Is the crazy times over?

- European gas market short- to medium term outlook

Is the crazy times over?

- In October the European gas prices WIN23 surged more than 40% due to
  - Australian LNG strikes
  - The Middle East conflict
  - Suspected sabotage of a Baltic pipeline

Common trademark of all these reasons was that they had little impact on the fundamentals.

The reason is therefore a more structural issue:

- The European gas & LNG markets remain in a structurally tight regime.
- Russian supply losses have exceeded LNG supply growth.
- leaving markets supply constrained and balancing depending more on demand.

Prices are being set at the intersection of inelastic supply & demand curves. And small changes in market balance can have a big impact on prices.

What happened last winter?

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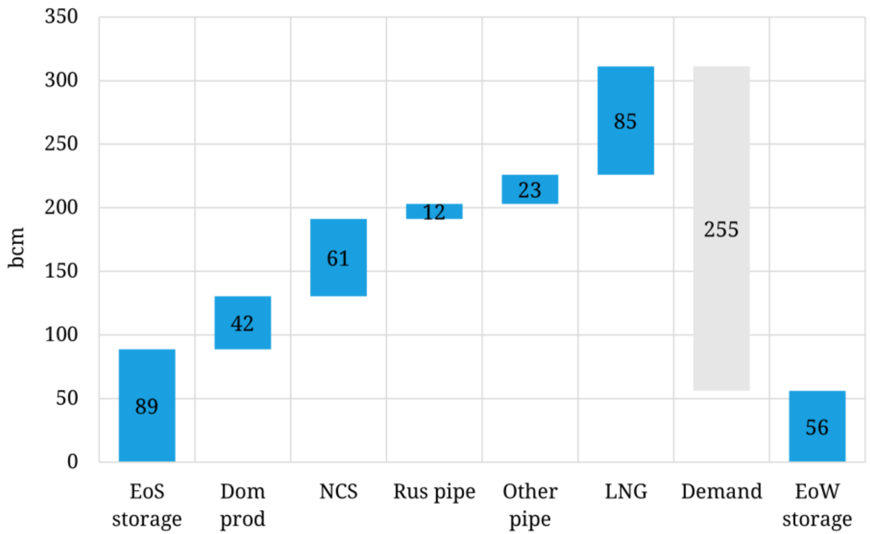
It is useful to start with winter 2022-23 to frame the challenges across the winter ahead. Aa breakdown of supply & demand balance across last winter and the 'End of Winter' (EoW) storage inventory.

European gas market balance across winter 2022-23:

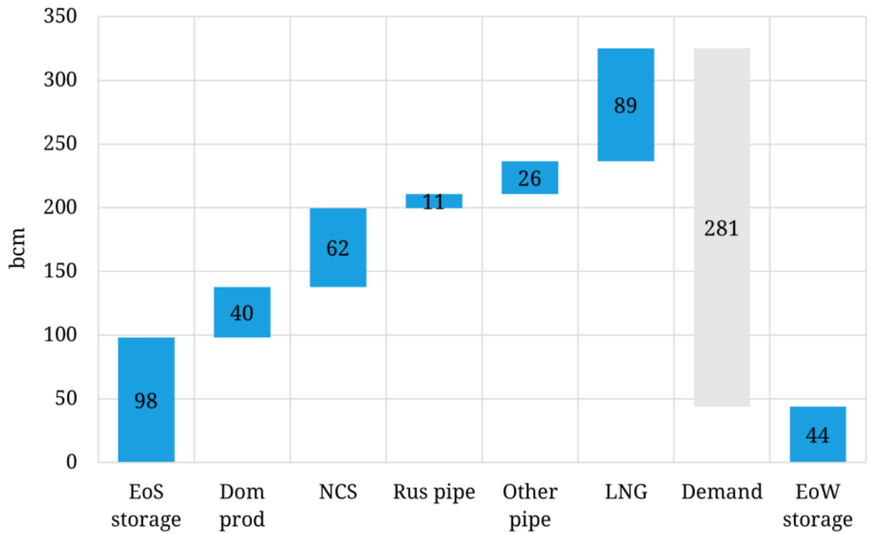


- Europe entered last winter with close to a 5 year average stock levels. Despite a nearly 50 bcm drop in Russian flows YoY, Europe ended winter at the top of the 5 year range due to:
- A demand drop of ~20% vs 5 year average, led by a non-power demand drop of ~20%, driven by mild weather & demand destruction from high prices
- An increase in LNG imports of 24 bcm YoY.
- Projection for last winter was for a 55 bcm End of Winter storage inventory level in an 'optimistic' scenario – and that was beaten....

What about the rest of this winter

This winter is challenging, particularly given substantial demand uncertainty. There are the usual weather-related issues. But what is unclear is the extent that general economic weakness will translate into continued weak gas demand.

European gas market balance scenario for winter 2023-24:



- Demand expected higher vs last winter by ~25 bcm YoY, mainly led by power demand, reflecting more normal winter temperatures & some extra power sector demand
- Storage: +9bcm YoY (entering winter)
- LNG: + 4bcm YoY, balancing Europe & Asia – strong dependence on Asian demand Domestic production relatively flat
- Russia: remaining volumes down 1bcm – limited further squeeze YoY.
- Other pipeline supply: + 3bcm

So everything is under control for this winter?

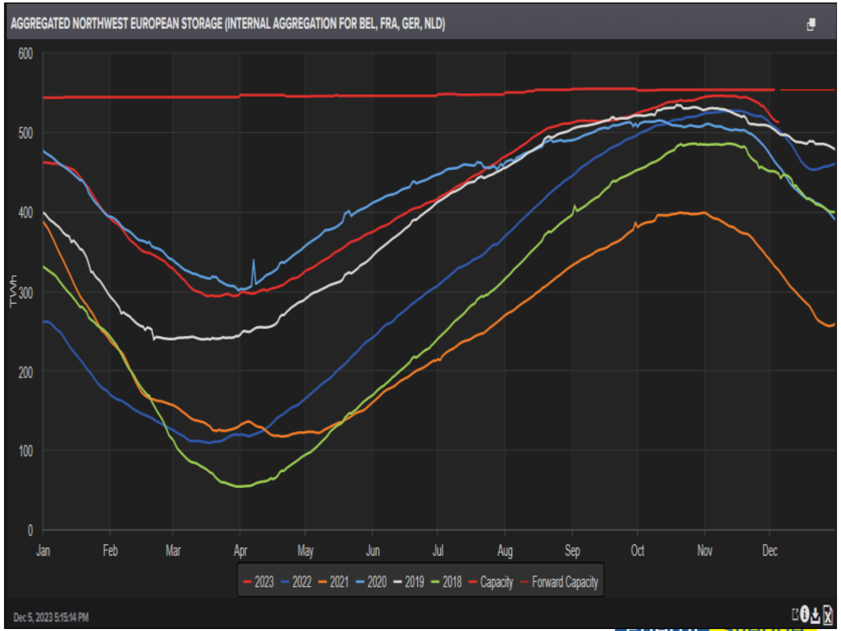
For 2022-2023:

Europe did OK due to a combination of mild weather & steeply declining demand. In fact the European gas market exited winter with a large storage inventory that has subdued prices in 2023.

For 2023-2024:
Storage inventories are currently at very high levels. European gas demand is running at 15-20% below pre-crisis levels, in part due to aggressive destruction of demand across Europe's industrial base.

We bet on everything is under control looking ahead into winter. But The gas market remains in a tight regime into 2024-25.

Another mild winter and continued weak demand and Europe should be OK. But there are asymmetric upside risks to prices, particularly if there is a very cold winter in Europe or North East Asia or any major supply disruptions occur.



What does this mean for prices?

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A tight market regime emphasize that small changes in market balance can cause big moves in price.

Market risks are two-sided upside and downside. But it is our opinion, that there is a higher risk in the upside.

Downside risks in the form of a negative demand shock from a sharp recession, or from a mild winter and plenty of supply volumes could drive prices lower. But downside price risk is buffered by price support from substantial coal for gas plant switching volumes across the European power sector and by the fact that European & Asian gas demand are already so weak.

Risk	Description	Impact
1.European cold winter	Risk of a cold winter which would support rescom & power demand (which is relatively unresponsive to price).	0 - 20 bcm
2.LNG diversions	Asian LNG demand upside risk e.g. due to cold weather in NE Asia or economic recovery, would drive greater competition for flexible LNG.	0 - 15 bcm
3.LNG supply risk	(i) Risk of unplanned outages (ii) Delayed commissioning of new projects (i.e. Tangguh T3, Arctic LNG T1, Tortue FLNG).	(i) 0 – 15(+) bcm (ii) 0 – 5 bcm
4.Russian pipe risk	Risk of cuts to Russian pipeline deliveries, especially those flowing through Ukraine.	0 – 5 bcm
5.European demand recovery	Risk of recovery in European industrial demand, given lagged response & hedging against lower 2023 prices.	0 – 7 bcm

But prices keeps falling…..

Yes. We are still in the safe scenario.

But in summary, both the European gas & LNG markets are set to remain volatile across this winter and into 2024-25 with price risk skewed to the upside.

- The risks could see prices move significantly higher, to levels required to induce inelastic demand response (either in Europe or Asia).
- Chinese economy has seen some recovery and LNG demand is at the 80%-quartile seen over the last 5 years and could surge and Asia are pricing LNG higher than Europe.
- Weather is still the main factor that will trigger both upside and downside targets.
- A lot of storage is strategic for security of supply, making the market more inelastic.
- But risk of supply shortages in Europe this winter is extremely unlikely and requires outside events (Pipeline sabotage).

The prices now and possible targets

For the remaining of the winter 2023-2024:

- We see prices bottom out around 35 €/MWh due to coal for gas plant switching
- But remember October?
- The prices <u>can</u> drop below this price level but can easily be driven higher.
- We believe that market will have resistant, from a technical point of view around 55-60 €/MWh even with cold spells and other major events.
- In summary we are in the bottom range of the price scenarios so prices a skewed to upside for the remaining winter.

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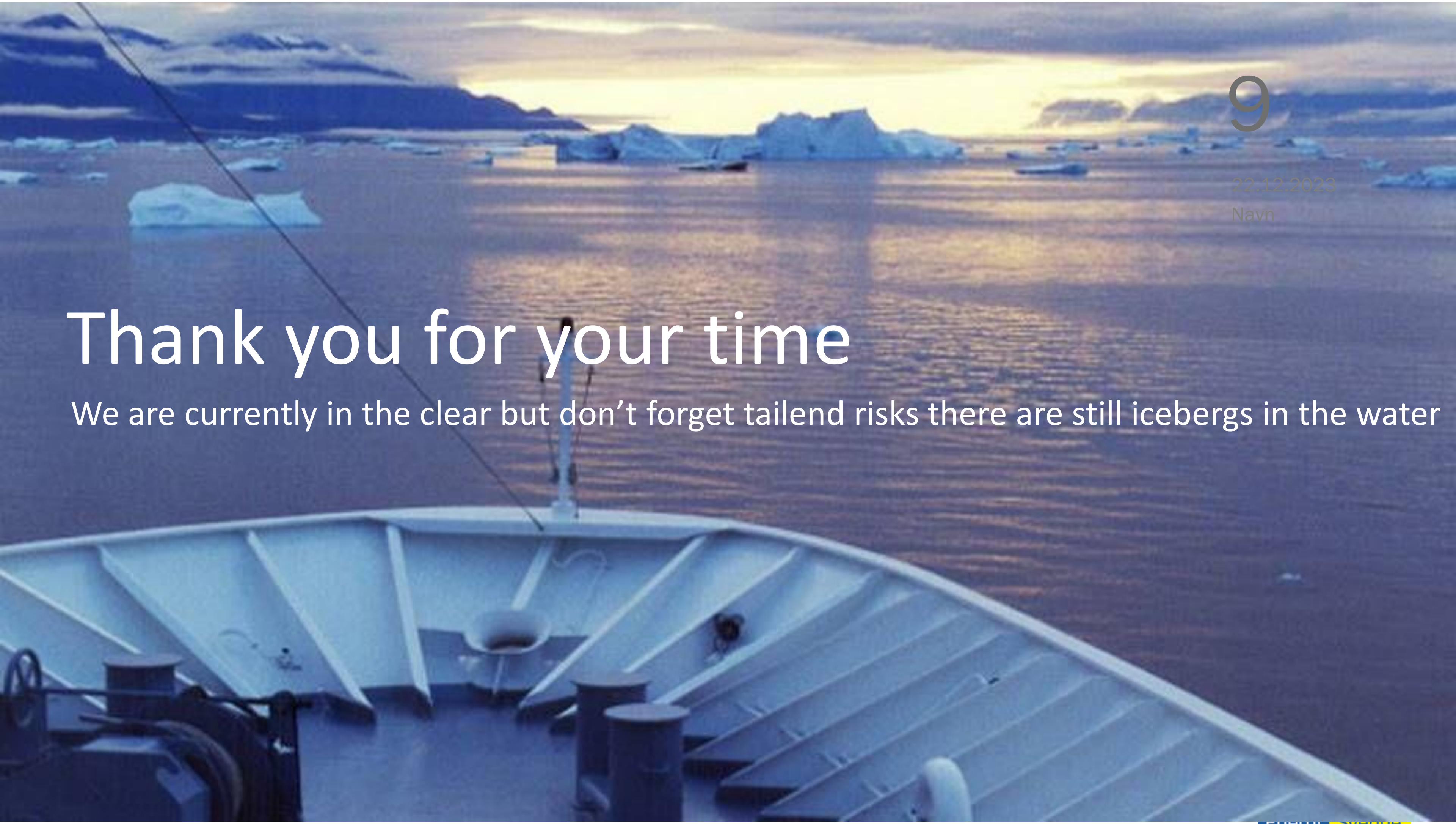

Thank you for your time

We are currently in the clear but don’t forget tailend risks there are still icebergs in the water