



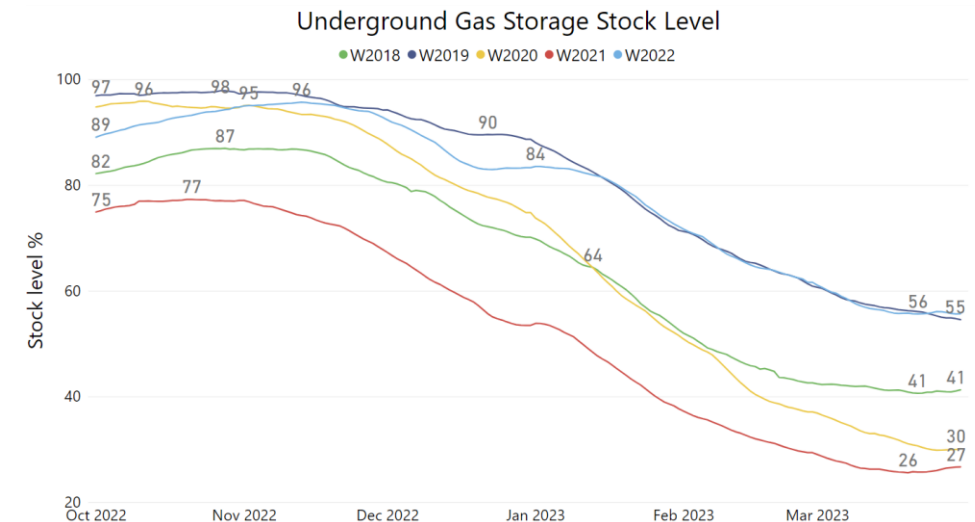
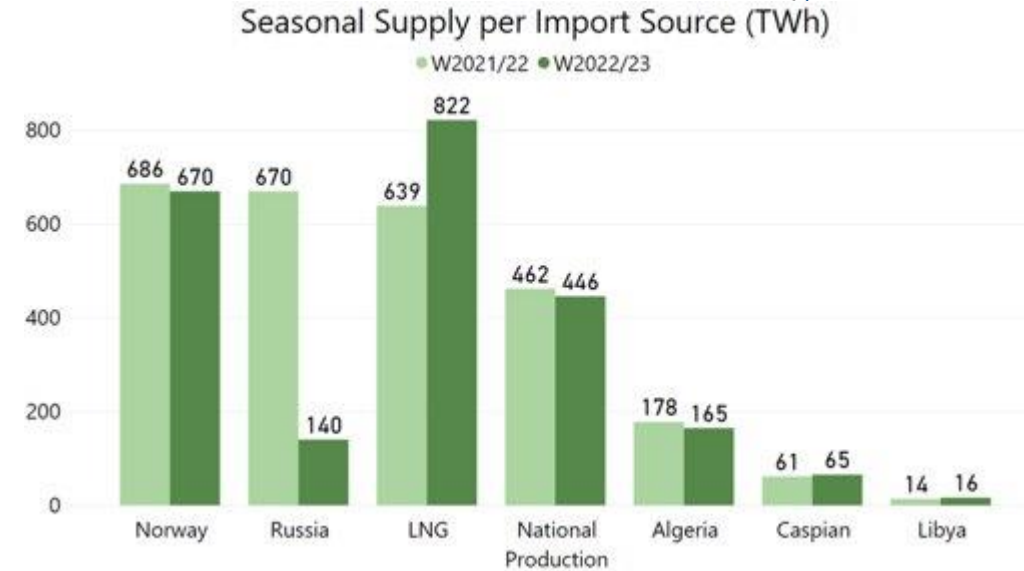
Picture courtesy of Gas Connect Austria

Winter Supply Outlook 23/24 with Summer 2024 Overview and Winter Supply Review 22/23

Arturo de Onís, ENTSOG System Development

Winter Review 2022/2023

- Total gas demand values dropped in the EU by 18.6%
- Pipeline gas supplied by Russia dropped by around 80% in comparison with the Winter 2021/22. LNG experienced the most notable increase from all supply sources to Europe 30% of increase.
- Algeria supply sources decreased and have been compensated by Caspian and Libyan supply source.
- Storage levels during Winter 2022/23 increased its stockage till late November after which it followed pre-crisis trend of Winter 2019.
- The sum of all the import flows to Europe together with the National Production dropped by around 14.4%.



WSO Assumptions



Storage situation 1 OCT 2023

- Average 96% filling level (1091 TWh ~100bcm)



Capacities

- Collected from TSOs for 12 months including maintenance & enhanced capacity for full RU disruption



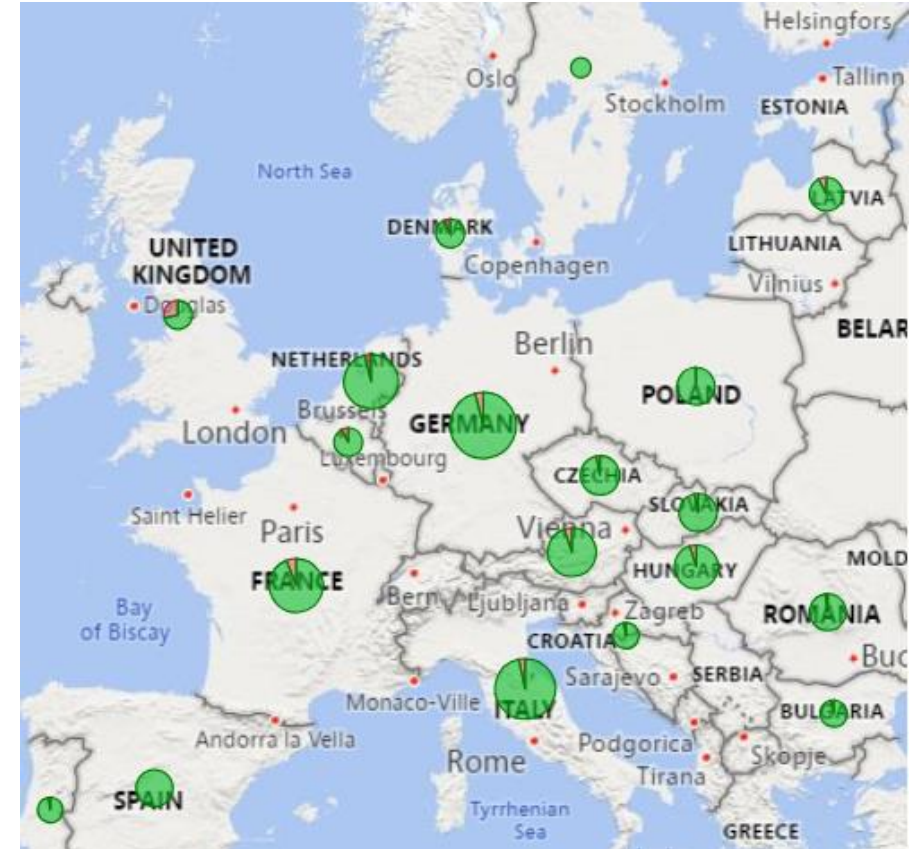
Different simulation periods

- Winter Season, Yearly, Summer Season, Peak day and 2-Week



Different supply scenarios

- LNG: high, reference and low supply potential
- Russian pipelines: minimized and fully disrupted



WSO Assumptions



System assessment under different demand scenarios:

- Reference Winter (forecasted) and Cold Winter (highest demand since 2009/10), Cold Winter -15%
- Peak day (1-in-20 years), 2-Week Cold Spell (1-in-20 years) and Cold Winter Peak day, 2-Week Cold Spell

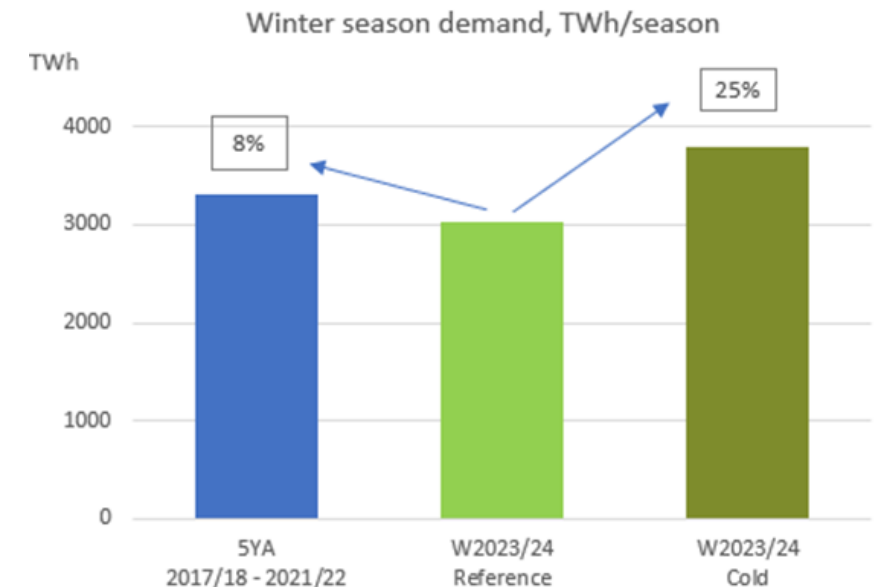
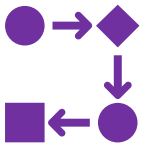


Different storage level target:

- 30% on 1 APR 2024
- 90% on 1 OCT 2024

Model optimisation - all countries cooperate to:

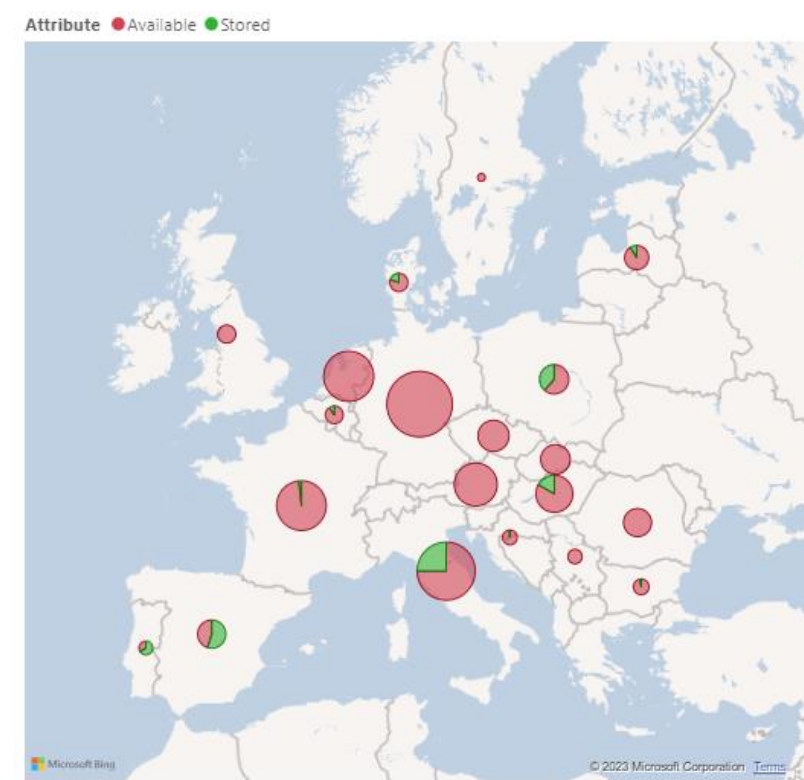
1. **Avoid the risk** of demand curtailment
2. **Share the risk** of demand curtailment if infrastructure allows for it
3. Inject to **storages** and withdraw **in optimal way**
4. Use their **import infrastructure in coordinated way**
(especially LNG terminals)



WSO 2023/24 results

Winter Demand	RU supply	Storage Target	LNG Scenario	Demand curtailment	Final UGS filling level
Reference	Minimised	30%	Ref	No	32%
		30%	Low	No	23%
		Maximum	Ref	No	56%
	Disrupted	30%	Ref	No	32%
		30%	Low	No	12%
		Maximum	Ref	No	47%
Cold Winter	Minimised	30%	Ref	7%	9%
		30%	Low	17%	9%
		30%	Max	No	13%
	Disrupted	30%	Ref	9%	9%
		30%	Low	21%	9%
		30%	Max	3%	9%
Cold - 15%	Minimised	30%	Ref	No	32%
		30%	Low	3%	9%
		Maximum	Ref	No	38%
		Maximum	Max	No	58%
	Disrupted	30%	Ref	No	27%
		30%	Low	7%	9%
		30%	Max	No	32%
		Maximum	Max	No	47%

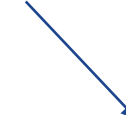
Note: Results don't consider the use of strategic storage facilities. Strategic reserves remain available in some countries



Some European countries reserves a part of their own gas stock constituted as **strategic reserves to be used only for the purpose of demand curtailment mitigation**. Availability of strategic storage reserves depends on country specific regulation.

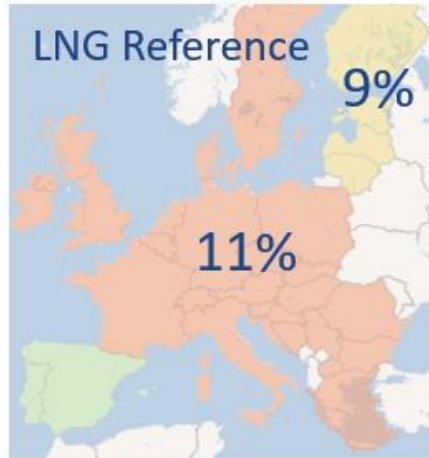
The model assumes actual strategic storage facilities constraints, but results do not consider the utilization of strategic storage reserves - **strategic reserves remain available to avoid/reduce demand curtailment in some countries.**

Peak day and 2-week cold spell

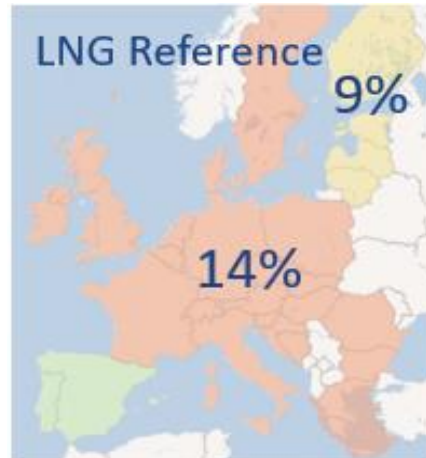


Reference
Winter

Normal Supply

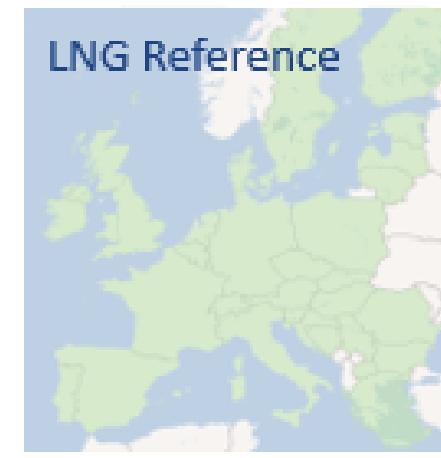


RU Disruption

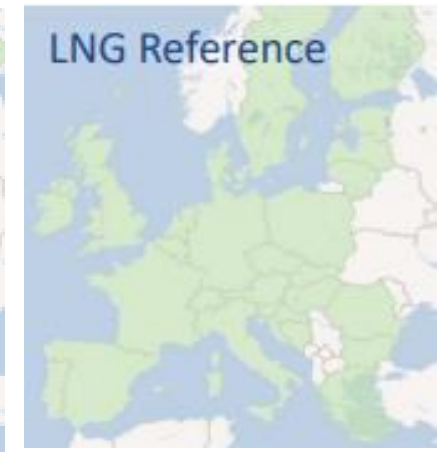


Reference
Winter

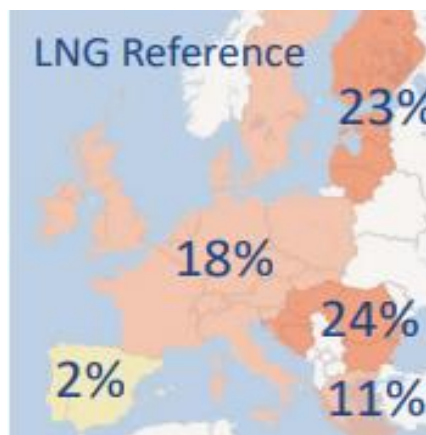
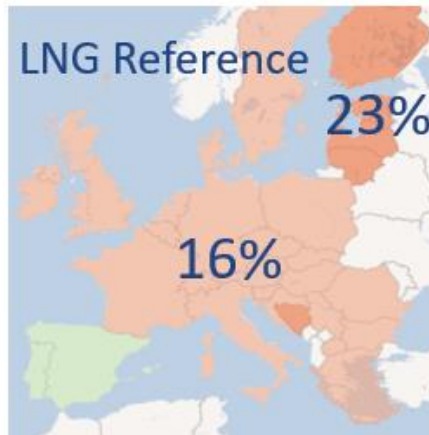
Normal Supply



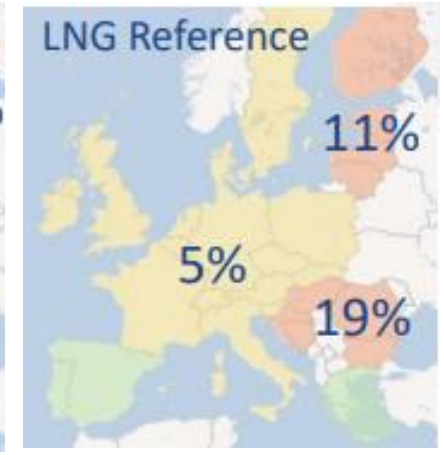
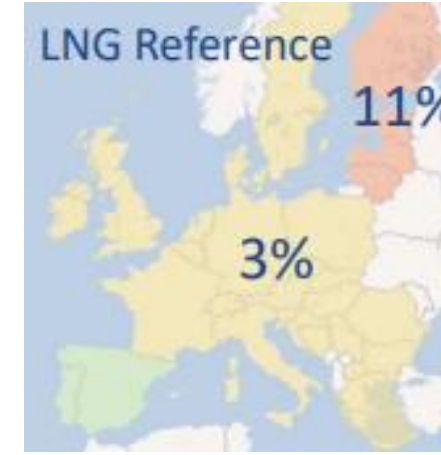
RU Disruption



Cold
Winter



Cold
Winter



Demand Curtailment Rate Scale

0 - 2% 3 - 10% 11 - 20% 21 - 30% > 31%

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0 - 2% 3 - 10% 11 - 20% 21 - 30% > 31%

Conclusions

COOPERATION IS KEY



Current high storage levels, the gas infrastructure and enhanced **cooperation efficiently reduces the dependence on Russian supply**, to use more LNG in EU and more efficiently use storages (when injecting or withdrawing),

Even in case of the full Russia supply disruption, **cooperation between the countries and demand measures could allow for efficient injection** during the summer 2024 in preparation for the next winter.

DEMAND RESPONSE, ALTERNATIVE SUPPLY, ENHANCED CAPACITIES + INVESTMENTS



In case of full disruption of Russian supplies during winter, additional measures might be needed to save significant volumes of the gas for the end of the season: possible measures such as **enhanced capacities, additional supplies and decrease in gas demand by 15%** would avoid demand curtailment risks and to reach adequate storage level.

PREPAREDNESS



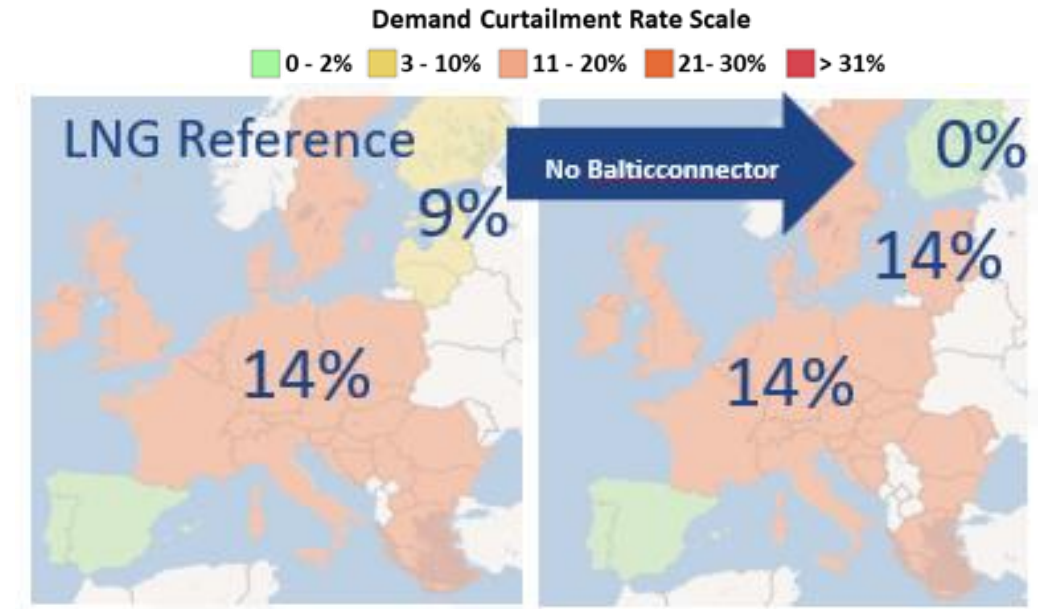
To reach 90% at the end of next summer, **more gas need to be kept at the beginning of injection season (45% on average)** or more LNG (than in summer 2022) need to be imported to reach 90% on October 1st 2024.

Storages play an essential role to ensure security of supply, providing seasonal flexibility needed during the winter season. Early storage withdrawals could result in low storage levels at the end of the winter season. It's important to inject gas during the summer season and keep storage on adequate level until the end of the winter.

Additional storage flexibility could be secured by storing additional volumes in Ukrainian storage facilities. Potential transit of gas through Ukraine could improve interconnectivity between member states.

Balticconnector pipeline disruption

- **Finland cannot directly cooperate with Baltic States** and contribute to more efficient reduction of the demand curtailment risk.
- **The disruption does not change dramatically the situation** either in the region or in the rest of Europe.
- **The Baltic States region can still cooperate with the rest of Europe** using PL-LT interconnector and LNG terminal in Klaipeda. The same impact is observed in case of peak day in cold winter.



Reference Winter Peak Day Demand situation –
RU supply disruption

Simulations show that the disruption of the Balticconnector pipeline limits the possibility of Finland's cooperation with the Baltic States, but at the same time does not pose a significant risk to the security of gas supplies in the region.



Thank you for your attention

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