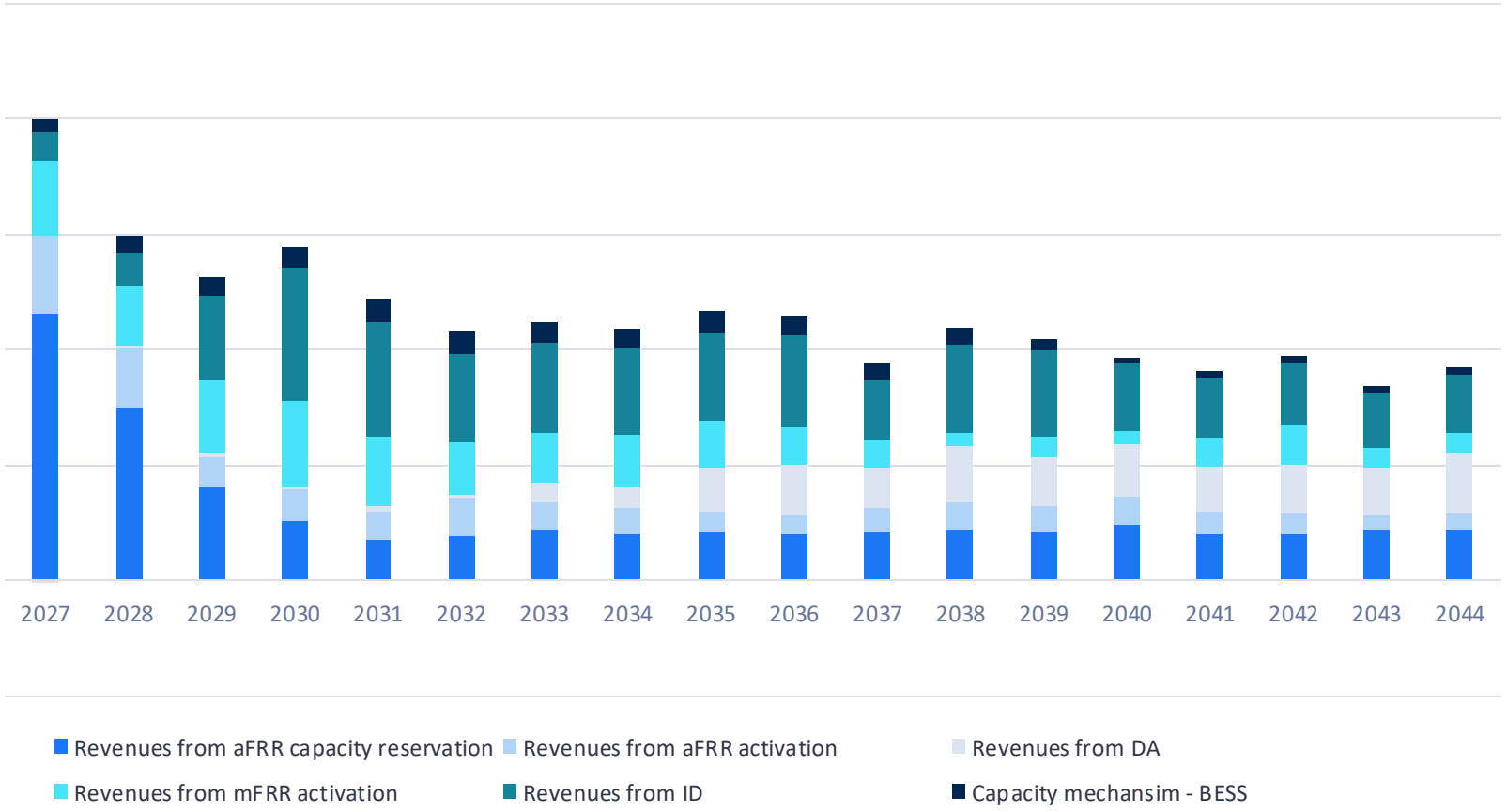
Revenue stack

Revenue Stack for a 50 MW/100 MWh BESS – Central Scenario
In k€/MW – real 2025



Revenue Analysis

A 2-hour BESS allows for high revenue capture in the secondary reserve market especially during the first year.

After 2027, aFRR capacity prices are expected to decrease due to market saturation. Consequently, revenues will be distributed between trading and aFRR energy and capacity reservation prices.

As more batteries join the PICASSO platform, this will lead to a reduction in revenues from this market due to cannibalization. Therefore, the decrease in revenues from this market will be offset by gains from trading in mFRR and intraday markets.

Changes from S1 2025 to S2 2025 prices and revenue stack – Assumptions

Long term gas prices have been reduced, in line with most recent long term markets for gas	Gas prices have been reduced in the long term resulting in lower marginal cost of gas powerplants and therefore lower peak prices, reducing the long term day-ahead spreads.
Renewable penetration and electricity demand have been revised downward in light of recent TSO current updates	The share of renewables – particularly solar – has been reduced due to low profitability expectations for unsubsidized projects and the lack of long-term visibility. Clean Horizon does not expect the PPE targets to be met by 2035. Similarly, long-term electricity demand has been revised downward, with a projected level of 603 TWh by 2050 instead of the 645 TWh previously anticipated. Those changes result in lower day ahead volatility in the short and long term.
BESS CAPEX have been slightly decreased, in line with latest industry values	BESS CAPEX has droped slightly due to a decrease of the energy part of the BESS from 140€/MWh to 135 €/MWh.

Changes from S1 2025 to S2 2025 prices and revenue stack – Price forecast methodology

Renewable assets participation in aFRR DOWN capacity auction has now been taken into account.	It is expected that renewables will provide down reserves and therefore their impact on prices has been accounted for, leading to lower down aFRR reservation auction prices in the long-term.
Intraday methodology has been upgraded	Intraday auction and continuous revenue projections now take into account the growth of the intraday volume with the increasing renewable production in France as well as the cannibalization effect of BESS on the revenues. The methodology also now takes into account the fact that revenues on the intraday are higher for 3h and 4h BESS than for 2h BESS.

Changes from S1 2025 to S2 2025 prices and revenue stack – COSMOS

COSMOS tool was upgraded to allow asymmetrical prequalification on aFRR	Asymetric prequalification to aFRR is now enabled in COSMOS, enabling the BESS to capture higher revenues on aFRR when prices are higher in one direction. This change has resulted in higher aFRR capacity revenues in the short-term.
COSMOS has been improved to enable higher cycling of the BESS	Clean Horizon dispatch strategy has been optimised to maximise BESS cycling.

Changes from S1 2025 to S2 2025 prices and revenue stack – regulatory changes

Capacity mechanism derating factors have been updated for each scenario	According to the latest announcements from the French TSO, a new nomogram for the calculation of the BESS derating factor will be introduced. The new derating factors for the capacity mechanism market will be reduced to reflect the fact that BESS needs to charge during the day in order to respond to the evening peaks and that BESS will no longer be constrained to provide ancillary services during peak days,
Short term Capacity mechanism prices have been reduced	Due to lower demand and the overcapacity that France is currently having, most signals are green regarding winter peaks. Therefore, capacity mechanism prices have been reduced.

Long-term forecast based on factors impacting energy storage revenue streams

The following assumptions are used as inputs to the model:

- Country load evolution and flexible assets
- Installed thermal capacity (gas, nuclear, coal, etc.)
- Installed wind & solar capacity
- Future electricity mix of neighbouring countries
- Fuel prices: gas, oil, coal and CO2 price

Assumptions applied during the post-treatment phase:

- Electricity and storage market knowledge
- Storage deployment
- Market depth evolution
- Weather scenarios
- Regulatory changes
- Opportunity cost of energy storage on other markets (Day-ahead, mFRR, and aFRR)

Clean Horizon's dedicated in-house expertise

- Expertise in energy storage
- Critical view of storage experts on inputs and obtained scenarios
- AI algorithm tailored for storage
- Mathematically reliable algorithm simulating scenarios
- Multiple iterations and data post-treatment to verify accuracy of results

Forecast provided	Granularity
FCR	4h
aFRR reservation	1h
aFRR activation	15 min
Balancing mechanism	15 min
Capacity market	1 year average
Day-ahead market	1h
Intraday auction	1h
Intraday revenues	15 min revenue forecast