

Building Analytics Success Story

Aurora Public Schools



Aurora Public Schools' energy management team is getting energy information into the hands of students, teachers, and custodians, creating a culture of energy awareness across the 40,000-student district. With a history of tracking real-time energy consumption, Aurora Public Schools (APS) is using a new Energy Information System (EIS) to move to the next level.

Multiple Angles on Energy Use

APS is using multiple meter data feeds to understand and reduce electricity consumption, with additional manual inputs for natural gas, water, waste, recycling, and compost. Simple publicly accessible dashboards are designed to engage students, staff, and the broader community, raising awareness and tracking progress toward carbon emissions reduction goals. Maintenance staff use a 70-inch "Interactive Diagnostic Console" monitor for a more granular, analytical view of the data. With this display HVAC technicians can, at a glance, see critical building performance parameters across the entire district.



It became apparent to us that to empower everyone in Maintenance and Operations to become their own energy managers, staff needed the power of the EIS at their fingertips.

- Craig Wright, APS Energy and Building Optimization Coordinator

What is an EIS?

An EIS is a combination of software, data acquisition, and communication systems used to store, analyze, and display building energy meter data on an hourly or more frequent basis.

Management Approach

APS is using its EIS to support new data-driven approaches to energy management and to bolster the practices already in place, including the following:

- **Operations management:** APS uses the EIS to identify demand spikes, scheduling improvements, baseload reduction opportunities, and unusual after-hours energy use.

Quick Facts

Location: Aurora, Colorado

Building type: K–12 Schools with almost 40,000 students

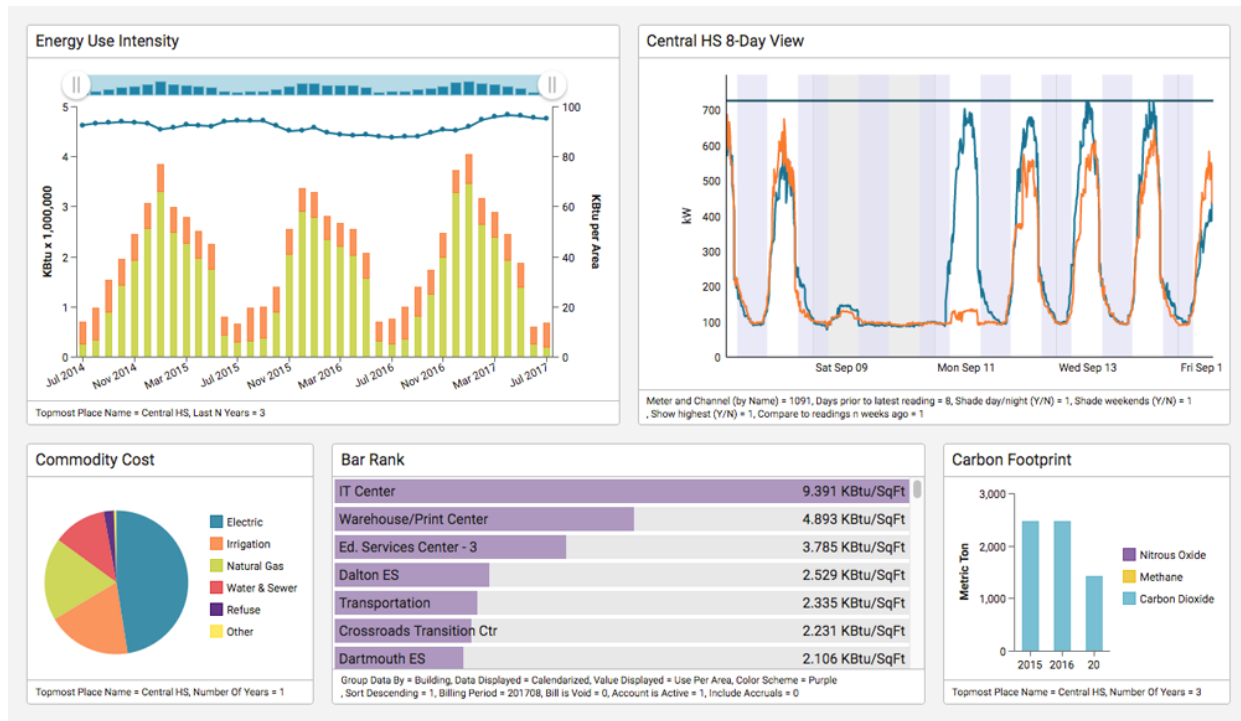
Gross floor area covered by EIS: 4.8 million sq. ft.

Total buildings with EIS: 50

Energy Management and Information Systems (EMIS) Tool: EnergyCAP

Smart Energy Analytics Campaign: Recognition for New Installation of EIS

Aurora Public Schools was recognized by campaign partners during Smart Cities Week in October 2017, acknowledging their exemplary work to save energy through the use of EMIS.



Aurora Public Schools' EIS dashboards are used to engage students, compare building benchmarks across the district, and identify operational improvement opportunities.

- **Student engagement:** An energy savings competition engaged students in reviewing data and finding ways to save energy. APS developed a framework to acknowledge student engagement through online “badges” recognized district-wide, and it incorporated energy education into the curriculum.
- **Custodian engagement:** Building report cards summarize key energy metrics for custodial staff, and a new program provides incentives and recognition for reducing energy use.

Further, APS’s EIS automatically exchanges data with ENERGY STAR Portfolio Manager, providing an ongoing means to benchmark energy intensity and measure continuous improvement.

Reaping the Rewards

APS has already demonstrated its commitment to saving energy. With the help of energy analytics they have avoided just over \$1 million in utility costs over the last three years through retrofits, improving scheduling,

and monitoring of after-hours energy consumption. APS estimates 20% of the savings were behavior-based changes resulting from better energy information, like turning off lights and equipment and changing custodial practices.

Recognition of staff effort is key. We provide quarterly awards for exemplary custodians, in categories from fire inspections to cleanliness. Now we are expanding that to energy use.

- Mike Ward, APS Custodial Trainer

APS is taking its energy management to the next level, expanding the reach of energy-saving efforts and using the EIS to ensure performance is maintained at a high level. APS’s future plans include the addition of technician-leveraged analytics and automated fault detection & diagnostics.

The Smart Energy Analytics Campaign is a public-private sector partnership program focused on commercially available Energy Management and Information Systems (EMIS) and monitoring-based commissioning practices. The Campaign couples technical assistance with qualitative and quantitative data collection to inform research, development, and field study priorities. Partnering participants are encouraged to share their progress and may receive national recognition for implementations that demonstrate exemplary practices.