# Building Analytics Success Story
# U.S. General Services Administration

In 2012 GSA started implementing fault detection and diagnostics (FDD) in their buildings. Six years later, this work forms the core of a national platform called GSALink, serving 85 buildings and over 52 million square feet. GSA analyzes energy meter and building automation system (BAS) data to get the full picture of operations, detecting faults and identifying energy trends. They bring new points into their EMIS as needed for FDD, verification of savings, and other reporting - 140,000 points to date have been integrated.

But the most impressive part about their effort is the savings they've seen across their portfolio. For 57 of the buildings reporting, they reduced whole building energy use by 14% through a combination of operational improvements and retrofits.

### What is an EMIS?

Energy management and information systems (EMIS) store, analyze, and display energy use and system data. EMIS is an umbrella term that covers both energy meter analytics and fault detection using building automation system data.

## Making EMIS Accessible

The GSALink team has developed an EMIS interface that is usable by staff who are not engineers. A facility manager views faults prioritized by estimated cost impact, and they work with their O&M staff to review the underlying trends and troubleshoot the issue.

With the connection of GSALink into GSA's maintenance management system, the faults can be turned into work orders. Faults are categorized in the system (completed, deferred due to cost, requested service provider review), which streamlines tracking and reporting.

***We've designed our EMIS so you don't need to be an engineer to use it. A centralized support center helps our facility managers work through and act on the analytics.***

*- Chip Pierpont, GSA Facility Technologies*

### Quick Facts

**Location:** Nationwide

**Building type:** Offices, courthouses, other federal facilities

**Gross floor area:** 52 million sq. ft.

**Total buildings:** 85

**Energy reduction since EMIS installed:** 14% whole building energy reduction for 57 buildings

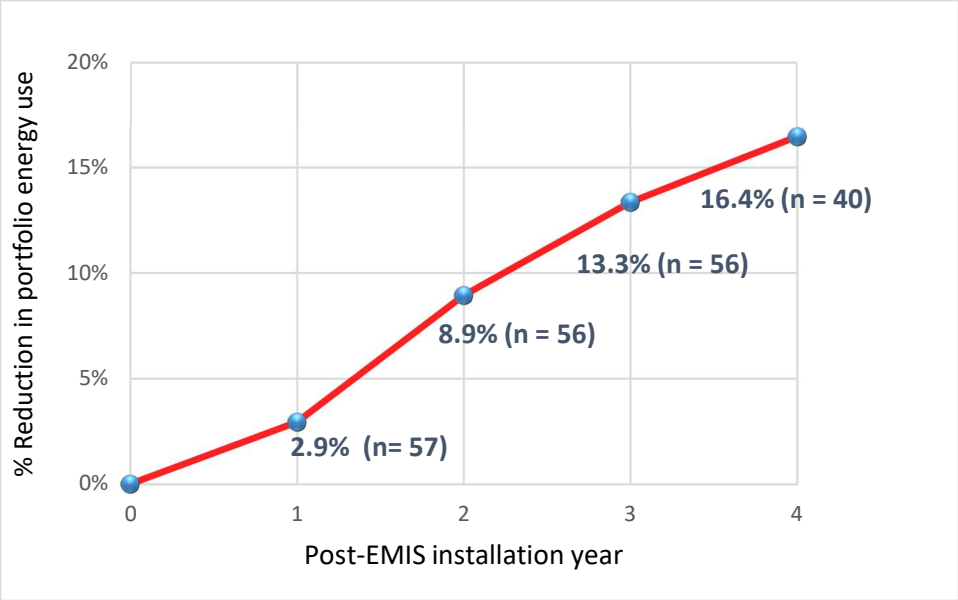
**Service provider:** CBRE|ESI

**EIS Software:** Schneider ION for energy meter data

**FDD Software:** SkySpark by SkyFoundry

### Smart Energy Analytics Campaign: Recognition for Energy Performance of a Portfolio

The U.S. General Services Administration was recognized by Lawrence Berkeley National Laboratory and the U.S. Dept. of Energy in May 2018 for their exemplary work to save energy through the use of EMIS.




**Portfolio-level savings increases since GSALink implementation; overall mean savings is 14%**
n=number of buildings with 1 or more years of post-implementation data

## Scaling EMIS to a Large Portfolio

GSA set up their EMIS data management and analytics platform so that it could scale up to serve a significant portion of their 1,500 buildings. By investing in up-front design and programming, the current integration costs of adding a new building to the platform are greatly reduced.

Utilizing a nationwide standard and software platform is key to the scalability of GSA's EMIS solution. As buildings are added, the overall cost per building is driven down through economies of scale. Also, having a scalable architecture allows the GSA the flexibility to adapt to new technology and include those data points for analysis at a minimal cost to existing buildings.

GSA's central energy group analyzes reports daily from the EMIS, and provides quarterly and on-call support to facility managers across the country. This centralized support structure (including GSA staff and service providers) will help the organization scale in the future without needing analytics expertise within every facility.

***Analytics saves $0 on its own. You have to take the analytic results and go fix stuff.***
*- Chip Pierpont, GSA Facility Technologies*

## Using Meter Data Analytics

Analysis of meter data doesn't have to be a manual and time-consuming process. GSALink automates the analysis of whole building meter data to detect the following issues:

- Building starting too early or running too late
- Peak demand spikes during occupancy
- Equipment impact on demand of the facility
- Load profile analysis to identify demand response load shedding opportunities

GSA avoids flagging faults for one-off occurrences and instead looks for trends and compares energy metrics (normalized for weather and building size) across facilities.

**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.