CASE STUDY

KBC
A Yokogawa Company

North American Utility Energy Imbalance Market Participation Saves USD 30.5 million

Customized application increased efficiency

Key Benefits

- Enhanced reliability and significantly boosted savings
- Reduced uninstructed imbalance energy charges
- Became the best performing participant in the energy imbalance market

Background

- Large US utility
- Western EIM participant
- Limited ability to monitor and analyze unit performance

KBC Solution and Results

- Created a custom application using the OSIsoft PI AF structure
- Single source of unit performance data
- Real-time data to make informed decisions

Client Challenge

In 2014, the California Independent System Operator (CAISO), a real-time energy market, opened its market to electric utilities. By doing so, they created the Western EIM, the first of its kind.

The Western EIM is a voluntary real-time energy supply market that offers electricity generation and transmission services. Their goal is to find low-cost energy to serve real-time consumer demand by balancing loads.

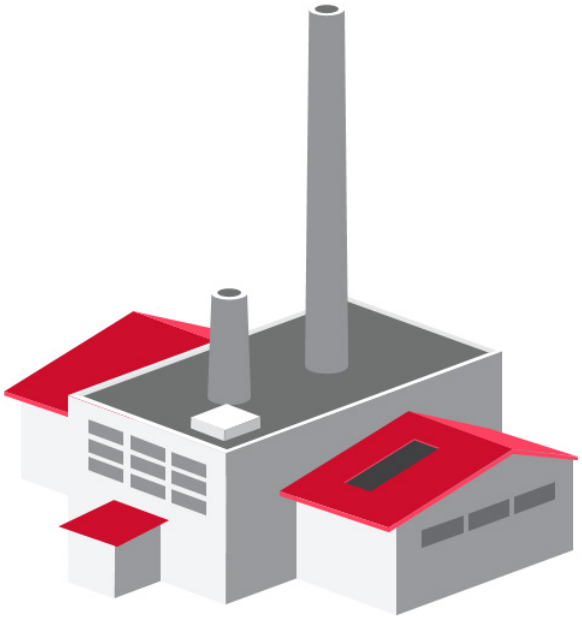
A large utility in the US provides over 1.2 million customers with reliable electricity. They saw participation in the Western EIM as an effective way to enhance reliability and save customers money through better cost management.

While they were happy with the results, they wanted to improve efficiency and increase savings even more. If they could perform as close to market targets as possible, they could make better decisions on fuel purchases, energy trades, and maintenance.

Imbalances between energy supply and demand change constantly throughout the day. However, they had limited tools to independently monitor and analyze unit performance as compared to market instructions in real time that use one-minute data resolution. In energy trading, minutes do matter. This can translate to millions of dollars.

The Solution

The operator had established a relationship with KBC in 2015 for implementation of PI solutions for monitoring,



situational awareness, and analysis. They reached out to KBC again to develop an effective monitoring solution.

KBC created a customized application to monitor Fossil Generation Unit performance using the OSIsoft PI AF structure, PI Vision and BA Integrator. Using iterative work processes, the team was able to manage project complexity and speed up development.

The result was a Fossil Unit Monitoring tool that updates data values at one-minute intervals along with filterable and scalable results. It provides reports for visual analysis that allows for the real-time monitoring of generating unit performance within the EIM.

The tool was transformational for the utility. It provides a single source of unit performance data. All groups throughout the facility can easily access the data to quickly identify, review, and correct market deviations with the understanding of the financial impacts. The utility now operates more closely to forecasted levels of generation.

Results

Almost immediately, the operator noticed the benefits of the Fossil Unit Monitoring Tool. The tool provided data that allowed the operator to close gaps between actual generation and market targets. This improved cost management and reduced fees for deviations, extra fuel purchases, and sub-zero market pricing. The utility reduced its Uninstructed Energy Imbalance Charges, contributing significantly to its $30.5 million in savings.

According to CAISO, in 2019 the EIM has provided USD 861.79 million in gross benefits to market participants since its launch in November 2014. The utility received over 71.5 million in benefits since it joined the Western EIM. It is the best performing participant.

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