

**OPINION No 05/2022
OF THE EUROPEAN UNION AGENCY
FOR THE COOPERATION OF ENERGY REGULATORS**

of 14 July 2022

on ENTSOG's Summer Supply Outlook 2022

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 Regulation ('ACER'), and, in particular, Article 4(3)(b) thereof,

Having regard to Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005, and, in particular, Articles 9(2) and 8(3) 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 13 July 2022, delivered pursuant to Article 22(5) of Regulation (EU) 2019/942,

Whereas:

1. INTRODUCTION

- (1) On 28 April 2022, the European Network of Transmission System Operators for Gas ('ENTSOG') published the Summer Supply Outlook 2022¹ pursuant to Article 8(3)(f) of Regulation (EC) No 715/2009.
- (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 8(3)

¹https://www.entsog.eu/sites/default/files/2022-04/SO0035-22_Summer_Supply_Outlook_2022_BOA_Rev8.1_220427%20for%20publication.pdf

of Regulation (EC) No 715/2009, as submitted to ACER pursuant to Article 9(2), first subparagraph, of Regulation (EC) No 715/2009.

2. SUMMARY OF THE DOCUMENT

- (3) In the Summer Supply Outlook 2022, ENTSOG undertakes an assessment of the European gas network resilience for the upcoming summer (period from 1 April 2022 to 30 September 2022). The analysis investigates the possible evolution of gas supply and the ability of the gas infrastructure in the European Union to handle gas flows to serve demand, the exports outside the Union² and the storage injection needs during summer in preparation for the next winter. ENTSOG, as in previous Outlooks, uses a reference case of reaching a 90% filling level of storage by 30 September 2022, and a sensitivity analysis to reach storage filling levels between 80% and 100%.
- (4) In view of the Russian invasion of Ukraine, which brings new risks for gas supply and a clear political drive to reduce the Union's dependency on Russian gas³, ENTSOG has additionally assessed the Union's dependence on Russian supply to satisfy gas demand and storage injection needs during the summer, as well as the impacts of a possible long-term supply disruption of all Russian gas pipeline supply routes.

3. ASSESSMENT

- (5) ACER welcomes ENTSOG's timely publication of the Summer Supply Outlook 2022 ahead of the summer season. ACER appreciates that the scope and methodology of the Outlook has been expanded to consider the Russian invasion of Ukraine and the possible repercussions for risk preparedness.

ENTSOG main findings and framework of analysis

- (6) ACER takes notes and underlines the importance of the following conclusions contained in the Summer Supply Outlook 2022.

Baseline Scenario

- a. Under the baseline scenario, which does not consider gas supply disruption and minimises the share of Russian gas in the supply mix, the European gas infrastructure offers sufficient flexibility to enable market participants to reach at least a 90% filling level in all underground gas storages by the end of the

² E.g. to Ukraine

³ REPowerEU Action plan, p.1. "In March 2022, EU leaders agreed in the European Council to phase out Europe's dependency on Russian energy imports as soon as possible."
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A230%3AFIN&qid=1653033742483>

summer, ensuring planned maintenance and exports to Ukraine with volumes comparable to the previous summer.

- b. The EU gas system is dependent on Russian gas for a minimum of 20% of its supply to meet gas demand during the summer and refill storages⁴. In order to minimise the share of Russian gas to 20% in the EU gas supply mix, LNG imports would have to increase up to 80 bcm over the summer season - significantly higher than the average 50 bcm observed in the past summers and also than the 70 bcm of the last winter season.
- c. There are infrastructure limitations in the global LNG supply market (liquefaction capacities) to providing all the additional LNG imports Europe needs to significantly reduce Russian gas supplies. Should significant additional volumes of LNG supply be available on the global market to the EU, some infrastructure limitations prevent some Eastern European countries to receive additional LNG imports.

Belarus and Ukraine supply route disruption scenario, during the whole summer

- d. Under the assumption of a disruption of pipeline supply routes through Belarus and Ukraine starting from 1st April and lasting the summer season, Europe on average can reach 84% filling level of its total storage capacity. Western European countries (United Kingdom, Belgium, France, Spain and Portugal)⁵ can reach 100% storage filling level. However, Western countries cannot provide sufficient additional gas to the Eastern-European countries because of limited network transmission capacities. Storages in Germany and Poland would withdraw gas to satisfy the demand at the beginning of the injection period (April and May).

Russian supply disruption scenario from 1st April, during the whole summer

- e. Under the assumption of full Russian pipeline supply disruption starting from 1st April and lasting the summer season, storages could only reach a 45% filling level of their total capacity. Most European countries cannot reach the target of an 80% filling level, with a significant difference between European countries. Western European countries may reach 90%, but Eastern European countries would not be able to replenish storages to adequate levels.⁶

⁴ In ENTSOG's model, meeting gas demand (consumption) take priority, and next injections into storages may start to meet the filling targets.

⁵ And also Bulgaria, Latvia and Serbia. See ENTSOG's Summer Outlook 2022, p.20.

⁶ See ENTSOG's Summer Outlook 2022, pp. 4, 20-25. 30% to 60% of storage filling level in 3 European countries (NL, DE, IT) representing 50% of the total European storage capacities, and 5% to 35% filling level in Eastern Europe (LV, PL, CZ, SK, HU, AT, HR, RS, RO and BG).

- f. There are capacity limitations in Central Eastern Europe, in the North-West and in Southern Europe, limiting gas flows from the West to Central-Eastern Europe.
- g. Latvia, Estonia and Finland are exposed to a risk of demand curtailment in case of a full Russian supply disruption; gas from storage should be withdrawn to satisfy the summer demand in Northern and Central Eastern Europe.

Russian supply dependence assessment

- h. Most European countries do not rely on Russian gas during summer to satisfy their demand – not considering the refilling of storages - except Latvia, Estonia and Finland. However, most countries would rely on 20% or 30% of Russian gas to reach respectively an 80% or 90% storage level target on 1 October. The assessment identifies interconnection transmission capacity limitations in Central Eastern Europe as well as infrastructure limitations in the North-West and in the South of Europe preventing gas from alternative sources to flow from Western to Central-Eastern Europe, which would mitigate the dependence on Russian supply.
- i. Imports of alternative supply sources from Turkey to Bulgaria can additionally reduce the dependence of the Balkan⁷ countries on Russian gas.

Inventories of gas storage and needed gas volumes to reach at least 80% storage target

- (7) ACER concurs with ENTSOG that gas storages play a crucial role to balance the European gas system and to cover peak demand during winter. The summer months⁸ provide shippers the opportunity to refill storages before the start of the next winter, usually based on a positive Summer-Winter spread⁹. The role of storages becomes more relevant in a context where the EU indigenous gas production consistently declines year-on-year, increasing the Union gas import dependency from external gas producers. In addition, the Russian aggression of Ukraine brings new gas supply risks, as Russia has provided approximately 40% of the EU gas demand and 45.3% of its gas import needs during the year 2021¹⁰.
- (8) ACER notes that on 1 April 2022, the starting point of the outlook simulations, the storage filling level was at 287 TWh (26% of the total EU-27 + UK storage capacity), which was in the lower range of the past 5 injection seasons. ACER

⁷ EU and some Energy Community Countries like Serbia and Republic of North Macedonia, according to ENTSOG's modelling.

⁸ From April to October in the Outlook, but the end of the injection season may vary per Member State.

⁹ The difference between prices paid for gas in Summer and prices at which gas can be sold in Winter.

¹⁰ REPowerEU Communication: Joint European action for more affordable, secure and sustainable energy, p.1 https://eur-lex.europa.eu/resource.html?uri=cellar:71767319-9f0a-11ec-83e1-01aa75ed71a1.0001.02/DOC_1&format=PDF

agrees with ENTSOG that mild temperatures during the winter 2021/22 combined with higher than normal LNG imports to the Union have allowed for a moderate use of gas storage facilities during last winter¹¹, to finish the winter season with overall sufficient gas in storages in the Union.

- (9) However, this average Union storage filling level of 26% on 1st April shows significant differences across Member States¹². Several countries (Austria, Belgium, Bulgaria, Croatia, Hungary, the Netherlands, Romania and Slovakia), mostly located in Central and South-Eastern Europe and which are generally more dependent on Russian gas, have a storage filling level equal to or less than 20%. On the other hand, Poland, Spain, Portugal and Sweden¹³ have filling levels close to 60% or more. In the case of Spain and Portugal, this can be explained by a lesser dependence on Russian gas and significant LNG capacities, and for Poland by national regulations that require the country to maintain gas in storage¹⁴. In terms of absolute volumes of gas in storages on 1st April, the largest volumes were stored in Italy and Germany¹⁵.
- (10) The Outlook notes that the EU can increase LNG imports up to 80 bcm over the summer season to reduce purchases of Russian gas. ACER notes that to reach this objective, Europe would have to import additional 30 bcm of LNG in comparison to the LNG imports observed in the past years. Attracting this incremental LNG volumes to Europe may be challenging for energy companies in the current context: the global LNG supply is tight and is expected to remain so in the upcoming years in view of limited additional liquefaction projects to become online¹⁶. In the case of countries already receiving significant LNG supplies, most LNG is supplied based on existing long-term contracts which would not be much affected by higher LNG demand and tight LNG market. Political outreach to the main LNG producers should be instrumental to facilitate attracting additional LNG supplies¹⁷, which may take place in form of longer-term contractual arrangements. In addition, additional LNG volumes from existing and future¹⁸

¹¹ ENTSOG Summer Outlook 2022, p. 9. Storages utilization during the winter 2021-2022 is on the lower range. compared to the previous seven years.

¹² Idem, p.10.

¹³ Storage capacity of Sweden is very limited, amounting to only 0.01 TWh of WGV.

¹⁴ In order to ensure continuity of supply and minimize the effects of threat to the state's fuel security, the occurrence of an emergency in the gas network or an unforeseen increase in natural gas consumption

¹⁵ Representing 39% of all gas in storage EU-27+UK on 1 April 2022.

¹⁶ Source: GIIGNL Annual Report, year 2022, p.3.

https://giignl.org/wp-content/uploads/2022/05/GIIGNL2022_Annual_Report_May24.pdf

¹⁷ On 25 May 2022, the Commission announced the set-up of EU Energy Platform Task Force to secure alternative supplies.

https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3299

¹⁸ LNG projects such as: additional FSRU in Eemshaven (NL), FSRU Wilhelmshaven (DE), an additional LNG terminal in Germany (Brunsbüttel) and a second LNG terminal in Poland (Gdansk). Source: REPowerEU Plan, Annex III.

LNG regasification terminals combined with reduced Russian flows will drastically reconfigure gas flows in the European network.

- (11) ACER notes that the necessity to inject gas in storage during the summer period is somehow higher than usual in those countries that are more dependent on Russian gas, which showed on 1st April a lower than usual storage filling level.
- (12) ACER finds that strengthened and soon to be implemented national and pan-EU storage rules¹⁹ will contribute to assuring that gas storages are filled to adequate levels before the next winter starts, even in spite of non-favourable and highly-volatile market signals in the wholesale gas markets²⁰. Preliminary data²¹ until mid-May shows that, should the current trajectory for filling storages continue during the summer, it would be feasible to reach the storage filling targets. The current situation calls for continued vigilance of all actors responsible for security of gas supply. Gas supply needs, flows and storage filling trajectories should be monitored. Events such as operational incidents, halting of gas from major gas suppliers²², accidents in major supply routes or in upstream production sites could limit gas supply to the EU market, creating scarcity, gas prices spikes and, in last instance, forced gas demand curtailments to non-protected customers.
- (13) In addition, Member States may decide to prioritise²³ the gas supply to certain critical gas-fired power plants over the gas supply to certain categories of protected customers, if the lack of gas supply to such critical gas-fired power plants either could result in severe damage in the functioning of the electricity system or would hamper the production and/or transportation of gas. Collecting information on such national measures could help to increase the robustness of the modelling results in a crisis scenario. In this sense, ENTSO-E Summer Supply Outlook for 2022 assesses the critical gas volume for electricity generation in Europe, finding that significant gas volumes are needed for electricity adequacy reasons²⁴.

¹⁹ At EU level, the Council and Parliament reached on 19 May 2022 a provisional agreement on the Commission's proposal of legislation on gas storage.

https://www.consilium.europa.eu/en/press/press-releases/2022/05/19/gas-storage-council-and-parliament-reach-a-provisional-agreement/?utm_source=linkedin&utm_medium=social&utm_campaign=202205119-gas+storage&utm_content=visual

On 29 April 2022, ACER and CEER published a note on the Commission proposal to revise the gas SoS and gas storage Regulation.

https://extranet.acer.europa.eu/Official_documents/Position_Papers/Position%20papers/Regulators%20feedback%20EC%20storage%20regulation%20proposal_final_formatted.pdf

²⁰ Source: ICIS-HEREN, retrieved on 24.5.2022. Forward gas TTF prices for September 2022 are 88.95 €/MWh, and 89.45 €/MWh and 88.20 €/MWh respectively for Q3 2022 and Q1 2023.

²¹ Source: ICIS-HEREN, retrieved on 24.5.2022. Storage on track to meet 90% fullness.

²² Suspension of Russia's Gazprom gas supplies to Bulgaria, Poland, Finland, the Netherlands and Denmark, information, info collected as of 7 June 2022.

²³ According to Article 11(7) of Regulation (EU) 2017/1938.

²⁴ P.19-21 of ENTSO-E's Summer Outlook 2022, and details in the Country Comments.

Supply assumptions

- (14) ENTSOG's summer outlook maximum gas import supply potentials to the EU (namely Algeria, Libya, Norway, Caspian - Azeri, Russia and LNG) are based on a five-year historical availability. The supply availability by different LNG basins is based on the maximum supply potential as defined in ENTSOG's TYNDP 2020. The estimates of EU gas domestic production are provided by the gas TSOs, and represent around 6% of the gas supply to the Union.
- (15) ACER notes that the Outlook conclusions are only valid to the extent to which gas supply from the various sources are available in the volumes used in the simulations, which are based on historically observed volumes over a period of time when no significant supply disruptions occurred²⁵. Then, the modelling approach checks whether the gas transmission network and storages can handle the necessary supply volumes to meet demand and refilling of gas storages. The modelling does not consider whether other supply constraints (e.g. related to gas supply contracts or legal constraints) can be expected, nor what the price effects of limited gas supply might be on the wholesale gas markets.
- (16) ACER notes that supply assumptions for the Outlook are based on historic values and do not seem to have been updated in view of the Russian invasion of Ukraine and other recent developments affecting gas supply²⁶.
- (17) Finally, ACER notes that Table 2 in Annex B (p. 34 in the Outlook) does not show any additional flexibility of gas supply sources. This may not be fully consistent with other analysis undertaken by the Commission²⁷ and International Energy Agency²⁸ which foresee some limited additional pipeline gas supply potential to the Union from sources other than Russia.
- (18) ACER recommends ENTSOG to base gas supply assumptions not only on historical levels but to adapt them, if need be, to significant events occurred in the

https://eepublicdownloads.blob.core.windows.net/public-cdn-container/clean-documents/sdc-documents/seasonal/2022/1_Summer-Outlook-Report_2022.pdf

https://eepublicdownloads.blob.core.windows.net/public-cdn-container/clean-documents/sdc-documents/seasonal/2022/2_Country-Comments_SOR_2022_Winter_Review_2021-2022.pdf

²⁵ In other words, the market should be able to attract these gas volumes in order to meet the scenarios used in the Outlook. Obviously, the prices and conditions to attract these volumes do not correspond to the observations of the last five summers.

²⁶ Source: ICIS-Heren, 11 March 2022. Algeria may prioritise gas volumes to Italy vs. the Iberian Peninsula
<https://www.icis.com/explore/resources/news/2022/03/11/10742974/can-the-eu-reach-its-ambitious-new-targets-to-cut-reliance-on-russian-gas-while-maintaining-energy-security/>

²⁷ REPowerEU Communication, p.6, foresees additional LNG diversification potential of 50 bcm, 10 bcm of pipeline import diversification and 3.5 bcm of biomethane by the end of 2022.

²⁸ The IEA 10-Point Plan to Reduce the European Union's Reliance on Russian Natural Gas of March 2022 estimates around 30 bcm in additional gas supply from non-Russian sources.

<https://www.iea.org/reports/a-10-point-plan-to-reduce-the-european-unions-reliance-on-russian-natural-gas>

past or likely to happen in the future, which possibly have an impact on the gas supply import capabilities and/or strategies of the main gas suppliers to the Union.

Network topology

- (19) ACER welcomes that ENTSOG periodically upgrades the topology of its network model based on capacities provided by TSOs to reflect the firm technical capacities that are offered for the upcoming summer. ACER notes²⁹ that the capacities added by the Gas Interconnection Poland-Lithuania - GIPL, and the Interconnection Greece-Bulgaria were indicated by the TSOs and included in ENTSOG's simulations during summer. ACER encourages ENTSOG to provide more clarity in the Outlook on the timestamp of the network topology, and to list significant capacities added by commissioned projects during the season.
- (20) The war in Ukraine is leading to a significant rerouting of gas across Europe, basically increasing supplies from West to East at the expense of traditional East-West flows. Part of such flow changes could be accommodated by TSOs re-allocating existing transmission capacities to new expected flow patterns. ACER encourages ENTSOG to provide an update of such re-allocated capacities.

Demand assumptions

- (21) ENTSOG forecasts that summer gas demand will increase by 2.2% from the summer of 2022 to reach a level of 10,190 GWh/d, very close to the maximum gas demand levels of the last 10-years summers.³⁰
- (22) ACER understands that ENTSOG's gas demand projections for this Outlook are based on a business-as-usual (BaU) scenario. While part of a high summer gas demand can be explained by the need to refill storages, it is not clear if ENTSOG's gas demand projections consider that sustained high levels of wholesale gas prices are likely to erode gas demand, in particular for energy intensive industries which use gas as feedstock³¹. It is also not clear whether ENTSOG has studied the effect of high gas prices on the demand from gas-fired power plants, as they may be pushed down the merit order by power generators using cheaper fuel (e.g. coal).

²⁹ Based on clarifications provided by ENTSOG.

³⁰ ENTSOG Summer Outlook, p.7.

³¹ IEA Gas Market Report, Q2-2022, p.39 "High gas prices are also set to weigh on industrial gas demand, which is expected to fall close [for 2022] to its 2020 levels".

<https://iea.blob.core.windows.net/assets/cfd2441e-cd24-413f-bc9f-eb5ab7d82076/GasMarketReport%2CQ2-2022.pdf>

Source: Reuters, 22 September 2021. Soaring gas prices ripple through heavy industry,

<https://www.reuters.com/business/energy/soaring-gas-prices-ripple-through-heavy-industry-supply-chains-2021-09-22/>

McWilliams, B. and G. Zachmann (2022) 'The European Union demand response to high natural gas prices', Bruegel Blog, 8 April

<https://www.bruegel.org/2022/04/the-european-union-demand-response-to-high-natural-gas-prices/>

The International Energy Agency (IEA) estimates that European gas demand will fall by 6% year-on-year, with industrial demand expected to fall by 9%³². Moreover, it is not clear if ENTSOG has considered the effect of reducing gas demand and end-user measures as a tool to lower the dependency on Russian gas in the demand projections. The European Commission's REPowerEU communication³³ and the IEA 10-points actions plan estimate a potential gas demand reduction of more than 30 bcm by quickly implementing gas demand savings end-user measures and increased energy efficiency. The European Commission, following a mandate from the European Council, is working on a coordinated EU gas demand reduction plan. ACER is of the view that demand side measures could also play a role in reducing the Union's dependency on Russian gas.

- (23) For future outlooks, ACER recommends ENTSOG to consider to what extent the gas demand figures provided by the gas TSOs are consistent with gas demand estimates from other entities³⁴ and institutions as well as evolving political priorities. In particular, ACER calls on ENTSOG to incorporate measures leading to gas demand reduction in its gas demand projections, linked to the objective to reduce and eventually phase-out the dependency on Russian gas. In case of significant differences between the TSOs' estimates and other estimates of public authorities or reputable entities, ACER recommends ENTSOG to study the reasons and re-adjust the gas demand projections if needed.
- (24) Finally, ACER notes that Annex D (with storage curves, national production and gas demand figures – Data SSO 2022) has not been published with the Outlook.

Treatment of odourised gas in the simulations

- (25) The Outlook scenario of a full disruption of Russian gas investigates the potential impact of short-term and coordinated TSOs' measures to reduce the dependence on Russian supply by introducing a few quick system modifications, maximising the possibility and potentially increasing gas flows from West to East³⁵. This ENTSOG's assessment is based on the "ad-hoc" analysis conducted by European TSOs in very short-term, to provide a first estimation of the actions that can be taken and their possible impact. Short-term and coordinated TSOs' measures would enable interconnection capacities from France to Germany, allowing to flow some odourised gas to Germany in a context of gas shortage. The French and

³² IEA Gas Market Report, Q2-2022, p.39.

³³ 10 bcm by turning down thermostat 1 degree, 4 bcm by rapid instalment of solar rooftops and heat pumps roll out, and 20 bcm by wind and solar front loading deployment.

³⁴ High gas prices are set to weigh on European gas demand in 2022 and European natural gas demand is forecast to decline by close to 6% in 2022.

³⁵ ENTSOG Summer Outlook, pp. 21, 22, 24, 26.

German TSOs investigated technical opportunities for setting a reverse flow limited to 100 GWh/d in summer.

- (26) ACER notes that there are constraints on the acceptance of odourised gas from France to Germany and Belgium due to purity requirements of the latter industrial consumers, and that doubts arise with regards to the feasibility of handling the injection of odourised gas in the German network system, even in a crisis situation. ACER acknowledges that reverse flows could potentially improve the preparedness for a full disruption of Russian gas and help diversify away from Russian gas. ACER calls on ENTSOG and TSOs to give priority, in coordination with national authorities and end-users, to conduct a detailed analysis of the feasibility of implementing reverse flows and needed investments and adaptations, considering ways to overcome legal and technical provisions on the acceptability of odourised gas in Germany and other countries, especially in storages and in sensitive industrial processes. Alternatively, dedicated interconnection capacities for non-odourised gas and/or adaptations to odorization practices in France may increase the interoperability of gas flows between concerned countries.

Disruptions and dependence on Russian gas

- (27) ACER appreciates ENTSOG's investigation of the potential impact of the Belarus and Ukraine supply route disruptions during 6-months starting from 1 April. It notes that the simulations show no risk of gas demand curtailment³⁶ and that Europe can reach 84% of its total storage capacity. Alternative gas import routes, LNG terminals and internal cross-border interconnections would be used at their maximum, including those from Belgium to Germany, Belgium to the Netherlands and France to Switzerland.
- (28) ACER finds relevant ENTSOG's assessment of a potential supply disruption of all the gas import pipeline routes from Russia during 6-months starting from 1 April, even if this disruption scenario is not defined in the security of gas supply Regulation. ACER notes that in such a scenario, gas import pipeline routes of Norwegian and Azeri gas (from Turkey to Greece) as well as several internal cross-border interconnection and LNG terminals in Croatia, Italy, Lithuania, the Netherlands and Poland would be used at their maximum capacity. Finland, Estonia and Latvia would be exposed to demand curtailment. European storages show notable differences depending on the historic share of Russian gas, with Western countries being able to reach a 90% storage level by the end of summer, and Eastern countries not being able to reach a 30% storage filling level.

³⁶ ACER notes that the map in Figure 15 shows Finland, Estonia and Latvia in red or orange. ENTSOG has acknowledged that there is a typo in this map, and that there is no risk of demand disruption.

(29) ACER welcomes ENTSOG’s analysis of the dependence and impacts on Russian gas for better preparedness for the winter, which shows the minimum dependence of the different Member States’ networks on Russian gas supply to satisfy summer demand and filling storages to the 90% target. This analysis shows that the EU gas system, without any Russian pipeline gas, can rely on alternative gas supply sources to fill the storages up to 50%- 55%, showing a marked short-term dependence on Russian gas of at least 20% to meet the 80% storage level for the next winter, increasing to 30% for a 90% storage filling level target. At Member State level, the simulations show significant geographical differences, being the share of Russian gas necessary to meet a 90% storage level on 1 October over 80%³⁷ in Sweden, Denmark³⁸ and several Central Eastern countries (e.g. Poland, Czech Republic, Slovakia, Hungary, Croatia, Romania and Serbia).

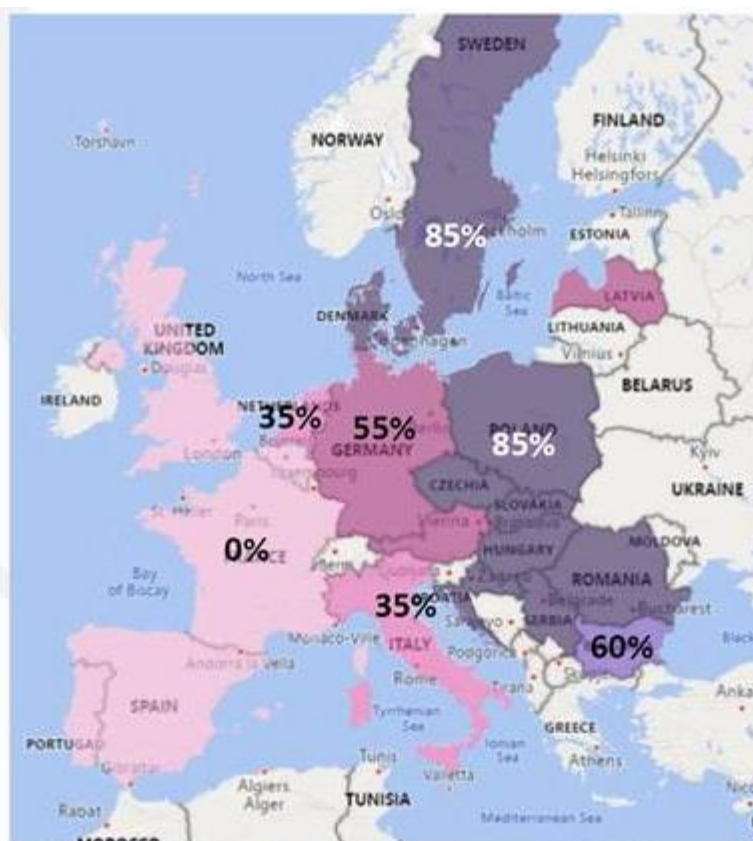


Figure 1 - MS dependence on Russian Gas - Share of Russian gas to meet 90% storage level on 1st October. Source: ENTSOG, Figure 22

³⁷ ENTSOG Summer Supply Outlook 2022, p.26, Figure 22.

³⁸ The Danish NRA (DUR) has expressed concerns about the correctness of ENTSOG’s analysis as regards Denmark and Sweden, which are supplied during the summer from Germany and domestic production. Danish annual biomethane production covers approximately 25-30 % of annual Danish consumption. Hence, in DUR’s view that storage filling dependence of Denmark and Sweden on Russian gas should be less than for Germany.

- (30) In the context of the Russian invasion of Ukraine and the Union plans to reduce its dependency on Russian gas, ACER finds that ENTSOG's analysis and simulations valuable to improve the preparedness for the next winter season and beyond. However, ACER stresses that the simulations are based on a set of assumptions. Therefore, they cannot be considered as a forecast, as also pointed out by ENTSOG. ACER points out to the following assumptions as providing uncertainty with respect to the interpretation of the simulation results:
- a. The modelling assumes a cooperative behaviour among Member States³⁹.
 - b. The modelling does not consider gas supply contractual or legal constraints for pipeline and LNG supplies, as ENTSOG supply potentials are aggregated for Europe based on historical supply volumes by main gas sources.
 - c. The modelling does not consider the role of gas prices, infrastructure tariffs and a possible gas demand responsiveness, in particular of industrial consumers and gas-fired power plants to a sustained high price environment. A consequence of not considering this possible gas demand responsiveness to prices is a faster move to demand curtailments in the Outlook than would occur.
 - d. The modelling objective function of the simulation targets to fill storage by 1st October, while the storage filling season ends in November⁴⁰ or latter in several Member States.
 - e. The disruption scenarios have been performed on 1 April, assuming a full supply disruption starting on 1 April. However, as of 14 July no EU-wide gas supply disruption has been observed⁴¹. This means that, as time passes during the injection season, the overall storage filling targets become more achievable.

³⁹ In principle, highest level of preparedness on the EU level can be achieved by MSs cooperating in a coordinated manner, yet constraints to cross-border flows could manifest in a crisis scenario. The Agency notes the importance of solidarity, cooperation, exchange of information and coordinated MS actions for a better preparedness and management of a gas crisis at EU level.

⁴⁰ There is no a strict end of the filling season but there are storage obligations with deadlines before the start of winter. E.g. in Germany, the law requires a filling level of 90% by 1st November; in Hungary, injection season ends by 30 September; in Belgium, a filling level of 90% on 1 November is required; in Spain, the adapted regulation (Royal Decree – Law 6/2022) requires a filling level of 80% by 1st November but historically the storage injection cycle finishes in October; in Italy, by 31st October; in Poland, the end of the injection season depends of the type of reservoir, beginning not earlier on 1st September and no later than on 16 November; in salt cavern storages physical injection may be performed during the whole year; in Croatia, the gas storage system has to be filled up to 90% by 1st Nov.

⁴¹ However, as of 27 June 2022, Russian gas supply has been significantly reduced or halted to Poland, Bulgaria, Finland, Netherlands and Germany.

- f. The modelling of LNG import mix simplifies the dynamics of the global LNG market⁴².
- (31) Therefore, the results of the simulations, risks and impacts in ENTSOG's summer outlook should be considered with caution and dynamically in view of more recent events. The analysis of ENTSOG's Outlook simulations should be complemented with other analyses performed at EU, regional and national level (e.g. updated risks assessments) to have the best possible up-to-date information on the gas supply risks.
- (32) In particular, ACER finds it important that the ENTSOs coordinate the set of input assumptions and output results used for the seasonal outlooks in order to provide consistent results. The interrelatedness applies especially to ENTSO-E's seasonal adequacy outlook, which assesses if expected availabilities of power supply (and transmission) infrastructure are sufficient to ensure electricity adequacy. Thus, the ENTSOs respective seasonal assessments should be consistent regarding, for example, the assumptions towards the gas demand from the electricity sector and, on the other hand, the gas supply made available to electricity power plants. It is more important than ever that the ENTSOs continue working together closely in the determination of the gas volumes needed for operating critical gas-fired power plants as well as critical electricity facilities for the gas system (e.g. electricity driven compressors).

Infrastructure to reduce dependence

- (33) ENTSOG has identified transmission capacity limitations to move gas from West to East in case of disruption scenarios of Russian pipeline gas, which hamper most Central Eastern European countries to reach the storage filling targets in preparation for the next winter. ENTSOG has identified possible short-term preparedness actions of the gas TSOs to enhance cooperation for better preparedness between Member States.
- (34) ACER takes notes of ENTSOG short-term preparedness and coordinated TSOs' measures, but it considers that additional studies should be developed to identify and quantify the concrete investments needs, with a focus on enabling West to East gas flows and the creation of routes from littoral Member States with LNG terminals (permanently moored or FSRUs) to landlocked ones depending highly on Russian gas. Such investment plans should be made available to decision-makers, including a cost-benefit assessment of the project proposals. ACER finds not surprising the existence of internal EU bottlenecks to reduce and phase out dependency on Russian gas and expects a more detailed assessment of ENTSOG of the detected internal bottlenecks in terms of importance of the individual

⁴² E.g. by considering LNG as one gas source independently of the various LNG suppliers. The Russian supply disruption scenario considered the disruption of Russian pipeline gas and not Russian LNG.

congestion points. Furthermore, the assessment should start by considering which bottlenecks could be alleviated by re-allocating existing capacities, since in some instances part of the available capacities which are no longer needed to accommodate traditional gas flows could be re-allocated to accommodate new gas flows. This should be much faster to implement since it does not require new investments.

Summer Supply Review for 2021

- (35) ACER welcomes ENTSOG's Summer Supply Review 2021, which is prepared by ENTSOG on a voluntary basis. The report is published along with the Summer Supply Outlook 2022 and provides valuable insights (wholesale gas prices, demand and supply) into relevant facts, figures and trends during the last summer. ACER considers insightful the main findings of the review, namely that seasonal gas demand in Europe in the summer of 2021 increased due to a recovery of the European economy, that gas prices were at their highest levels in the last 10 years, while gas in storage reached the lowest levels of the last 6 summers by the end of September with a 75% filling rate.
- (36) ACER would welcome if ENTSOG could indicate which particular insights from the review will be taken on board in the next outlook. For instance, the more market-oriented discussion of gas flows and wholesale prices in the review is appreciated, and prices could play a more prominent role in the Outlook assessments.

Monitoring tools of gas supply situation

- (37) ACER praises ENTSOG for developing monitoring tools and initiatives beyond its legal tasks, which provide real value for monitoring the gas security of supply situation, such as the European gas flow dashboard⁴³, Seasonal Supply Outlook Monitoring⁴⁴, and the support to Gas Coordination Group assessments. ACER encourages ENTSOG to continue making these monitoring tools operational, which are really valuable for having accessible updated information on storage filling levels and the operation of the gas system.

Implementation of previous ACER recommendations

- (38) ACER finds no reference in the Outlook as regards possible implementation of its previous recommendations on seasonal outlooks, namely: consider using a

⁴³ <https://gasdashboard.entsog.eu/>

⁴⁴ <https://app.powerbi.com/view?r=eyJrIjoiYTtk3YjJhZmQtYTRjZS00NmNkLWlxZDUtYmU2MGE5NWE3ZGU1IiwidCI6IjgxdDU4NGZkLTY5ZjktNDEzNy1hNmExLWwZTMzMjgwYjE1YyIsImMiOiJh9&pageName=ReportSection>

scenario based on expected gas supply and booked capacities; studying first in view of the current environment of extremely high prices the gas demand responsiveness to prices, and in view of the outcomes of such study, consider embedding gas price demand responsiveness in the Outlook⁴⁵. ACER acknowledges ENTSOG's efforts and additional analysis in the current summer outlook, but it firmly believes that further improvements would be instrumental to better identify potential risks to which Member States would be exposed in case of a tight gas supply situation, including exposure to very high wholesale gas prices.

- (39) ACER finds that, in view of the current context, ENTSOG should devote the necessary resources to improve, even further, the methodology for the security of gas supply and preparedness assessments. ENTSOG has a mandate under EU regulations to perform these tasks and should count with sufficient resources and the best available modelling capabilities given the high relevance of its assessments and information,

HAS ADOPTED THIS OPINION:

1. ACER finds that ENTSOG' Summer Supply Outlook 2022 meets the objectives of Regulation (EU) 2019/942 and Regulation (EC) No 715/2009 in terms of contributing to non-discrimination, effective competition and the efficient and secure functioning of the internal natural gas market. ACER's main conclusions are the following:

Scope of analysis and timely publication

2. ACER welcomes ENTSOG's timely publication of the Summer Supply Outlook 2022. ACER appreciates that the scope and methodology of the Outlook has been expanded to consider the Russian invasion of Ukraine and the possible repercussions for risk preparedness in the Union.
3. ACER appreciates the investigation of the potential impact of supply pipeline route disruptions during 6 months, which includes the analysis of a full disruption of pipeline gas import routes from Russia as well as a partial disruption of some routes. ACER commends ENTSOG for assessing the dependence of the EU on Russian supply to satisfy gas demand, as well as the impacts of a possible long-term supply disruption of Russian gas during the summer. However, ACER notes that the assessment is based on a set of assumptions which may differ from real conditions, and recommends that the summer outlook findings are considered with caution and dynamically in view of more recent events impacting the summer season.
4. ACER notes that the necessity to inject gas in storage during the summer period is generally higher than usual in those countries that are more dependent on Russian gas, which showed a lower than usual filling level on 1st April. The Outlook notes that the EU

⁴⁵ ACER Opinion No 11/2021 on ENTSOG Winter Supply Outlook 2021/2022, p.8.

gas infrastructure can increase LNG imports up to 80 bcm over the summer season, a level of imports significantly higher than the average of 50 bcm observed in the past years. ACER takes note that according to the Outlook simulations the dependence of the EU gas infrastructure system on Russian gas is at least 20% to meet the 80% storage level by the start of next winter 2022/23. Therefore, selected reinforcements of the EU infrastructure may be needed to offer sufficient infrastructure capacities to enable less than 20% of Russian pipeline gas supplies in pursuit of the phase-out of Russian gas imports.

Vigilance for storage fillings during summer

5. Strengthened national regulations and pan-EU storage rules for storages should contribute to secure that gas storages are filled to adequate levels before the beginning of the upcoming winter, even despite unfavourable market signals in wholesale gas markets. The current situation calls for continued vigilance of all actors responsible for security of gas supply, and regular monitoring of storage filling trajectories beyond the assumed availability of maximum import flows and injections during past injection seasons. ACER praises ENTSOG for developing tools and initiatives beyond its legal tasks which provide real value for monitoring the gas security of supply situation.

Supply potentials and demand estimates

6. The Outlook supply assumptions are based on historical volumes and, with the exception of gas supply disruption from Russia, do not consider whether other supply constraints (e.g. related to gas contracts or regulatory constraints) can be expected, nor what the price effects of limited gas supply might be in the wholesale gas markets and consequently on demand patterns. ACER recommends ENTSOG to base gas supply assumptions not only on historical levels but to adapt them, if need be, to significant events occurred in the past or likely to happen in the future, which may have an impact on the gas supply capabilities and/or strategies of the main gas suppliers to the Union.
7. ACER finds that ENTSOG uses high gas demand projections in this outlook. It is not clear if ENTSOG' gas demand projections have considered that sustained high level of wholesale gas prices are likely to erode gas demand in particular for industries. ACER calls on ENTSOG to incorporate the effects of gas demand and end-user measures to reduce dependency on Russian gas in its demand projections, in line with the objective to reduce and eventually phase-out the dependency on Russian gas.

Treatment of odourised gas

8. ACER notes that there are constraints on the acceptance of odourised gas from France to Germany and Belgium due to purity requirements of industrial consumers and that doubts arise as the feasibility of handling the injection of odourised gas in the German network system, even in a crisis situation. ACER calls on ENTSOG and TSOs to give priority, in coordination with national authorities and end-users, to conduct a detailed analysis of the feasibility of implementing reverse flows and needed investments and adaptations, considering ways to overcome legal and technical provisions on the acceptability of odourised gas and/or dedicated interconnections for non-odourised gas, and/or adaptations tot the odorization practices in France.

Infrastructure to reduce dependence on Russian gas

9. ENTSOG has identified transmission capacity limitations to move gas from West to East in case of disruption scenarios of Russian pipeline gas, which may hamper most Central Eastern European countries to reach the storage filling targets in preparation for the next winter. ENTSOG has identified possible short-term preparedness actions of the gas TSOs which can allow for a more even distribution of gas filling levels in the Union. ACER considers that additional studies should be carried out to identify and quantify concrete investments and costs associated with a focus on enabling West to East gas flows and access to LNG supplies for landlocked Member States highly depending on Russian gas. This assessment should start from the possibilities to re-allocate existing capacities in view of new expected gas flow patterns, as such solutions are both faster and cheaper than new investments.

Improvements to the simulations methodology

10. ACER reiterates its previous recommendations on the seasonal outlooks aimed at improving the simulations: consider using a scenario based on expected gas supply and booked capacities; and study in view of the current environment of extremely high prices the gas demand responsiveness to prices, and in view of the outcomes of such study consider embedding gas price demand elasticity or responsiveness in the Outlook. ENTSOG has a mandate under EU regulations to perform several gas security of supply tasks, and should count with sufficient resources and the best available modelling capabilities given the importance of its analysis.

Interpretation of the simulation results

ACER stresses that ENTSOG's simulations are based on a set of assumptions and cannot be considered as a forecast, as also pointed out by ENTSOG, and that the primary aim of the outlook is an assessment of the readiness of the gas infrastructure. ACER has identified underlying assumptions and factors providing uncertainty with respect to the applicability of the simulation results. Therefore, the results of the simulations, risks and impacts in ENTSOG's summer outlook should be considered with caution and dynamically in view of more recent events impacting the summer season. ENTSOG's simulations should be complemented by other analyses performed at EU, regional and national level (e.g. updated risk assessments) to have the best possible information on the supply risks. In this respect, ACER also highlights the importance of close cooperation between ENTSOG and ENTSO-E to ensure, where relevant, consistent assumptions and results in their respective seasonal assessments.

This Opinion is addressed to ENTSOG.

Done at Ljubljana, on 14 July 2022.

- SIGNED -

*For the Agency
The Director*

C. ZINGLERSEN