



CUSTOMER CASE STUDY

Optimizing Power Market Bidding via Predictive Simulation

Maximizing power generation profitability with 168-hour predictive weather and plant simulations

Solution: BKO Forecasting Tool with CCTWIN Simulator **Industry:** Power Generation

Use Case Focus: Market Bidding Optimization

GOALS

- Improve the accuracy of market bidding strategies for power generation.
- Leverage week-ahead forecasted weather conditions to plan operational capacity.
- Standardize and streamline the integration of plant simulation data into bidding workflows.
- Maximize monetary profits by optimizing power generation asset utilization.

SOLUTIONS

- Developed an advanced forecasting tool integrating week-ahead weather conditions.
- Implemented the CCTWIN simulator to model plant operations under forecasted conditions.
- Created a user-friendly spreadsheet interface to easily configure and fine-tune weekly inputs.
- Integrated automated reporting to deliver 168-hour bidding results via email or direct market APIs.

CHALLENGES

- Limited visibility into the complex interaction of market dynamics and plant operations.
- Difficulty incorporating week-ahead weather forecasts into manual bidding workflows.
- Lack of a centralized interface to simulate and test ERCOT market bidding scenarios.
- Inefficient operational planning leading to missed revenue opportunities during periods of volatility.

RESULTS

- Generated increased monetary profits during periods of application availability.
- Provided clear visibility into 168 hours of granular, predictive bidding results.
- Streamlined data sharing through automated email delivery and direct API integration.
- Improved strategic decision-making by aligning weather forecasts with simulated plant outputs.

EXECUTIVE SUMMARY

A power generation operator partnered with BKO to address inefficiencies in its energy market bidding process. By leveraging BKO's forecasting tool and the CCTWIN plant simulator, the client integrated week-ahead weather forecasts with operational plant data to optimize bids for the ERCOT market. The solution delivers automated 168-hour bidding forecasts via a flexible spreadsheet interface and direct API integration, ultimately driving higher monetary profitability during active usage.

The Power Bidding Challenge

Operating in competitive energy markets like ERCOT requires a precise alignment of weather patterns, plant capabilities, and market pricing. For this power generation client, manual or disconnected bidding strategies often failed to account for complex, week-ahead weather forecasts and real-time plant limits. This lack of integration made it difficult to predict operational capabilities accurately, resulting in sub-optimal market bids. To capture peak revenue opportunities, the operator required a cohesive digital solution that could bridge the gap between volatile external weather variables, thermodynamic plant constraints, and complex market structures.

Developing the CCTWIN-Powered Simulator

In response, BKO developed an advanced forecasting and simulation tool that integrates the client's thermodynamic plant parameters with week-ahead weather data. Powered by the CCTWIN simulator, the application allows operators to model plant performance under varying environmental conditions. A key design element is the intuitive, spreadsheet-like interface, which enables users to manually fine-tune operational inputs for the upcoming week. The platform then processes these variables to generate a comprehensive 168-hour bidding plan, optimizing dispatch strategies for maximum economic yield.

Seamless Integration and Financial Impact

The system ensures high usability by delivering the optimized 168-hour bidding results directly through the client's preferred channels. Users can receive automated Excel reports via email or push the optimized bidding structures directly to market clearinghouses via a secure API. This automation removes manual data transmission errors and speeds up market-readiness. The deployment led to a direct and measurable increase in monetary profits compared to operational periods when the simulation tool was unavailable, proving the financial value of data-driven market bidding.