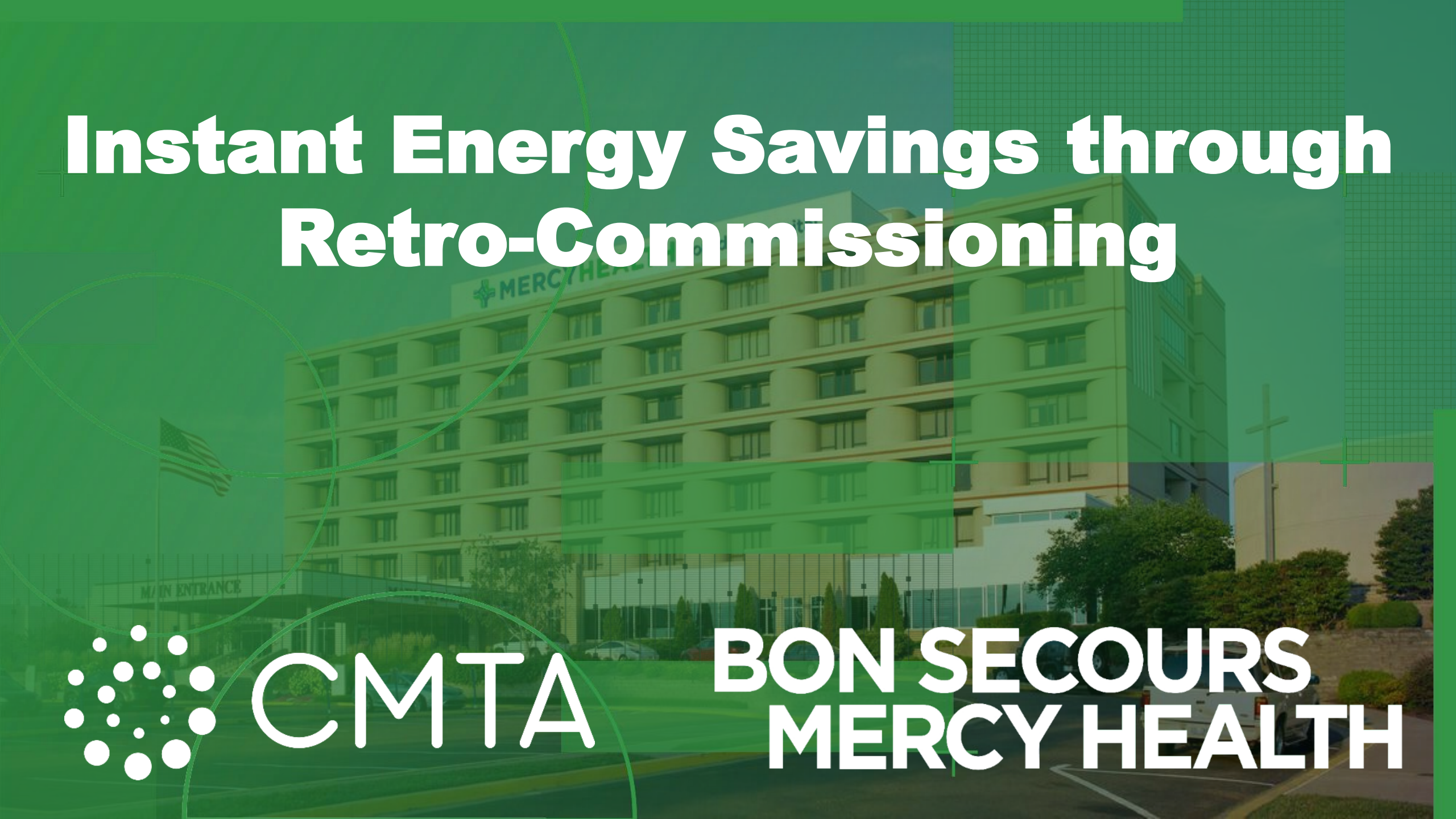
Instant Energy Savings through Retro-Commissioning



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BON SECOURS MERCY HEALTH

Agenda

- Introductions
- Retro Commissioning Overview
- Case Study
- Results

Introductions

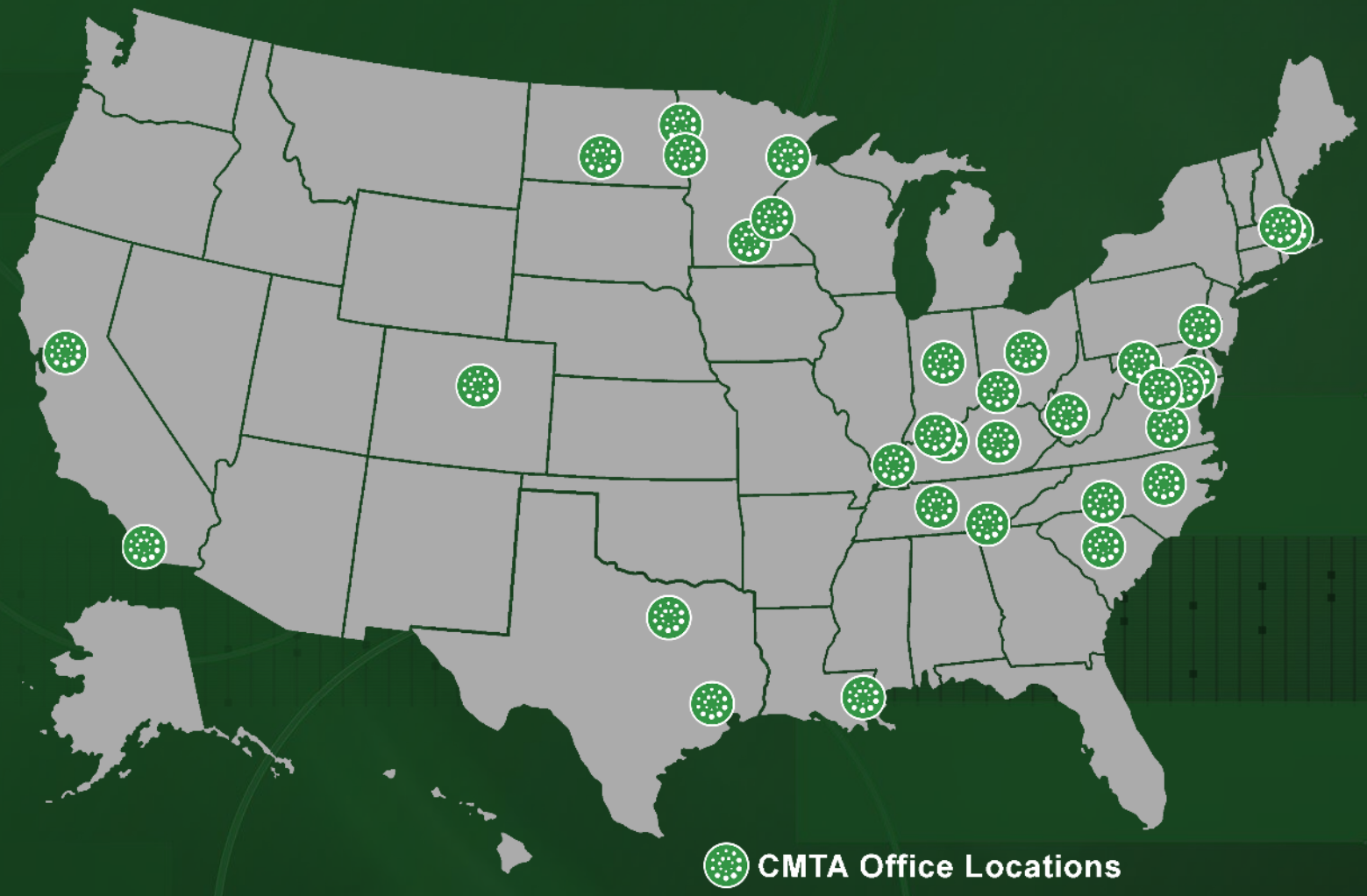
Matt Wade
PE, LEED AP
Partner
CMTA

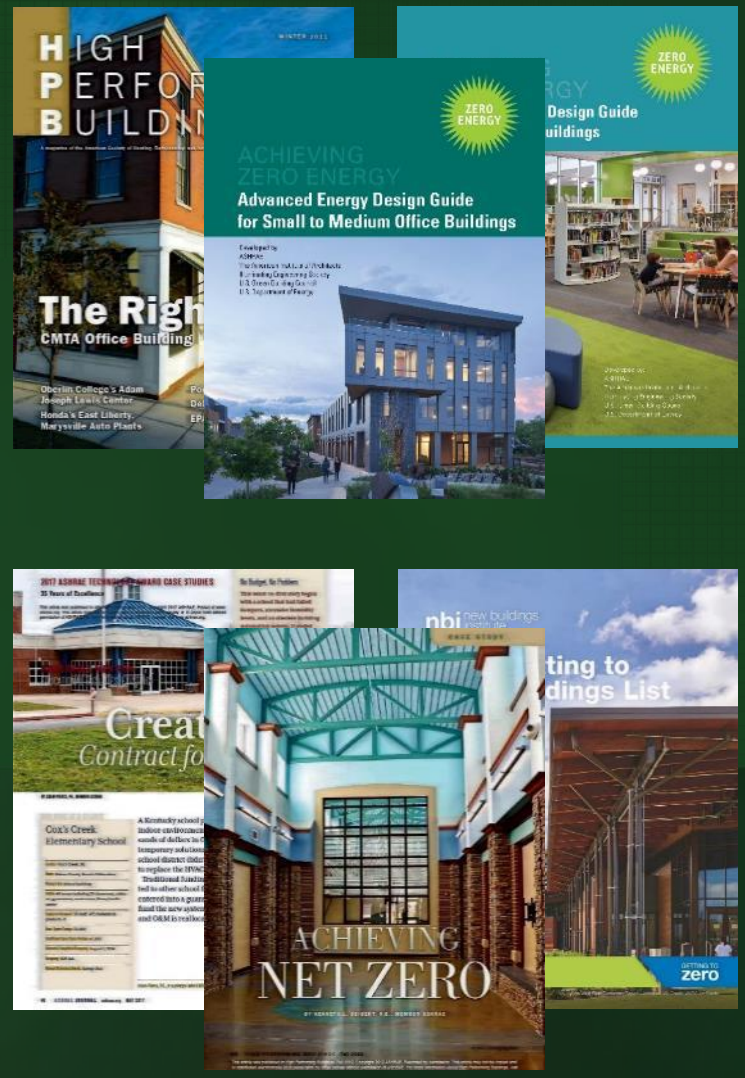
Sam Claxton
PE, FPE
Partner
CMTA

Jonathan Hunley
CHFM, CHC, CHOP, CHEPP, LEED GA
BON SECOURS MERCY HEALTH

National Leader in High Performance Facilities

670+ | 184 PEs | 33 Offices | 20+ Year Project Utility Database





2022 ENR TOP 500

MEP GIANTS 2022

Commissioning GIANTS 2021

INFRASTRUCTURE

20M

Square Feet of Central Plant Experience

$3B

Central Plant Construction Value

136MW

Renewable Energy Generation

NATIONAL COMMISSIONING EXPERT

30+

Years of Experience

250M+

Square Feet of Cx Experience

24

Certified Commissioning Agents

HEALTHCARE

1st

U.S. Hospital Operating Below 100 EUI

279M

Square Feet of Healthcare Experience

$24B

Healthcare Construction Value

National Healthcare Expertise

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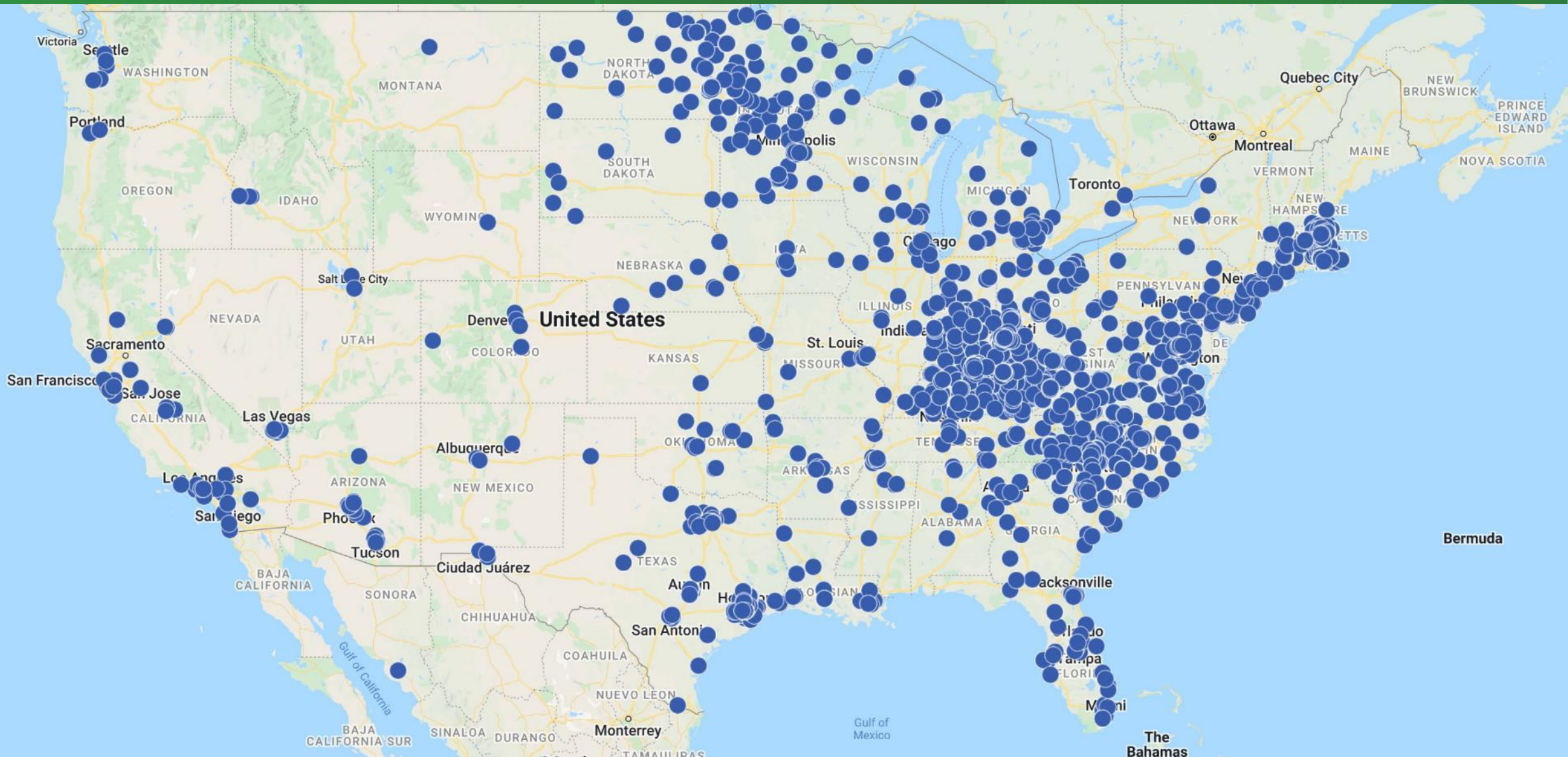


BON SECOURS MERCY HEALTH

ONE OF THE 5 LARGEST
Catholic health care systems in the US,
the LARGEST private provider in Ireland

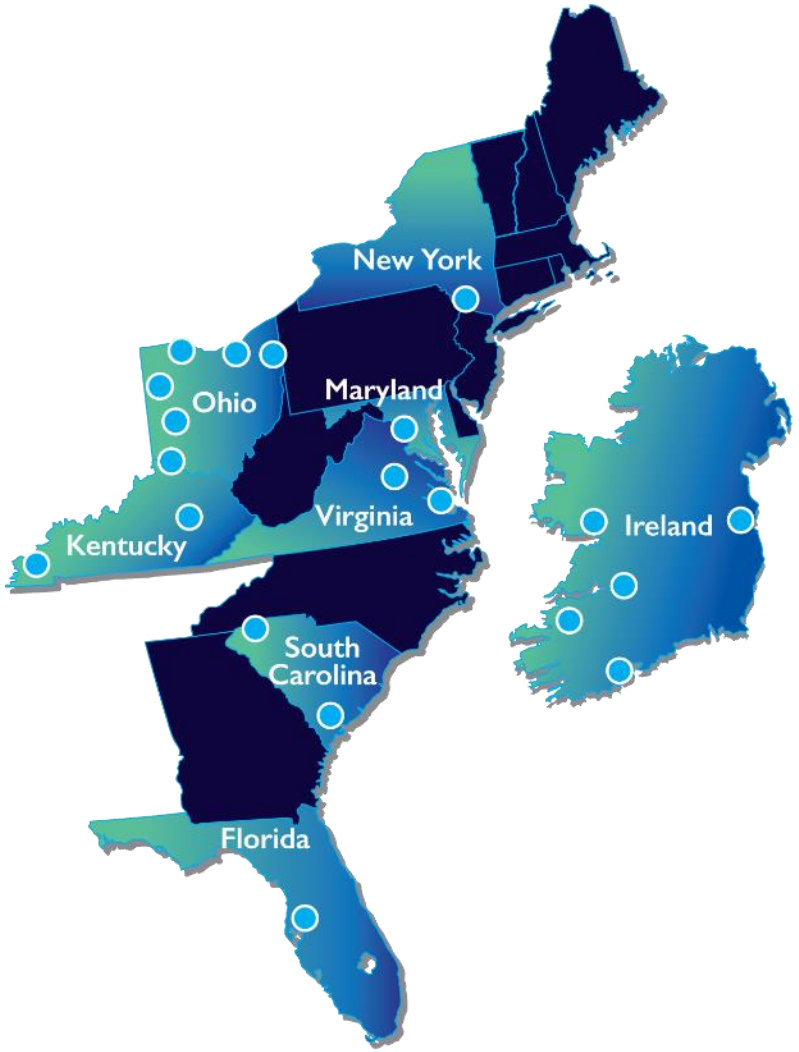
MORE THAN **1,200** SITES OF CARE IN THE US AND IRELAND

Approximately **$10 BILLION**
in pro forma net operating revenue

NEARLY $2 MILLION A DAY
IN COMMUNITY BENEFITS

50 HOSPITALS

2,600 PROVIDERS IN THE US
450 CONSULTANTS IN IRELAND
60,000 TOTAL ASSOCIATES



BON SECOURS MERCY HEALTH

- Top 5 Largest US Catholic Health Systems
- 34 Hospitals across 4 States
  - 14M Square Feet of Acute Care
  - 11M Square Feet of Ambulatory Care
- Cincinnati, OH Headquarters
- Over 150 Years of Health Service

Lourdes Hospital
BON SECOURS
MERCY HEALTH

BON SECOURS MERCY HEALTH

Lourdes Hospital

- **Number of Beds: 306**
- **Opened in Current Location: 1973**
- **Tax Status: Not For Profit**
- **Region Served: 12+ Counties**

BON SECOURS MERCY HEALTH

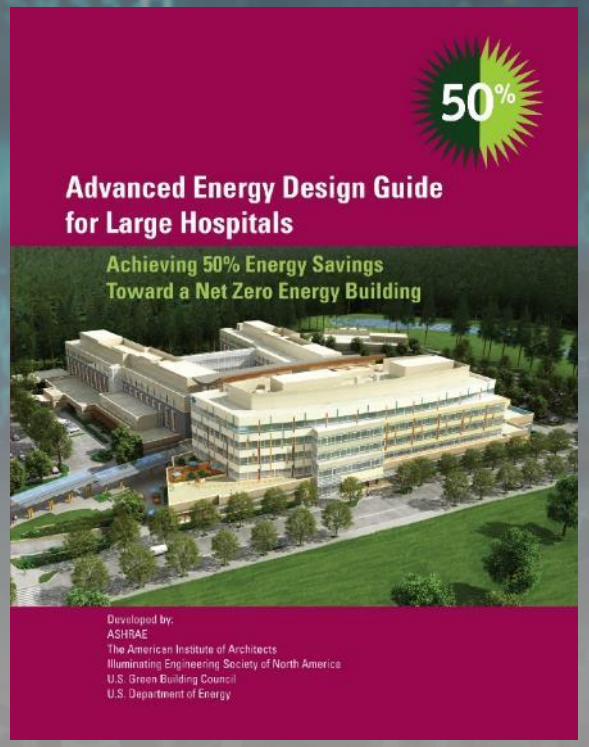
Culture

Energy Efficiency in Healthcare

ASHE²C™
Energy Efficiency Challenge
American Society for Healthcare Engineering
of the American Hospital Association

CBECS
Commercial Buildings
Energy Consumption Survey

ENERGY STAR



Energy Use Intensity

CMTA

- Heating
- Cooling
- Pumps + Fans
- Lighting
- Hot Water
- Plugloads
- IT / AV
- Kitchen

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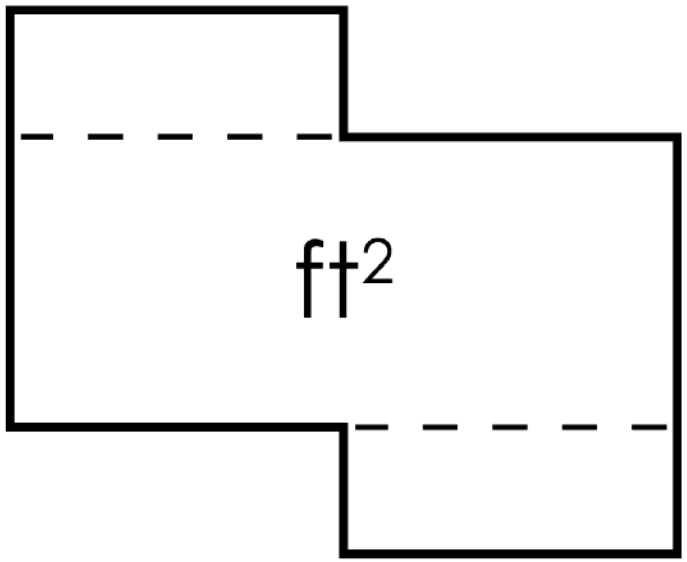

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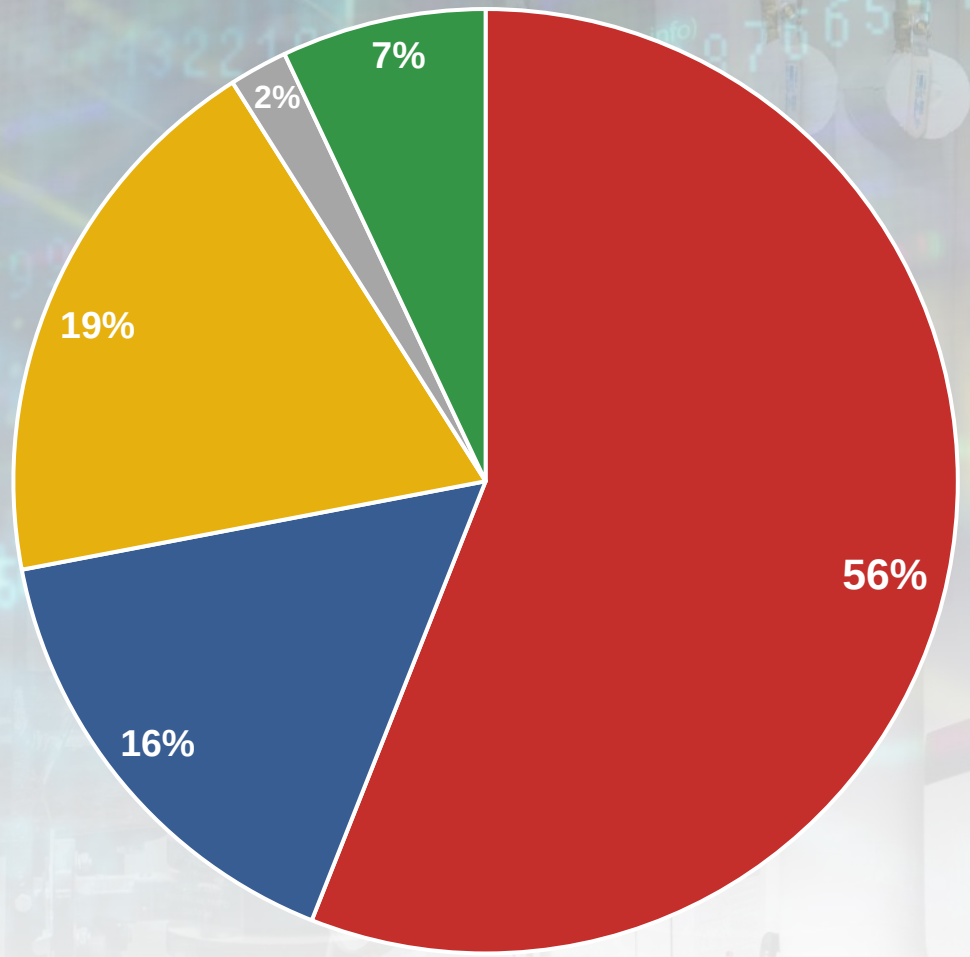
EUI
Energy Use Intensity
(kBtu/sf/yr)

Energy per Square Foot per Year

Measured in kBtu

Data Driven Design - Sustainability



*CBECS Regional Data

Data-Driven

"You cannot manage what you do not measure."

– W. Edwards Deming

CMTA has collected over **20 years** of **actual utility data** on our projects that allows us to continually improve our approach.

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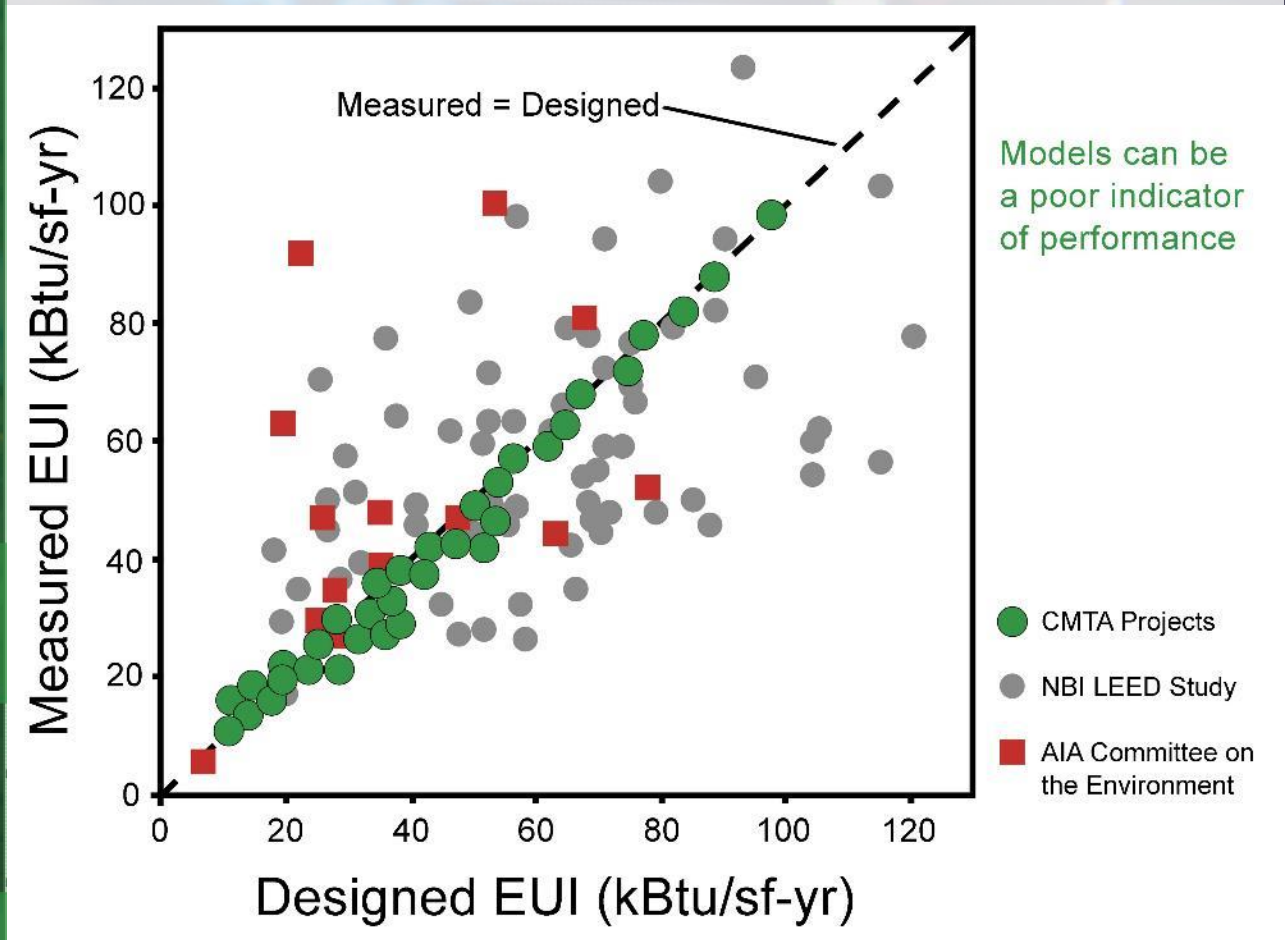


BSMH Lourdes Hospital

CMTA

95M

Metric Tons of CO_2e Reduced

1,000,000 ft^2

Sustainable Strategies

Drastic Fan Energy Reduced

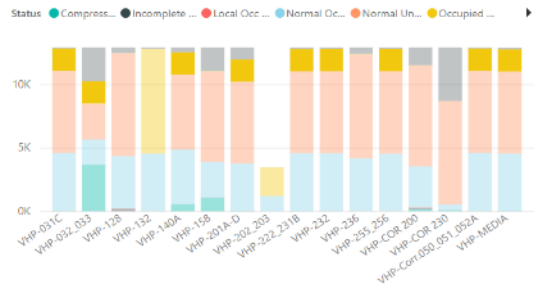
Retro Commissioning

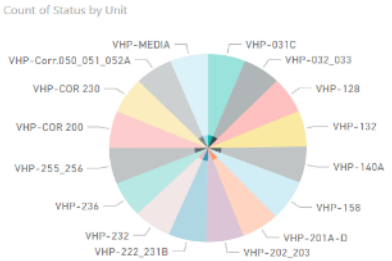
$207,000 Annual Savings

What is Retro-Commissioning?

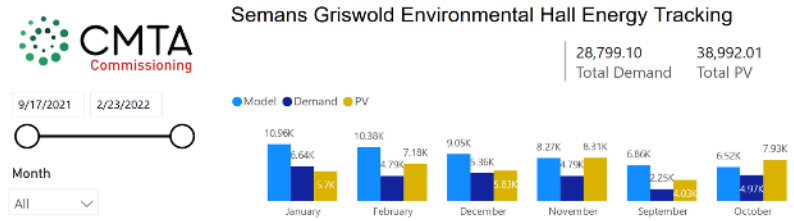
Facility Assessment

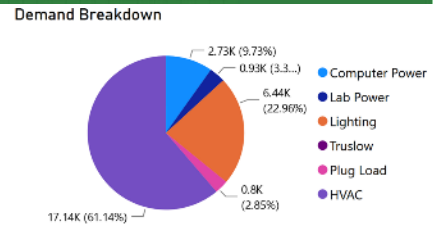
Advanced Trending + Optimization





CMTA Commissioning

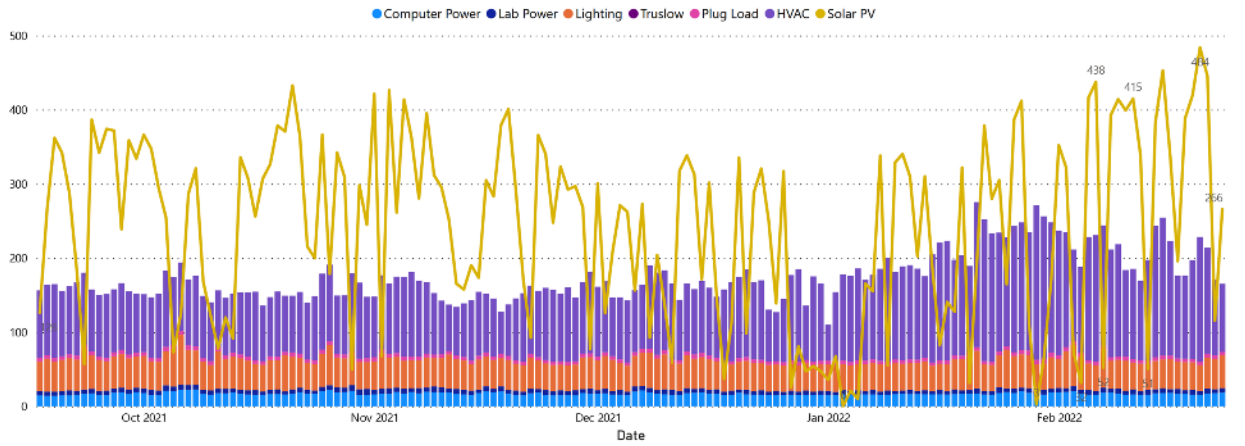


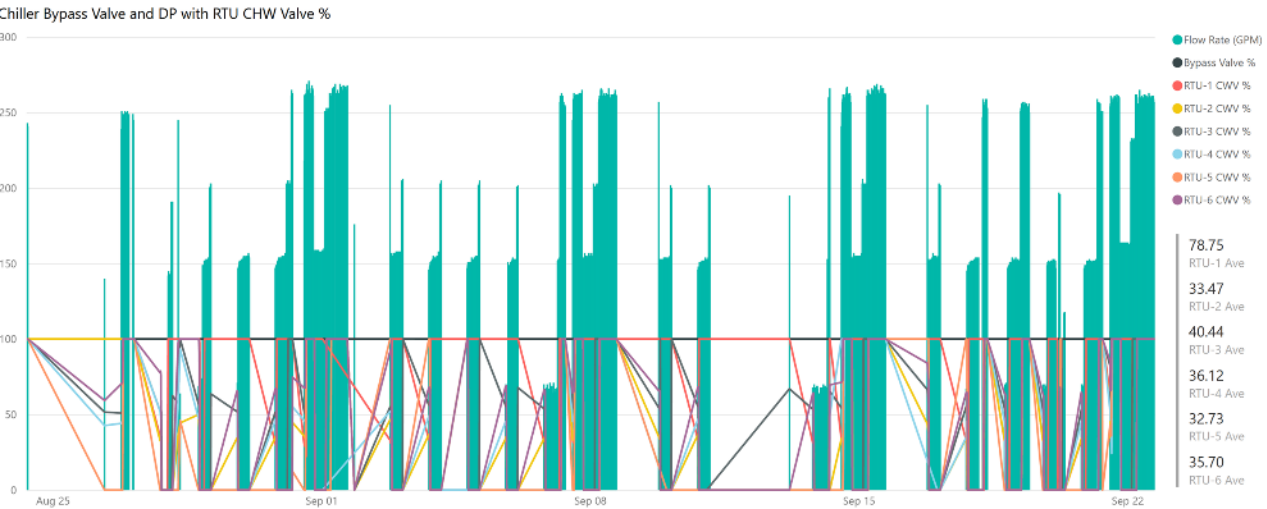


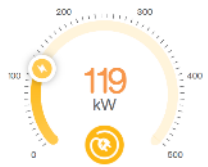
9/17/2021 2/23/2022

Month

All



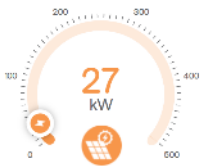




TODAY'S HIGH 138 kW

TODAY'S LOW 0 kW

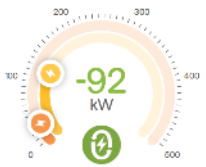
LIVE POWER CONSUMPTION



TODAY'S HIGH 284 kW

TODAY'S LOW 0 kW

LIVE POWER PRODUCTION



TODAY'S HIGH 200 kW

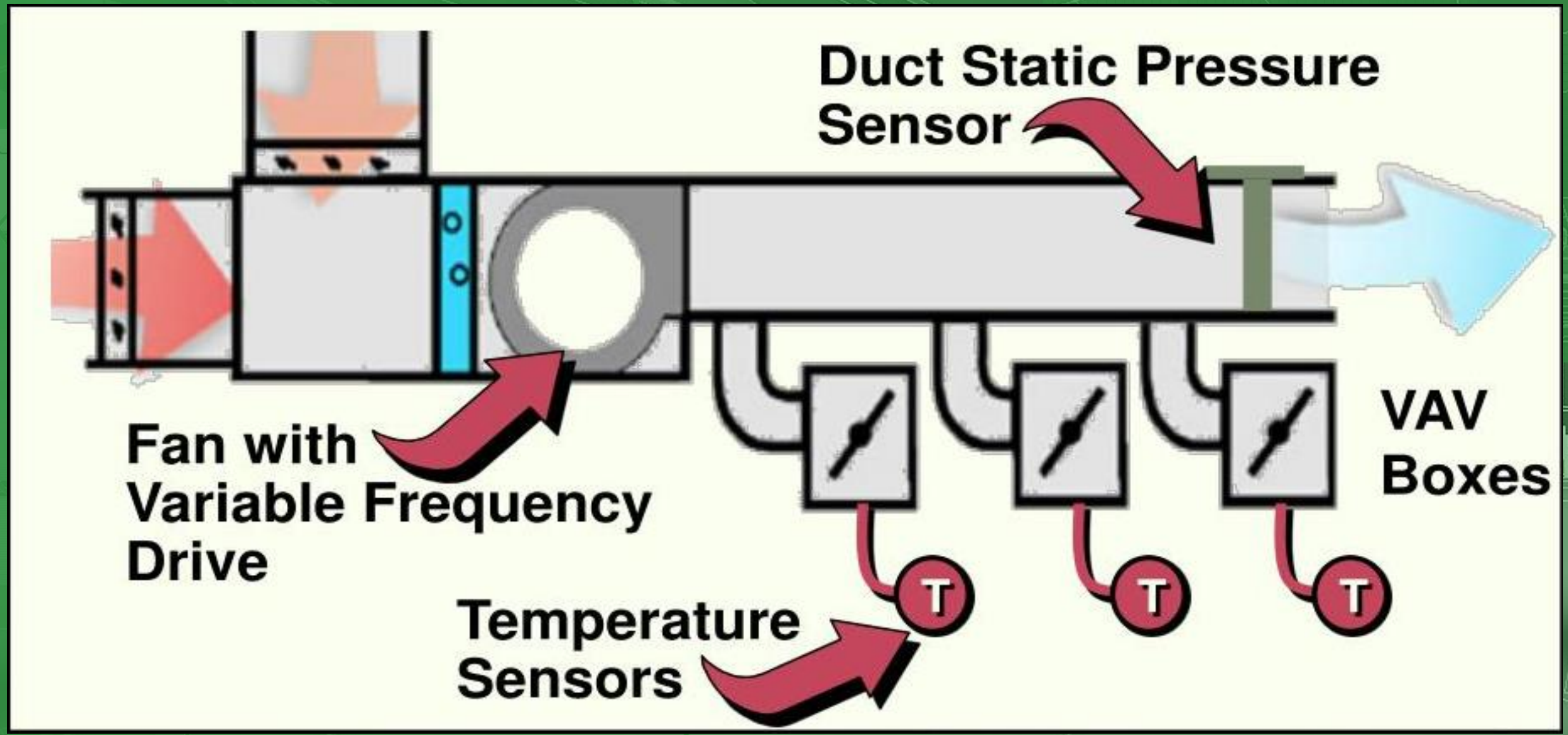
TODAY'S LOW -135 kW

LIVE NET POWER

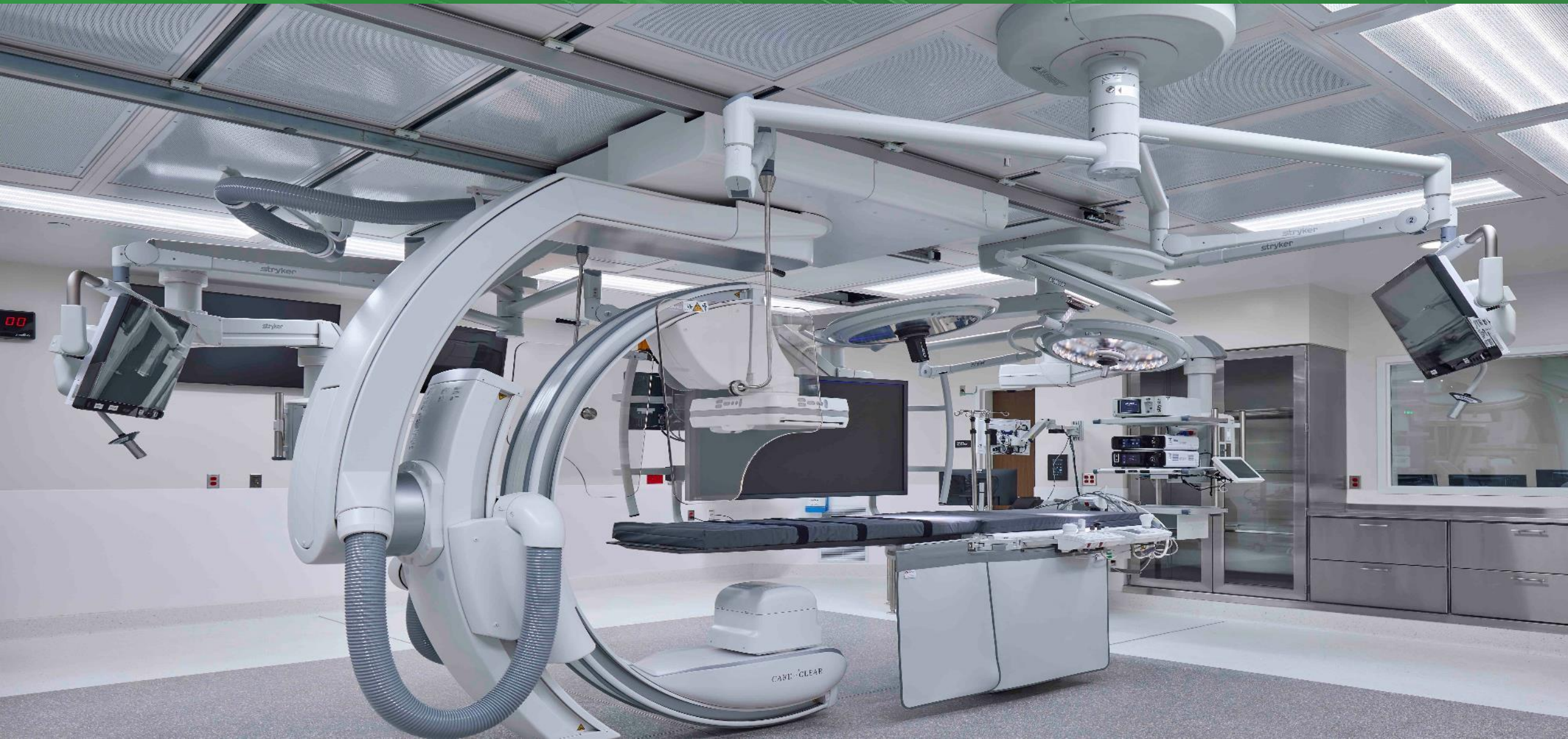
Energy Reduction Strategies

- **Immediate Low Cost / No Cost**
  - Static Pressure Optimization
  - Airflow Reduction
  - Assigning Zones and Schedules
  - Outside Air Damper Optimization
  - Steam System Optimization
- **Masterplan / Future Capital Projects**
  - Decouple Steam from Heat
  - Eliminate electric reheat
  - Eliminate primary secondary pumping

Static Pressure Optimization

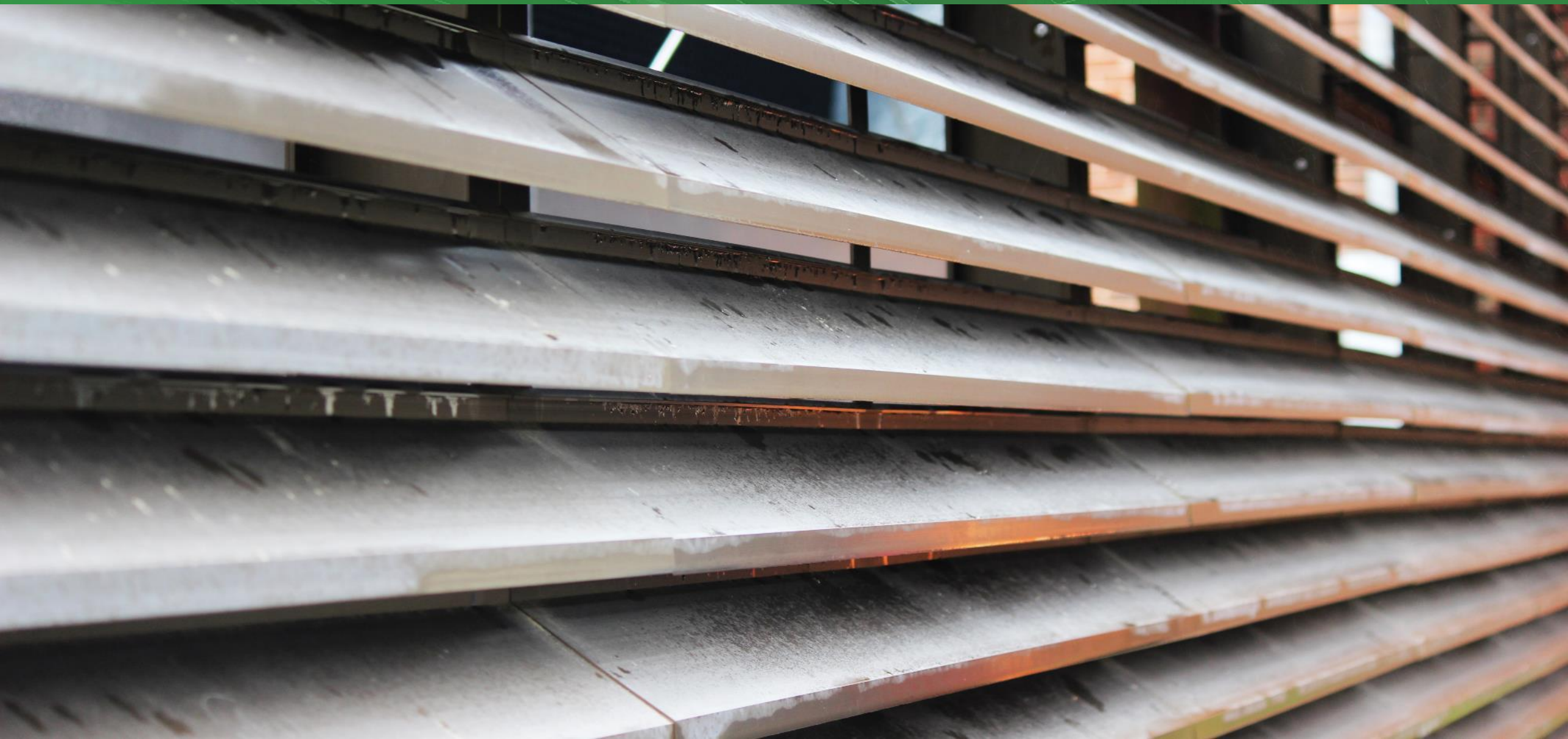


Air Flow Reduction



Assigning Zones & Schedules

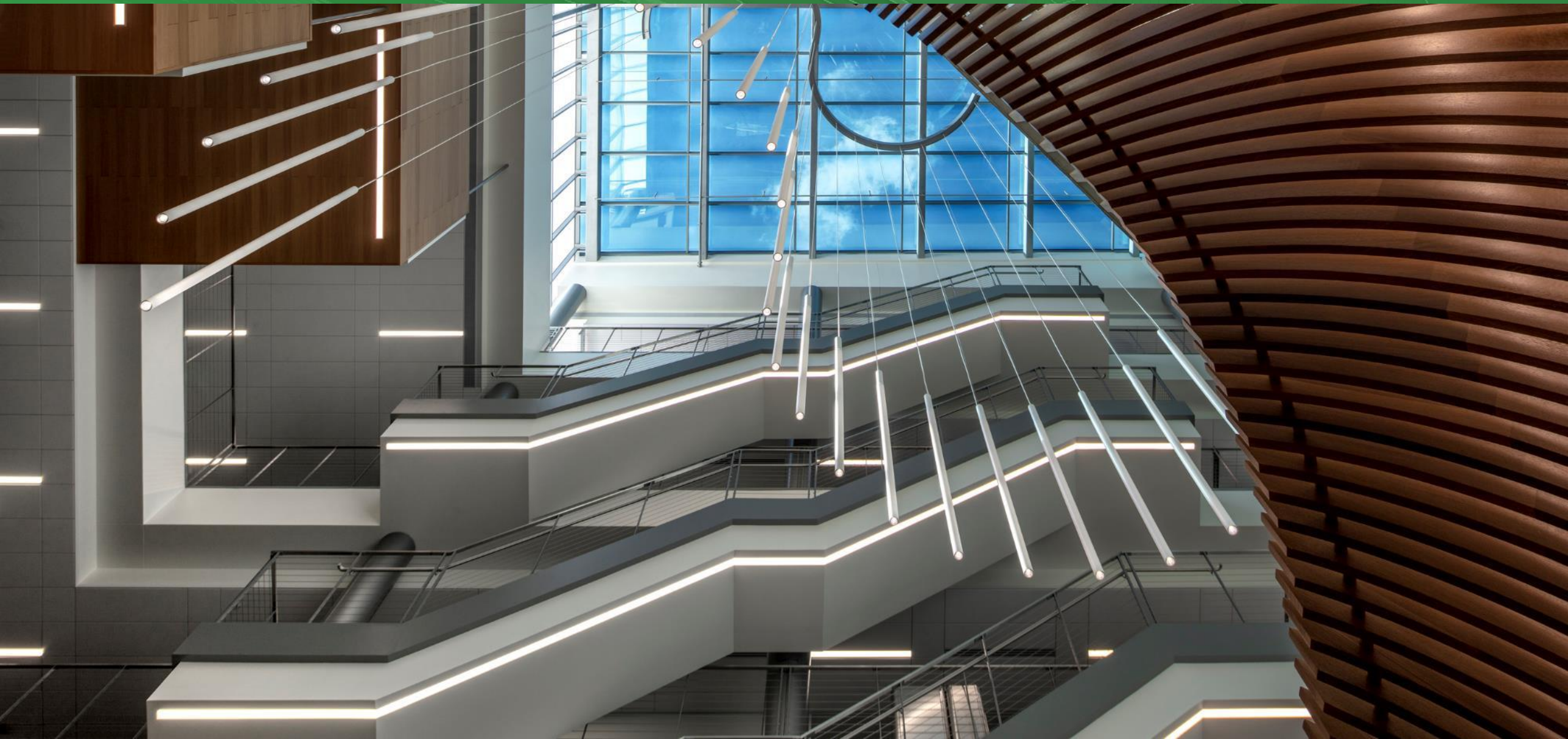
OA Damper Optimization



Steam System Optimization

Master Planning | Future Capital Planning

LED Lighting



Why is Energy Efficiency Important?

- *Healthcare is the 2nd Most Energy Intensive Sector According to the Department of Energy*

- *Every $1 a not-for-profit healthcare organization saves in energy is equivalent to generating $20 in new revenues*

RESULTS

BON SECOURS MERCY HEALTH

$170,000
Modeled Annual Energy Cost Savings

63
EUI Reduced

$207,000
Actual Annual Energy Cost Savings

95
Metric Tons of CO_2 Emissions Reduced Per Year

135,000 kWh
Energy Saved Per Year

672,000
Gallons of Water Savings Per Year

Questions?

Thank You!

CMTA

BON SECOURS MERCY HEALTH