the future of energy trading

why AI-powered energy trading services are crucial for a successful transition to clean energy
we are enspired

we are driving the energy transition by enabling our customers to bring flexible assets to the European power spot markets and capture their full value with our AI-based trading service.

we monetize your power asset

- in a transparent and comprehensive manner with an online real-time dashboard
- providing you with market access if required
- Utilizing state-of-the-art technology for maximum value generation
- operating 24/7
- with fair commercials - fair profit sharing, no minimum term, no risk, no surprises

our technology is your advantage

- all available data in real time implemented
- developing adaptive trading strategies based on self-learning models
- fully automated trading processes optimised down to the last millisecond
- plug & play integration with standardised API

company info

- headquarters in Vienna, Austria
- owned and managed by the founders
- recognised experts in AI and algorithmic short-term energy trading
### Cross-Market Optimization of BESS

**Two main markets to be distinguished**

#### Ancillary Services (Balancing Market)

<table>
<thead>
<tr>
<th></th>
<th>FCR</th>
<th>aFRR</th>
<th>mFRR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Auction</strong></td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td><strong>Bids</strong></td>
<td>Symmetric</td>
<td>Asymmetric</td>
<td>Asymmetric</td>
</tr>
<tr>
<td><strong>Activation</strong></td>
<td>Automatically</td>
<td>Automatically (TSO)</td>
<td>Manually (TSO)</td>
</tr>
</tbody>
</table>

**Product lengths in the 2 markets**

<table>
<thead>
<tr>
<th></th>
<th>Energy market</th>
<th>Capacity market</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 hrs (only 1 market)</td>
<td>4 hrs</td>
</tr>
<tr>
<td></td>
<td>15 min</td>
<td>15 min</td>
</tr>
</tbody>
</table>

#### Wholesale Market (Spot Market)

<table>
<thead>
<tr>
<th></th>
<th>Day-ahead auction</th>
<th>Intraday auction</th>
<th>Continuous Intraday</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phases</strong></td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td>12 PM</td>
<td>3 PM</td>
<td>3 PM – 12 AM</td>
</tr>
<tr>
<td><strong>Product length</strong></td>
<td>1 hr</td>
<td>15 min</td>
<td>15 min</td>
</tr>
</tbody>
</table>

#### Prerequisites

<table>
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</thead>
<tbody>
<tr>
<td><strong>Pre-qualification</strong></td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td><strong>Security of supply</strong></td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

**Counterpart:** TSO

**Example Germany**
the majority of battery storage players in Europe market their batteries only in ancillary services

Source: https://www.iea.org/fuels-and-technologies/energy-storage
revenue diversification is a must due to current FCR market situation

CURRENT SITUATION OF THE MARKET ...

- FCR prices have been constantly falling over the past years
- batteries have become a main source of FCR for the TSOs
- more players are entering the market, increasing the cannibalization effect

LEADS TO THE NEED OF ...

- diversification minimizes the risk and acts as an insurance for ongoing market trends
- sophisticated wholesale arbitrage to reduce amortisation time
- cross-market battery optimization

diversifying revenue streams
different levels of optimization possibilities

**ILLUSTRATIVE**
10 MW | 12 MWh

**NO DIVERSIFICATION**
- Power in MW
- Energy in MWh
- Usable storage
- Unusable area (defined by manufacturer)
- SoC for FCR
- SoC management
- Security limits by TSO

Revenue only generated with 8 MW in FCR
Underutilized battery

**LITE DIVERSIFICATION**
- Power in MW
- Energy in MWh
- Usable storage
- Unusable area (defined by manufacturer)
- SoC for FCR
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- Security limits by TSO

Additional revenue generated on wholesale market
Fully utilized battery

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- SoC for FCR
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- Security limits by TSO

Optimal split between wholesale & FCR applied
Optimal utilization of residual capacity

**Example Germany**
- Security limits by TSO
- SoC management
- Wholesales market (incl. SoC management)

Based on market data, best split to reach commercial optimum is applied
Optimum volume of residual capacity is traded on wholesale market

NO DIVERSIFICATION

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Optimal split between wholesale & FCR applied
Optimally utilized battery

**Example Germany**
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Based on market data, best split to reach commercial optimum is applied
Optimum volume of residual capacity is traded on wholesale market
optimal power split between FCR and wholesales (18 months period)

BESS only used for FCR

realistic average optimized configuration

BESS only used in wholesales market

Power allocated to FCR

Maximum cycles per day

in MW

Earnings
diversification is key
optimize revenues by daily decisions
Diversification is key
cross market battery optimization options

Schematic representation without SoC management
Diversification is key for cross-market battery optimization options. Just start with wholesales. The schematic representation without SoC management shows a timeline of 12 months to get pre-qualified, with a focus on WS and FCR.
let's have a chat!

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