FINDING COST SAVINGS AT THE DELTA SCHOOL DISTRICT

LOCATION

Brooke Elementary, Delta School District
Delta, BC, Canada

KAIZEN BENEFITS

24% reduction in electricity costs at Brooke Elementary

15,597 kWh reduction in kilowatt hours from 35,243 kWh (January 2012 vs. January 2014)

$609/year savings in pilot school

$10,353/year Projected savings for all 17 schools

OUR CHALLENGE

The Delta School District has an inventory of 17 pod-type elementary schools. The schools have identical layouts and building systems and are served by air source heat pumps (ASHP) that provide heating, ventilation and air conditioning.

To prepare the rooms for school start times, all units were enabled at the same time in the morning. As a result, electrical demand was highest in the morning and led to demand charges from the utility company.

In searching for potential load shedding opportunities, the Energy Manager of the Delta School District wanted to implement a program to stagger the start of the ASHPs. Doing so would minimize the demand charges triggered by their concurrent starts.

The Energy Manager asked ESC Automation to implement a program to stagger the ASHP operation in order to reduce demand while maintaining building and occupant comfort.

ESC Automation used CopperTree Analytics to investigate the pilot building of Brooke Elementary, track historical energy consumption versus occupancy, predict demand, and track and report savings.
Once the occupancy and demand patterns were pinpointed using CopperTree Analytics, building operators programmed and executed a series of automatic modes (summer mode, winter mode, shoulder season, and after hours). They also used occupancy sensors and prioritized the start times so that preconditioning of each ASHP’s rooms began in order of priority rather than running concurrently.

The CopperTree solution for the Delta School District consisted of these products:

- CopperCube to extract and store building automation system trend logs.
- Kaizen analytics engine and logic builder to process data into meaningful, actionable information.
- Electrical demand charts to track electrical consumption across systems, rooms and time.
- Vault for demand trend logging and active kilowatt trending every five minutes.
- Golden Standard to issue insights whenever new automatic modes and set points were manually changed or degrading the impact of the cost-avoidance measures in place.

At Brooke Elementary, the first school in which the CopperTree solution was implemented, the impact was immediate. Compared to the same month in the previous year, a demand cost savings of 46% was realized right away. A total of $609 per year is being saved in demand charges.

A drop in consumption was also recorded. Before the strategy was in place, 35,243 kWh were consumed in January 2012. After the strategy was in place, consumption dropped dramatically to 15,597 kWh.

The overall demand savings continued throughout the year and clocked in at 24% overall.

CopperTree Analytics believes in providing actionable insights for building automation and energy management professionals. Learn more about what we can do for you and your business at www.coppertreenalytics.com.