

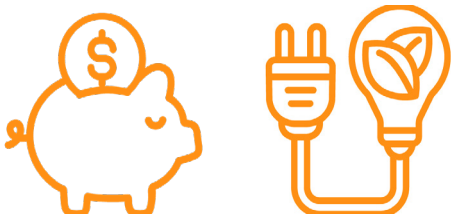


## KAIZEN FDD DELTA-T ANALYSIS FOR A UNIVERSITY RESEARCH FACILITY

### CLIENT OVERVIEW

Home to over 600 scientists, physicians, nurses, statisticians, research administrators, and support staff, our client is one of the most reputed universities in the United States. In January 2018, its Clinical and Translational Science facility became the first building at the university campus to be certified LEED GOLD – achieving 5 out of 17 points in the Energy & Atmosphere section.

### BENEFITS



In just the 2 first months of analysis alone, Kaizen detected key faults that could save \$32,273 per year. That's 358,588 kWh of energy or 254,000 kg of CO<sub>2</sub> emissions. To put it in perspective, that's like avoiding burning over 281,000 pounds of coal in the US.



### THE PROJECT

Initially, CopperTree deployed a CopperConnector to the client facility in order to collect real-time data from their BAS (Building Automation System). The CopperConnector searches the BAS network for data points and transmits them to the cloud, giving building owners access to valuable data.

### THE CHALLENGE

Within a week of CopperTree's standard ruleset implementation on the 459 HVAC systems in the building, Kaizen picked up a variety of insights in its analysis. Among them, Kaizen suggested to address a high priority insight of a low  $\Delta T$ , a temperature difference between chilled water return and supply temperatures, being less than 10° F, while the corresponding Pump VFD speed was equal to or greater than 89%.

### THE SOLUTION

CopperTree suggested that the client first verify the chiller controls, operations, and sequencing. In addition to that, according to the Affinity Law, a 50% reduction in pump speed would reduce the energy consumption by 87%. CopperTree also recommended to run a delta-T of more than 13° F in order to reduce the pump speed to lower than 50%, as it would be the ideal condition for an efficient chiller operation.