

## OPPORTUNITY

How much energy can be saved with smarter building control?

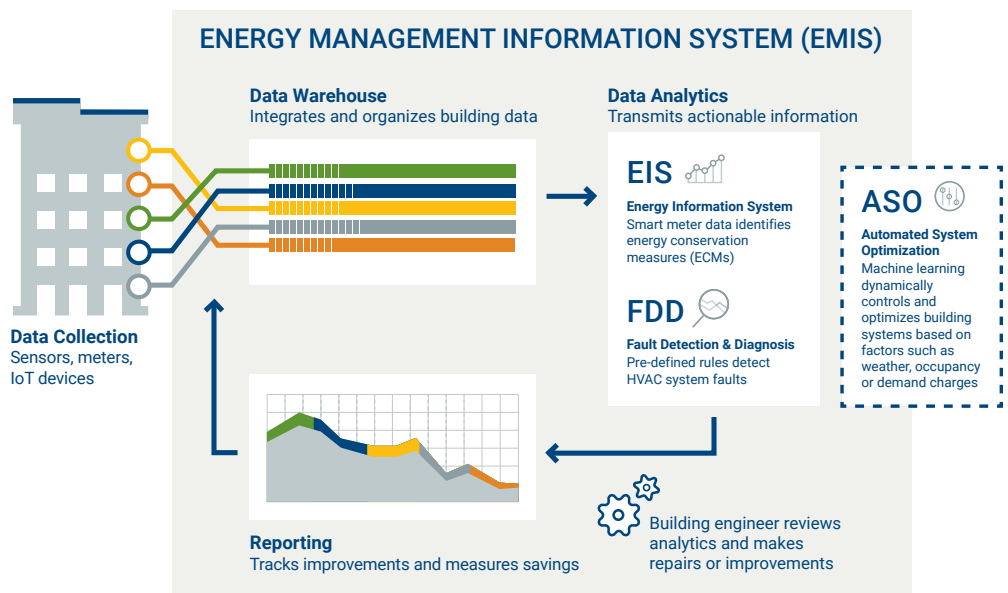
UP TO **30%**

ENERGY USE IN COMMERCIAL BUILDINGS CAN BE SAVED WITH SMARTER BUILDING CONTROL<sup>1</sup>

## TECHNOLOGY

How does an energy management information system (EMIS) with automated system optimization (ASO) work?

**Aggregates historical and real-time data with machine learning and thermal modeling to optimize building performance**



## M&V

Where did Measurement and Verification occur?

**NATIONAL RENEWABLE ENERGY LABORATORY** assessed the impact of an EMIS with ASO provided by Prescriptive Data at four testbeds representative of a range of GSA facility types and operating conditions.

## RESULTS

How did the EMIS with ASO perform in M&V?

**5-11% WHOLE-BUILDING ENERGY SAVINGS**<sup>3</sup>

from controlling AHU fan speeds based on weather and occupancy

**95% ACCURATE**  
PREDICTED DEMAND WAS WITHIN 5% OF MEASURED DEMAND<sup>4</sup>

**VISIBILITY INCREASED**

WITH MULTIPLE DATA STREAMS<sup>5</sup>  
INTEGRATED DASHBOARD REVEALED OPERATIONAL ISSUES<sup>6</sup>  
POSITIVE USER ACCEPTANCE<sup>7</sup>

## GSA Market Analysis for Automated System Optimization

Portfolio potential for cash-flow positive facilities based on % savings\*

	5% Annual Cost Savings	7.5% Annual Cost Savings	10% Annual Cost Savings	12.5% Annual Cost Savings
Cash-flow positive facilities (total out of 504)	90	223	322	424
Total Building Area (sf)	30,488,470	77,028,119	106,211,953	139,233,885
Gross Annual Cost Savings (\$/yr)	\$4,538,021	\$12,467,287	\$19,949,064	\$28,689,424
Annual Subscription Cost (\$0.10/sf/yr)	\$3,048,847	\$7,702,812	\$10,621,195	\$13,923,389
Net Annual Cost Savings after SaaS (\$/yr)	\$1,489,174	\$4,764,475	\$9,327,869	\$14,766,035

\* Break-even point depends on utility costs, annual savings, and geographic region. Does not include installation cost due to varying expenses of integration.

## DEPLOYMENT

Where does M&V recommend deploying an EMIS with ASO?

**BUILDINGS WITH HIGH ENERGY COSTS**

An EMIS with ASO can simplify building management and should be considered for deployment across the portfolio. Prioritize buildings with high energy costs.

<sup>1</sup>Commercial Buildings Integration Program, U.S. Department of Energy (<https://www.energy.gov/eere/buildings/about-commercial-buildings-integration-program>, accessed 9-2022) <sup>2</sup>Kramer, H, Lin, G, Curtin, C, Crowe, E, Granderson J. Proving the Business Case for Building Analytics. Lawrence Berkeley National Laboratory, October 2020 <sup>3</sup>Sean Pachuta, Jesse Dean, Alicen Kandt, Khanh Nguyen Cu Field Validation of a Building Operating System Platform. NREL, August 2022, p.iv <sup>4</sup>Ibid, p.iv <sup>5</sup>Ibid, p.33 <sup>6</sup>Ibid, p.33 <sup>7</sup>Ibid, p.32