



# Campus Utilities Set for Success with Niagara Analytics

## THE CHALLENGE

Hawkeye Energy Solutions, a top-tier systems integrator based in Chicago, was approached by a large university with a challenge: The existing campus-wide metering system and plant operations data needed to be rearchitected to eliminate labor-intensive manual procedures, provide accurate real-time dashboards of large and complex data sets, facilitate accurate on-time utility billing for hundreds of customers, and institute a robust solution that easily could be expanded without a major rework. And, all of this was merely a first step in ultimately reducing energy consumption campus-wide. The university needed a solution that would estimate and interpolate the disparate data sets without time-consuming data cleansing.



## THE SOLUTION

Past solutions had brought the university's utility operations only part of the way there, requiring extensive programming and reprogramming when devices changed, and many hours of manual, error-prone spreadsheet analysis. Using the Niagara Framework® and Niagara Analytics, Hawkeye quickly developed a reliable and maintainable solution capable of visualizing and analyzing real-time data for chilled water, hot water, steam and electricity across millions of square feet of university facilities.

Key components of the system include:

- More than 150 JACE® units connected to a Niagara Supervisor
- More than 400 individual meters across 70+ buildings
- Plant operations capable of providing yearly energy use of 250 gWh of electricity and more than 1200 million BTUs of steam, hot water and chilled water
- A dashboard used by the campus sustainability department to provide university audiences with real-time feedback of their energy usage

Key metrics include energy use over multiple user-defined time periods, energy use per square foot and meter data quality. The solution automatically notifies users the moment issues occur or if a customer's energy profile deviates from expected use based on numerous key factors. Custom dashboards provide a real-time snapshot of individual buildings and groups of buildings over a defined geography. A single score was designated to calibrate the quality of available data, which facilitates finding and addressing meter data-quality issues quickly and with increased confidence. Automated reports are now sent to key players at predefined intervals, eliminating the need for manually printed reports.

## THE RESULTS

Before Niagara Analytics, meter readings were gathered manually and recorded on paper reports. Some data also was collected automatically but only reviewed once a month for quality and accuracy. Now with Niagara Analytics, a cumulative score for data quality can provide the user a metric to gauge the reliability of what is being displayed on the dashboard with a defined degree of confidence.

Additionally, the university had five-plus years of historical data that it was unable to leverage. The move to real-time data collection has greatly improved the accuracy and actionability of metering data, including the ability to quickly identify malfunctioning or stuck meters through anomalous readings. Automated insight into building operations at a defined timeline (month-to-date, last week, day before yesterday, etc.) was impossible in the past without time-consuming analysis.

Hawkeye was able to perform simultaneous analysis of multiple data sets and, in addition to the benefits realized by the end customer, was able to realize a 75% reduction in programming efforts compared to similar projects.