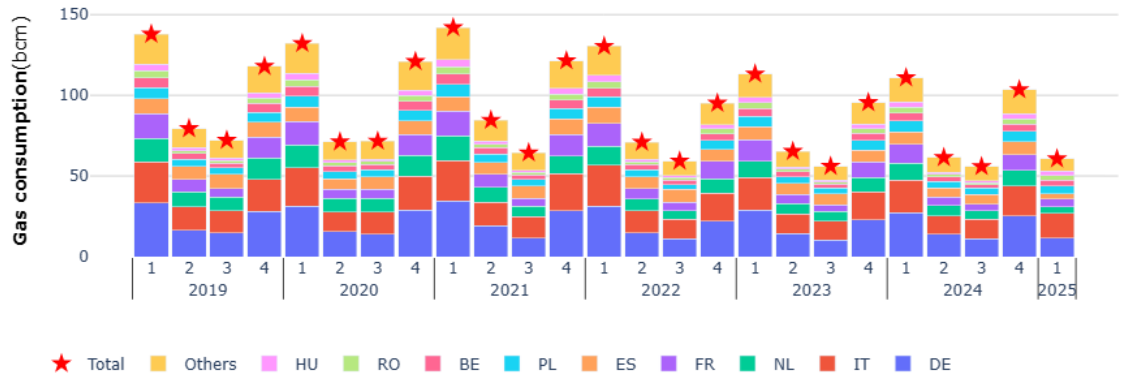


Figure 2 – Monthly EU power generation by fuels

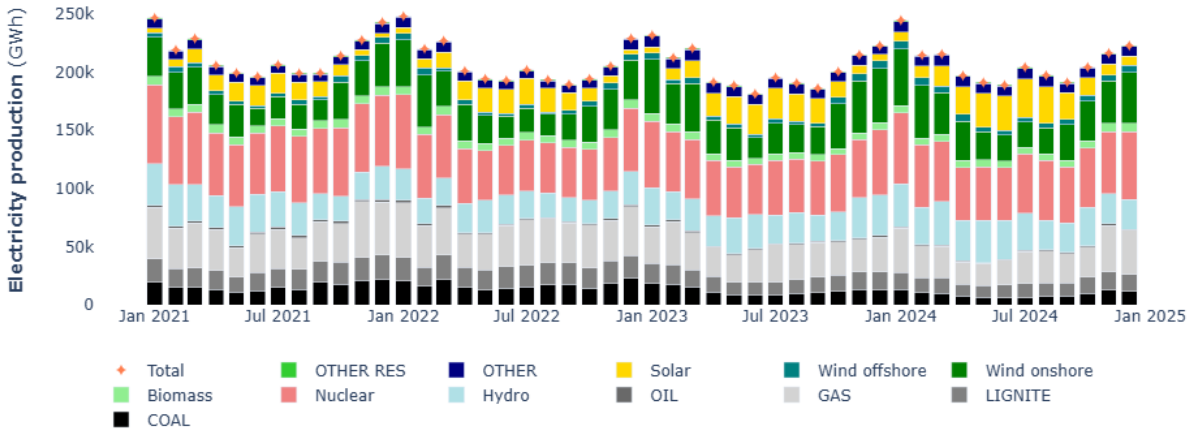


Figure 2bis – Monthly EU power generation by fuels – focus on gas-fired power generation

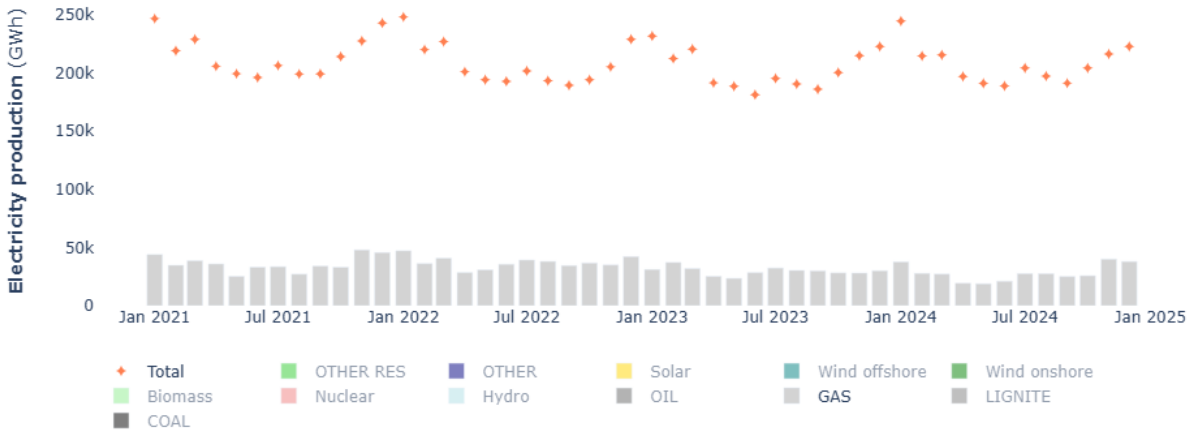


Figure 3 – Monthly EU imports of natural gas by pipeline

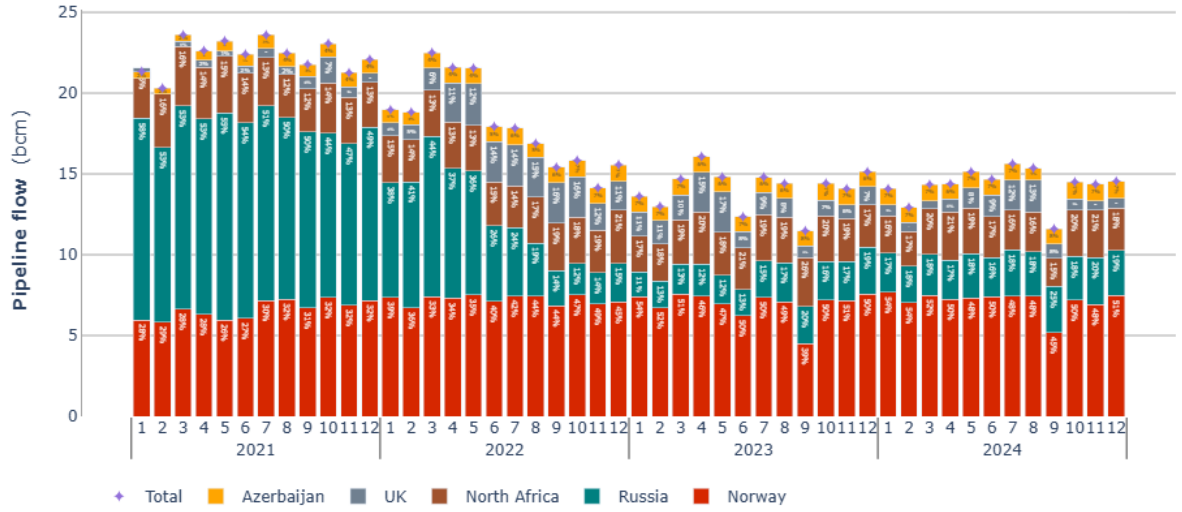


Figure 4 – Monthly EU imports of natural gas from Russia by pipeline route

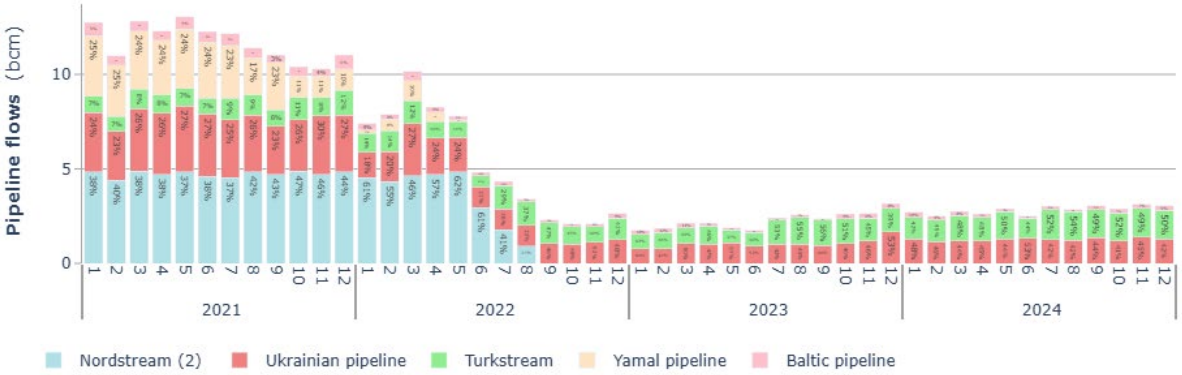


Figure 5 – Pipeline and LNG shares in the EU gas imports by quarters

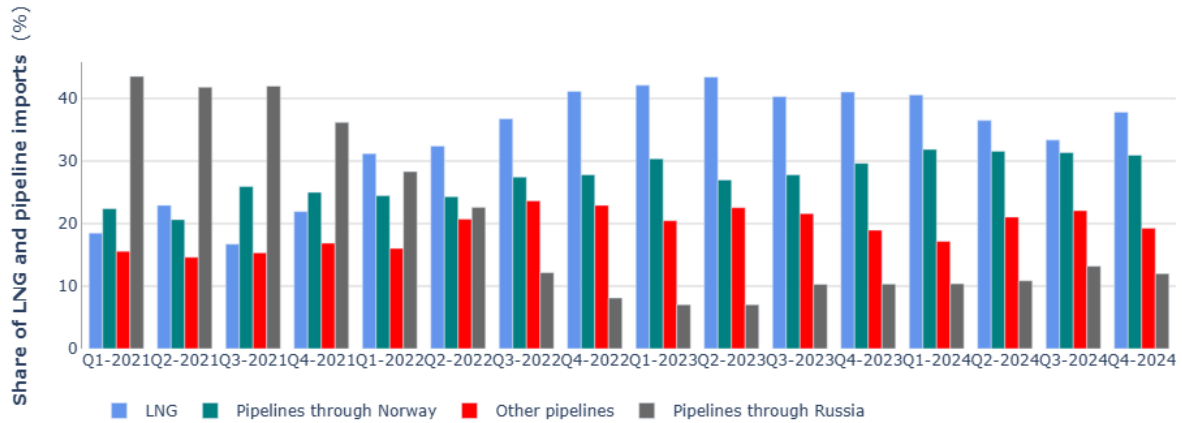


Figure 6 - Share of EU LNG imports in international LNG imports and comparison with the main international importers

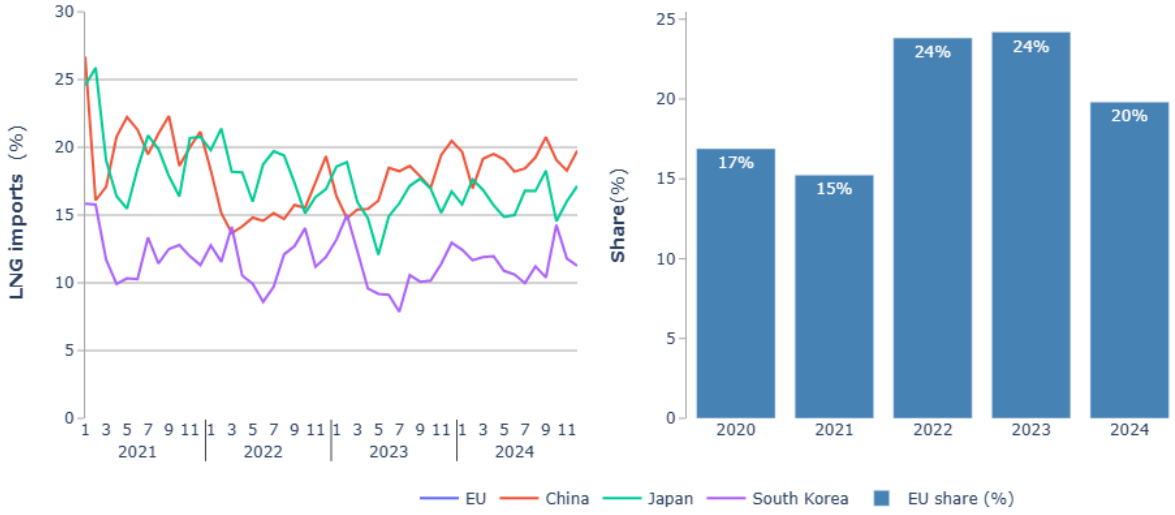
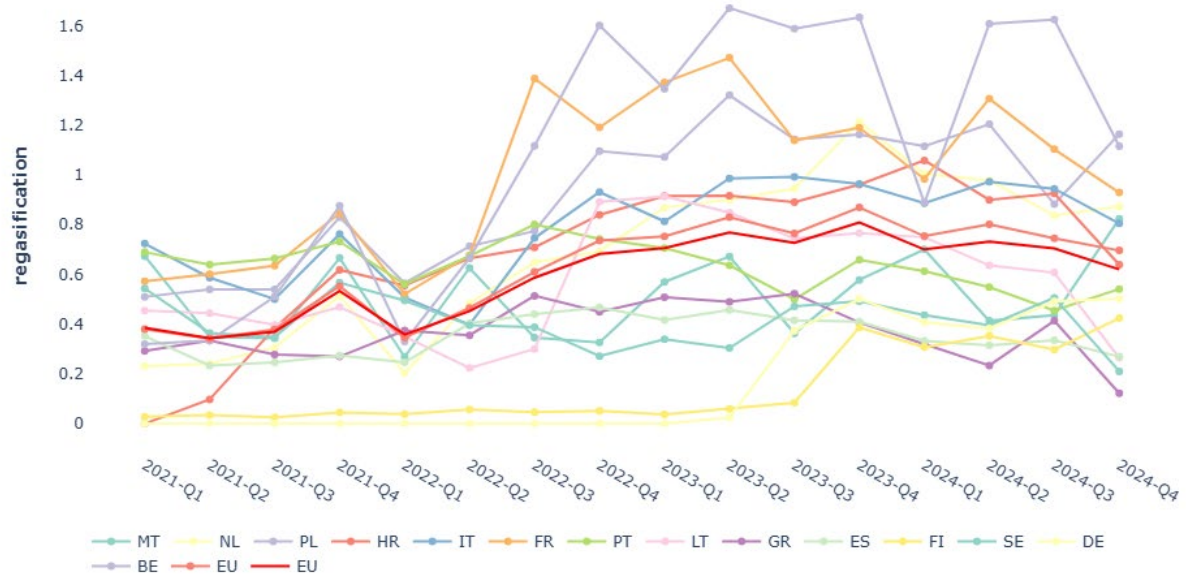



Figure 7 – Monthly regasification terminal utilisation rates in the EU