

Building Analytics Success Story

Sprint Headquarters



In 2014 Sprint decided to invest in energy analytics for the HVAC systems in their headquarters campus in Overland Park, Kansas. The HVAC systems were well-maintained, but the facilities staff advocated for more advanced tools to help uncover additional energy savings and improve operations. Investing in an energy management & information system (EMIS) has paid off for Sprint, as they embedded performance tracking in everyday operation of their buildings to cut annual energy waste by over \$400,000.

Sprint uses Fault Detection and Diagnostics (FDD) software to detect HVAC faults and continuously analyze HVAC operations.

Sprint's FDD software:

- Automatically detects performance problems
- Helps prioritize issues based on cost impact
- Helps visualize the frequency and duration of the fault

In addition to identifying specific system faults, Sprint wanted to ensure they fully captured the true energy impact of their FDD efforts. Fortunately, they had the tools and energy metering in place that allowed them to develop a method for documenting and verifying their savings.

What is FDD?

Fault Detection and Diagnostics (FDD) tools are software that identify building systems performing sub-optimally. FDD is one type of tool known as energy management and information systems (EMIS).

Sprint continuously tracks campus energy consumption, ensuring they stay focused on their sustainability goals. FDD has been a key element in supporting energy saving efforts since 2014.



Sprint's EMIS can identify issues we didn't previously know existed, so we can address them before they become a problem, saving money and providing better comfort for our associates.

- Darrel Carter, Sprint Enterprise Energy Manager

Quick Facts

Location: Overland Park, Kansas

Building type: Office and data center

Gross floor area: 4 million square feet

Total buildings: 20

Service provider: CBRE | ESI

EMIS Tool: SkySpark by SkyFoundry

Energy savings: 4,787,000 kWh savings in calendar year 2016, compared to a 2014 baseline (5% of campus electric use), for \$431,000 in cost savings

Smart Energy Analytics Campaign: Recognition for Best Practice in Use of EMIS

In partnership with CBRE | ESI, Sprint received national recognition from the U.S. Department of Energy's Smart Energy Analytics Campaign in 2017, acknowledging their exemplary work to save energy through the use of EMIS.



Sprint's FDD dashboard summarizes system issues and ranks by cost impact (Source: Sprint)

With FDD in place, we can now go directly to the VAV boxes that have been flagged with specific faults, rather than needing to check hundreds of VAV boxes in case they have problems. This saves us time, money and manpower.

*- James Becker,
Energy Manager*

The Power of Analytics

Sprint has used FDD to optimize many different HVAC system components: air handlers, computer room air-conditioning units (CRACs), fan-powered terminal boxes, fan coil units, and other equipment. Examples of issues uncovered by the SkySpark FDD software include:

- Stuck dampers on air handlers
- Leaky chilled water valves
- Outdoor air sensor drift
- Stuck dampers on VAV boxes

Sprint has successfully reduced maintenance costs by proactively targeting HVAC system components that are performing sub-optimally. FDD points out specific performance issues, enabling Sprint's maintenance staff to address degraded performance before it results in occupant discomfort and costly energy waste.

The Essential Human Element

With building analytics the organizational strategy for acting on the tool's recommendations is critical. FDD will not automatically resolve system issues - it is a tool to help staff direct their skills where most needed.

Sprint's facility managers and BAS technicians review SkySpark fault reports to determine root cause and decide on specific corrective actions. For each case, a work order is entered into their computerized maintenance management system (CMMS). FDD work orders are then completed in the same process as other facility management work orders. Monthly performance reporting is presented to Sprint's management to share the impact of the FDD initiative.

Partnering for Success

Working with a partner to support FDD operation can help manage internal resources and provides a fresh perspective on building operations. Sprint has worked closely with its FDD service provider CBRE|ESI in setting up SkySpark to optimize the HVAC systems. Sprint and CBRE|ESI take an innovative collaboration approach: One month CBRE|ESI reviews half of the buildings' FDD reports, and Sprint's internal staff looks at the other half. Then they switch the next month. This process has allowed the facilities team and service provider to work as a team, leveraging strengths in particular technical areas.

The Smart Energy Analytics Campaign is led by the U.S. Department of Energy to support commercial building owners in adopting energy management and information systems (EMIS). The program provides technical assistance, recognition opportunities, and a chance to network with industry-leading peers. Whether you have an established EMIS or are in the early stage of considering EMIS, the Smart Energy Analytics Campaign will support your move to the next level. Learn more at smart-energy-analytics.org