

**OPINION No 11/2021
OF THE EUROPEAN UNION AGENCY
FOR THE COOPERATION OF ENERGY REGULATORS**

of 16 December 2021

on ENTSOG's Winter Supply Outlook 2021/2022

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 15 December 2021, delivered pursuant to Article 22(5) of Regulation (EU) 2019/942,

Whereas:

1. INTRODUCTION

- (1) On 12 October 2021, the European Network of Transmission System Operators for Gas ('ENTSOG') published the Winter Supply Outlook 2021/2022 ('WSO 2021/2022')¹ 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) of Regulation (EC) No 715/2009, as submitted to ACER pursuant to Article 9(2), first subparagraph, of Regulation (EC) No 715/2009.

¹ https://www.entsog.eu/sites/default/files/2021-10/SO0032-21_Winter%20Supply%20Outlook_2021-22.pdf

2. SUMMARY OF THE DOCUMENT

- (3) In the WSO 2021/2022, ENTSOG undertakes an assessment of the resilience of the European gas network² for the upcoming winter (October 2021 to March 2022). ENTSOG's analysis investigates the ability of the gas infrastructure to dispatch the necessary supply volumes to meet gas demand, and especially to deal with high demand situations, provided that gas supply is available. The Outlook is based on assumptions of gas supply potentials based on historical gas supplies during the last 10 years, and it looks into the possible evolution of gas supplies and underground gas storage (UGS) utilisation levels during the upcoming winter withdrawal season. ENTSOG's modelling simulates the ability of the gas infrastructure system to ensure supply and demand adequacy under a "reference" and a "cold" winter at the end of the winter season (mid-February). In addition, the WSO simulates and "stresses" the gas infrastructure under two scenarios of high demand linked to cold weather at the end of the winter season, namely under a "peak day" and a "2-week cold spell", plus disruptions of major routes of gas supply to the European Union³. Annexes A-D to the Outlook provide additional analyses of the assumptions and the simulations.
- (4) ENTSOG has also reviewed and published a report on the European gas supply and demand for the past Winter 2020/2021⁴, which aims to provide an ex-post analysis of the gas demand and supply in the previous seasons. The report is published on voluntary basis along with the WSO 2021/2022.

3. ASSESSMENT OF THE DOCUMENT

- (5) ACER welcomes the timely publication of the WSO 2021/2022 and accompanying documents ahead of the winter season, especially in view of a winter where supplies may be tighter than usual. ACER appreciates the analysis of the historical gas supply and demand patterns, as well as of the evolution of storage levels for the upcoming winter resulting from the assumptions and simulations contained in the Outlook.

ENTSOG main findings and framework of analysis

- (6) ACER takes notes and underlines the importance of the following conclusions contained in the WSO 2021/2022:
- a. The EU storage level on 1st October 2021 (831 TWh⁵, 75% of overall storage capacity) is one of the lowest in recent years, with varying situations among countries going from 50% in Portugal and 53% in Austria to 91 % in Croatia

² Including some non-EU countries. For details, see WSO 2021/2022, p.14

³ In particular, the routes considered to assess the disruption of gas supply scenario are: Ukraine, Belarus, Baltic States and Finland, Algerian pipes and LNG.

⁴ https://www.entsog.eu/sites/default/files/2021-10/SO0032-21_Winter%20Supply%20Review%202020-21.pdf

⁵ This total includes 9.4 TWh of gas in storage in the UK.

and 96% in Poland⁶. This is primarily due to a record high use of storage flexibility during the previous winter 2020/2021 and a low injection during the summer with record-high wholesale gas prices.

- b. The European gas infrastructure offers sufficient flexibility to dispatch the necessary supply volumes to meet demand in Europe, assuming that gas is imported by the market in similar volumes as in recent years. However, in case of a cold winter, the gas market would need to increase imports from pipelines and/or LNG by 5% to 10% compared to the maximum volumes observed in recent years.
- c. Early and significant gas withdrawals from storages would result in low storage levels at the end of the winter season. Such low level of gas inventories may have a negative impact on the flexibility of the gas system to meet demand and can increase the exposure to demand curtailment in selected regions during the latter part of the winter season.
- d. South-Eastern Europe has significantly reduced its exposure to demand curtailment following the commissioning of new infrastructures, such as the Trans Adriatic Pipeline, Turk stream and other investments⁷. However, countries in the risk group Ukraine⁸ could be exposed to demand curtailment in case of extremely low temperatures combined with import route disruptions of Russian gas via Ukraine. Countries in the risk group formed by Estonia, Finland, Latvia, and Lithuania could be exposed to demand curtailment in case of extremely low temperatures combined with import route interruptions from Russia.

(7) As in previous seasonal outlooks, ACER notes that the modelling approach assumes that imported gas supplies will be available to serve demand under the assumption of available “additional flexibility” per supply source within the limits of historically observed maximum flows. Thus, the modelling is aimed to check whether the gas transmission network and storages can handle the necessary supply volumes to meet demand, including by withdrawing gas from storage. It does not consider whether supply constraints can be expected, nor what the price effects of limited supply might be.

⁶ WSO 2021/2022, p. 17. For an updated view of the storage level, please consult the Aggregated Gas Storage Inventory at GIE AGSI+: <https://agsi.gie.eu/>. ACER notes that data in Figure 11 does not allow to reproduce the gas in storage level of 831 TWh for the EU-27 and the UK (sum of data in Figure 11 leads to a value of 821 TWh).

⁷ Ibid, p.31.

⁸ Austria, Bulgaria, Croatia, Czech Republic, Germany, Greece, Hungary, Italy, Luxembourg, Poland, Romania, Slovenia and Slovakia.

The role and level of inventories in gas storage

- (8) ACER concurs with ENTSOG that gas storages play an important role to balance the European gas system and to cover peak demand during winter. The role of storages becomes more relevant in a context where the EU indigenous gas production consistently declines year on year, increasing the gas import dependency from external gas producers to the EU. ACER notes that the storage inventory level on 1 October 2021 is one of the lowest of the past 9 years. This is primarily due to a low storage level at the end of last winter, combined with a storage injection season characterised by extremely high gas wholesale prices which did not incentivise market participants to store as much gas for this year in comparison to previous years⁹.
- (9) ACER notes that varying stock levels across Member States may be explained by the type of access regulations to storage¹⁰ and differences in storage obligations. Gas storage regulation in the EU differs between Member States. Two main categories of storage regulations can be distinguished: a pure market-based approach or some type of regulatory intervention, in the form of revenue reconciliation, storage obligations or strategic storage. In comparison to the previous years, Austria, Germany, the Netherlands, all of which opted for a market-based approach, have a lower than usual storage level. In these countries, the low filling levels of large UGS facilities under the ownership or contractual control of Gazprom Export are the main driver of a lower than usual storage level¹¹.
- (10) ACER notes that the winter supply modelling assumptions correctly take into account that the storage withdrawal capacity depends on the filling level, since the deliverability of storage is significantly reduced at low filling levels¹². ACER appreciates the inclusion in the WSO 2021/2022 of an additional sensitivity analysis of the final storage level at the end of the winter, which interacts with the gas supply imports possibilities to meet gas demand. ACER underscores ENTSOG's conclusion that in case of a cold winter, gas import needs for the EU and the UK could be 5% to 10% higher than observed in the recent years. ACER believes that this need for additional imports of 5% to 10% in case of a cold winter raises a price risk concern (in the form of exposure to unprecedented high scarcity prices on the wholesale markets) to the extent that these additional import needs require new (short-term) gas piped or LNG sourcing contracts.

⁹ For an overall assessment of the reasons, see ACER's note on High Energy Prices, p.5 https://documents.acer.europa.eu/en/The_agency/Organisation/Documents/Energy%20Prices_Final.pdf

¹⁰ WSO 2021/2022, p. 17.

¹¹ As of 4 November 2021, the % filling storage level of UGS Haidach - GSA (AT) is 2%, UGS Haidach - Astora (AT) 55%, UGS Rehden (DE) 9.5% and UGS Bergermeer (NL) 30%. However, the average % filling storage level is 56% in Austria, 71% in Germany and 58% in the Netherlands. Source: GIE AGSI+ platform, accessed on 4 November 2021.

¹² WSO 2021/2022, p.21.

- (11) ACER welcomes ENTSOG's intention to monitor the evolution of the storage levels and import volumes throughout the upcoming winter and to report on the situation on regular basis and if serious anomalies are identified. In addition, ACER highlights the critical importance of counting with adequate storage levels at the end of the winter season to cover still possible high demand or system stress situations.
- (12) ACER concurs with ENTSOG that early and significant withdrawal from storages will have a negative impact on the flexibility of the gas system and can increase the exposure to supply risks towards the end of the winter. As the actual use of imports and/or storage is eventually determined by market participants, ACER expects storage users to prudently withdraw gas from storage. Furthermore, ACER calls on national competent authorities to monitor appropriately and take available measures to favour a gas withdrawal pattern that would safeguard the continuity of gas deliveries during the entire winter, in compliance with contractual and storage obligations, where applicable.

LNG as a critical import flexibility source for this winter

- (13) ACER concurs with ENTSOG that, historically, additional gas supplies for winter come from gas storages¹³, LNG and imports from Russia, as these are the main sources with significant flexibility potential. The low stock in storage combined with limited contract flexibility in gas pipeline imports from major sources may require market participants to have recourse to additional LNG imports to cover gas demand during the upcoming winter. Those critical LNG imports would probably be highly priced, based on market expectations.¹⁴ LNG tanks from LNG regasification terminals would offer additional short-term flexibility to cover the peak-demand and short-term cold spells, but their potential is limited¹⁵.
- (14) The WSO 2021/2022 states that LNG regasification terminals in the EU would have sufficient spare send-out regasification capacity to receive additional LNG imports. However, varying margins of spare send-out capacity exist per Member State and across LNG terminals. In addition, possible constraints in the programming of ship scheduling in some LNG terminals cannot be ruled out. ACER notes that the arrival of LNG cargoes to EU LNG terminals would be a commercial decision, since the LNG market is global and spot LNG cargoes will be destined where demand is willing to pay the highest price.

¹³ UGS withdrawals account to approximately 20% of the EU and UK gas consumption of the winter season.

¹⁴ Source: ICIS-HEREN gas TTF future prices. As of 26 October, forward curves for gas wholesale contracts delivered for November and December 2021 and Q1 2022 show high-record prices (values surpassing 85 €/MWh on Dutch TTF).

¹⁵ WSO 2021/2022, p.47.

High demand simulations and supply route disruptions

- (15) ACER welcomes that the disruption scenarios considered in the winter Outlook are aligned with the Security of Supply Simulations Report¹⁶. It notes that ENTSOG includes in its assessment gas supply disruption scenarios for the following gas supply routes: Ukraine, Belarus, the Baltic States and Algerian production under peak and cold spell situations.
- (16) The WSO's simulations show that gas infrastructure is resilient enough and no country is exposed to demand curtailment in case of a normal or cold winter. ACER considers that this is in line with expectations, since the gas network should be designed and developed to cope with scenarios of cold weather. In addition, significant investments to make gas infrastructure more resilient, including reverse flow projects, have taken place during the last decade.
- (17) As regards supply disruptions, ACER notes that in case of a Ukrainian transit disruption, infrastructure recently commissioned¹⁷ significantly improves the situation in South-East Europe (SEE), almost fully mitigating the exposure to demand curtailment. In a "peak day" with a storage filling level of around 40%, a few countries in the risk group for SEE would be exposed to a 2% demand curtailment, which could be mitigated by gas demand side reduction in response to high gas wholesale prices due to the supply disruption. With lower stock levels in gas storage, the demand curtailment rate would increase. In case of a disruption of Russian imports to the Baltic states and Finland, although the situation has slightly improved since last winter, in case of a "peak day" or a "2 week cold spell", the Baltics states and Finland¹⁸ are exposed to a significant level of demand curtailment (17% to 77%) due to limited LNG regasification capacities in the region and lack of interconnection with the rest of continental EU¹⁹.

¹⁶ https://www.entsog.eu/sites/default/files/entsog-migration/publications/sos/ENTSOG%20Union%20wide%20SoS%20simulation%20report_INV0262-171121.pdf

¹⁷ See paragraph 6 - d.

¹⁸ In Finland, the majority of gas is consumed at large industrial and energy production plants. In these plants, gas may easily be replaced by oil, as in Finland these plants have a legal obligation to store oil. The remaining consumption of gas which cannot be replaced by oil may be replaced by LNG imports. Additionally, the large Incukalns Underground Gas Storage (UGS) in Latvia may be used for sourcing gas in cases of eastern supply interruptions.

¹⁹ This situation will improve once the gas interconnection Poland-Lithuania (GIPL) will enter into operation, which is foreseen by Q3 2022.

Main risk factors for upcoming winter

- (18) ACER notes with concern the presence of specific risk factors for the upcoming winter season: a historically low level of gas in storage in the EU²⁰, uncertainty on the availability of additional volumes from major sources of gas imports going beyond the contracted/booked volumes, and a strong demand from Asia as main driver of upwards global LNG prices and impacting the price of LNG imports to the EU. In addition there are changes and uncertainty on the renewal and use of some gas import routes to the EU²¹.
- (19) This situation calls for a higher vigilance with respect to gas supply needs beyond the assumed availability of maximum import flows in the past. Events such as a colder than usual winter, virulent cold spells, operational incidents, accidents in major supply routes or in upstream production sites could limit gas supply to the EU market, possibly driving gas prices to new record levels. ACER observes that supply scarcity would firstly impact wholesale gas prices leading to some demand reduction, in particular for industrial consumers, and that involuntary demand curtailment would be a last resort emergency measure. However, the WSO makes abstraction of price impacts, which explains the appearance of demand curtailments in case of supply disruptions.
- (20) Even if sufficient gas infrastructure is in place in the Union, wholesale gas price spikes in turn may have repercussions on the wholesale electricity price, in particular in those Member States where gas-fired power plants are generally setting marginal prices in the electricity markets.²²

A partial assessment of the gas supply outlook which focuses on gas infrastructure capability

- (21) ENTSOG rightly acknowledges that the WSO is an assessment of the readiness of the gas infrastructure to manage the upcoming winter season under different scenarios, while it is not a forecast of the expected gas supply situation²³. The actual utilisation of the gas infrastructure, including the development of the gas storage levels, will be determined by decisions of market participants. Therefore, the WSO is basically an evaluation of the resilience of the gas network infrastructure.

²⁰ A comparison of storage capacity in absolute level would lead to a different result, since storage capacity has gradually increased in Europe over the last 10 years.

²¹ E.g. End by 31 October 2021 of the transit agreement for the GME pipeline, which brought gas from Algeria to Spain through Morocco (which is compensated by an increase of transmission capacity and capacity booked at Medgaz, the pipeline connecting Algeria to Spain, as well as an increase in LNG imports); or the availability of the Nord Stream 2 pipeline.

²² Add reference to ACER's November assessment of high energy prices

²³ Winter Supply Outlook 2021/22, p.5.

- (22) However, ACER notes that market liquidity would be affected if the network infrastructure is there, but the market is not able to procure sufficient gas in response to price signals.

Consider using a scenario based on expected gas supply and booked capacities

- (23) ACER notes that the conclusions from the WSO are only valid to the extent to which gas supply from the various sources would actually be available in the volumes used for the purpose of the model simulations. Those are based on historically observed volumes over a 10-year period, when no significant market difficulties to import additional gas flows occurred. ENTSOG should explore complementing scenarios based on past supply patterns with gas supply scenarios based on projections of gas supply availability and expected use of main infrastructure routes by main users of transmission and LNG infrastructure, which would make the analysis more pertinent for the upcoming winter. ACER notes that the current WSO framework needs some methodological adaptations in order to integrate the expected dynamics of gas supply. The WSO could consider an additional scenario based on already booked import capacities for the upcoming winter as minimum import potential at the EU borders. Additional import flows would result from the need to book new short-term gas capacities to meet demand.

Consider embedding gas price demand elasticity in the modelling

- (24) ACER understands that the expected level of wholesale gas prices does not play a role in ENTSOG's WSO assumptions and simulations. In contrast, ENTSOG acknowledges that, in practice, a reduction of demand is observed in case of risk of high prices, and that due attention should be given when interpreting the risk of demand curtailment²⁴. In this respect, expected high levels of wholesale gas prices signal scarcity which may, as shown by the recent developments, reduce gas demand, in particular for the industry, before involuntary curtailments would happen. ACER calls on ENTSOG to consider embedding in the modelling approach the gas price demand elasticity, the role of wholesale gas prices and the potential of demand response²⁵.
- (25) ACER firmly believes that improvement in the WSO assumptions and methodology would be instrumental to better identify potential risks to which Member States would be exposed in case of a tight gas supply situation, triggering timely anticipatory measurements. ACER encourages ENTSOG to consider developing, in consultation with stakeholders, such improvements for future Outlooks.

²⁴ Ibid, p.25.

²⁵ I.e. the reduction of gas demand in case of very atypical high gas prices, a phenomenon which is likely to occur and possible to model, although challenging to quantify.

Winter supply review 2021

- (26) ACER welcomes ENTSOG's Winter Supply Review 2020/2021. The review presents relevant facts and figures regarding wholesale gas prices, demand and supply during the last winter. ACER understands that the WSO is mainly developed for extremely uncertain situations, while the observed winter 2020/2021 was rather average. The review mainly compares the last winter with previous ones, but it does not dwell on the comparison of observed figures in last winter period with the outlook projections. ACER reiterates that ENTSOG's document should put more focus on the comparison of the review with the outlook to draw conclusions and improve, where relevant, the approach followed for the WSO,

HAS ADOPTED THIS OPINION:

1. ACER is of the view that ENTSOG' Winter Supply Outlook 2021/2022 contributes to 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.
2. ACER notes with concern that in case of a cold winter, the gas market would need to increase gas imports from pipelines and/or LNG by 5% to 10% compared to maximum volumes observed in recent years. The required additional import volumes may pose a price risk, in the form of exposure to unprecedented high wholesale gas prices.
3. ACER welcomes ENTSOG's intention to monitor the evolution of the storage levels and import volumes throughout the upcoming winter and to report on the situation on a regular basis and when anomalies appear.
4. ACER highlights the critical importance of counting with adequate storage levels towards the end of the winter season to cover for possible high demand or system stress situations. Early and significant withdrawal from storages would result in low storage levels at the end of the winter season, with a negative impact on the flexibility of the gas system in terms of available gas in storage as well as withdrawal capacity. Therefore, ACER expects storage users to prudently withdraw gas from storage and national competent authorities to monitor appropriately to favour a withdrawal pattern that would safeguard the continuity of gas deliveries throughout the whole winter in compliance with the contractual commitments and storage obligations, where applicable.
5. ACER notes the existence of specific risk factors²⁶ for the upcoming winter season, not always factored into or mentioned in the WSO. ACER calls on ENTSOG and all actors with responsibilities regarding the gas supply continuity and price monitoring to remain vigilant for the upcoming winter to those risk factors.

²⁶ See paragraph 18 of the Opinion, main risk factors for upcoming winter.

6. ACER firmly believes that improvement in the WSO assumptions and methodology 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. ACER encourages ENTSOG to consider improving the WSO assumptions and methodology in particular by using a complementary scenario based on expected gas supply and booked capacities to the current scenarios based on historical values, and to study embedding expected gas prices and gas price demand elasticity in the modelling.

This Opinion is addressed to ENTSOG.

Done at Ljubljana, on 16 December 2021.

- SIGNED -

*For the Agency
The Director*

C. ZINGLERSEN

Annex I: Storage filling levels per Member States on 1st October 2021²⁷.

WGV: Working Gas Volume of Storages

GIS: Gas in Storage

Country	WGV [TWh]	GIS [TWh]	Filling level of storage [%]
Austria	95.48	50.84	53.3
Belgium	9.00	7.79	86.5
Bulgaria	6.27	4.40	70.2
Croatia	5.22	4.73	90.8
Czechia	35.99	30.62	85.1
Cyprus			
Denmark	9.08	7.36	81.0
Estonia			
Finland			
France	128.46	115.12	89.6
Germany	230.31	156.00	68.7
Greece			
Hungary	67.70	56.40	83.3
Ireland			
Italy	197.73	169.14	85.5
Latvia	21.80	17.46	80.1
Lithuania			
Luxembourg			
Malta			
Netherlands	143.81	83.97	58.4
Poland	35.79	34.46	96.3
Portugal	3.57	1.78	49.8
Romania	32.99	23.82	72.2
Slovakia	38.75	27.30	70.5
Slovenia			
Spain	34.25	25.02	73.1
Sweden	0.01	0.01	66.4
EU-27	1096.2	816.2	74.5

²⁷ Source: ENTSOG's WSO 2021/2022, p. 17. ENTSOG informed ACER, after the Outlook's publication, of a small discrepancy in the value for GIS in Germany (156 TWh instead of 151 TWh published in the Outlook). Probably there is also a mistake in the Outlook for the German WGV of 222 TWh, since AGSI+ platform data provides a value of 230 TWh.