

Cracking the Code on Battery Profitability

Partner Spotlight

uprise

Uprise develops innovative, sustainable, and tailor-made solutions for the energy, finance, mining, and public sectors. Their expertise in software engineering and consulting empowers organizations to achieve their sustainability and innovation goals. Visit <https://uprise.hr> to learn more.

Customer Spotlight



Statkraft is a leading company in hydropower internationally, and Europe's largest generator of renewable energy. The group produces hydropower, wind power, solar power, and gas-fired power, and supplies district heating. Statkraft is a global company in energy market operations. Statkraft has around 7,000 employees in more than 20 countries.

Industry: Power & Utilities

Location: Europe

Use Cases: Forecasting

Website: www.statkraft.com

Results

- A comprehensive route-to-market study outlining an optimal, hourly, multimarket energy trading strategy, capturing market price dynamics and asset behavior in far greater detail
- Detailed financial analysis with market price spread sensitivity analysis, cash flow projections, and internal rate of return
- 12 – 25% increase in forecasted revenue due to the hourly, multimarket optimization approach

Using Gurobi-powered optimization, Uprise helped Statkraft develop a profit-maximizing strategy for the market operation of a battery energy storage system in Croatia.

As governments and businesses around the globe look to decarbonize their systems, the ability to efficiently operate energy storage assets has become a focus for many. Battery energy storage systems (BESS) can offer much-needed flexibility for storing energy and ensuring availability when other sources—such as wind and solar—are not sufficient.

Statkraft, a Norwegian state-owned energy company and Europe's largest renewable energy producer, recently set out to explore the potential of BESS operation in Croatia. But before they could move forward, they first faced some crucial questions: Would the project be financially viable? And if so, what strategies would ensure its success?

For answers, Statkraft turned to Uprise, an energy consultancy and software development firm. Based in Europe and aligned with Industry 5.0 principles, Uprise specializes in helping companies optimize their assets and operations through cutting-edge software solutions

that utilize advanced modeling and optimization techniques.

Predicting Profitability in a Complex Market

Planning for a 25-year asset in a volatile market—such as the energy market—involves high-stakes decisions. When it comes to BESS planning, prices swing, ancillary service rules shift, and assets degrade over time. Croatia is also an emerging market for ancillary services, which makes it interesting for BESS operation. For Statkraft, the challenge wasn't just running numbers—it was about building a decision tool that could 'think' years into the future.

Statkraft needed to know not just if the project could work, but how to make it profitable under shifting market conditions, technical degradation, and evolving regulations.

"We need to provide a financial model for every project we develop in order to proceed," explains Vanja Strabić, Project



“Working with Gurobi has been a great experience. When it comes to speed and performance, Gurobi is far ahead of the competition.”

Zlatko Ofak

*Business Development
and Innovation Lead, Uprise*



Developer at Statkraft. “This means we need to forecast the price of the electricity and try to understand what the operation will be like 20-25 years from now, including how much money the battery will earn.”

Uprise set out to build a route-to-market study for Statkraft using advanced decision-making strategies and mathematical optimization to identify the most effective and efficient path forward.

“There were different market strategies [Statkraft] could apply with different constraints,” says Zlatko Ofak, Business Development and Innovation Lead at Uprise. “We used mathematical optimization to determine the optimal strategy for maximizing their revenues throughout the year.”

Using Optimization to Choose the Best Strategy

Uprise was first introduced to Gurobi through several of their clients, who use the solver for complex grid optimization and transmission system operation. Now a Gurobi partner, Uprise knew that the solver’s unmatched speed would be key to Statkraft’s project.

“In the energy sector, speed is extremely important. These calculations are performed daily, sometimes multiple times per day, and usually with strict time constraints,” explains Ofak. “These timings are very challenging, especially when you take into account the size of the problem, the number of constraints, and so on.”

Inputs for the feasibility study included battery expenditure details and market data, such as wholesale prices and

ancillary service requests. Market constraints included specific limitations around trading, while technical constraints included battery capacity, depth-of-discharge, degradation, and cycle life details.

By simulating hundreds of potential market behaviors and operational trade-offs, the optimization model gave Statkraft more than a “yes” or “no” answer—it uncovered the best path forward, including a 12 – 25% increase in forecasted revenue due to the hourly multimarket optimization approach, as well as detailed insight into optimal day-to-day market strategy approaches.

A Roadmap to Success

Uprise’s final deliverable to Statkraft included an optimal trading strategy broken down by hour, plus a detailed financial analysis with cash flow projections and internal rate of return (IRR) to evaluate the long-term profitability of the BESS deployment.

“With this study, we were able to analyze different market approaches and understand which scenario was best for us in order to move forward,” says Krešimir Benčić, Senior Project Developer at Statkraft. “We now have the information we need to present to the board, and we got some valuable feedback that we will also be able to use if we move forward with other battery projects in the future.”

Throughout the project, Uprise found the dedicated support and expertise they needed from Gurobi.

“Working with Gurobi has been a great experience. When it comes to speed and performance, Gurobi is far ahead of the competition,” says Ofak. “But what really stands out is how dedicated the account managers and support team are—no matter the circumstances, they always help us find a solution.”

As battery storage takes on a bigger role in Europe’s energy systems, the need for innovative, optimization-based strategies will only grow. Thanks to Uprise’s expertise and Gurobi’s powerful solver, companies like Statkraft are better equipped to navigate this evolving energy landscape—and to turn opportunity into action.

Since the publication of this case study, Statkraft Croatia has been acquired by Resalta and now operates under this name in Croatia.

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