



ENTSOG SUMMER SUPPLY REVIEW

2024

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Executive Summary

ENTSOG has completed the review of the European gas picture for Summer 2024, April to September. ENTSOG's seasonal reviews aim at a deeper comprehension of the development of supply and demand in the previous seasons, as well as at the identification of trends that cannot be captured at national or regional levels.

Summer Supply Reviews help to build experience and a solid background for the assumptions considered in the Summer Supply Outlook. Such knowledge is also factored in the recurrent TYNDP process in order to ensure a consistent improvement over ENTSOG reports.

The key findings of this review are:

- Total gas demand values in the Summer season 2024 dropped 2.7% (1261 TWh to 1227 TWh) in the EU and 3.5% (1524 TWh to 1471 TWh) in Europe¹ compared to Summer 2023. Gas-fired power generation declined due to the increased output of renewables, while mild weather, household savings, and sluggish recovery of industrial demand resulted in a decreasing overall gas consumption in the EU.
- The total demand decreased by 17.9% at the EU (1,494 TWh to 1,227 TWh) and 18.2% at the European (1,799 TWh to 1,471 TWh) levels compared to the 5-year average for the summer season period 2017–2021, in line with the targets of the EC regulation² regarding voluntary demand reduction.
- The Summer 2024 starting and ending storage levels were respectively 59 and 95%, compared to 56 and 96% in Summer 2023.
- In Summer 2024, European gas production reached approximately 330 TWh, remaining relatively stable (a 2% decrease) compared to the previous Summer
- The total supply to European countries was 1903 TWh in Summer 2024, a 6.4% decrease compared to 2023. In addition to the lower gas consumption, the high storage filling rate at the beginning of the injection period contributed to the low import levels.
- The share of LNG supply decreased from 37% in Summer 2023 to 29% in 2024.
- The gas supply by pipelines was 1018 TWh in Summer 2024, with a share of 53.5% in total supply mix. Norway remained the biggest pipeline gas supplier.
- Average TTF prices were around 33.5 €/MWh in Summer 2024. While prices increased at the start of the year, they were on average lower, with noticeably less price volatility, than in 2023.

Detailed data for the cross-border flows is available on the ENTSOG Transparency Platform³.

¹ EU 27 + United Kingdom, Switzerland, Bosnia and Herzegovina and North Macedonia.

² Council Regulation (EU) 2022/1369 of 5 August 2022 on coordinated demand-reduction measures for gas

³ Transparency Platform: <https://transparency.entsog.eu/>

The figures in the review report are available on dashboard SR2024.dashboard.pbix⁴.

Stakeholders' comments on this seasonal analysis are welcome and would enable ENTSOG to improve its knowledge of seasonal and market dynamics influencing the use of infrastructure. Comments would serve as a basis for the R&D plan and be beneficial to the quality of further reports.

Disclaimer: the source of data if not indicated otherwise is ENTSOG members.

⁴ SR2024.dashboard.pbix: <https://www.entsog.eu/outlooks-reviews>

Introduction

As part of the ENTSOG Annual Work Program 2025, this review is published on a voluntary basis and aims at providing an overview of the supply and demand balance during Summer 2024. The report brings transparency to the internal analysis carried out by ENTSOG for the purpose of developing both the seasonal Supply Outlooks and the Union-wide TYNDP.

The report aims at providing an overview of European trends that cannot be captured at national or regional levels, as well as building experience for future reports. It should not be seen as a direct review of previous Seasonal Outlooks, since outlooks do not aim at providing forecasts, but rather as a way to better explore infrastructure resilience in view of actual past trends.

Regarding European dynamics, the report highlights the wide heterogeneity of national demand profiles and supply sources. Among other factors, these differences are linked for example to physical reasons such as climate, demand breakdown or producing field flexibility.

Seasonal and Market Overview

Different events on the European gas market caused fluctuations in the supply and demand balance from April to September 2024. The major ones in that period were:

- The EU achieved its target of filling gas storage facilities to 90% of capacity well ahead of the November 1 deadline, in accordance with the regulation adopted in June 2022⁵. This measure aims to optimize the EU's preparedness for the upcoming winter.
- LNG imports dropped significantly during Summer 2024, as European buyers reduced spot purchases due to competition with Asian markets (which maintained a premium over European gas prices around 5 €/MWh over the season) and disruptions in Australia which caused some price volatility⁶.
- A mild-to-hot Summer led to reduced demand, while increased cooling demand drove short-term spikes in consumption for electricity generation.
- In April 2024, the largest gas producer in the EU, i.e. the Groningen gas field in the Netherlands, was closed.
- In September 2024, Norwegian maintenance (both planned and unplanned) affected several key gas infrastructure assets, resulting in an extended period of reduced exports.
- The EU hydrogen and gas decarbonisation package, consisting of Directive (EU) 2024/1788 and Regulation (EU) 2024/1789, was adopted in May 2024. EU countries have until mid-2026 to transpose the new rules into national law. When transposed, the rules will facilitate the uptake of renewable and low-carbon gases, including hydrogen, while ensuring security of supply and affordability of energy for all EU citizens.

A significant number of new gas infrastructure facilities were commissioned over the past year, with a notable emphasis on the expansion of new LNG import capacities. Details of the newly commissioned/upgraded infrastructure in Summer 2024 can be found in Table 1.

Table 1 - Newly commissioned/upgraded infrastructure in Summer 2024

Country	Project Name	Start date	Capacity
Germany	Mukran FSRU Energos Power	September 2024	7.5 bcm/year
Germany	Mukran FSRU Neptune	September 2024	5 bcm/year
Greece	Alexandroupolis LNG terminal	1 October 2024	5.5 bcm/year

⁵ Regulation (EU) 2022/1032 of the European Parliament and of the Council of 29 June 2022 amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage

⁶ EC Quarterly report On European gas markets, issue 2 covering Q2 2024 and issue 3 covering Q3

Gas Prices at European Hubs

Figure 1 shows the evolution of gas prices in Europe during Summer 2024, presenting the day-ahead average prices evolution for various EU gas hubs. A consistent trend among the majority of EU hubs is readily apparent, all displaying similar general behaviours.

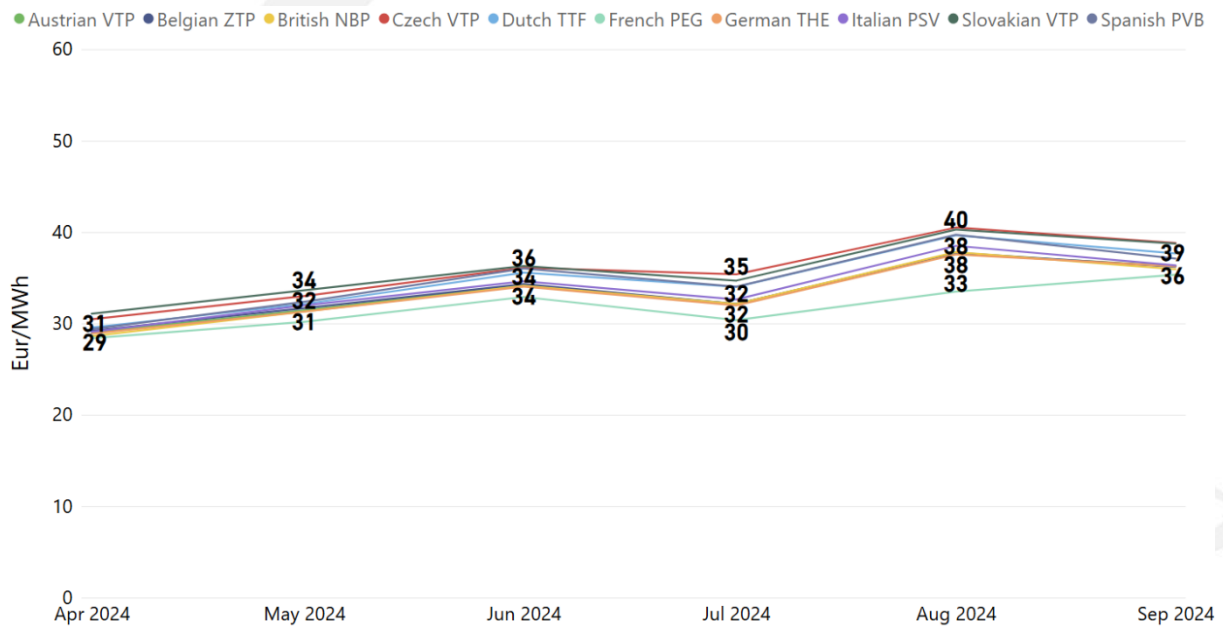


Figure 1 - Day-ahead average gas price at EU gas hubs⁷ (see [SR2024.dashboard.pbix](#))

- EU wholesale day-ahead monthly average gas prices ranged from the lowest at 28.38 €/MWh (French PEG) to the highest at 40.49 €/MWh (Czech VTP).
- Average TTF prices were around 33.5 €/MWh in Summer 2024. While prices increased at the start of the year, they were on average lower than in 2023, with noticeably less price volatility⁸. However, while Q2 TTF prices had a 10% year-on-year decrease compared with 2023, Q3 showed a 7% year-on-year increase⁹.

⁷ Source: Global S&P (Platts)

⁸ ACER Q3 Market Monitoring Report

⁹ EC Quarterly report On European gas markets, issue 2 covering Q2 2024 and issue 3 covering Q3

Demand

Figures 2 and 3 together with Table 2 represent the total gas demand change in Summer 2024 compared to Summer 2023, by country.

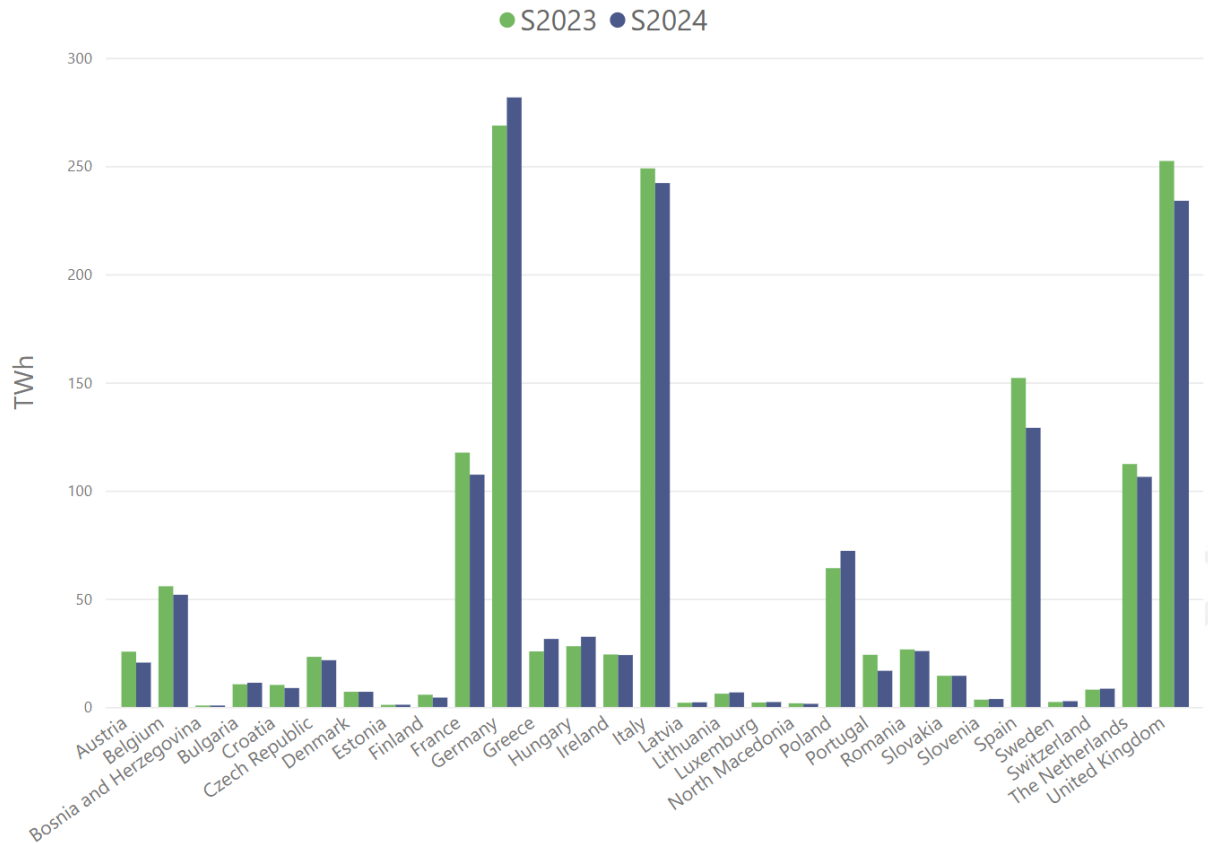


Figure 2 - Total gas demand by country. Summer 2023 vs 2024 (see [SR2024.dashboard.pbix](#))

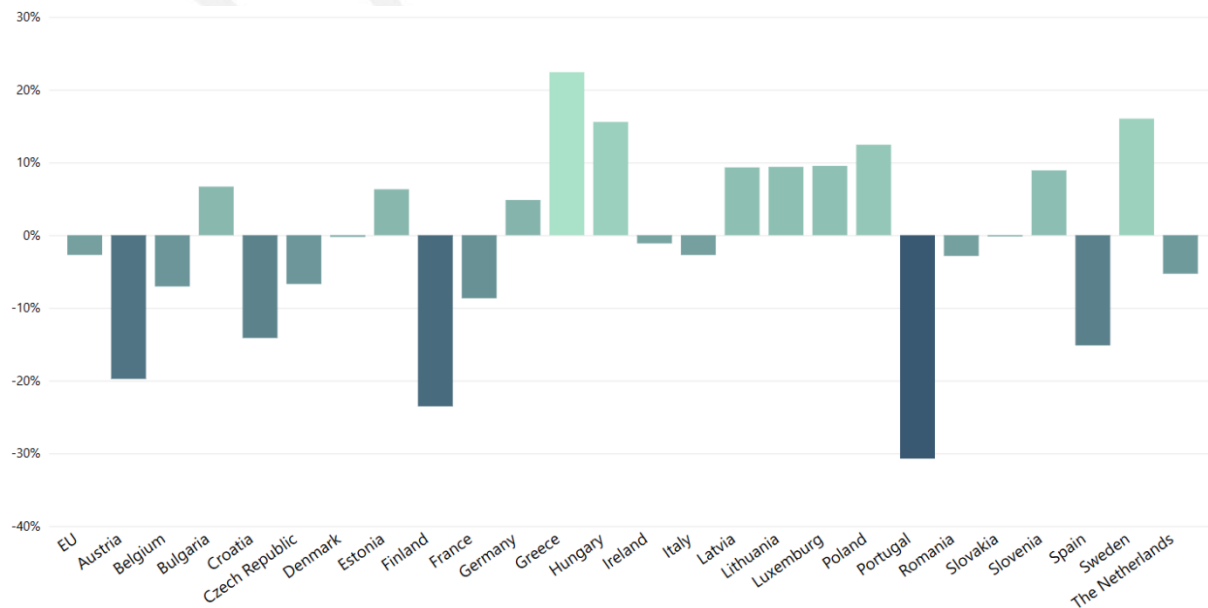


Figure 3 – Demand variation by country in EU %. Summer 2023 vs 2024 (see [SR2024.dashboard.pbix](#))

Table 2 – Demand per country for Summer 2023 and Summer 2024

Country	Demand S2023, TWh	Demand S2024, TWh	Difference, %
Austria	25.56	20.51	-19.76%
Belgium	55.79	51.86	-7.04%
Bulgaria	10.49	11.19	6.68%
Croatia	10.19	8.75	-14.13%
Czech Republic	23.16	21.61	-6.71%
Denmark	7.02	7.01	-0.23%
Estonia	0.97	1.03	6.31%
Finland	5.66	4.33	-23.53%
France	117.55	107.36	-8.67%
Germany	268.7	281.7	4.84%
Greece	25.68	31.44	22.41%
Hungary	28.07	32.44	15.57%
Ireland	24.26	23.99	-1.13%
Italy	248.91	242.13	-2.72%
Latvia	1.96	2.14	9.32%
Lithuania	6.14	6.72	9.39%
Luxemburg	2.07	2.27	9.53%
Poland	64.16	72.14	12.44%
Portugal	24.11	16.71	-30.72%
Romania	26.59	25.83	-2.85%
Slovakia	14.42	14.4	-0.17%
Slovenia	3.38	3.68	8.91%
Spain	152.05	129.01	-15.15%
Sweden	2.29	2.66	16.03%
The Netherlands	112.28	106.34	-5.30%
EU	1261.46	1227.23	-2.71%
Bosnia and Herzegovina	0.49	0.43	-11.52%
North Macedonia	1.69	1.45	-14.35%
Switzerland	8.01	8.44	5.27%
United Kingdom	252.34	233.94	-7.29%
Europe	1523.99	1471.48	-3.45%

- Comparing with the previous season, roughly one third of the countries in the Union show a decrease in demand above 5% (**Figure 3**). Significant drops occurred in Portugal (31%), Finland (24%), Austria (20%) and Spain (15%), balancing relevant increases in Greece (22%), Hungary (16%) and Sweden (16%).
- Total gas demand values in the Summer season declined by 2.7% (1262 TWh to 1227 TWh) in the EU and by 3.5% (1524 TWh to 1471 TWh) in Europe overall year-on-year. Gas-fired power generation declined due to the increased output of renewables, while mild

weather, household savings, and sluggish recovery of industrial demand resulted in a decreased overall gas consumption (**Table 2** and **Figure 4**).

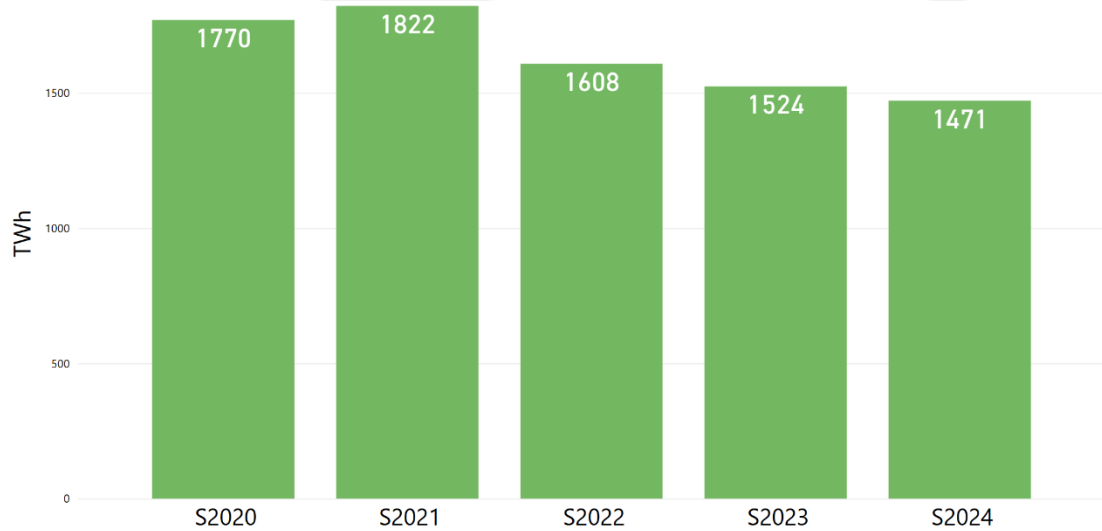


Figure 4 - Historical gas demand. Summers 2020 – 2024 (see [SR2024.dashboard.pbix](#))

Figure 5a represents gas consumption for power generation per country during Summer 2024, while **Figure 5b** illustrates the total consumption in Europe over the last 5 Summers (only countries for which data are available for all 5 seasons were considered, excluding for example Poland and the United Kingdom).

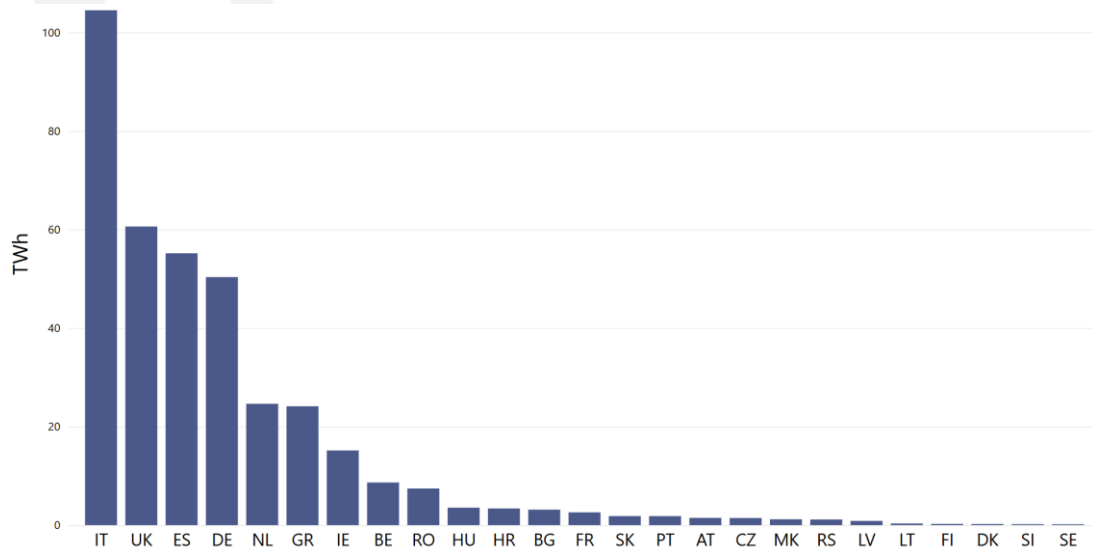


Figure 5a - Gas consumption per country for power generation¹⁰. Summer 2024 (see [SR2024.dashboard.pbix](#))

¹⁰ The graph refers to the countries for which demand breakdown is available (with the exception of Poland).

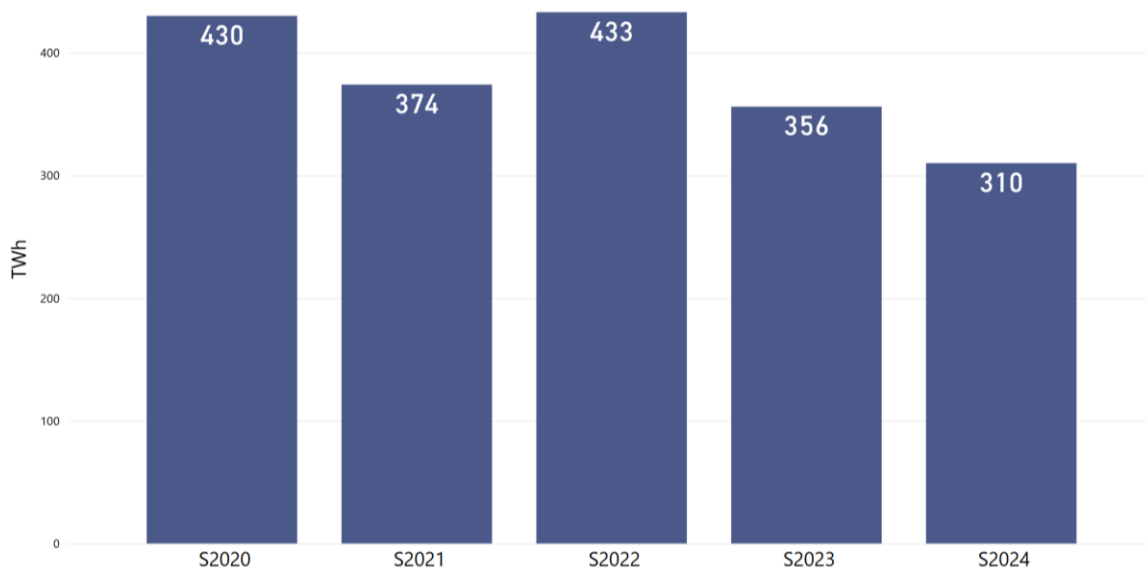


Figure 5b – Aggregated gas consumption for power generation. Summers 2020 – 2024 (see [SR2024.dashboard.pbix](https://www.entsog.eu/SR2024.dashboard.pbix))

> Seasonal electricity power generation (TWh_e)¹¹

- In Summer 2024, the electricity produced from gas was 194 TWh_e, decreasing by 24% compared to the 2023 season. Meanwhile, coal (hard coal and lignite) use in the electricity mix decreased significantly by 16%, as shown in Figure 6. The reduction in fossil fuel use in electricity generation is explained by an increase in the share of renewable sources.

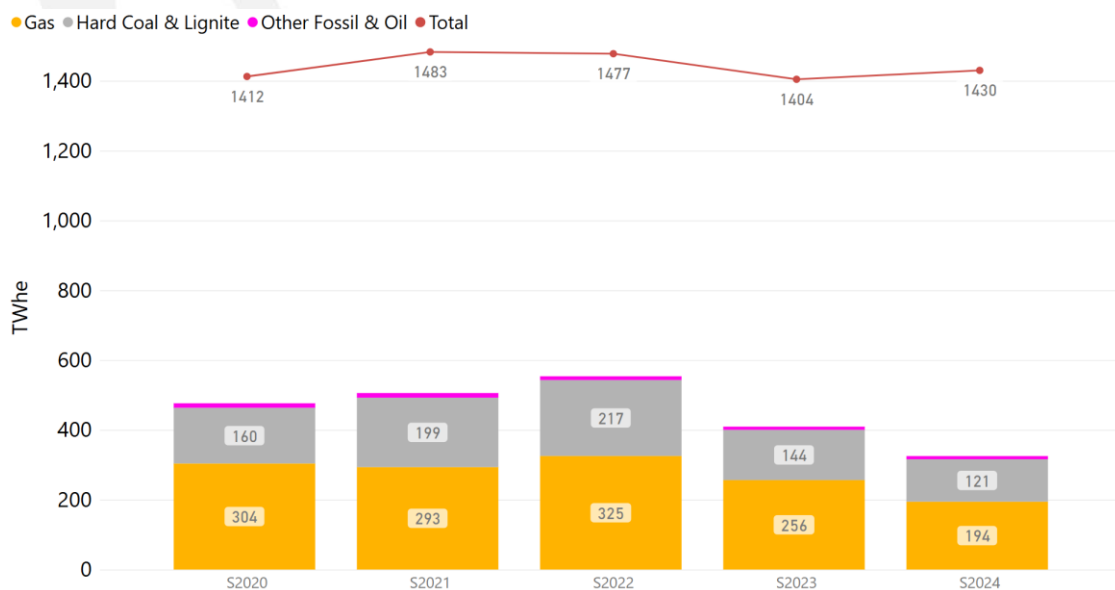
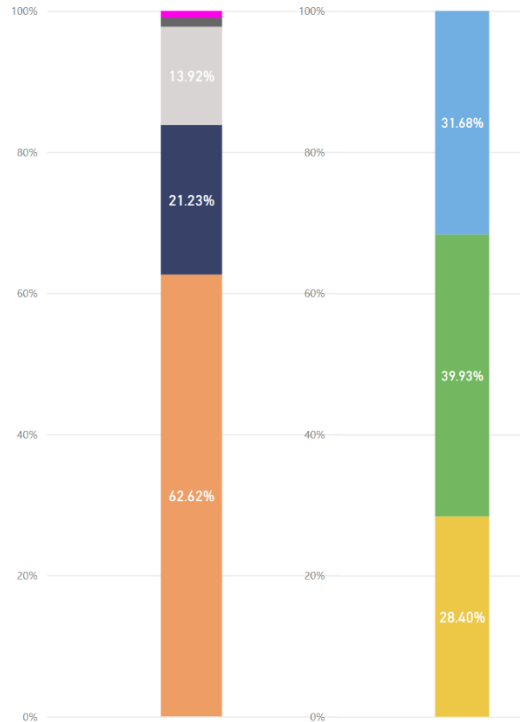
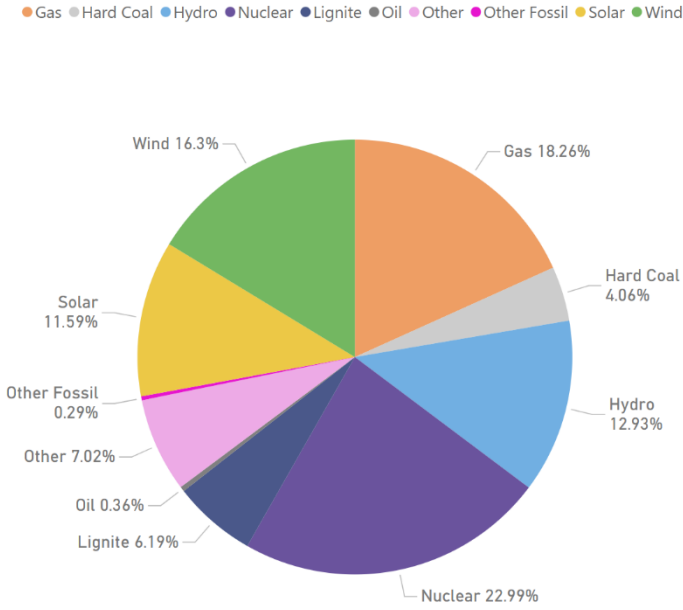


Figure 6 – Fossil fuel sources in the electricity mix. Summers 2020 - 2024 (see [SR2024.dashboard.pbix](https://www.entsog.eu/SR2024.dashboard.pbix))

¹¹ Source: ENTSOG elaboration based on ENTSO-E Transparency Platform data and National Grid ESO data. The gas demand to achieve this electricity production is higher in thermal terms due to the gas-fired power plants' efficiency factor.

- Based on data from ENTSOE Transparency Platform (EU data) and National Grid ESO data (UK data), the electricity generation mix showed a 2% increase compared to the previous summer season.
- Gas represented 14% of the electricity generation in the summer season 2024 with a year-on-year decrease of 4.7%, as shown in **Figure 7**. An increase in renewable generation compensated the decrease of gas and coal-fired generation.

Electricity generation mix Summer 2023



Electricity generation mix Summer 2024

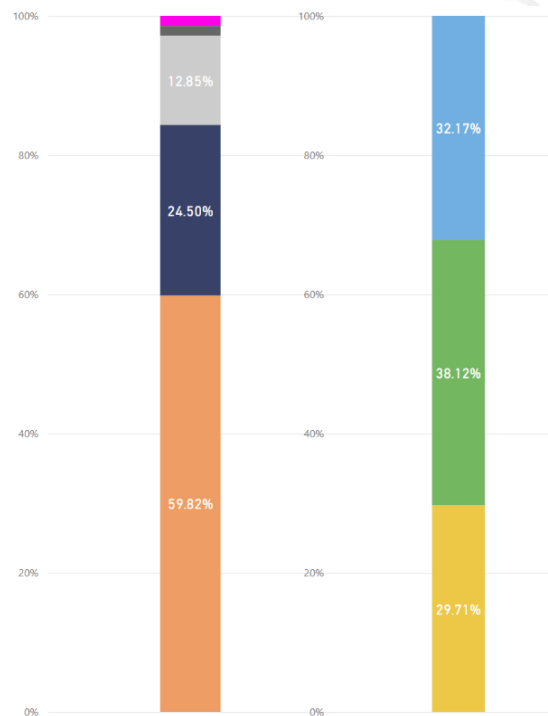
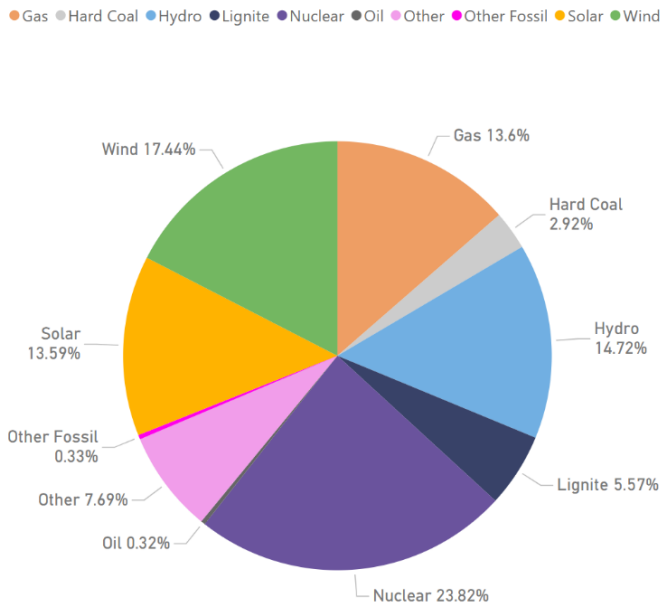


Figure 7 - Electricity power generation mix. Summer 2023 vs 2024 (see [SR2024.dashboard.pbix](#))

Figure 8 shows the electricity generation mix for Summers 2020–2024.

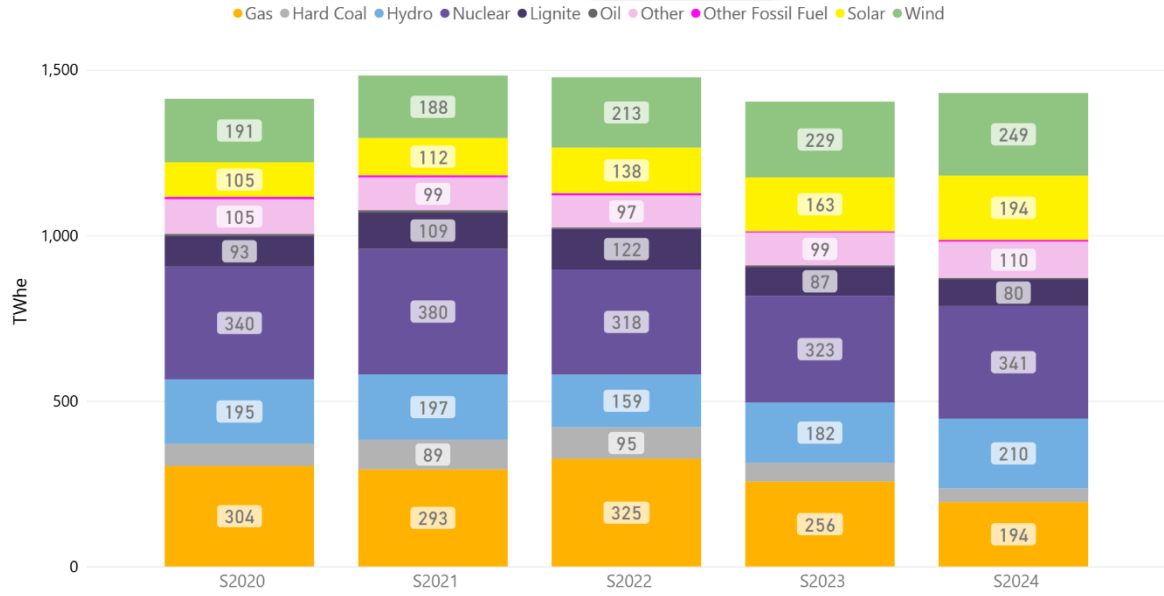


Figure 8 - Historical electricity generation mix S2020 - S2024 (see [SR2024.dashboard.pbix](https://www.entsoe.eu/summerview/SR2024/dashboard.pbix))

Supply

Figure 9 shows the evolution of the aggregated gas supply in European countries during Summer 2024.

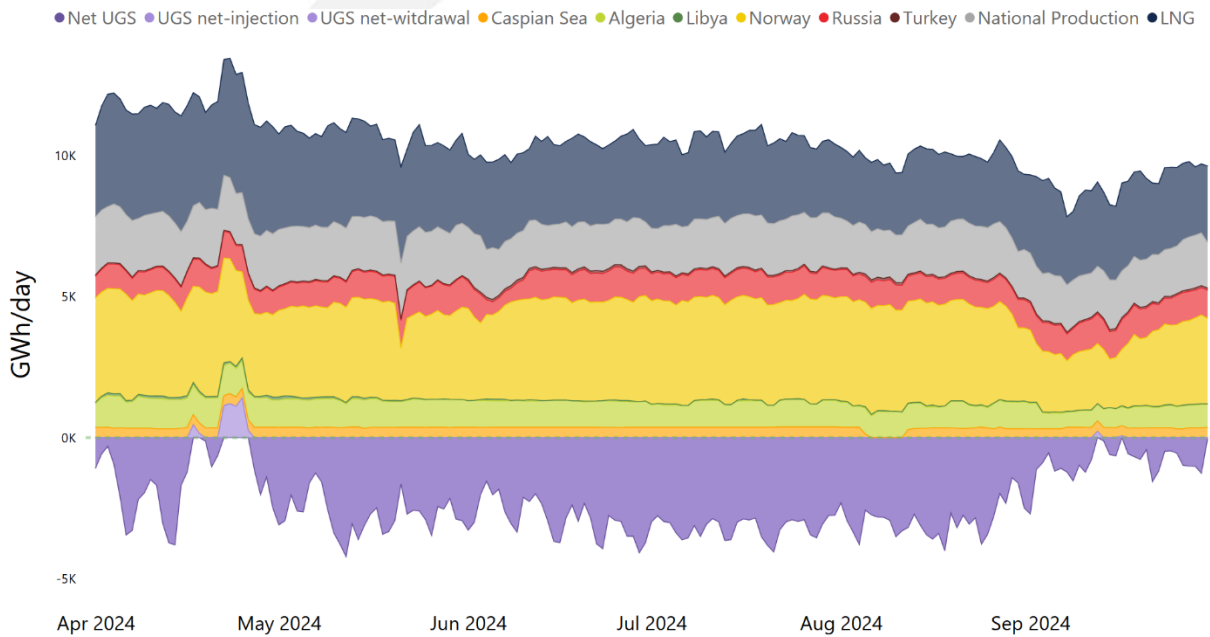


Figure 9 - Summer 2024 supply profile (see [SR2024.dashboard.pbix](#))

Figure 10 shows the seasonal supply by source, including national production, during Summers 2023 and 2024.

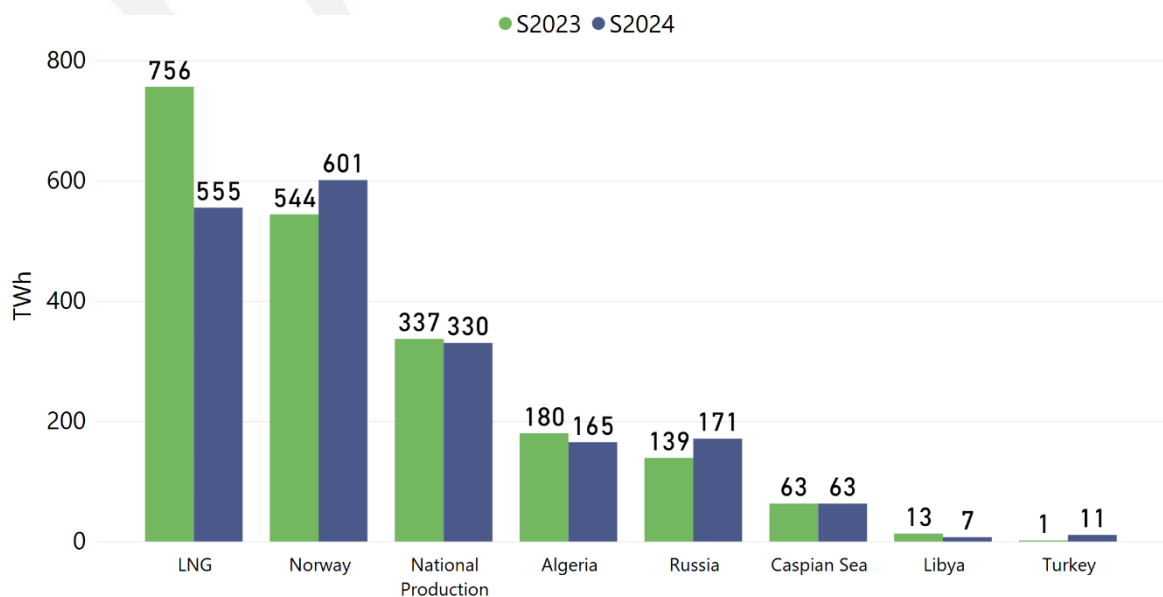


Figure 10 - Total supply by source. Summer 2023 vs 2024 (see [SR2024.dashboard.pbix](#))

- In Summer 2024, European gas production reached approximately 330 TWh, remaining relatively stable (a 2% decrease) compared to the previous Summer, despite the closure of the largest gas producer in the EU, the Groningen gas field in the Netherlands which closed in April 2024. The main contributor in mitigating the Groningen closure was the restart of the Tyra hub on 22 March 2024, resulting in a 41% increase of Danish production from Summer 2023 to Summer 2024.
- LNG supply dropped significantly by 27% in Summer 2024, from 756 to 555 TWh. **Figure 11** shows the total LNG import into European countries. France retained its position as the EU's largest LNG importer (117 TWh), followed by the Netherlands (97 TWh) and Spain (82 TWh).

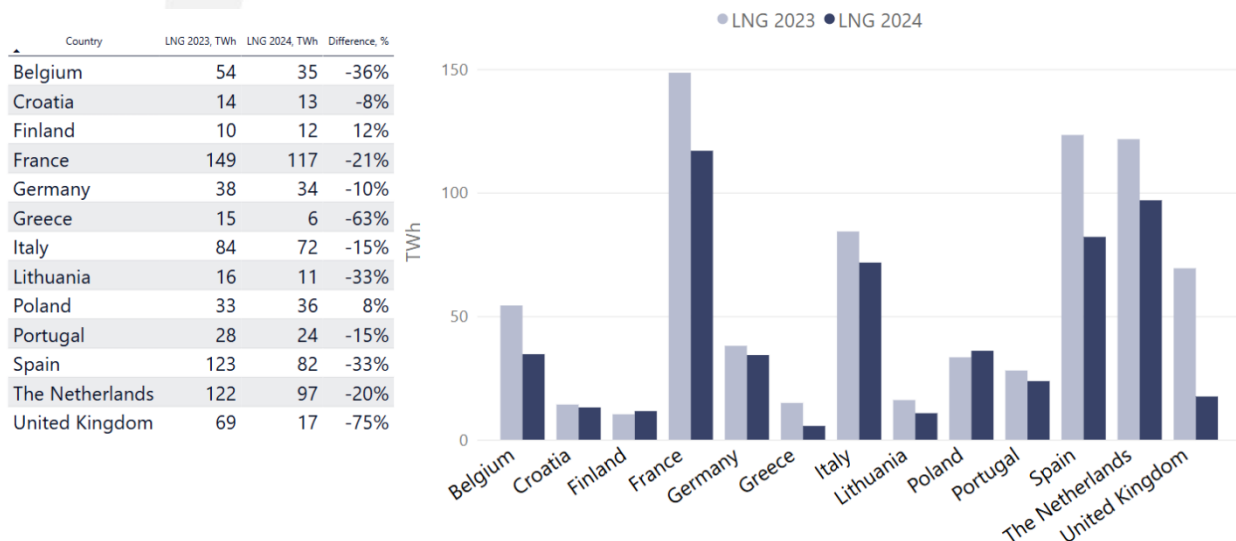


Figure 11 - LNG supply per country. Summer 2023 vs 2024 (see [SR2024.dashboard.pbix](#))

- Gas supply from Norway increased by 10.5% during Summer 2024, from 544 to 601 TWh, despite heavy maintenance and unplanned outages.
- Compared to Summer 2023, pipeline gas supply from Algeria decreased by around 8% to 165 TWh in Summer 2024. Meanwhile, the supply from the Caspian Sea remained stable at 63 TWh, while supply from Libya dropped from 13 to 7 TWh.
- Since April 2023, flows from Turkey have been delivered through the IP Strandzha (BG) / Malkoclar (TR) route, which was previously used in the reverse direction for exports from the EU to Turkey. Network users have been receiving gas via the Turkish gas grid from LNG terminals, which are entirely or partially operated by Turkish operator BOTAS.
- Russian pipeline gas supply to Europe totalled 171 TWh in Summer 2024, a 23% increase compared to the previous year.

Figure 12 shows Russian pipeline gas flows in Summers 2023 and 2024. Russian deliveries into Europe by pipeline were limited to flows via Ukraine and TurkStream.

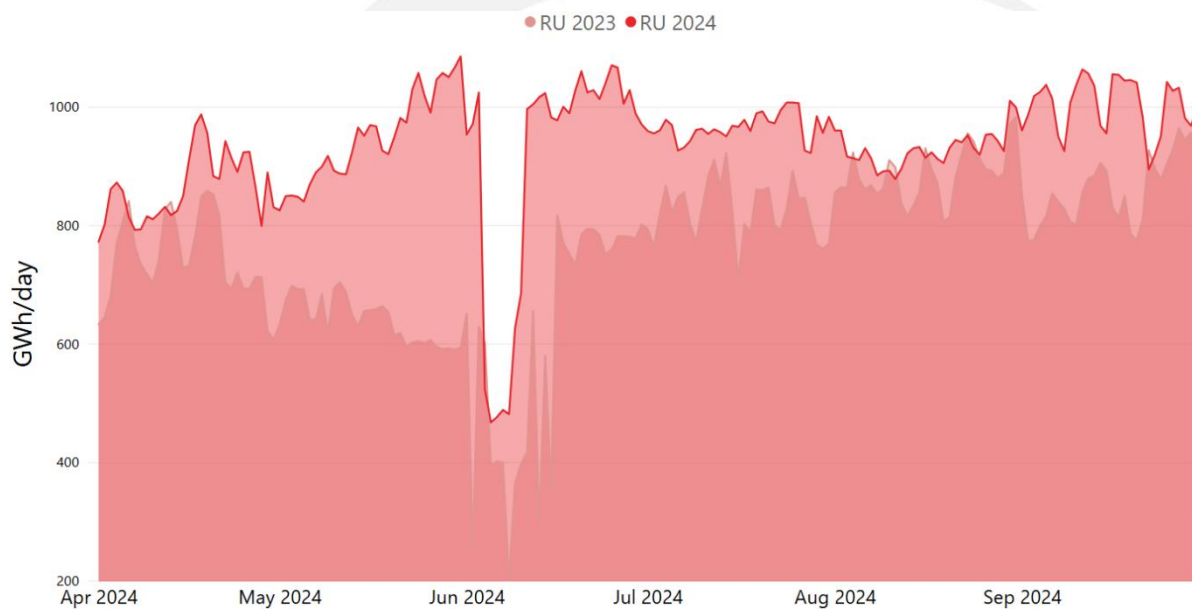


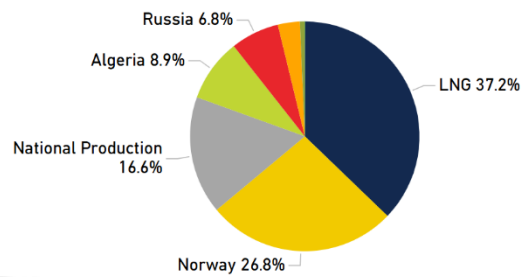
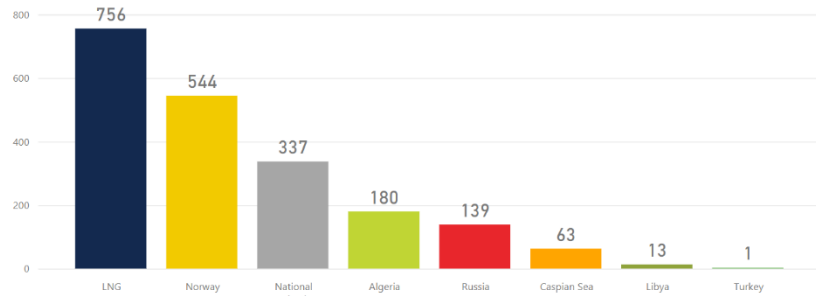
Figure 12 - Russian pipeline gas flows. Summer 2023 vs 2024 (see [SR2024.dashboard.pbix](#))

Figure 13 shows the supply mix in Summer 2023 compared to Summer 2024.

- The total supply to European countries was 1903 TWh in Summer 2024, a 6.4% decrease compared to the previous Summer. In addition to lower gas consumption, high storage filling rates at the beginning of the 2024 injection period contributed to low import levels.
- The gas supply by pipeline was 1018 TWh in Summer 2024, with a share of 53.5% in total supply mix. Norway remained the biggest pipeline gas supplier, with a share increased from 27 to 32%, followed by supply from North Africa – both Algeria and Libya – with a share of 9%. The share of gas supplied to Europe from Russia via pipeline increased from 7% in the summer 2023 to 9% in 2024.
- The share of LNG supply decreased from 37% in Summer 2023 to 29% in Summer 2024, as European buyers reduced spot purchases due to competition with Asian markets and disruptions in Australia caused some price volatility.

Supply source	Total, TWh
Algeria	180
Caspian Sea	63
Libya	13
LNG	756
National Production	337
Norway	544
Russia	139
Turkey	1

Supply Mix S2023, TWh

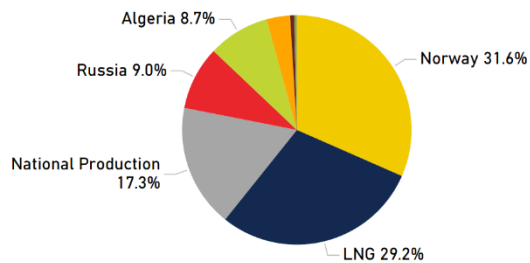
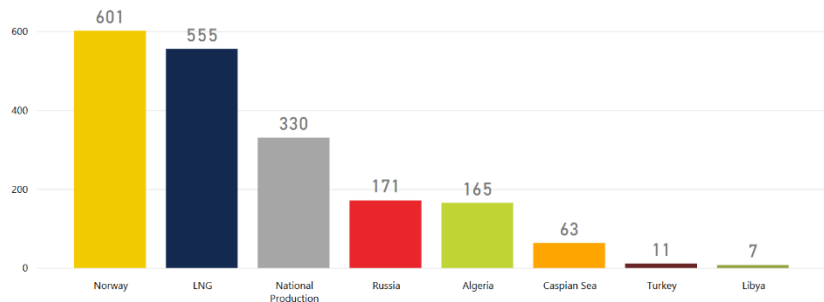


2033

Sum of Total, TWh

Supply source	Total, TWh
Algeria	165
Caspian Sea	63
Libya	7
LNG	555
National Production	330
Norway	601
Russia	171
Turkey	11

Supply Mix S2024, TWh



1903

Sum of Total, TWh

Figure 13 – Supply mix. Summer 2023 vs 2024 (see [SR2024.dashboard.pbix](#))

Figure 14 shows the evolution of the different supply sources during the last five Summers.

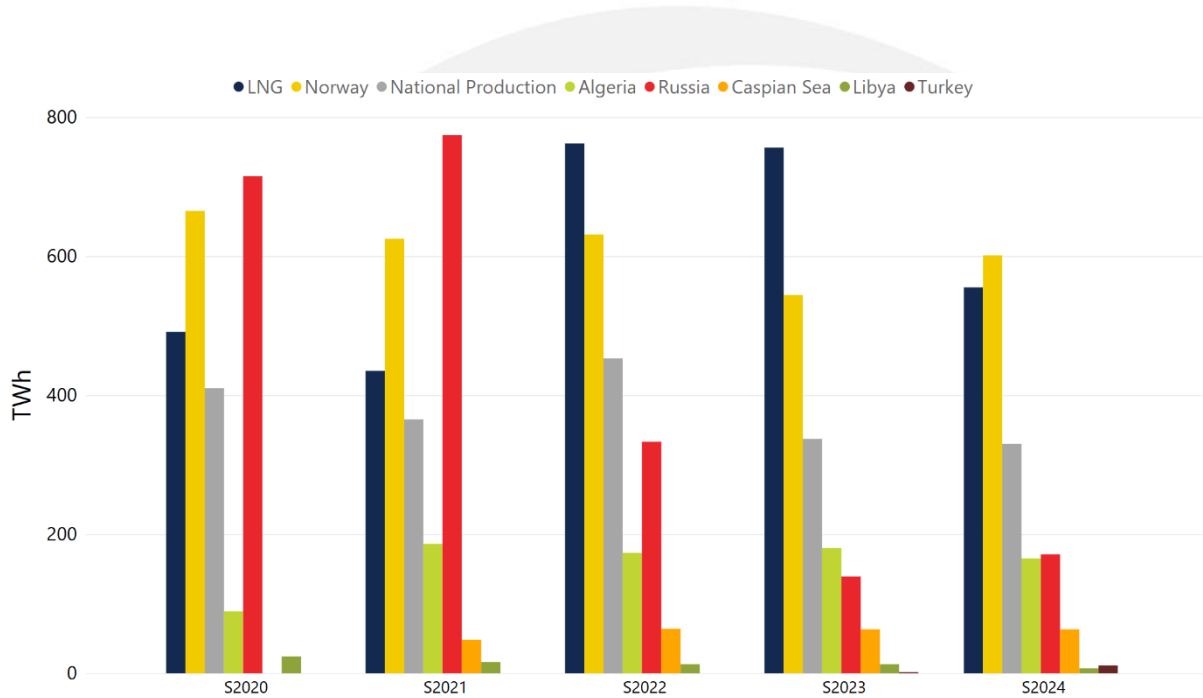


Figure 14 - Evolution of gas supplies. Summer 2020 – 2024 (see [SR2024.dashboard.pbix](#))

Figure 15 shows exports from the EU countries.

- The exports were 51 TWh to Serbia, 11 TWh to Ukraine, 5 TWh to Morocco, 2 TWh to Moldova and around 1 TWh to North Macedonia.

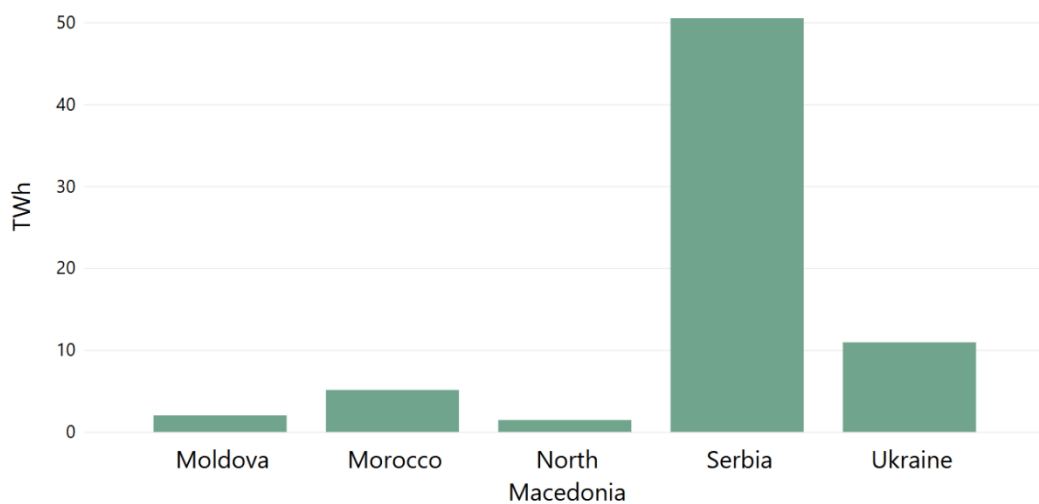


Figure 15 - Exports from the EU countries. Summer 2024 (see [SR2024.dashboard.pbix](#))

Underground Gas Storage

The evolution of the injection season depends on various factors, notably the willingness of shippers (or other entities designated by Member States) to inject gas, and the actual amount of gas available for injection. These factors are interconnected with price signals, such as the summer/winter spread, as well as the EU national laws mandating injections, climatic effects influencing temperature-driven consumption, and the economic considerations of end-users.

Figure 16 compares the stock level evolution curve of the last 5 summers.

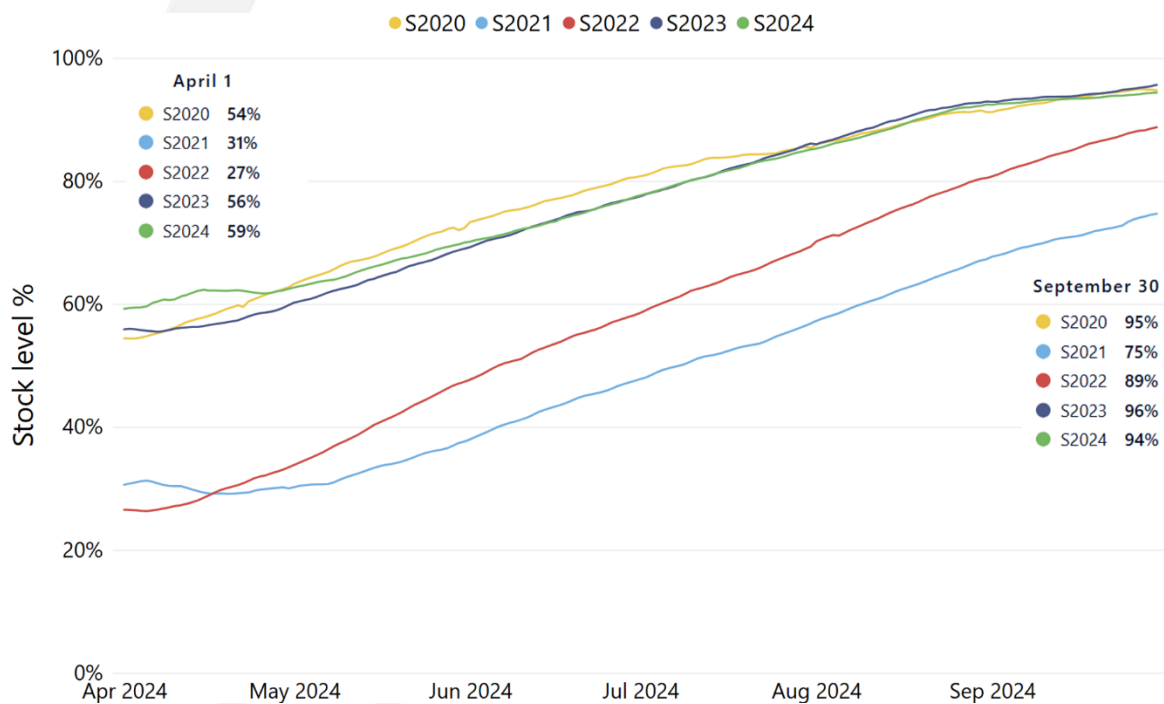


Figure 16 - Evolution of UGS stock level. Summer 2020 – 2024¹² (see [SR2024.dashboard.pbix](#))

- According to data from AGSI+ (the gas storage platform operated by GIE), the EU stock level at the beginning of the injection season remained historically high at 59% full (669 TWh).
- On 1 October 2024, the EU gas storage facilities reached 94% on average or 1,082 TWh – an amount of stored gas lower only than in 2023 in the last 5 years. The high storage filling level at the beginning of injection period, decrease in gas consumption over the year and dedicated measures introduced by the Member States, together with the individual users behaviour, contributed to the very high volume of gas in storage at the beginning of the 2024/25 winter period .

¹² Source: AGSI+

Figure 17 shows the storage net-injection and net-withdrawal profile of European storage.

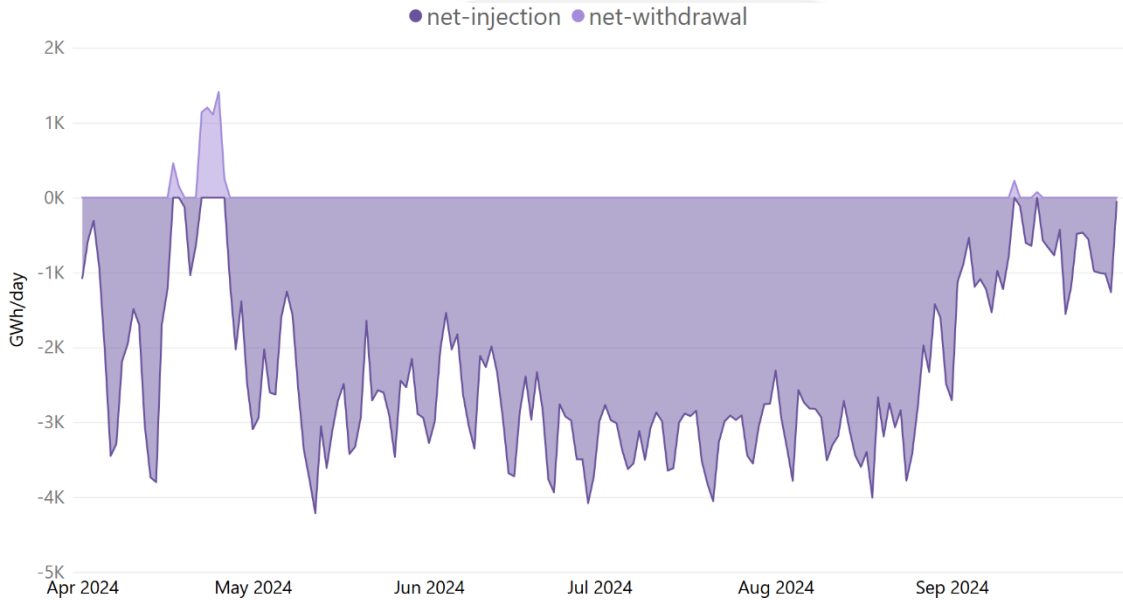


Figure 17 - UGS net-injection/net-withdrawal profile of European storage. Summer 2024 (see [SR2024.dashboard.pbix](#))

- The injection season for Summer 2024 began in April and remained active until September. A high storage filling level by the end of August (92%) and heavy maintenance outages at the gas fields in Norway affected the ability to inject gas into storage, resulting in a lower flow into storage (and even a few days of net withdrawal) in September 2024. As in 2023, the year’s heaviest schedule of planned annual maintenance in Norway took place in September.

Figure 18 provides the average net-injection / net-withdrawal and the daily distribution ranges between the lowest and highest injection in GWh/day for every summer season month in 2023 and 2024.

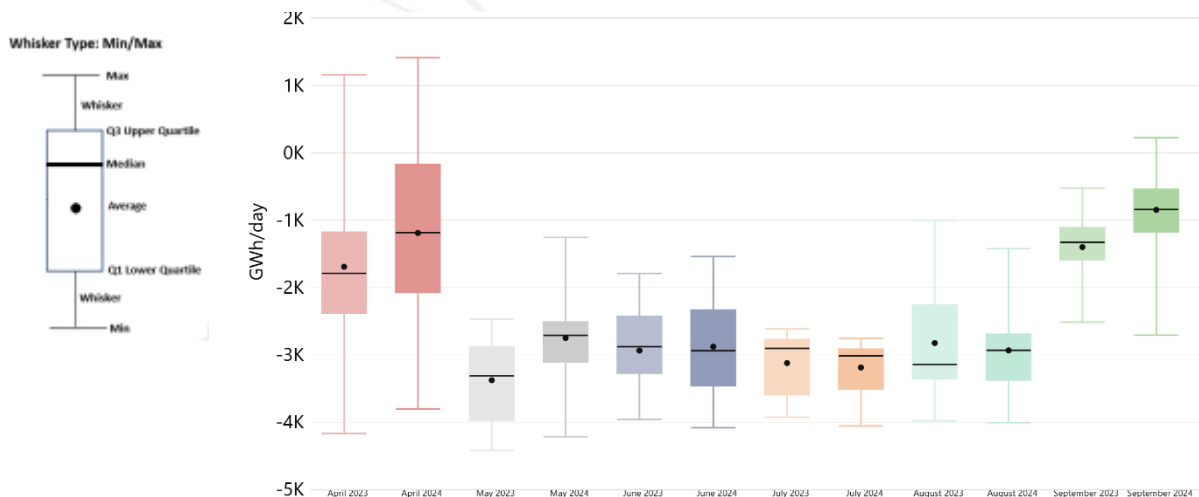


Figure 18 - UGS daily range of net-injection and net-withdrawal per month. Summer 2023 vs 2024 (see [SR2024.dashboard.pbix](#))

- During Summer 2024, the net injection range was at the same level as in Summer 2023 due to the similar initial storage levels (59% vs. 56%).

Table 3 shows that the highest storage level of 97.8% was reached in late October 2024.

Table 3 - Historical maximum stock levels¹³

Summer season	Stock level at 30-Sep	Maximum stock level	Date
S2020	94.8%	95.9%	11/10/2020
S2021	74.7%	77.3%	21/10/2021
S2022	88.7%	95.7%	13/11/2022
S2023	95.6%	99.6%	05/11/2023
S2024	94.4%	97.8%	28/10/2024

¹³ Source: AGSI+

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