

Gas

Gas storage and swing report

No 39 – July 2023



Storage and swing contract developments



Storage	Market	Product	Period	Cycle Cost	Intrinsic	Rolling Intrinsic		Option	
						Average	10%	Average	10%
	TTF	30/30	SY2024	0.50	1.62 ▼	21.05 ▼	10.62 ▼	22.12 ▲	15.65 ▲
	TTF	60/60	SY2024	0.50	1.62 ▼	12.40 ▼	6.09 ▼	13.53 ▲	8.77 ▲
	TTF	60/120	SY2024	0.50	1.55 ▼	9.14 ▼	5.06 ▼	10.28 ▲	6.57 ▲
	NBP	30/30	SY2024	1.00	13.70 ▲	72.33 ▼	39.60 ▲	74.30 ▲	56.77 ▲
	NBP	60/60	SY2024	1.00	13.68 ▲	46.33 ▲	28.20 ▲	48.05 ▲	36.33 ▲
	NBP	60/120	SY2024	1.00	12.87 ▲	36.05 ▲	24.82 ▲	38.30 ▲	27.88 ▲

Swing	Market	Max/day	Min/Max	Period	Price	Intrinsic	Rolling Intrinsic		Option	
							Average	10%	Average	10%
	TTF	4	360/360	2024	54.20 ▼	-0.02 ⇄	2.52 ▲	0.52 ▲	3.32 ▲	0.82 ▲
	TTF	1	0/365	2024	54.20 ▼	0.00 ⇄	9.00 ▼	1.38 ▼	8.48 ▼	3.87 ▲
	TTF	4	360/360	2024	MA	-0.02 ⇄	4.24 ▼	2.19 ▲	6.28 ▼	4.24 ▼
	NBP	4	360/360	2024	141.46 ▼	0.00 ▲	7.81 ▲	2.83 ▲	9.58 ▲	3.75 ▲
	NBP	1	0/365	2024	141.46 ▼	0.18 ▲	22.22 ▼	3.17 ▼	20.53 ▼	8.68 ▼
	NBP	4	360/360	2024	MA	-0.02 ⇄	11.56 ▲	5.86 ▲	16.27 ▼	10.91 ▼

Price history

TTF Price History



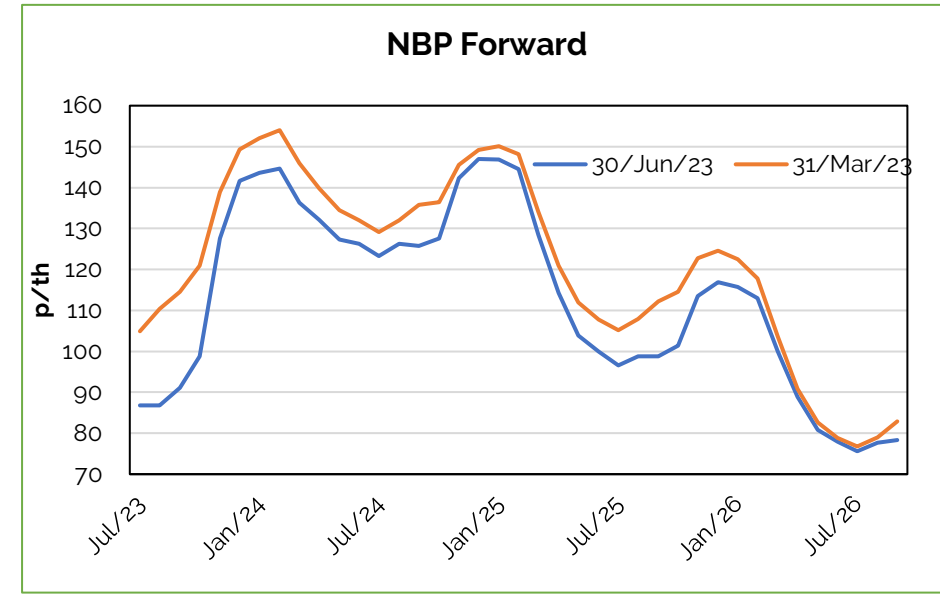
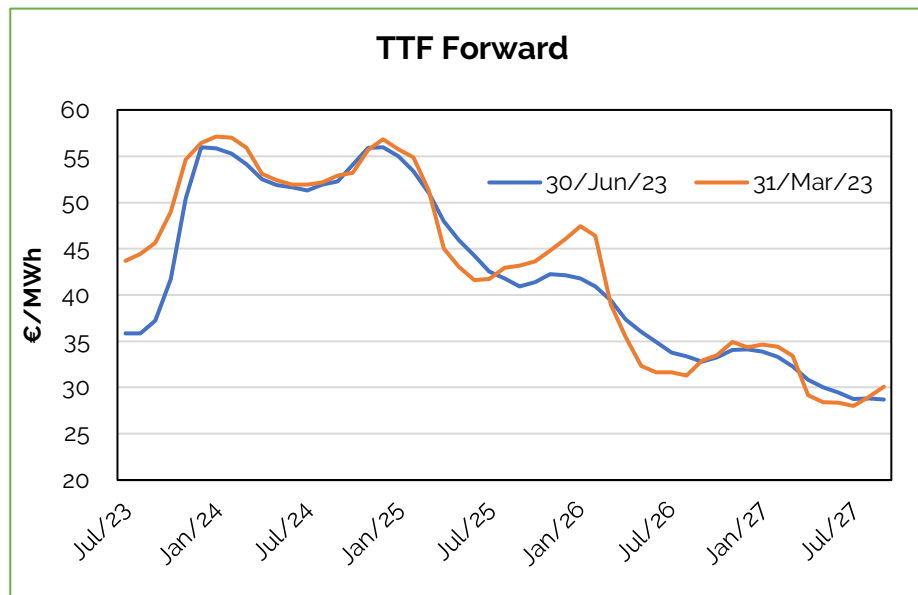
NBP Price History



Volatility and price forward curves

Market	Spot Volatility				
	1m	3m	6m	12m	KYOS sugg.
TTF	33% ▼	40% ⇔	43% ▼	195% ▼	67% ▼
NBP	41% ▼	37% ▼	58% ▼	234% ▼	69% ▼
THE	30% ▼	39% ▼	78% ▼	198% ▲	67% ▼
PEG	39% ▼	49% ▼	74% ▼	230% ▼	67% ▼

Year-ahead Forward volatility				
1m	3m	6m	12m	KYOS sugg.
63% ▲	55% ▲	55% ▼	83% ▲	45% ⇔
62% ▲	55% ⇔	56% ▼	84% ▲	45% ▼
60% ▲	56% ▲	56% ▼	80% ▲	45% ⇔
63% ▲	59% ▲	60% ▼	86% ▲	45% ⇔



Market Trend



The gas markets continued its decline in the last quarter with ample supply and muted demand: German gas consumption averaged 4% lower y-o-y and Spain demand dropped by 6%. The EU gas storage levels stand just shy of 80%, levels that are usually reached in September (you can track storage levels and other statistics on our website gas.kyos.com).

TTF front month prices dropped the most with levels going as low as 23 EUR/MWh in early June, before correcting upwards again. The TTF and NBP prices for delivery in 2024 both retreated by 9% versus our last release 3 months ago.

Nevertheless, market participants bear in mind two main bullish risk to prices. Firstly, the annual maintenance at the Norwegian Nyhamna gas processing plant has been extended by more than 3 weeks to 15 July with hopes of no further delays.

A second upside risk to European prices emerged due to China's upward trend in LNG imports. They surged by 30% y-o-y in May and 40% y-o-y in June, supported by a post-lockdowns economic recovery and strong gas burn in the power sector because of high cooling demand and low hydro output. If the trend continues over the summer, market participants will take it as a signal for

tougher LNG competition to come. The TTF Q1-25/Q3-24 spread reached a high of 4 EUR/MWh in early June before stabilizing at 2 EUR/MWh, while the corresponding Winter/Summer NBP spread trades at +15 p/th.

We decreased our spot volatility estimates by one percentage point while kept our forward volatility estimates unchanged versus our last release.

We are interested to hear your opinion on our assessments. Where do you see volatility at the moment? Please share your insights at 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 June 2023.
- 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)

Our knowledge center is a great resource for the latest news, where we publish interesting articles and reports.

Do not hesitate to contact us for more information, or ask for a short demonstration: **info@kyos.com**



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