



AI in the Energy Sector - Case Energy Markets

World Energy Council seminar May 5th, 2025

**Anne Särkilahti, CEO
Hytrade**

www.hytrade.ai

Hytrade enables flexible assets' participation in power markets

Combining strong domain competence with current technology expertise



- Founded in 2023 in Helsinki
- 50 years of energy sector experience
- Startup, corporate, academic backgrounds within energy, trading, finance, data science, IT
- 5 people
- Backed by 3 VC funds + 6 angel investors

Hytrade optimises the usage of renewable power production with the flexibility of the industrial player and executes the best trades in the power markets with its proprietary software including decades of market experience

The transformative role of AI in the energy sector

Not only new AI tools available but also demand driving AI implementation in the energy sector

- Why does AI have such an influence on energy sector right now?
 - Need/demand: Energy sector is changing due to politics - renewable energy production and other decarbonisation technologies incl. electrifying industry increasing rapidly, changing the traditional supply-demand pattern. In addition, the energy crisis increased power price volatility even higher and traditional commercial service contracts were disrupted, forcing power consumers more active players than before
 - Solution/supply: Digitalization including AI is making the energy transformation possible financially and also more efficiently, providing tools for coping the situation
- Large influence in trading but also in other energy sector use cases like predictive maintenance, grid optimisation, customer engagement



Renewable power production having key role in transforming power markets

AI provides tools to manage our changing circumstances, from power production assets to trading decisions

- Energy transformation means integrating more renewable power production to the power grid while trying to survive the huge costs involved
- Large market share of fast varying and unpredictable power production means also consumption needs to react fast as well - unlike before!
- **Traditionally**, with well plannable and forecastable power production processes, there was no hurry and one could plan and forecast once a day or even a week. The so called balancing was done traditionally from the perspective of physical power supply-demand balancing. The price volatility was less and liquidity too.
- Today, volatility has increased as well as liquidity as there is a need to trade larger balance errors. Planning and forecasting is continuous, making also trading with or without assets possible and profitable



AI transforming energy trading

The quickest wins the zero-sum game

- AI bringing benefits like
 - Increased Profitability: Through more accurate forecasts, optimized strategies, and faster execution
 - Reduced Risk: Via better hedging, real-time monitoring, and predictive risk assessment
 - Enhanced Efficiency: By automating tasks and processing information rapidly
 - Improved Decision-Making: Providing traders with deeper insights and data-driven recommendations
 - Better Handling of Complexity: Especially regarding the integration and volatility of renewable energy sources
- Data Quality and Accessibility: AI relies on high-quality, accessible data for accurate predictions and insights
- Experimenting and sparring to speed up the development
- However, AI does not do all the work for the trader. You need to understand trading as a profession



Example: Continuously updated market view and trading decisions

Creating decision making algorithm with the help of AI/Machine learning, data science and current technologies and combining it to trading experience



You can simulate different weather scenarios impact on the market

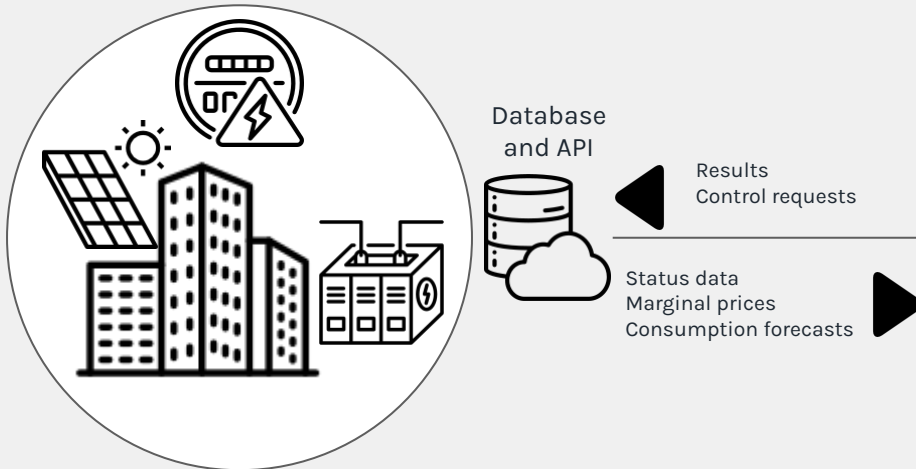


And build different trading playbooks based on them and the availability of your flexibility

Example: Real estate fleet with behind the meter solar + battery system

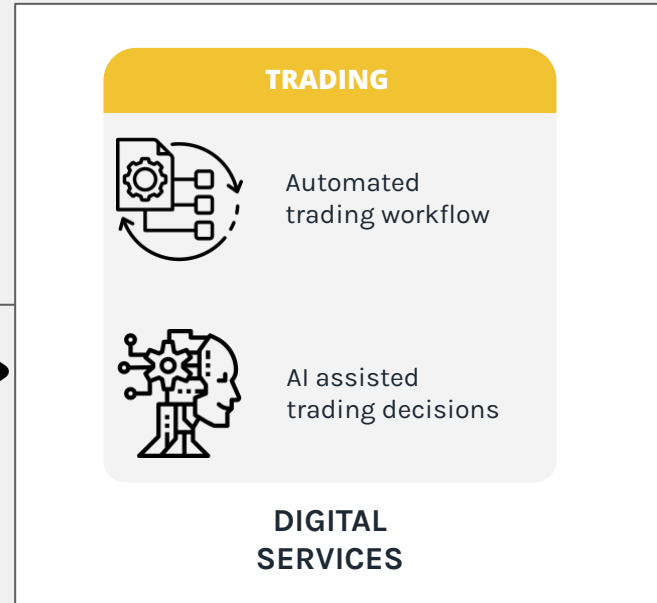
Reducing energy and transmission costs, increasing self-sufficiency

Virtual Power Plant software



Is connected to the building automation system and controls and optimizes behind the meter assets

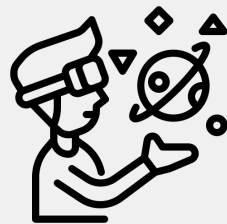
- Consumption flexibility
- On-site electricity production
- Co-located battery



Future Outlook and Summary

Unlearning from the past, trying to have open mind regarding tools and ways of working

- In the new energy system, not only the dynamics of the supply and demand assets change, but the system will also contain new components in a central role, e.g. storages and hydrogen. AI has many roles in bringing efficiency and profitability and helping steer the systems
- Focus on building and optimisation of new kinds of value chain structures and business models is crucial. Cannot compensate the performance of a non-optimal value chain or business with the help of only tools including AI
- Using AI does not compensate for not having the skills and knowledge on your own professional sector - “doing stupid stuff quickly” is not the winning strategy





Clarity to complexity

www.hytrade.ai