



# Gas sales and operations

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Scandic Stavanger Airport, 12 June 2025

# Allocation and Gas Sales

## Upstream

- Appendix C – Metering and Allocation
- Value Adjustment
- Capacity reservations
- Deferral calculations
- Field Availabilities

Field Operator / Licence Partners

## Midstream/Shipper

- Shipper Availabilities
- Shipper Nominations
- Field Irregularities
- Pipeline/plant shutdowns

Gas Infrastructure Operator / Gas Shippers

## Downstream

- Day-Ahead Nominations
- Within-Day Nominations
- Balancing Costs

Buyer/End User



# Oil vs Gas Sales & Operations

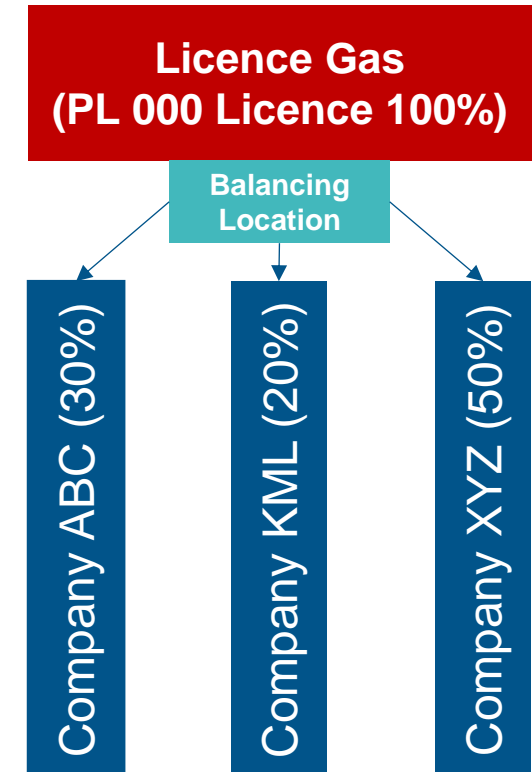


	Oil/NGL	Gas
<b>Storage</b>	Yes	No
<b>Delivery</b>	When a cargo is accumulated	Continuous 24/7
<b>Transport</b>	Vessel	Pipeline
<b>Market</b>	World-wide	Local/Regional
<b>Contract Term</b>	Calander Years	Gas Years (October to September)
<b>Price Benchmarks</b>	Few (Brent, WTI, Dubai)	Too many to list
<b>Price Drivers</b>	<ul style="list-style-type: none"> <li>-Many factors</li> <li>-Global supply of crude</li> <li>-Demand for refined products</li> <li>-Summer driving season (to a certain extent)</li> </ul>	<ul style="list-style-type: none"> <li>-Fewer factors</li> <li>-Directly related to heating demand</li> <li>-Strong seasonal (Summer/Winter) differences</li> </ul>



# Gas Lifting and Balancing Agreement (GLBA)

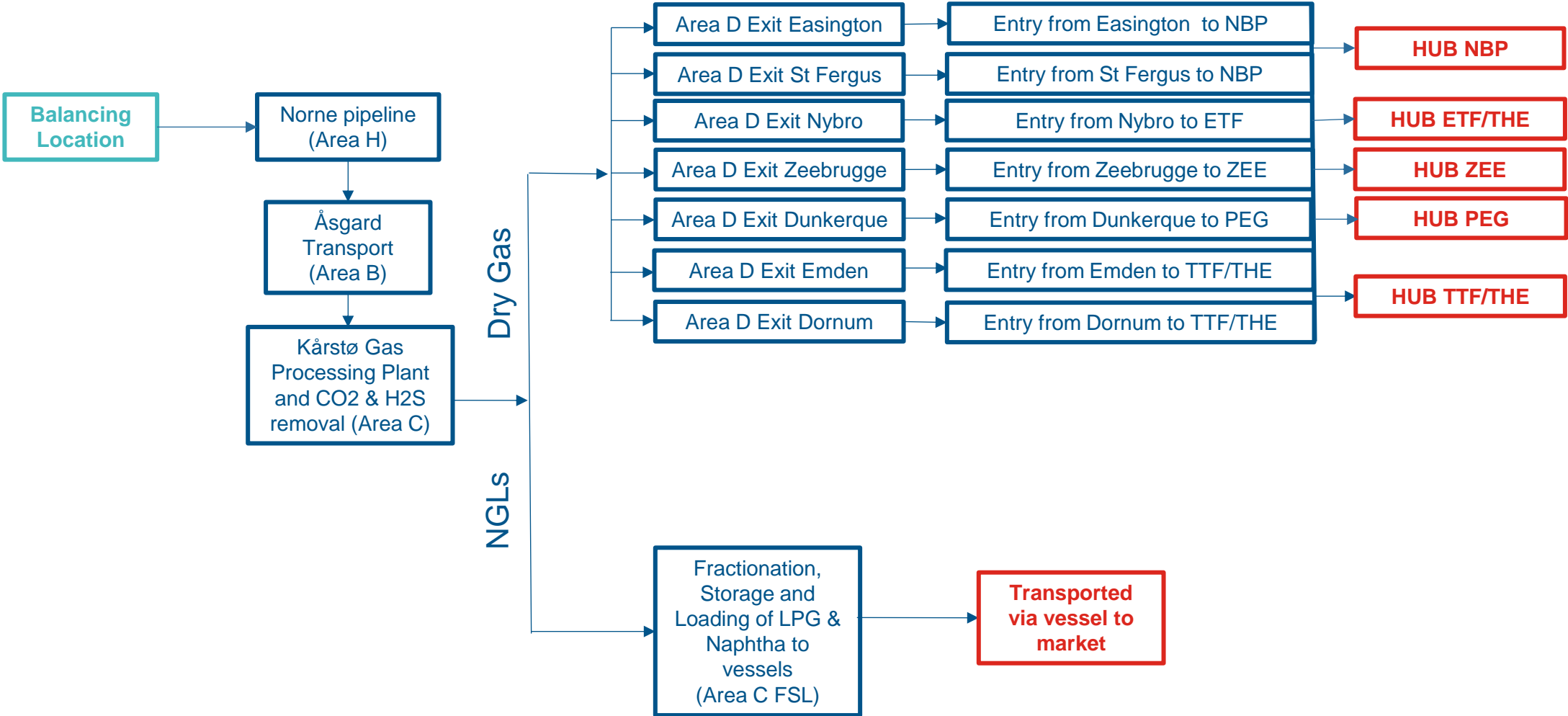
- Gas in Norway is produced as licence volume.
- Each licence holder is party to the Gas Lifting and Balancing Agreement (GLBA) of the relevant field.
- The GLBA sets out the rights and obligations of each of the parties concerning the lifting of gas from the Balancing Location of the field.
- As per the GLBA each party (shipper) is allocated a gas volume based on its ownership share in the field.
- Gas fields are either under a “must-take” or a “flexible” lifting regime.
- The shipper is responsible for getting its gas to the market. Therefore, it must book its own transport capacity and ensure the capacity sufficient to bring the gas to market.
- In case a shipper fails to lift its gas and field production is deferred, the deferred gas becomes licence gas.



# Gas Transport



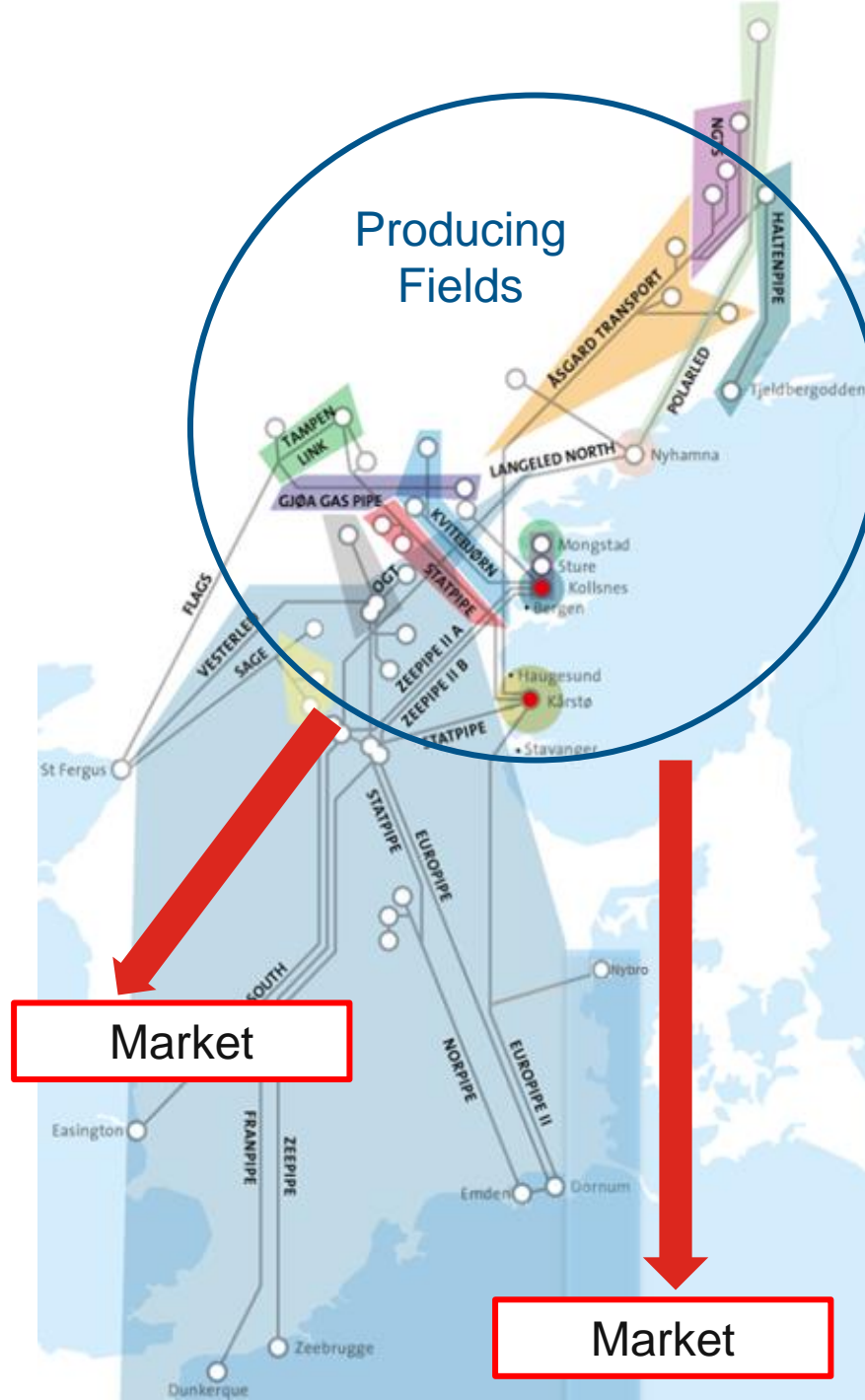
# Example: Rich gas from platform to market



Shipper is responsible for securing transport capacity

# The Gassled System

- Gassled, operated by Gassco, comprises of the land-based plants at Kårstø and Kollsnes as well as pipelines linking producing fields in the North Sea and parts of the Norwegian Sea to these facilities and/or providing onward transport to the UK and continental Europe.
- Gassled is divided into capacity “areas”, with each having its own tariff and availability.
- The market for primary capacity is regulated. Primary Capacity can only be acquired directly from Gassco, via bi-annual booking rounds, on a 100% Ship or Pay basis. Secondary capacity can be bought and sold between shippers, regulated by Gassco T&Cs.
- Shippers can only book capacity if they hold a Duly Substantiated Reasonable Need (DSRN) for the gas volumes. To be allocated a DSRN, the field must have passed DG2, DSRN is calculated based on Resource Classes 1-4.



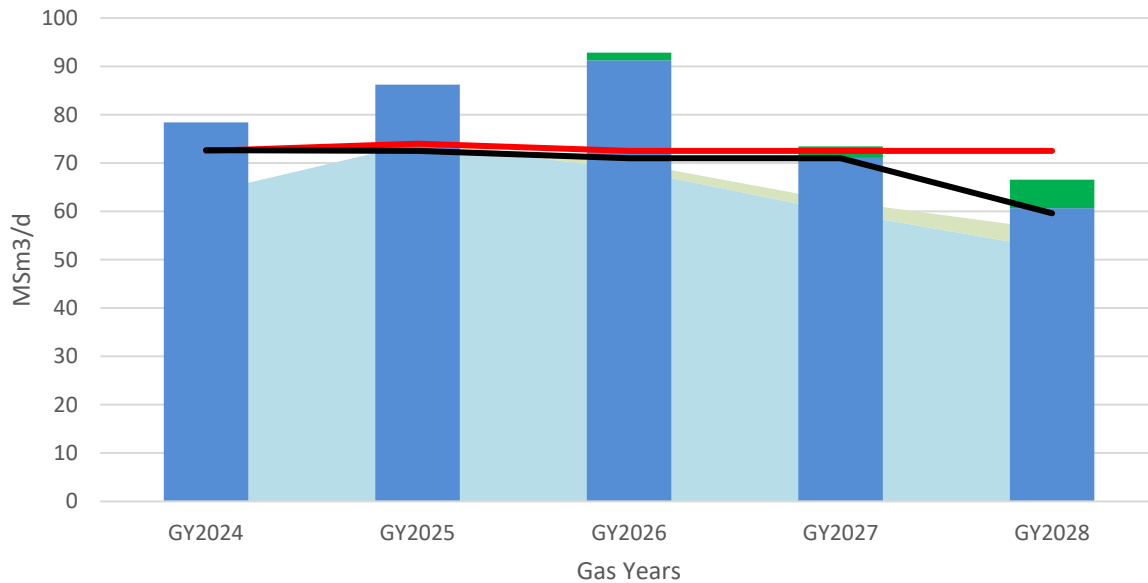
## Gassled Gas Transport Infrastructure

	<b>Area A</b> Statpipe Rich Gas		<b>Area I</b> Gjøa Gas Pipe
	<b>Area B</b> Åsgård Transport		<b>Area J</b> Valemon Rich Gas Pipeline
	<b>Area C</b> Kårstø Gas Plant		<b>Area K</b> Haltenpipe
	<b>Area D</b> Dry Gas		<b>Area L</b> Utsira High Gas Pipeline
	<b>Area E</b> Kollsnes Gas Plant		<b>Area M</b> Vestpross pipeline
	<b>Area F</b> Tampen Link		<b>Area N</b> Vestpross processing facilities
	<b>Area G</b> Kvitebjørn Gas Export		<b>Area O</b> Polarled
	<b>Area H</b> Norne Gas Transport		<b>Area P</b> Nyhamna Gas Plant

# Constraints in Rich Gas Areas

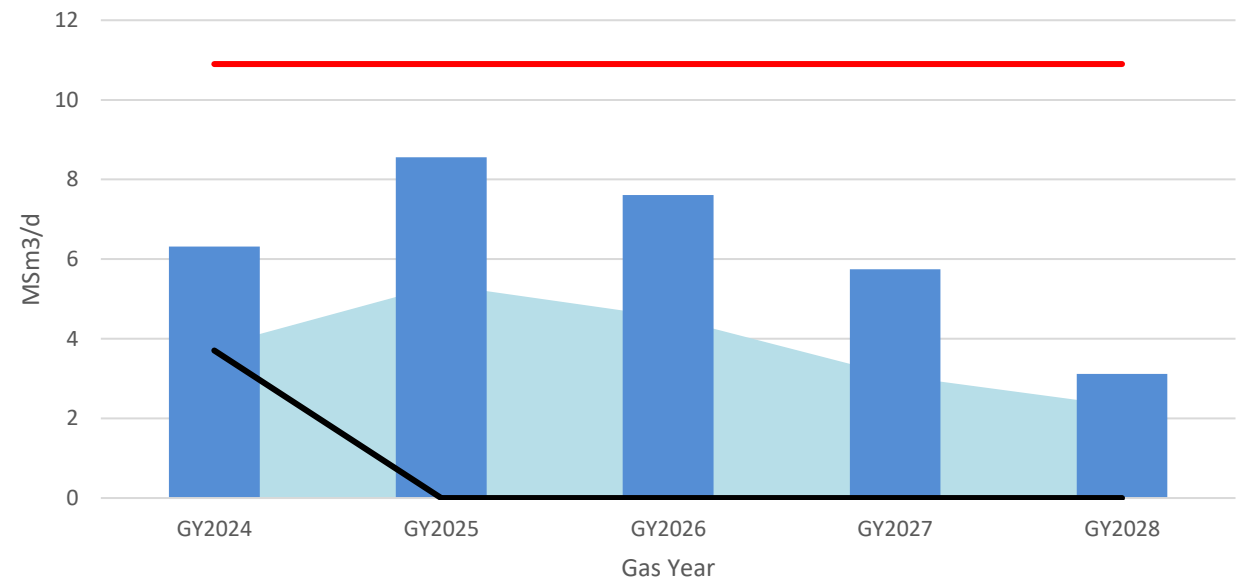
## Constrained

- Maximum Daily Capacity Need (DSRN) is over the installed capacity and the area is fully booked until GY28.
- Capacity for GY24 - GY27 will need to be secured in the secondary market.



## Unconstrained

- Maximum Daily Capacity Need (DSRN) is below the installed capacity.
- Shippers book on a short-term basis to avoid Ship-or-Pay.

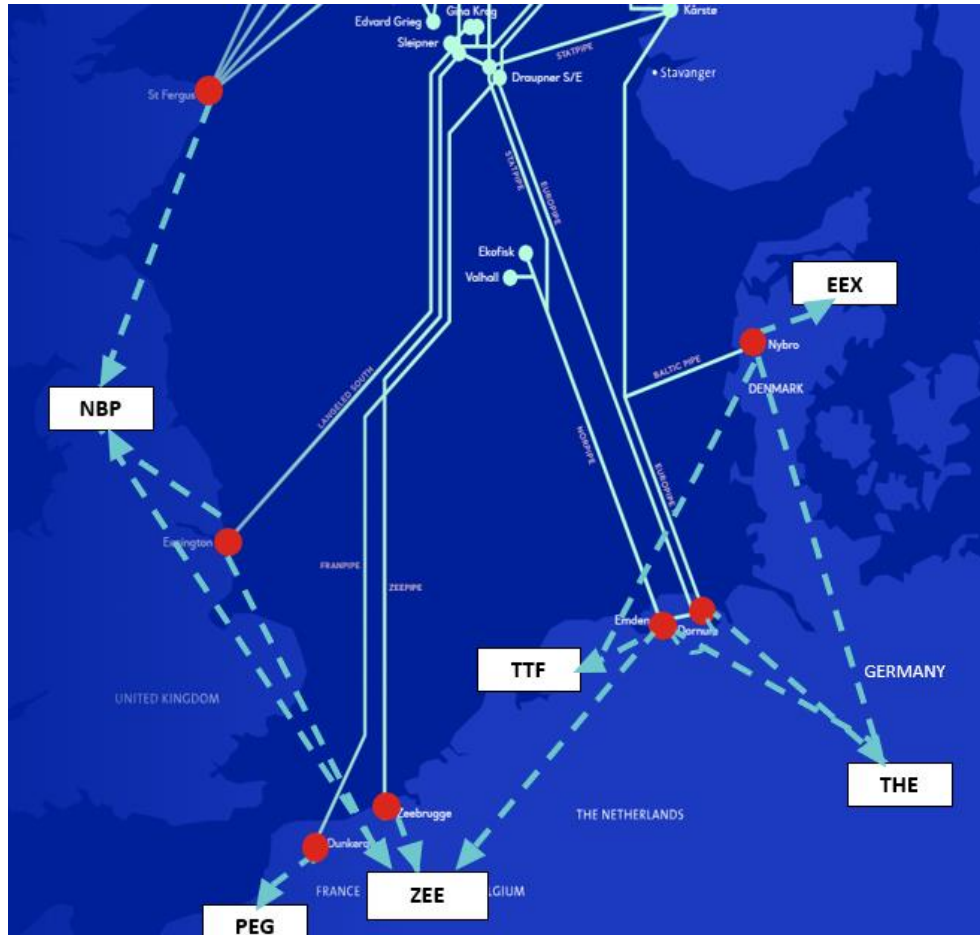


Annual Average Capacity Need  
Additional Volumes Max Daily

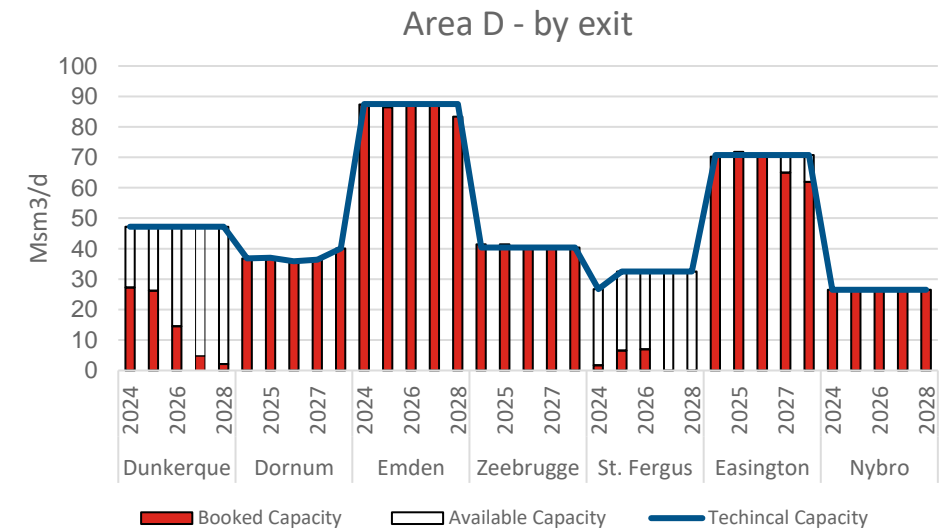
Annual Average Additional Volumes  
Installed Capacity

DSRN (Max Daily Capacity Need)  
Booked Capacity

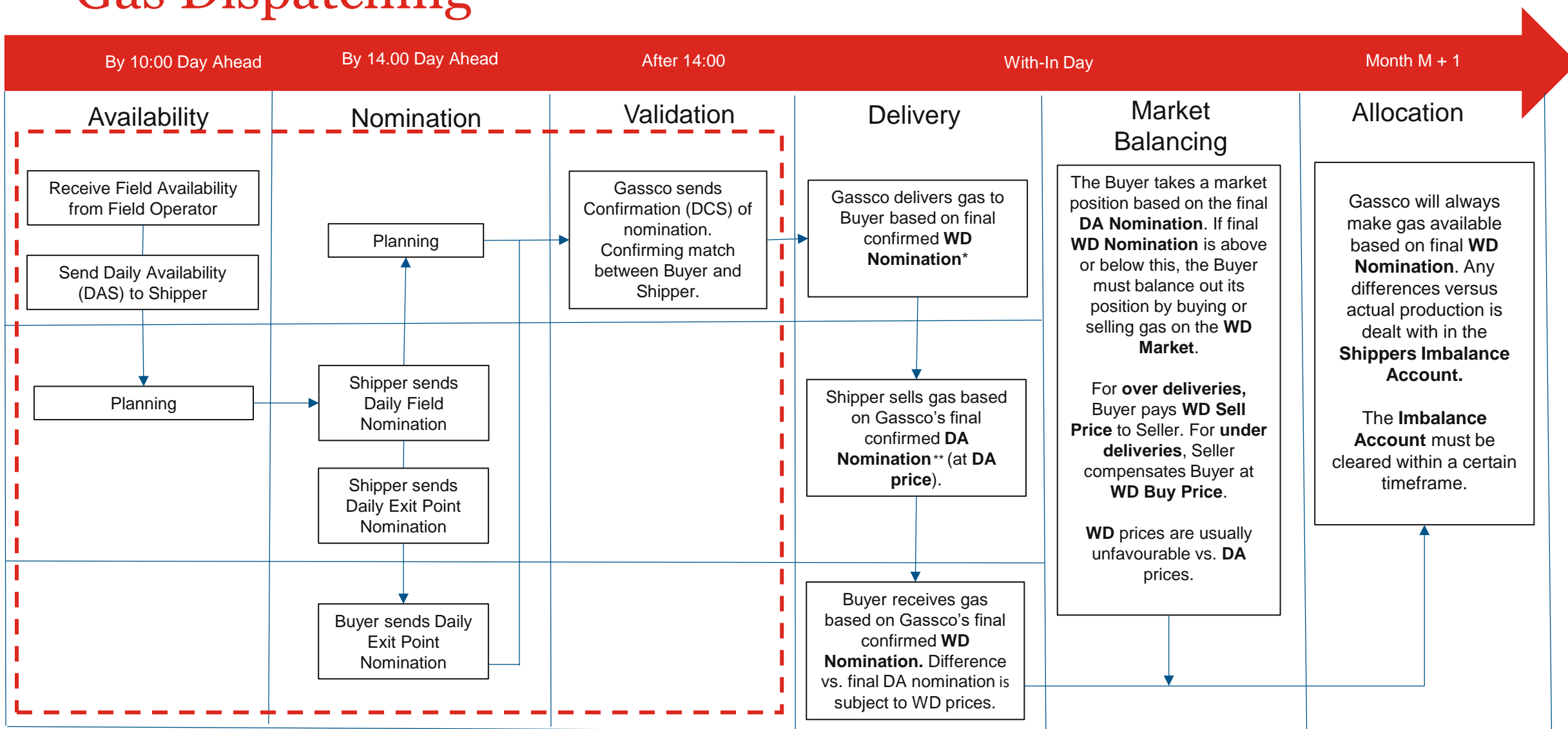
# Area D Dry Gas Exit



- The exits which become booked up are those that allow the shipper to reach many different HUBS. Emden, Dornum, Zeebrugge, Easington and Nybro exits give this flexibility.
- Shippers with large gas flows often book more than one exit point (i.e. UK and Germany) in the long-term and then take the gas to the highest HUB market on the day. For this reason, unused capacity may be made available on a day-ahead or within-day basis (interruptible capacity).



# Gas Dispatching



If field production changes, to keep the system balanced, the availabilities and nominations are updated and re-confirmed by Gassco. This maybe done multiple times until the final confirmed WD Nomination from Gassco.

\*Up to 2-3 hours before end of gas day

# Gas Pricing



# Gas Pricing

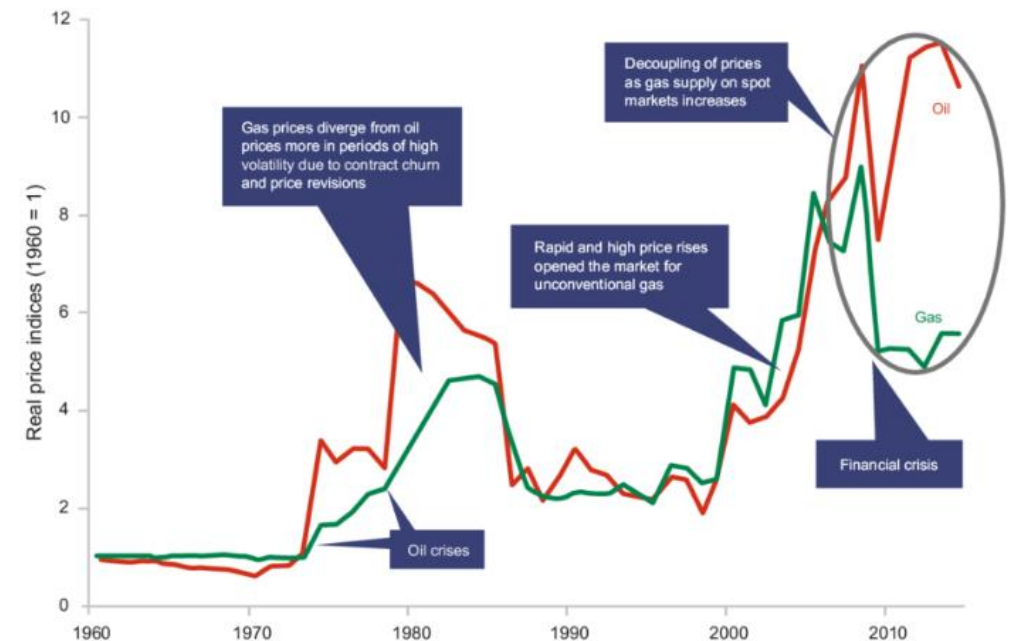
Most gas in Europe is priced at a HUB Price, depending on the market it is sold to:

- **TTF:** “Title Transfer Facility” in Holland, the most liquid HUB in Europe
- **THE:** “Trading Hub Europe” in Germany, becoming the most liquid HUB in Europe
- **NBP:** “National Balancing Point” in UK
- **ZEE:** “Zeebrugge” in Belgium
- **PEG:** “Point d’échange de Gaz” in France, France gets most electricity from nuclear
- **ETF:** Gas hub in Denmark – becoming more liquid due to Baltic Gas pipeline



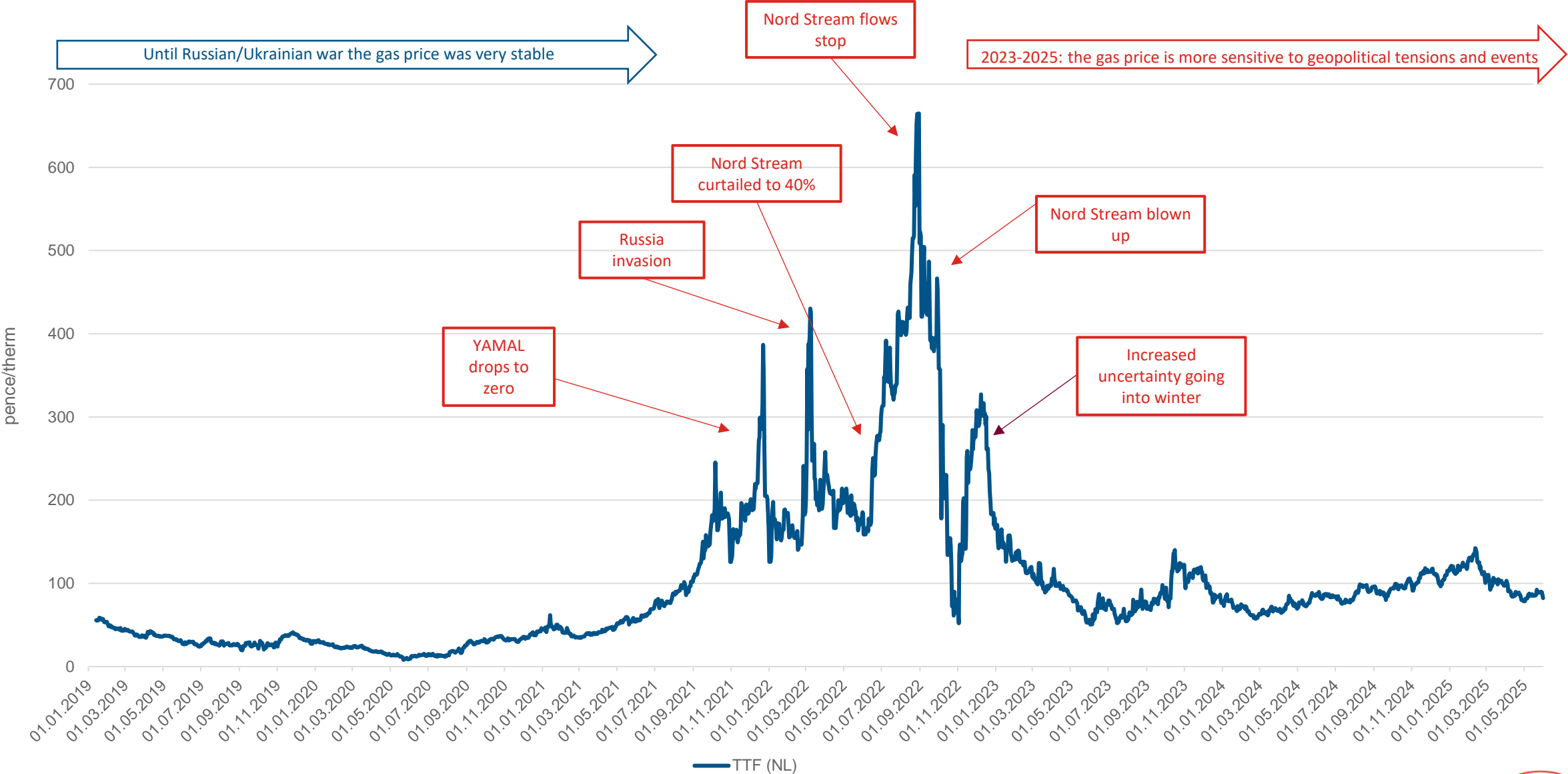
# Evolution of Gas HUBS

- Historically, gas was regarded as a bi-product to oil and was sold by the licence. Life-of-Field contracts guaranteed gas-offtake until the end of the field's life.
- In the 1990s the industry was de-regulated because licence sales were seen as anti-competitive. From here, gas was sold by the shipper, creating more competition.
- Up until 2000s gas prices were linked to alternative fuels. These were oil-based products and therefore linked to the oil price.
- Gas HUBs started to develop and at a certain point gas and oil prices diverted significantly due to a surge in oil prices. This made many gas buyers want to switch from oil linked contracts to HUB pricing.
- From early 2010, more and more gas was sold at the HUB, significantly increasing the liquidity of the HUBS. This led to some HUBS becoming interconnected, which in turn created even more liquidity in the European gas market.



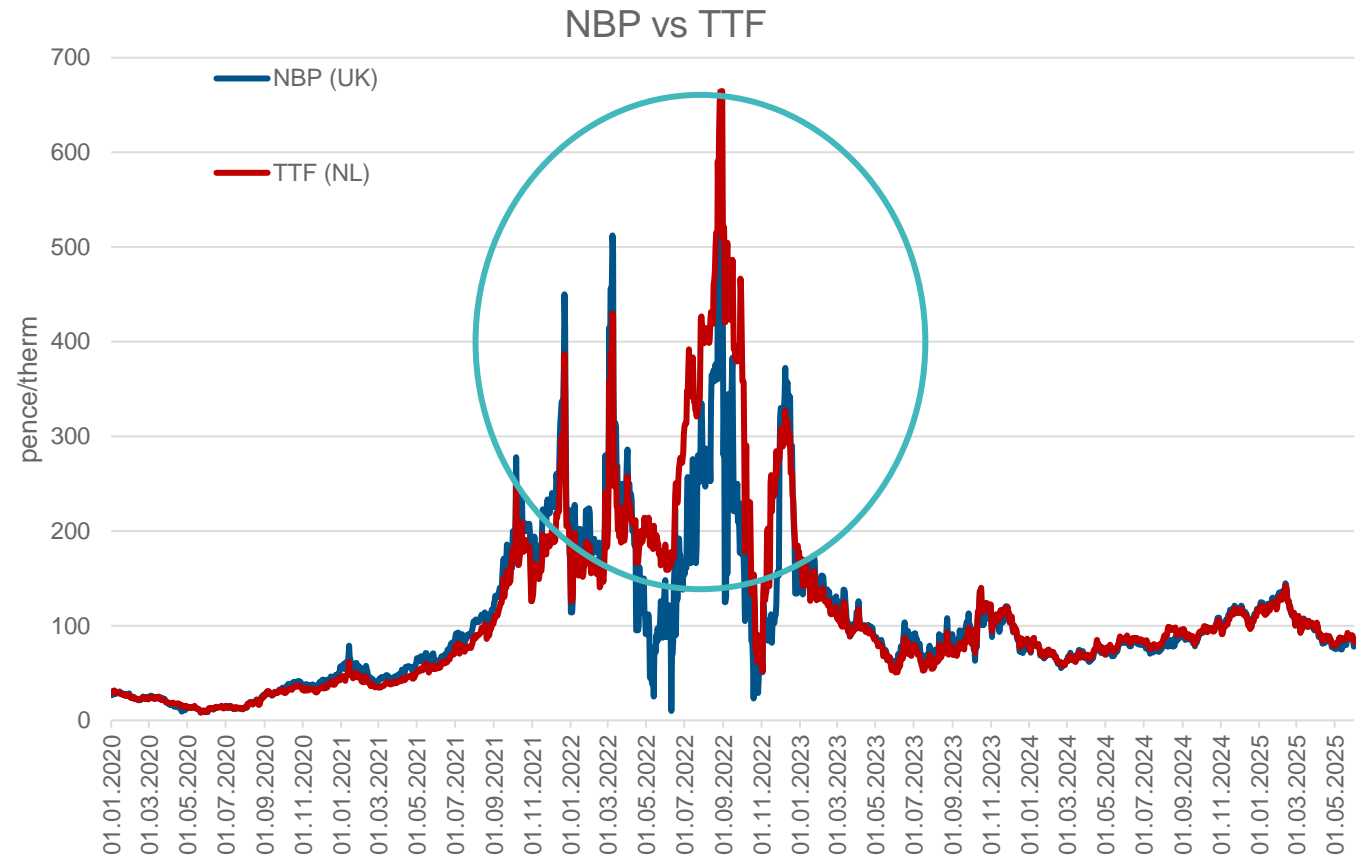
The relationship between natural gas price and oil prices. Note Data are indexes of global average prices. Source Vivid Economics, based on World Bank data

# Recent Gas Price Drivers



# Example - Arbitrage opportunities

- Historically, TTF and NBP traded closely, with NBP being slightly higher in the winter period.
- Before the Ukrainian War, the majority of European imports were from Russia. Whereas the UK predominantly imports gas from Norway and as LNG.
- For this reason, after the war broke out, TTF and NBP decoupled, with the spread being up to 365 pence/therm in September 2022
- This had a significant impact on electricity prices in Continental Europe.
- There were very profitable arbitrage opportunities for shippers that had secured capacities to flow gas to Continental Europe instead of UK.

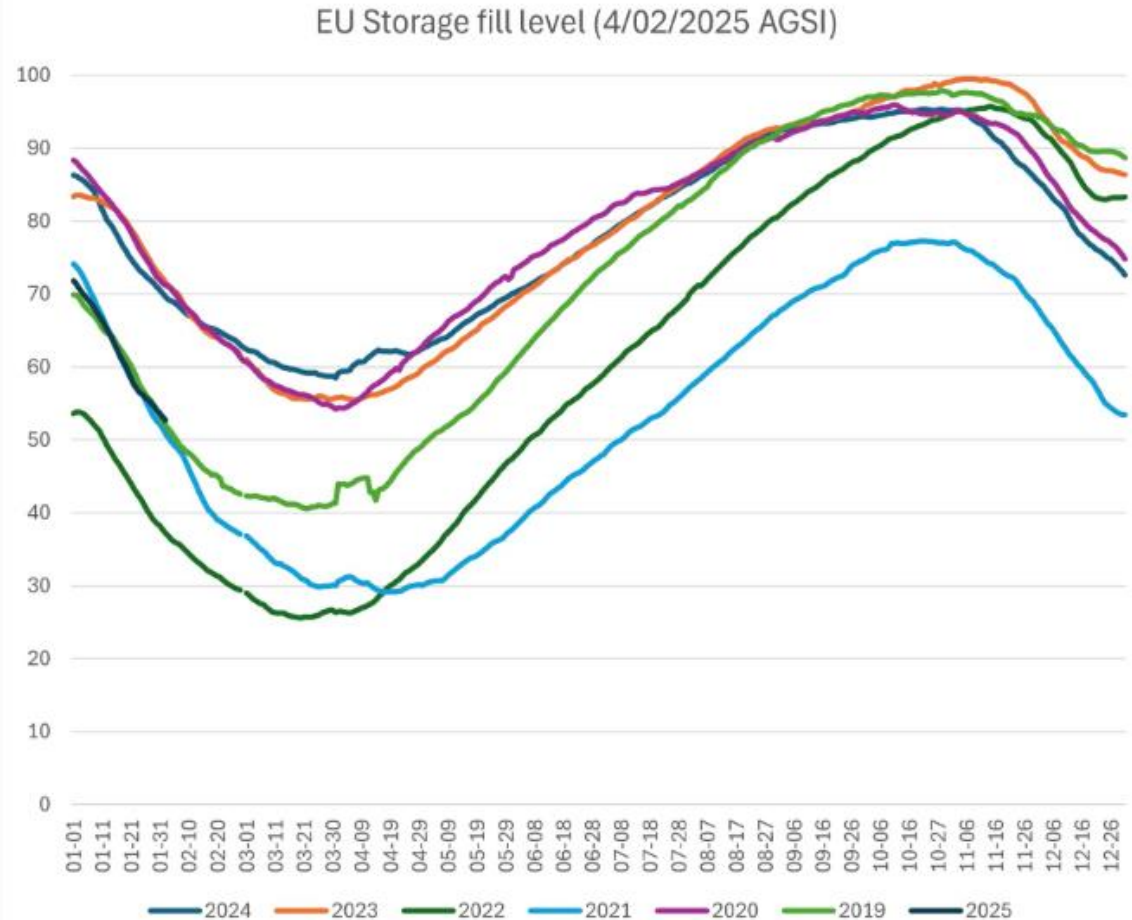


# Gas Market



# Gas Market Seasonality & Storage

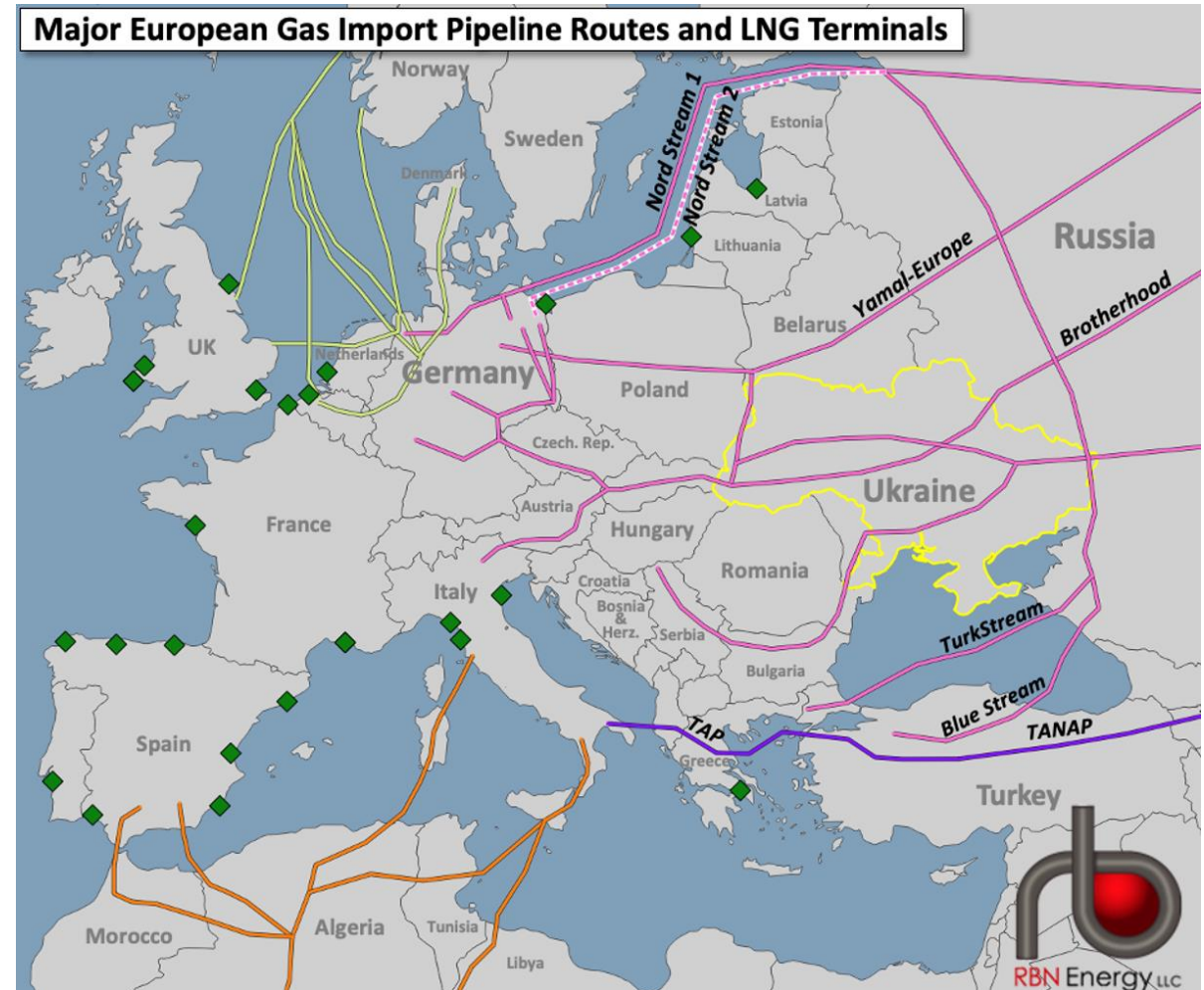
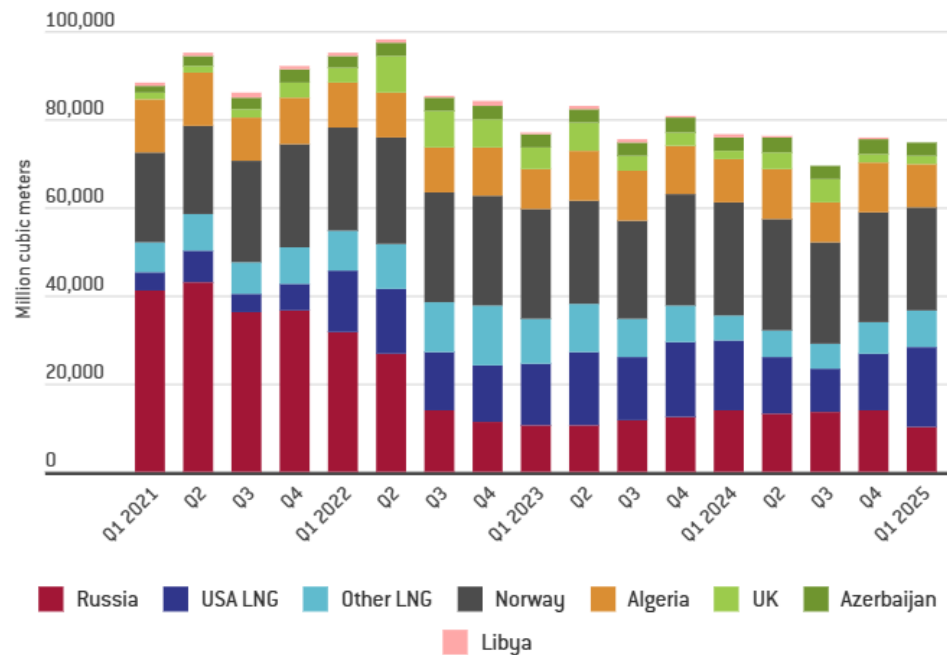
- Meeting storage goals is important for market stability, reducing LNG spot market reliance and winter readiness.
- In the summer, gas prices are lower due to less demand for heating in the warmer months. This is when gas buyers purchase gas to fill up storage for winter.
- In the winter, due to lower temperatures, gas prices are higher. Gas storages are drawn down as gas sellers sell their gas in storage at higher prices.
- After Russia's invasion of Ukraine, in 2022, the EU introduced legally binding targets for gas storage. Inventories were to be 90% full by November, with interim milestones to be met in February, May, July and September.
- By February 2025, storage levels averaged 53%, the lowest since 2022, with some countries missing targets, notably France (36.5%) and the Netherlands (37%).
- Due to concerns that the existing rules risk inflating gas prices during the summer, the EU will make storage targets more flexible going forward.



# European Gas Imports

- Gas demand in Europe is ~360 bcm/year
- In 2022 Russian imports fell by 78 bcm
- This has been largely replaced with LNG from USA
- Europe remains more dependent on long-term (1/3) versus spot LNG contracts (2/3)

EU quarterly imports by source



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