

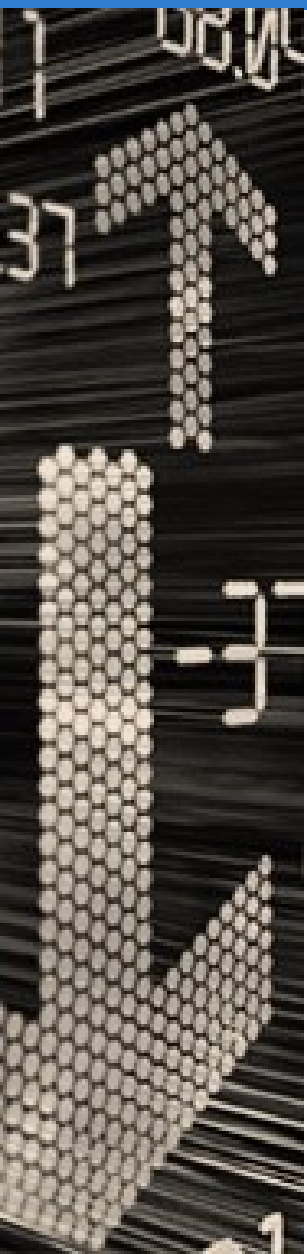
# Gas

Gas storage and swing report

No 37 – January 2023



# Storage and swing contract developments



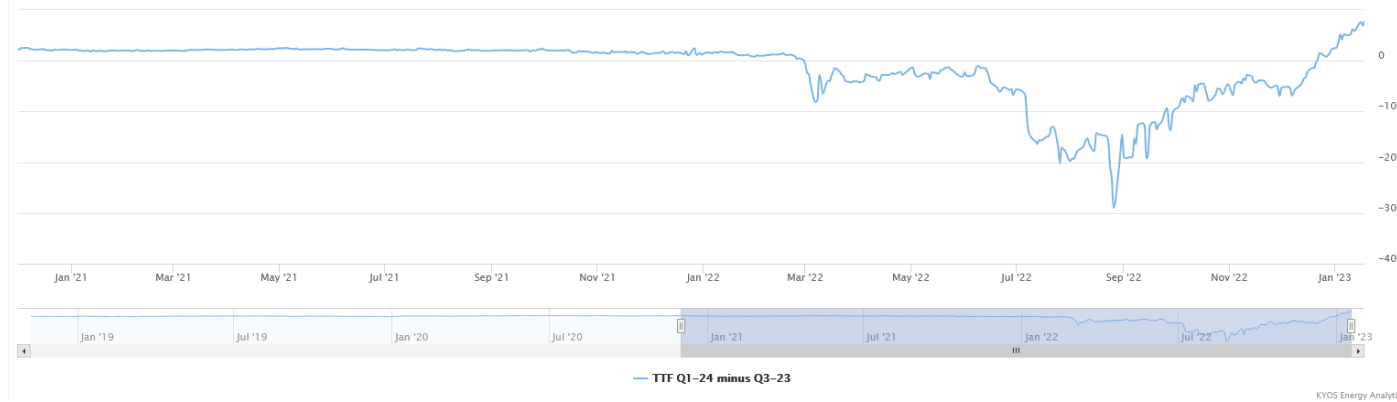
Storage	Market	Product	Period	Cycle Cost	Intrinsic	Rolling Intrinsic		Option	
						Average	10%	Average	10%
	TTF	30/30	SY2023	0.50	2.81 ▲	30.18 ▼	19.17 ▼	28.47 ▼	20.49 ▼
TTF	60/60	SY2023	0.50	2.71 ▲	17.42 ▼	10.42 ▼	17.00 ▼	10.68 ▼	
TTF	60/120	SY2023	0.50	2.22 ▲	12.20 ▼	7.41 ▼	12.58 ▼	7.39 ▼	
NBP	30/30	SY2023	1.00	23.33 ▼	116.29 ▼	75.30 ▼	116.20 ▼	89.23 ▼	
NBP	60/60	SY2023	1.00	23.28 ▼	71.42 ▼	50.37 ▼	71.80 ▼	53.18 ▼	
NBP	60/120	SY2023	1.00	23.27 ▼	52.93 ▼	39.97 ▼	55.40 ▼	40.13 ▼	

Swing	Market	Max/day	Min/Max	Period	Price	Intrinsic	Rolling Intrinsic		Option	
							Average	10%	Average	10%
	TTF	4	360/360	2024	82.82	-0.02	1.93	0.06	2.19	-2.04
TTF	1	0/365	2024	82.82	0.00	15.04	1.25	13.86	4.25	
TTF	4	360/360	2024	MA	-0.02	6.29	2.55	8.89	5.93	
NBP	4	360/360	2024	225.12	-0.01	2.77	-0.01	4.64	-3.27	
NBP	1	0/365	2024	225.12	0.00	31.85	2.46	34.88	8.96	
NBP	4	360/360	2024	MA	-0.02	18.20	7.99	24.53	16.40	

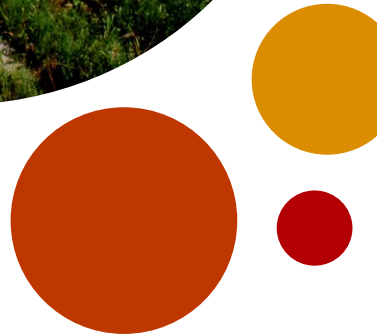
# Price history



## TTF Price History



## NBP Price History

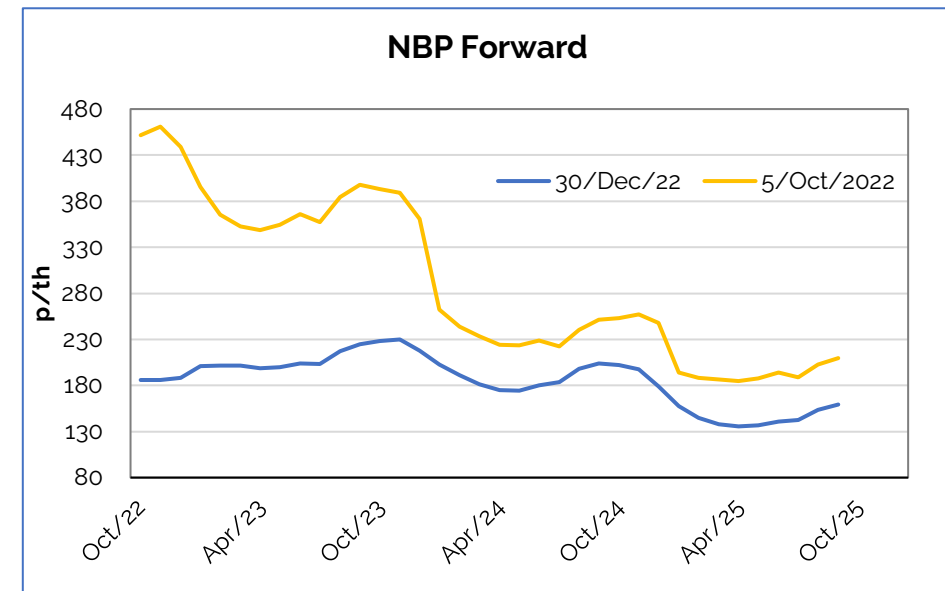
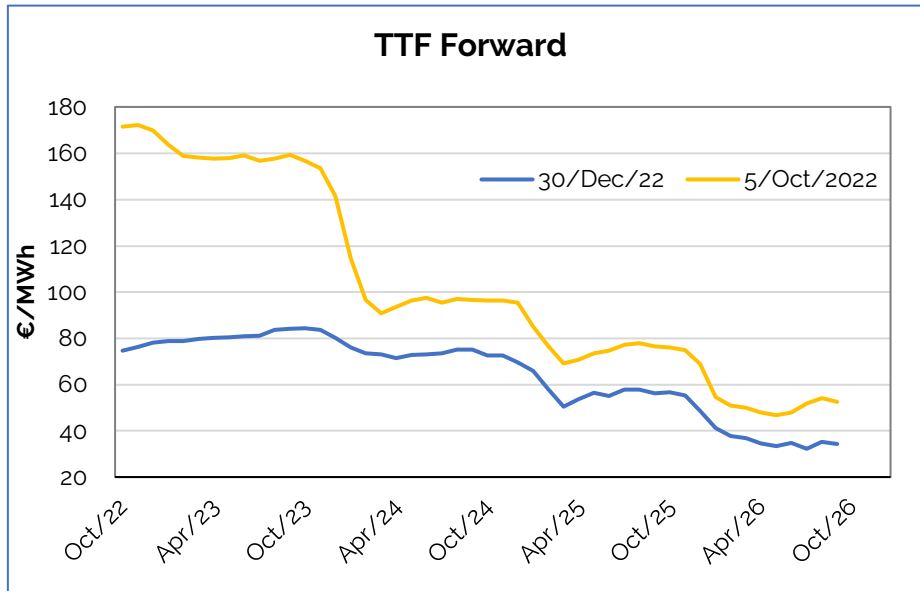




# Volatility and price forward curves

Market	Spot Volatility				
	1m	3m	6m	12m	KYOS sugg.
<b>TTF</b>	187% ▲	356% ▲	267% ▲	215% ▲	52% ▲
<b>NBP</b>	110% ▼	362% ▲	318% ▼	319% ▲	65% ▲
<b>THE</b>	162% ▲	345% ▲	260% ▲	215% ▲	52% ▲
<b>PEG</b>	110% ▼	381% ▲	310% ▲	245% ▲	54% ▲

Market	Year-ahead Forward volatility				
	1m	3m	6m	12m	KYOS sugg.
<b>TTF</b>	99% ▼	74% ▼	103% ▲	90% ▼	45% ⇔
<b>NBP</b>	99% ▼	77% ▼	105% ▲	92% ▼	47% ⇔
<b>THE</b>	99% ▲	72% ▼	99% ▲	87% ▼	45% ⇔
<b>PEG</b>	118% ▲	83% ▼	108% ▲	92% ▼	45% ⇔



# Market Trend



The gas markets dropped dramatically during Q4-2022, with none of the winter risks materializing. On one hand, Europe had a very mild winter so far, with October and November temperatures at record high in several EU regions.

On top of the low heating demand, some noticeable voluntary consumption cuts have been observed by industries and households. Moreover, the long-awaited restart of a dozen French nuclear reactors actually happened by the end of December which lifted the fleet availability from 30 GW to 45 GW, and last but not least, Asian demand remained muted up to date, enabling record high LNG supplies

to Europe. Overall, these drivers kept EU gas storage levels above 80% over Q4-22 and up to date (you can track storage levels and other statistics on our website [gas.kyos.com](https://gas.kyos.com)).

With these bearish fundamentals, Cal-24 TTF and NBP prices dropped by 55.5 EUR/MWh and 150 p/th respectively versus our last release in early October. Prices currently trade at "pre-war" levels or even below. The TTF Q1-24/Q3-24 spread flipped from its negative value to +3.50 EUR/MWh at the time of writing, while the Winter/Summer NBP spread remains positive and trades at +18.60 p/th.

As a result, the intrinsic value of our reported TTF storages went positive as well, compared to zero value in our previous report. The total value of all our assessed storages went down on the back of the big drop in absolute price level.

As of this report we are assessing a new set of swing contracts, covering the year 2024.

Current extreme market conditions make it hard to assess volatility levels. We are therefore interested to hear your opinion on our assessments. Where do you see volatility at the moment? Please share your insights at [info@kyos.com](mailto:info@kyos.com)

# Explanation



## Storage

- Product: 60/120 means 60 days of withdrawal and 120 days of injection capacity.
- The storage values are expressed per MWh (or therms) of working volume.

## Swing

### Product:

- Max/day is the maximum daily take
- Min/Max are the minimum and maximum annual take

### Price

- A fixed price put at Q1-level or
- Month-ahead indexed price (MA)

The swing values are per MWh or therms of contract volume, which is 365 for the daily callable options (max 1 per day) and 360 for other contracts (max 4 per day).

## Volatilities

The volatilities are derived from the end-of-day settlement prices of gas spot and futures exchanges. They are calculated with a history of 1, 3, 6 and 12 months. The 'KYOS suggested' volatilities are our expert view, considering the historical estimates as well as recent market developments. These estimates are used for the valuations.

## Valuation Methodologies

- All valuations have been performed with KYOS software and models, KyStore and KySwing. They are expressed in €/MWh (TTF) or p/th (NBP). Inputs include the spot and forward volatilities from the table in this report, as well as forward curves and some other settings.
- The trading date for all values is 30 December 2022.
- A discount rate of 2% has been applied.
- Intrinsic values are derived from the tradable products in the market.
- Rolling intrinsic and option values are derived from Monte Carlo simulations of spot and forward prices:
  - Rolling intrinsic: the intrinsic value is locked in initially with tradable products; then this position, including spot, may be adjusted daily to capture extra value.
  - Option value: the spot trades are optimized, taking into account the optionality of the asset, based on the least-squares Monte Carlo method. In addition, the position is delta hedged in the forward market to minimize the risk.
  - Of the rolling intrinsic and option value, the table shows the average across the simulations and the 10th percentile, which is a more conservative value estimate.
  - In all trading strategies, the model takes into account transaction costs of 0.02 €/MWh (TTF) or 0.02 p/th (NBP)

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Do not hesitate to contact us for more information, or ask for a short demonstration: [info@kyos.com](mailto:info@kyos.com)



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