

OPINION No 09/2024
OF THE EUROPEAN UNION AGENCY
FOR THE COOPERATION OF ENERGY REGULATORS

of 18 December 2024

on ENTSOG's Winter Supply Outlook 2024/25

THE EUROPEAN UNION AGENCY FOR THE COOPERATION OF ENERGY REGULATORS,

Having regard to Regulation (EU) 2019/942 of the European Parliament and of the Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators ('ACER'), and, in particular, Article 4(3)(b) thereof,

Having regard to Regulation (EU) 2024/1789 of the European Parliament and of the Council of 13 June 2024 on the internal markets for renewable gas, natural gas and hydrogen, and, in particular, Articles 26(3) and 27(2) thereof,

Having regard to the outcome of the consultation with the ACER's Gas Working Group,

Having regard to the favourable opinion of the Board of Regulators of 18 December 2024, delivered pursuant to Article 22(5) of Regulation (EU) 2019/942,

Whereas:

1. INTRODUCTION

- (1) On 16 October 2024, the European Network of Transmission System Operators for Gas ('ENTSOG') published its Winter Supply Outlook ('the Outlook') 2024/25, including a Summer 2025 Overview¹ pursuant to Article 26(3)(g) of Regulation (EU) 2024/1789.
- (2) Pursuant to Article 4(3)(b) of Regulation (EU) 2019/942, ACER may provide an Opinion to ENTSOG on, inter alia, relevant documents referred to in Article 26(3) of Regulation (EU) 2024/1789, as submitted by ENTSOG to ACER pursuant to Article 27(2) of Regulation (EU) 2024/1789.

¹ Source: [Winter Supply Outlook \('the Outlook'\) 2024/25, including a Summer 2025 Overview](#)

2. SUMMARY OF THE ENTSOG WINTER SUPPLY OUTLOOK 2024/25

- (3) ENTSOG's Winter Supply Outlook includes EU-wide simulations of the European gas infrastructure readiness to deliver sufficient gas supply to meet demand under certain gas supply scenarios. The Outlook also includes the assessment of gas infrastructure under scenarios of prolonged disruptions of Russian gas imports for the upcoming winter 2024/2025, and additional insights into the EU's gas system's preparedness for the summer of 2025.
- (4) ENTSOG assessed the European gas system resilience under both typical and cold winter conditions, accounting for high demand and potential intermissions in Russian gas deliveries through Ukraine – which is to cease after the current transit agreement expires at the end of December 2024 - and the TurkStream pipeline. The Outlook also explores the implications of a full Russian pipeline supply cut-off, with a particular focus on the impact of additional gas demand from Moldova.
- (5) ACER underlines the importance of the following findings by ENTSOG:
 - a. **High Gas Storage Levels:** As of 1 October 2024, the EU gas storage levels had reached 94% of capacity (1,083 TWh), comparable to last year's level. This high storage level is attributed to reduced gas consumption in recent years, higher storage levels at the beginning of the injection season, and measures taken by EU Member States.
 - b. **Early Storage Withdrawals:** Early withdrawals could deplete storages by the end of the season, reducing storage flexibility and increasing the risk of demand curtailment, especially during cold spells. In response, some countries have opted to reserve part of their gas stocks as strategic reserves.
 - c. **Summer Storage Targets:** Looking ahead to the 2025 summer storage targets, maintaining storages at around 30-40% capacity at the start of the next injection remains important as this would facilitate replenishing storages during the summer period and meeting the 90% storage target by the end of the summer.
 - d. **Reduced Reliance on Russian Gas:** The EU's increased independence from Russian gas is illustrated by the fact that the EU could maintain 40% storage levels at the end of the winter even without any Russian pipeline gas.
 - e. **Ukrainian Storage Options:** Additionally, ENTSOG analysed the potential benefits of utilising Ukrainian gas storage facilities to provide further flexibility between Member States, especially in Central and Southeast Europe.
 - f. **Mitigating Full Supply Disruptions:** ENTSOG's simulations suggest that, in the event of a full supply disruption, such as a complete cut-off from Russian pipeline supplies combined with limited LNG availability during a cold winter, a combination of extra supplies and a 15% reduction in gas demand would be needed to avoid demand curtailment risks and maintain adequate storage levels.
 - g. **LNG and Norwegian Gas:** ENTSOG underlines the growing importance of LNG and Norwegian gas, which now have become the primary sources of natural gas for EU Member States and the Energy Communities' Contracting parties.

3. ASSESSMENT OF ENTSOG ASSUMPTIONS

- (6) ACER appreciates the relevance of the methodology that ENTSOG has been using in recent years for analysing the historical gas supply, demand patterns and use of storages, as well as the possible evolution of storage levels for the upcoming winter and summer resulting from the assumptions and simulations contained in the Outlook.
- (7) Nevertheless, by analysing the assumptions and methodology applied, this opinion proposes some recommendations to further improve the Outlook.

3.1. Gas storage assumptions

- (8) On 1 October 2024, the starting point of the outlook simulations, the storage filling level reached 94% of the total EU-27 + UK storage capacity, well above the 90% filling target.
- (9) ACER welcomes that in recent Outlooks, ENTSOG has improved gas storage assumptions, e.g. by considering the strategic reserves for storages set out by each country's specific regulations², including the Ukrainian storage in ENTSOG's model as a last resort node³, and the role of tanks from LNG regasification terminals to offer additional short-term storage flexibility.
- (10) While gas prices are currently not factored into ENTSOG's modelling, summer-winter price spreads signal possible challenges for market-based storage filling.
- (11)

Recommendation 1: Therefore, ACER recommends including a qualitative analysis of gas wholesale futures prices (e.g. on TTF) and expected summer-winter price spreads, as negative and close to zero summer-winter spreads could cause challenges for market-based filling of gas storages even in the absence of infrastructure bottlenecks.

- (12) ACER supports ENTSOG's view that a 32% aspirational target for storage filling level on 1 April 2025 will be needed to ease storage injections during the summer and ensure preparedness for the upcoming winter 2025/26.

3.2. Supply assumptions

- (13) ACER emphasises that the conclusions of the Outlook should be interpreted within the context of ENTSOG's gas supply assumptions, which are based on historic supply data (Caspian Sea, Algeria, Reference LNG), TSO information (Libya, Norway) or observed flows from the last two years (Russia).

² The immobilisation of gas into storage ensures that a share of the stock is only used in exceptional circumstances to prevent demand curtailment. ENTSOG's Outlook (p.18) assumes constraints on the utilisation of the strategic reserves of storages, which cannot be depleted to avoid/reduce demand curtailment in the simulations. However, EU gas strategic reserves (amounting to circa. 120 TWh) should be rather used before curtailing demand.

³ i.e. that it is only filled after other storages in the Union have been filled up to target levels.

- (14) ACER welcomes that the Outlook also considers Moldova in the non-EU countries that are included in the modelling perimeter when assessing the supply adequacy at European level.
- (15) The assumptions regarding Russian piped gas supply reflect the currently reduced Russian imports, which are limited to routes through Ukraine and TurkStream. As the transit contract of Russian gas via Ukraine will likely cease on 31 December 2024, the Outlook assumes no more Russian pipeline gas from this date through Ukraine. In ACER's view, ENTSOG has used a reasonable scenario for modelling the potential Russian pipeline gas supply, considering current geopolitical uncertainty⁴.
- (16)

Recommendation 2: ACER restates its recommendation to ENTSOG to consider improving the Outlook assumptions, for example by also considering the expected gas supply via booked capacities⁵, rather than building assumptions only based on historical values.

3.3. LNG imports and its increasingly important role

- (17) ENTSOG's supply assumptions for LNG consider three scenarios: a reference, a low and a high LNG supply scenario⁶. ACER welcomes this approach as the European Union has and will increase its reliance on LNG supply to offset reduced supplies from Russian pipeline gas. This is also in view of the limited additional supply flexibility through other sources of piped gas.
- (18)

Recommendation 3: ACER takes note of ENTSOG's efforts to consider a "low LNG supply scenario" which simulates a scenario without Russian LNG supplies available to the European Union. ACER encourages ENTSOG to provide further details on the assumptions and methodology used to build this "low LNG supply scenario" without Russian LNG supplies⁷.

⁴ [OIES Quarterly Gas Market Review](#), October 2024, p. 18.

⁵ For example, the ALSI platform publishes capacity forecast data for the upcoming 6 months which could be considered when building the reference LNG supply scenario: <https://alsi.gie.eu/capacity-forecast>. However, the availability of information of booked capacities is challenging, also in view to the trend towards shorter-term bookings.

⁶ The Reference LNG supply case: max 30-day rolling average; the Low LNG: average historical flows over the last five years for each season; the High LNG: limited by the regasification capacity of European LNG terminals and transmission network.

⁷ [ACER LNG Market Monitoring Report](#), April 2024. In 2023, the EU imported 18 bcm of Russian LNG, mostly via long-term supply agreements signed before 2022. ACER notes that recent volumes of Russian LNG imports to Europe are significant and pose challenges for short-term replacement from other LNG origins.

3.4. Infrastructure and capacity assumptions

(19) ACER welcomes that the Outlook topology takes stock of four new LNG infrastructure projects⁸. However, ACER would encourage to provide more granular information linking infrastructure and capacity assumptions.

(20)

Recommendation 4: ACER encourages ENTSOG to provide more clarity on the monthly capacities added by new projects including, for example, via additional LNG import⁹ or cross-border capacities. Furthermore, ACER would welcome the provision of a complete list of all infrastructure and capacities considered in the assessment, similarly to what is published in each TYNDP¹⁰.

(21) ENTSOG's simulations are under the assumption of efficient cooperation between the countries to share available gas volumes, including gas in storage, to avoid curtailment.

(22)

Recommendation 5: ACER welcomes the assumption of efficient cooperation among countries and reiterates the relevance of including a sensitivity without efficient cooperation to ENTSOG. Such sensitivity would highlight the added value of Member States' cooperation to deal with situations of tight gas supply.

3.5. Demand assumptions

Seasonal Demand

(23) On 25 March 2024, the Council adopted a recommendation¹¹ that encourages Member States to continue reducing their gas consumption until 31 March 2025, by at least 15% compared to their average gas consumption in the period from 1 April 2017 to 31 March 2022. This recommendation follows an emergency Council Regulation on gas demand reduction measures adopted in 2022¹² as an urgent response to the energy crisis caused by Russia's military aggression against Ukraine.

(24) ACER notes that while the "Reference Summer" demand considers the 15% reduction target¹³, the "Reference Winter" demand is calculated differently. The demand for the latter shows a 14.6% increase compared to the winter of 2023/24, while being 8% lower than the average of the reference years 2017/18 – 2021/22.

⁸ See ENTSOG WSO 2024/25, p. 9 for the list.

⁹ A list of LNG capacities/terminals considered in the Outlook should be provided for transparency.

¹⁰ By publishing the same dataset for Outlooks and TYNDP, ENTSOG would provide an up-to-date description of the infrastructure capacities used in its reports.

¹¹ Council of the European Union: [Security of gas supply](#), 25.03.2024

¹² Council Regulation (EU) 2022/1369 on coordinated demand-reduction measures for gas.

¹³ Ibid.

Peak Demand

- (25) The 2024/25 Outlook simulates “stress tests” of the gas infrastructure under two cases of high demand linked to cold weather, namely under a “Peak day” and a “2-week cold spell”.
- (26) Overall, ACER finds that the Outlook’s seasonal demand projections could be overly optimistic when compared to historical demand trends¹⁴, gas demand projections from other institutions, and the observed decrease in gas demand compared to the recent years.
- (27) As ACER recently noted¹⁵, gas demand for power generation is highly volatile, influenced by factors such as electricity demand, renewable energy production, gas and coal prices, and weather conditions. ACER emphasises the importance of accurate gas peak demand assumptions to assess the EU gas network resilience to *Dunkelflauten* periods¹⁶ or extreme cold weather conditions.
- (28)

Recommendation 6: ACER recommends ENTSOG to compare its seasonal demand projections with outside sources and historical demand evolution. ACER recommends ENTSOG to review TSOs’ demand estimates for consistency at EU level, and how gas prices and political efforts to reduce demand are considered by each TSO.

3.6. Disruption scenarios and risk factors

- (29) ACER finds that the Outlook’s frame of reference, reflecting the currently reduced Russian imports limited to Ukraine and TurkStream routes to the EU, is adequate. In addition, ACER welcomes that ENTSOG includes a full gas supply disruption of the pipelines from Russia, investigating its potential impact on the storage filling level at the end of the winter and gas demand curtailment, for both the “Reference Winter” and “Cold Winter” scenarios.
- (30) The Outlook’s simulations show that, under a disruption of Russian gas flows in case of a “Cold Winter”, storages cannot reach the 30% filling level at the end of the winter season, and that in most scenarios European countries would need to implement a cooperative sharing of demand curtailment.
- (31) ACER would find it useful to analyse a scenario whereby a full disruption of Russian gas supply could be aggravated by additional disruptions (e.g., gas supplies from

¹⁴ Gas consumption decreased marginally (est. -69 TWh) from January to August compared with the same period in 2023. Lower gas burn for power generation and stagnant household demand more than outweighed the minor increase in industrial gas demand (est. +9 TWh in Q3).

Source: ACER analysis based on Eurostat, ENTSOG, ENTSOE and Trading Hub Europe data. See [Key developments in European gas markets – Q3 2024](#), October 2024.

¹⁵ Ibid.

¹⁶ Characterised by minimal or no wind and solar power generation due to a lack of wind or sunlight.

Algeria, prolonged disruption of Norwegian gas supplies via offshore pipelines). Although additional disruptions are overall less likely to occur, such analysis would provide useful insights regarding the readiness of the European gas infrastructure to deal with an unlikely but high impact disruption scenario.

Risk factors for the upcoming winter

- (32) In addition to the likely stop of Russian gas transit flows via Ukraine from 1 January 2025, ACER lists here for information purposes risk factors that are relevant for the upcoming winter and summer seasons. ACER consistently invites ENTSOG to be more comprehensive in listing the various risks in future Outlooks as it is important for Member States and stakeholders to be aware of them:
- a. A colder than usual winter, driving up gas demand;
 - b. A lack of implementation of gas demand reduction recommendations;
 - c. Increased demand volatility of gas power plants;
 - d. Increase in Asian gas demand, possibly driving upwards global LNG demand and prices;
 - e. A low storage filling level at the end of winter, limiting the deliverability of storages and complicating the replenishment of storages during summer 2025;
 - f. Operational incidents or accidents in major supply routes, upstream production sites or major LNG liquefaction terminals limiting gas supply; and
 - g. Rising tensions in the Middle East create an upside risk via a direct risk to LNG flows and an impact of rising crude prices.

4. CONCLUSION

- (33) Based on the foregoing assessment, ACER welcomes ENTSOG's continuous effort to deliver the Outlook on time, assessing the main risks for gas supply, the recommendations to mitigate associated risks and the implementation of some methodological advancements¹⁷. Additionally, ACER encourages ENTSOG to make further methodological improvements in upcoming Outlooks, as outlined in the Recommendations 1-6 of Chapter 3 to this Opinion. ACER recommends including a summary of main changes in assumptions and methodologies in each Outlook to inform on advancements made in light of ACER's preceding recommendations. Finally, ACER reiterates the importance of continuing ENTSOG's and the European Network of Transmission System Operators for Electricity's (ENTSO-E) exchange of data and results used for the seasonal gas and electricity outlooks, and the appropriate consideration of gas and electricity interlinkages in the Outlooks,

¹⁷ E.g. ENTSOG's efforts to consider a low LNG supply scenario that excludes Russian LNG imports.

HAS ADOPTED THIS OPINION:

1. ACER finds that ENTSOG's Winter Supply Outlook 2024/25 is broadly consistent with the objectives listed in 4(3)(b) of Regulation (EU) 2019/942 and Regulation (EU) No 2024/1789.
2. Future seasonal Outlooks should appropriately take into account ACER's comments and recommendations as provided in this Opinion.

This Opinion is addressed to ENTSOG.

Done at Ljubljana, on 18 December 2024.

- SIGNED -

*For the Agency
The Director*

C. ZINGLERSEN