

Optimization and Accuracy needs for optimal BESS profitability

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Energy Market landscape

RES Curtailments persist in q1 -Entrance of BESS in EnEx – Market Prices fall

Energy Market related updates

BESS Systems

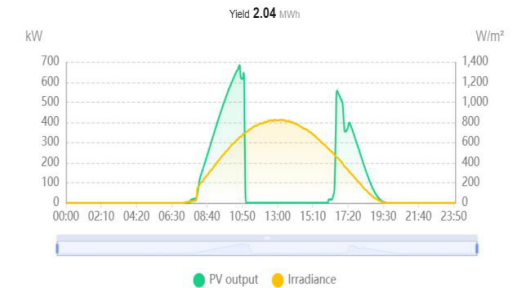
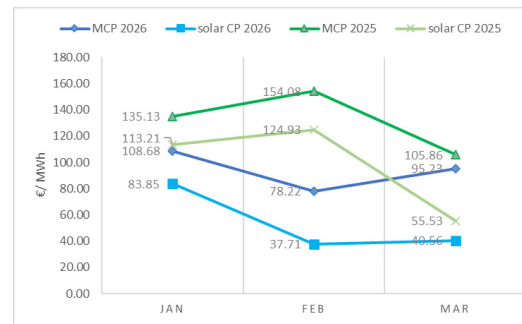
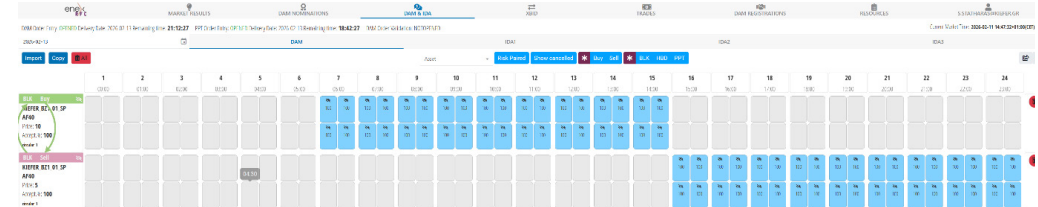
/ BESS integration In Wholesale markets (new orders and assets)

DAM Prices RES Capture Prices

/ Persistence of zero MCPs in q1 drives avg price and solar Capture Price downwards

RES Curtailments

/ Physical and market induced RES Curtailments continue in q1



Hyperion-X

full automated energy management platform

The screenshot shows the Hyperion-X website interface. At the top left is the Hyperion-X logo. The top right navigation menu includes 'SERVICES', 'ABOUT', 'GET STARTED', 'LOGIN', and a settings icon. A blue badge on the left reads 'GPU-Powered Intelligence'. The main heading is 'Full Automated Energy Platform' in white and blue. Below it is a sub-heading: 'End-to-end automation for energy markets. From precise weather forecasting to optimal market positioning, powered by NVIDIA GPU technology.' Two buttons are present: 'Book a Meeting ->' and 'See Our Services'. The central 'Platform Performance' section features a bar chart and four key metrics: '15min Forecast Resolution', '48h Ahead Predictions', '5+ Market Types', and '100% Automated'. A 'Live' indicator is in the top right of the performance section.

GPU-Powered Intelligence

Full Automated Energy Platform

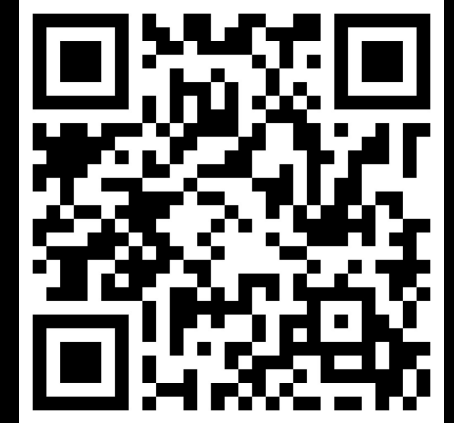
End-to-end automation for energy markets. From precise weather forecasting to optimal market positioning, powered by NVIDIA GPU technology.

[Book a Meeting ->](#) [See Our Services](#)

Platform Performance Live

15min Forecast Resolution	48h Ahead Predictions
5+ Market Types	100% Automated

Automated Market participation & RES asset owner payments



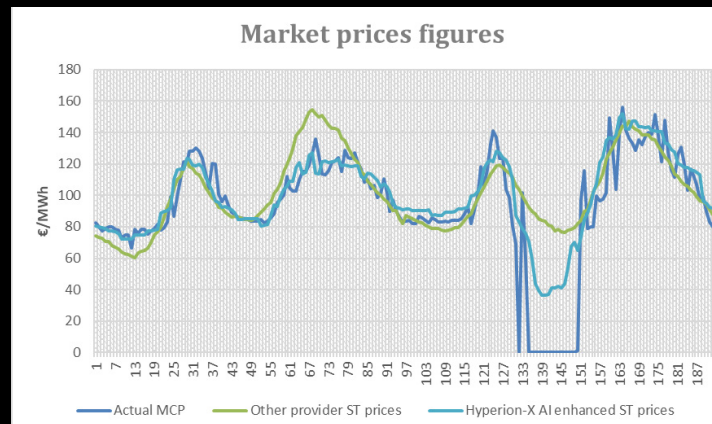
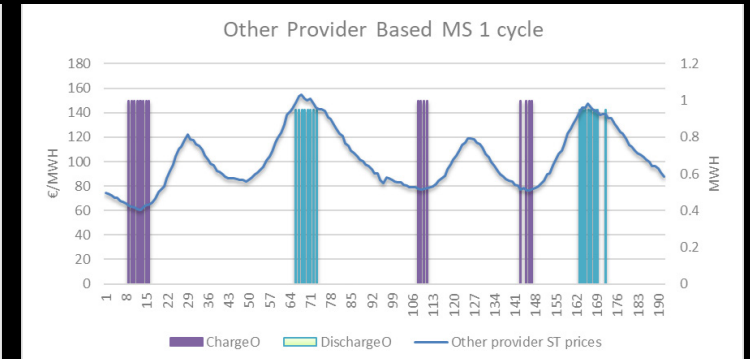
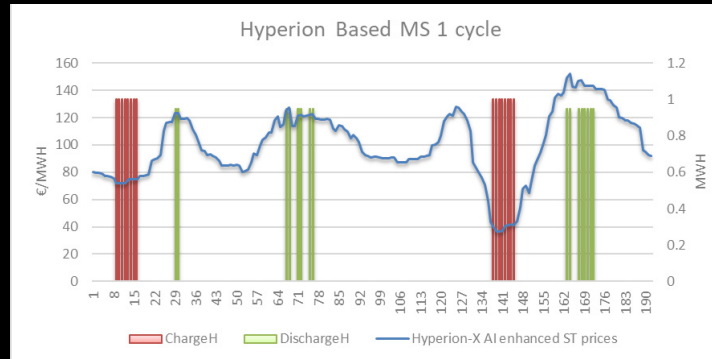
www.hyperion-x.ai

BESS revenue stacking

The importance of Forecasting and Simulation precision (example 4 MW / 8 MWh BESS)

/ Although ST forecasted prices express similarities, the difference in best charge timeslots and discharge timeslots create differences in actual realized revenues

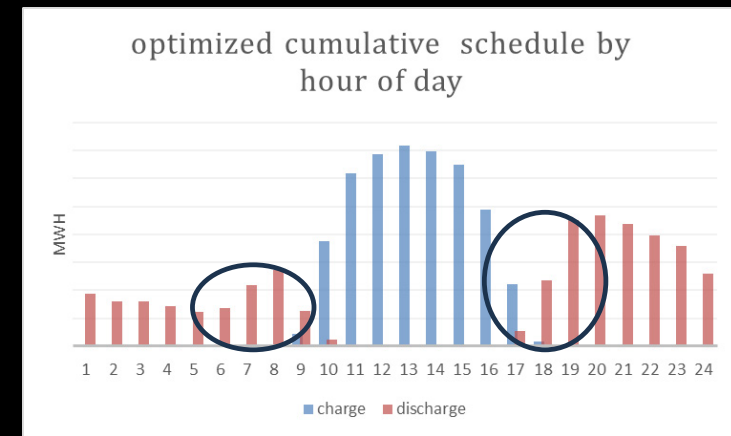
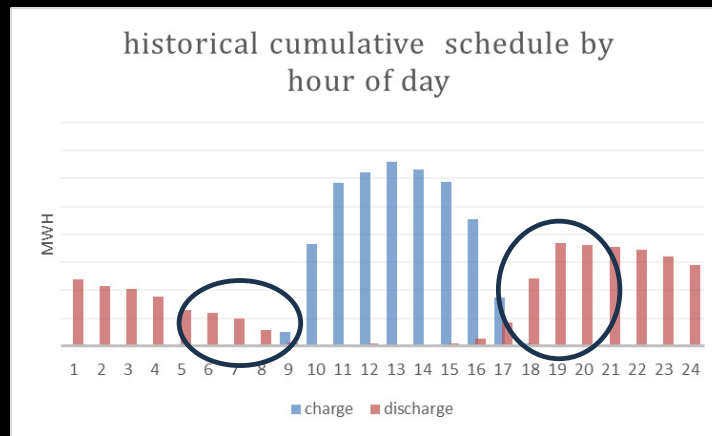
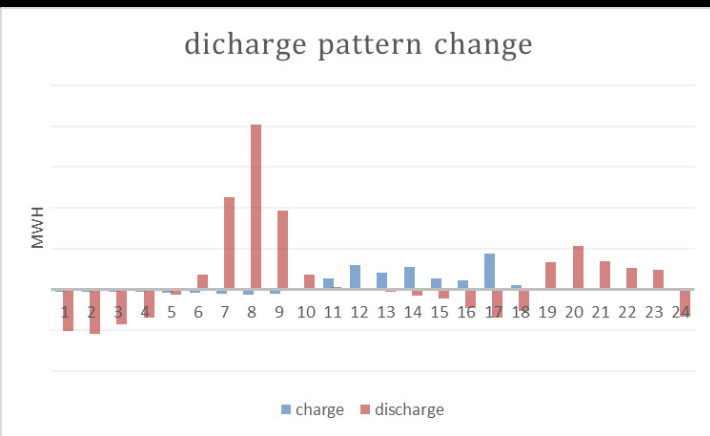
Charge Cost H (€)	600.79
Dicharge revenue H (€)	1965.693
Net revenue H (€)	1364.903
Charge Cost O (€)	935.01
Dicharge revenue O (€)	1970.956
Net revenue O (€)	1035.946
diff (€)	328.957
diff (%)	32%



BESS revenue stacking

The importance of Forecasting and Simulation precision (self consumption optimization)

Naïve Self consumption vs Optimized Self consumption



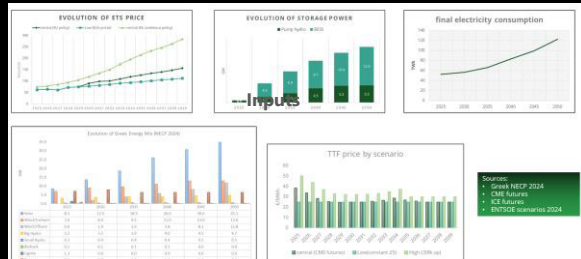
/ Theoretical max benefit increase: **25%**

/ Actual change -including self consumption induced deviations as well as asset unavailability : **15%**

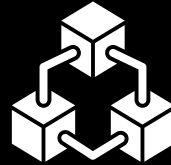
BESS Revenue Optimizer for maximum profitability



Feeds on fundamental market Inputs



Step 1: Short term forecasts
Volumes and prices



Optimization problem

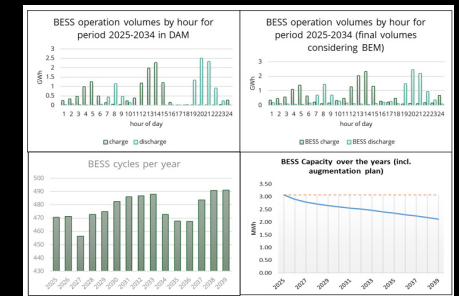
PV generation Consumer Load Consumption Energy Storage System

/ Accounts for all technical (asset related) and market related constraints to solve a profit maximization problem

Step 2: Optimization model run
Optimal Market Schedule -Repositioning



- Optimal BESS operation schedule (charge-discharge)
- Market Positioning
- Capacity Degradation
- Optimal cycling
- Energy Cost and profit Calculation
- Cost Benefit Analysis



Step 3: Output results



Thank You !

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