



KYOS Energy Analytics Battery Revenues Report

No 9 • August 2025

Battery revenue projections

Revenues 2026 (k€/MW)	Market	Day-ahead		Day-ahead + FCR		Intraday		Intraday + imbalance	
		Ave	10%	Ave	10%	Ave	10%	Ave	10%
	NL	104.3	97.0	131.6	125.2	287.0	274.5	315.2	302.6
BE	97.3	90.9	173.9	169.3	189.8	182.7	272.2	263.6	
DE	105.1	95.1	129.5	120.0	157.9	145.8	n/a	n/a	
ES	77.1	61.2	n/a	n/a	105.4	91.3	n/a	n/a	
GB	76.3	65.1	n/a	n/a	97.6	88.1	100.6	91.8	

Battery revenues in k€/MW in 2026 for a stand-alone located, 0.5C battery with a roundtrip efficiency of 90% and a maximum of 730 cycles per year. For more details, see the section 'Explanation' on the back page of this report.

Please note that values are in k€/MW (=€/kW). As we use 0.5C batteries, to understand the figures in €/kWh just divide by two.

The table above presents the 2026 revenue forecast for a standard BESS across various market segments, based on power forward curves as of the market settlement on 31 July 2025. Since our previous update in May 2025, prices have remained broadly stable this quarter, reinforcing the persistence of the "duck curve" pattern and indicating that the spring trend has carried through into summer.

Across all the markets in the table, valuation changes have been minimal compared to the last report, with Belgium as the notable exception in DA+FCR and ID+IM markets.

In the Netherlands, Day-Ahead and Intraday trading revenues show little difference compared to the previous edition of this report, allowing the country to maintain its leading position in the market. Belgium, by contrast, has recorded reductions of 13% in DA+FCR and 11% in ID+IM compared to the previous report. This decline in FCR revenue expectations is linked to reductions in FCR prices over the past 12 months. Belgium's FCR prices have decreased significantly compared to last year and are now comparable with the FCR prices in Netherlands and Germany. The reduction in imbalance prices may be a result of Belgium's integration into PICASSO in December last year, which has helped stabilize the Belgian market by enabling greater cross-border participation.

KYOS Battery Index

The KYOS Battery Index serves as a benchmark for battery optimizers. It shows the average daily revenue in the past months when trading a 2-hour battery in the intraday market. In GB, NL & BE it includes passive imbalance trading with 30% of the capacity. A description of the methodology can be found on the back page of this report. This index shows the wholesale cash-flow potential for batteries, which cannot be directly translated into market attractiveness for batteries as grid fees are not included in the calculation of the index.

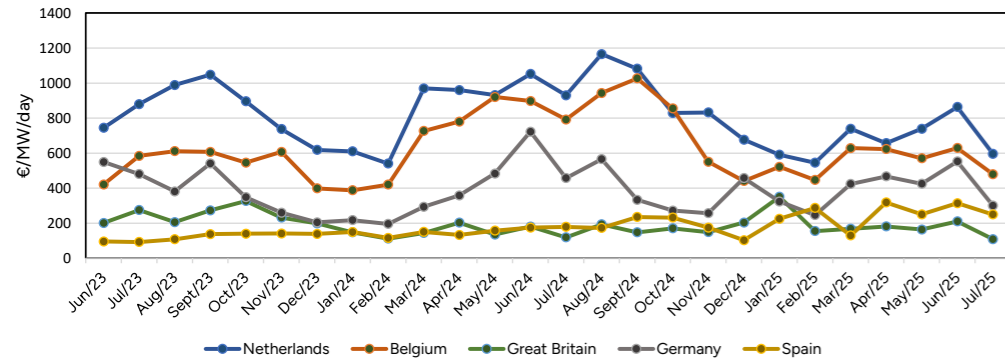
In July, intraday (ID) prices showed a slight decline similar to last year, suggesting the trend may persist through 2025. The "duck curve" effect remains evident this year and is expected to continue into the summer months.

In Spain, prices have followed an incremental upward trajectory, supported by the introduction of OMIE's quarter-hourly contracts, which appear to have lifted ID prices by approximately 7% compared to last summer. Weather-driven fluctuations also played a role, with July being cheaper than previous months. The final week of July coincided with record-breaking daily renewable generation in markets such as Spain and Germany, a factor that may have influenced ID price movements during the period.

Overall, this summer's ID prices show a consistent trend with last year's prices for all other countries apart from Spain, with solar power continuing to meet majority of EU's seasonal energy demand. Higher EU gas storage levels, combined with steady LNG imports, also created a surplus in gas-fired generation capacity. This additional supply may have helped to ease gas prices, which in turn could have contributed to slightly lower electricity prices across the region.

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Battery revenues in €/MW/day. The index considers a participation in the ID and IB markets (the latter capped to a maximum of 30% of the capacity) for the NL, BE and GB indexes, and an ID only participation for the DE and ES indexes.

From power.kyos.com

KYOS Battery index vs revenues

Equivalent value (€/MW/day)	Market	Index 12-month average Aug24-Jul25)	Assessment 2026
	NL	776	864
	BE	643	746
	DE	385	433
	ES	224	289
	GB	184	276

Our historical analysis (KYOS Battery Index) and prospective assessment (2026 Assessment) consistently rank the Netherlands as the strongest market, with Spain and Great Britain ranked lowest. The table shows that the projected 2026 values exceed the historical index revenue for all markets, in line with the main fundamental expectations for the near future.

The widening spreads between low and high prices within the day reflect a system under increasing flexibility pressure. As renewable penetration grows, periods of surplus generation are becoming more frequent, compressing prices during off-peak hours, while limited fast-ramping capacity keeps upward pressure on evening prices.

This evolving price shape highlights both the challenges for system operators and the opportunities for storage assets to capture value from shifting supply-demand imbalances.

Overall, countries with the greatest need for flexible resources continue to offer the highest storage revenue potential, as price volatility from renewable generation creates opportunities to capture value from intraday imbalances.

In order to compare the KYOS Battery Index and the latest KYOS Battery Revenue Assessment for 2026 we show them in the same unit: €/MW/day.

The GB, NL and BE figures are based on Intraday + Imbalance, while for DE and ES only Intraday.

Day-ahead daily spreads

The daily Day-Ahead (DA) power price spread is the highest DA price of the day minus the lowest DA price of the day. The table shows data for the latest N months, up to July 2025 (incl).

Comment: Day-ahead spreads continue to exhibit a clear seasonal pattern, with summer months driving higher values across most markets. Over the past three months, average spreads in the Netherlands, Belgium, and Germany have risen sharply compared to last year's 3-month averages in the same quarter. This trend is likely driven by the significant increase in

solar capacity in the Netherlands and Germany since the start of 2025. As long as solar capacity growth outpaces the expansion of flexibility resources, day-ahead spreads are expected to keep rising. For 12-month averages, comparing the same quarters in both years, price spreads have increased across all markets, from 21% in Germany to 39% in Spain.

Country	Last 36 months	Last 12 months	Last 3 months
NL	132.1	133.5	151.3
BE	116.7	116.8	143.3
DE	126.8	131.9	146.5
ES	80.7	92.3	98.8
GB	94.9	88.8	72.0

Intraday daily spreads

Country	Last 36 months	Last 12 months	Last 3 months
NL	357.7	427.3	437.6
BE	244.7	313.6	299.8
DE	254.2	266.0	297.3
ES	101.6	122.8	151.5
GB	114.9	99.8	83.7

The daily Intraday (ID) power price spread is the highest intraday price of the day minus the lowest intraday price of the day.

Comment: Over the past three months, intraday (ID) spreads have risen across all markets compared to the 3-month averages reported previously. This increase may be attributed to high temperatures in late June and July, as well as heightened volatility from growing solar generation. Even though they have slightly declined in the last 12 months, spreads in Germany remain

relatively high, whereas the United Kingdom has seen a continuation of the gradual decline observed earlier this year, likely reflecting the stability brought by increased availability of flexible capacity in the market. In this quarter, compared to day-ahead (DA) markets, ID price spreads are at least twice as large in Belgium, the Netherlands, and Germany. Comparing this quarter's average to the average in the past 12 months, Spain shows the most pronounced increase of 23%, likely supported by stronger solar output and improved market granularity following OMI's recent intraday market changes. Conversely, Great Britain has experienced a 16% decline in spread.

Imbalance daily spreads

The daily Imbalance (IB) power price spread is the highest imbalance price of the day minus the lowest imbalance price of the day.

Comment: So far into 2025, imbalance price spreads have come down from their 2024 levels, with the most notable reductions in the Netherlands and Belgium. This trend is largely attributable to a key market change: in October and November of last year, both countries joined PICASSO - the European platform designed to harmonize balancing markets by coordinating aFRR activations across borders. This integration has had a

moderating effect on both the level and volatility of imbalance prices. Despite this overall decline, in the Netherlands, prices increased by 13% in the latest quarter compared to the previous quarter, driven in part by interconnector reversals in June that caused abrupt shifts in net flows and pushed imbalance prices higher. Belgium and Great Britain have maintained similar price levels compared to the previous quarter.

Country	Last 36 months	Last 12 months	Last 3 months
NL	958.6	1166.0	1009.7
BE	614.3	704.7	630.7
GB	183.8	161.3	139.8

FCR prices

Country	Last 36 months	Last 12 months	Last 3 months
NL	16.48	17.61	22.25
BE	30.73	31.46	22.06
DE	15.93	16.39	21.15

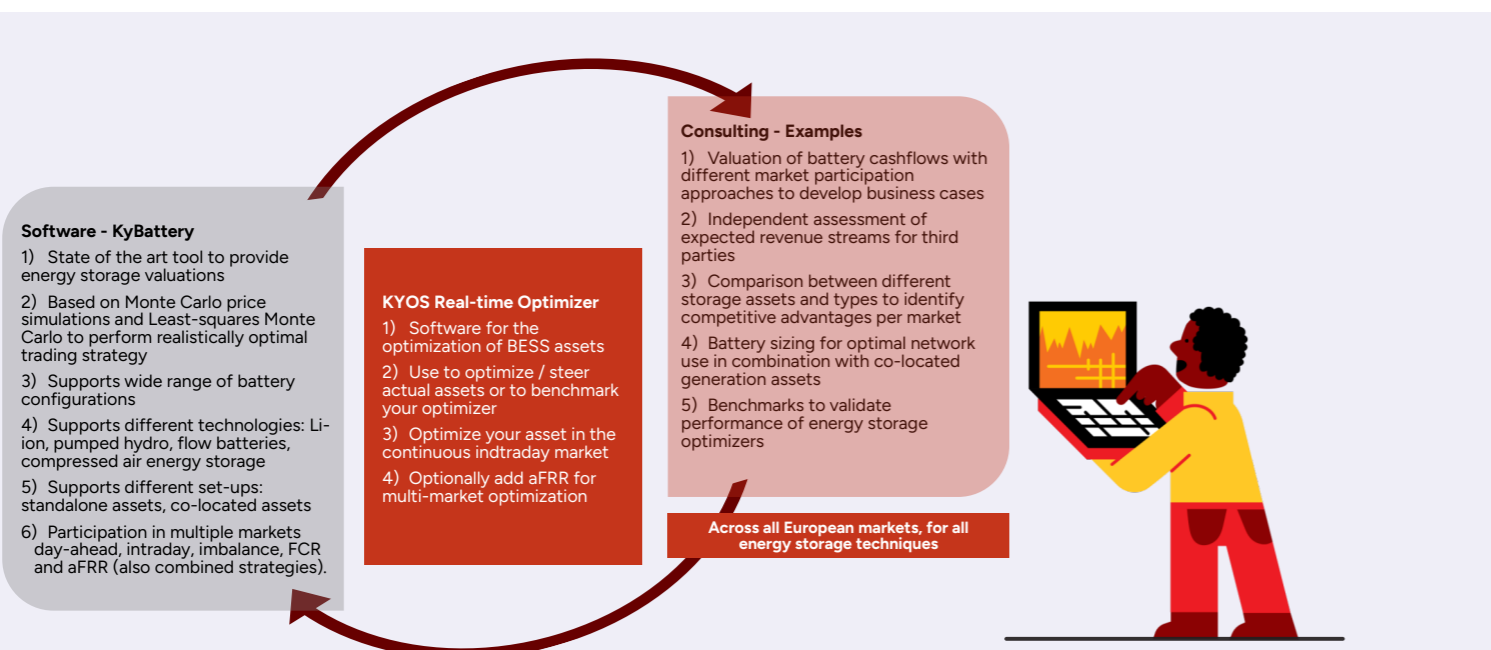
NFCR prices have generally increased across the region in recent months.

Netherlands and Germany: In the last three months, prices in both countries rose by around 50 percent compared to our previous report, reflecting stronger short-term demand in the frequency control market. The increase is primarily driven by higher solar generation, which displaces gas fired plants during mid-day hours when the demand for FCR provision is high. This limits the number of fast ramping units available to meet system needs, and the resulting reduced flexibility has pushed FCR prices higher during the summer months.

Belgium: Short-term prices remained relatively stable, but the annual average fell by 17%, likely reflecting the impact of joining PICASSO at the end of December, which has eased longer-term price pressure.

Spain and Great Britain: These countries are not part of the FCR market. They use their own mechanisms for frequency regulation.

*Note: The NL 2023-11-02 FCR price of 77,777 EUR/MW between 16 and 20hrs was removed out of the sample





Explanation and methodology

Description of the valuations

- The **KYOS Battery Index** reports cashflows in a specific past month for the defined battery and market.
- The index is a single value per market and expressed in EUR/MW/day. A detailed description can be found on the next page.
- The **KYOS Revenue Assessment** simulates and optimizes expected cashflows in 2026 for the defined battery and markets.
- All future (2026) price simulations are arbitrage-free to the forward prices in the market and have been generated with the KySim model. Values are reported in k€/MW.
- All trading strategies have been optimized by the KyBattery model.

Battery definition

- The batteries are of type 0.5C; this means that the battery can be fully charged or discharged in 2 hours
- Passive imbalance trading is limited to a maximum of 30% of the total battery capacity
- No degradation is assumed
- Batteries have a round-trip efficiency of 90%, based on 94.9% charge and discharge efficiency
- The number of cycles per year is limited to 730
- All assets are stand-alone.
- In both valuations, we allow only 30% of the battery capacity in Passive Imbalance Trading (PIT), because of the limited liquidity (due to cannibalization effect).

Description of the valuations

- Day-Ahead (DA): trading in the Day-Ahead market, hourly granularity.
- Day-Ahead and FCR (DA+FCR): offering capacity in the FCR market (4 hours) or trading in the Day-Ahead market, hourly granularity.
- Intraday (ID): trading in the intraday market, 15 min granularity for NL, DE, BE, 30 min for GB, and 60 min for ES.
- Intraday and imbalance (ID+IB): trading in intraday, combined with passively trading imbalance. Only where passive imbalance trading is allowed (NL/BE 15 min, GB 30 min).

Battery Index Methodology:

Data sources: EPEX (ID1) for NL, BE, DE, GB. TenneT, Elia and Elexon for Imbalance in NL, BE and GB. OMIE for ES.

Intraday trading is done with perfect foresight of the prices, based on dynamic programming optimization. This means the battery charges/discharges in the optimal moments.

The passive imbalance trading strategy creates a short (or long) position whenever the forecasted IB take (feed) price in the next hour falls (rises) sufficiently below (above) recent IB take (feed) prices. The thresholds are defined independently for each market in a way that it maximizes the revenue.

A multi-linear regression based on historical imbalance and intraday prices is used to generate the imbalance price forecasts. The income from passive imbalance trading is calculated on the imbalances times the actual imbalance prices.

To explain the interaction with the intraday market, pretend there are two independent traders operating in each market:

- **Intraday Trader:** This trader optimizes battery dispatch based on expected price developments in the intraday market. The primary trader's decisions are made 1 hour ahead of the imbalance trader.

- **Imbalance Trader:** After the primary trader makes her decision, the imbalance trader reviews the battery's current state and the primary trader's positions. He then decides on trades based on recent imbalance prices and forecasts for the next period.

- Finally, the imbalance trader must ensure that any trades he makes do not exceed the battery's capacity limits. He updates the primary trader on the new state of charge, which she will consider in her next decision-making cycle.



This is just a brief overview of what we can offer you. Have a look at our website www.kyos.com for more detailed information.

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