



Impact Alert: Prioritizing Capital Spending, Optimizing Building Efficiency; and Controlling Energy Spending

FHEA FALL 2024



Stephanie Lanker

**Executive Sales Director
FacilityConneX**

Stephanie Lanker is a sales and operations leader with more than 25 years of corporate experience. She has spent the past 10 years focusing in the healthcare vertical addressing challenges and successfully finding viable operational solutions in the healthcare space. Prior to working for FacilityConneX, Stephanie spent 10 years at Johnson Controls with expertise in Fire and Life Safety, The Joint Commission and DNV. She helped drive operational excellence to meet the demands of CMS, and regulatory compliance also driven by local and state AHJs. Stephanie is passionate about helping facilities find real time, relevant and achievable solutions that increase bottom line and decrease energy consumption, while contributing to decarbonization.



Mark Pipher

**VP and General Manager
FacilityConneX**

Mark Pipher is a passionate entrepreneur leader that can drive a team of technologists, operations, sales, and marketing to launch successful products and companies. He has more than 30 years' experience managing people within large and small companies. He has deep expertise in software development, cloud platforms, industrial markets, and security sectors. Before joining FacilityConneX, Mark spent 8 years at GE, where he was General Manager of their Real-time Operational Intelligence and Knowledge Services Division. His management of that business unit helped drive their market-leader position in the Industrial Internet with leading-edge products in mobility, analytics, and visualization. Prior to GE, Mark was founder and VP of Engineering of West Ridge Networks, which produced four patents and was later sold to a publicly traded company. Mark has also held executive level roles at Motorola, in their Cable and Networking business unit, focusing on security and high-traffic data transport technologies.

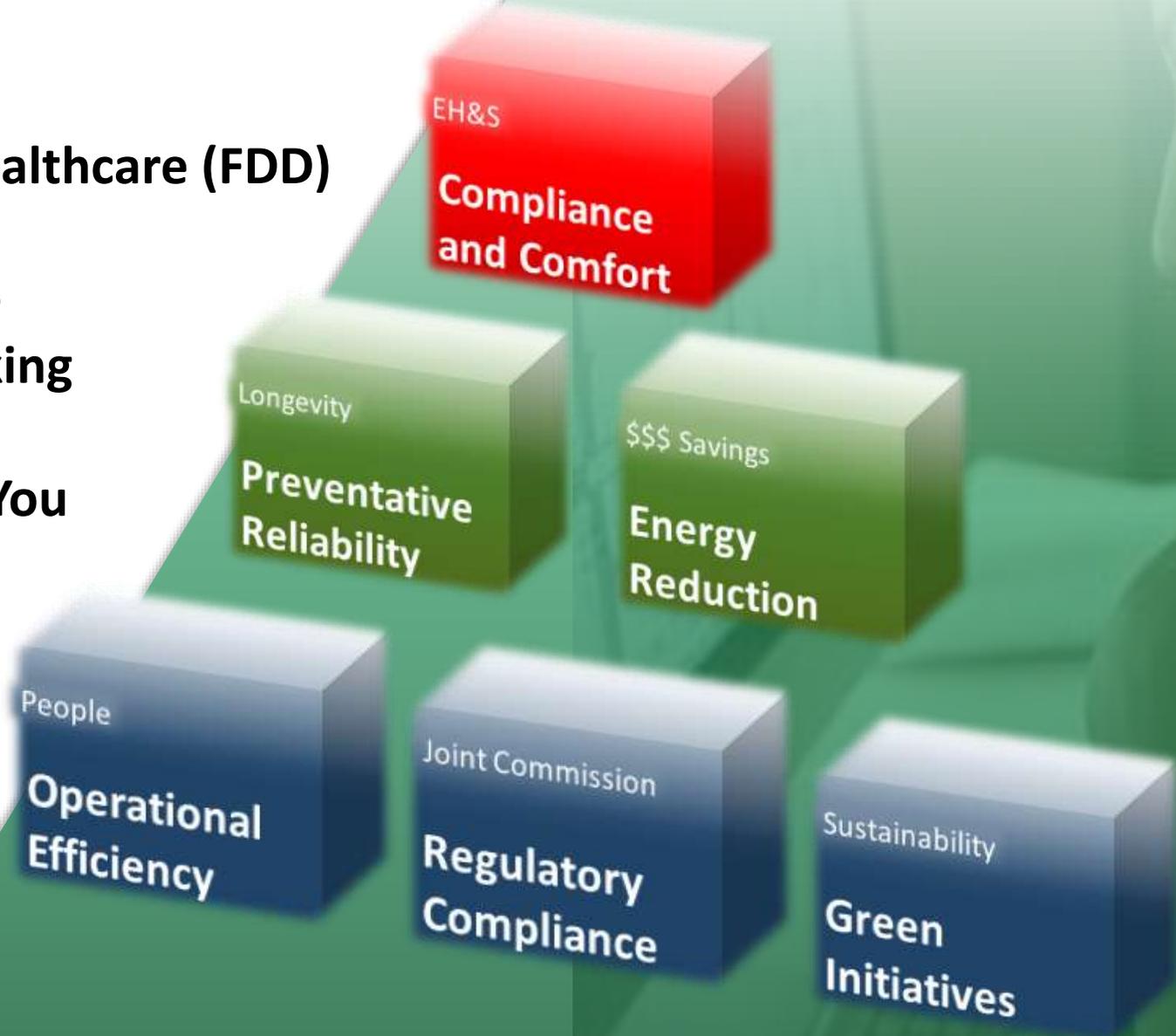
What is Protecting Hospital Revenue...

- ✓ Reduce Energy Waste
- ✓ Improve Margins and Profits
- ✓ Live Within CAPEX and OPEX
- ✓ Balance Energy and Emissions Initiatives
- ✓ Lower Deferred Maintenance

Reliability centered maintenance using condition monitoring and analytics (predictive) programs are the least expensive method, costing as much as 65% less, largely by avoiding unchecked utility waste, unoptimized equipment, and catastrophic failures which can result in major business disruptions and expensive repairs.

PROTECTING REVENUE

- ⌘ The Numbers Don't Lie ...
- ⌘ Defining Smart Facilities in Healthcare (FDD)
- ⌘ Analytics Generate Revenue
- ⌘ Biggest Challenge – Your Time
- ⌘ Cultural Shift To Decision Making
- ⌘ Allowing Barriers To Stop You
- ⌘ Make the Numbers Work for You

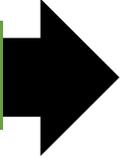


The Numbers Don't Lie ...

ENERGY STAR reports that for **EVERY \$1** a hospital saves on energy, it has the equivalent impact on the operating margin of **increasing revenues by \$20**.

Based on this analysis: **\$100,000 SAVED** in energy cost is equivalent to generated new hospital revenue of **\$2 Million**.

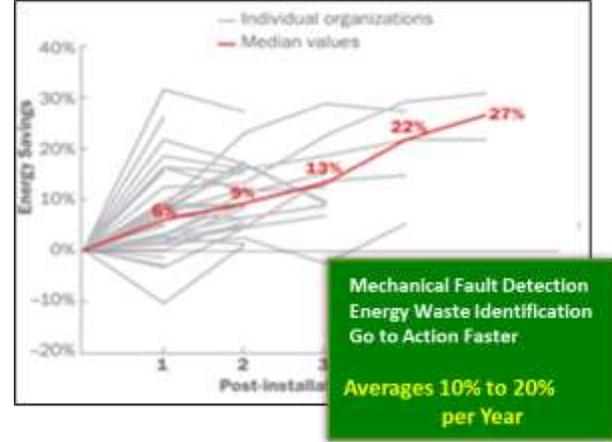


LET'S SEE HOW FDD PROTECTS THE REVENUE 

Smart Facilities in Healthcare – Why Fault Detection and Diagnostics?

Knowledge Base Proves ...

- Data From 50 Million Square Feet of Healthcare Under Watch
- Over \$25 Million Savings Identified Over Five Years
- Over 700 Hours of Labor Saved Per Year Per Site
- Over 100 Preventative Loss of Equipment in 2024!
- And over 250 Critical Area Safety or Compliance Issues Detected!



1000's of Equipment Under Watch

Fastest Continuous ROI < 6 to 8 Months

Complimenting Your Equipment with AI

M&V and Persistence

Your BAS is Different

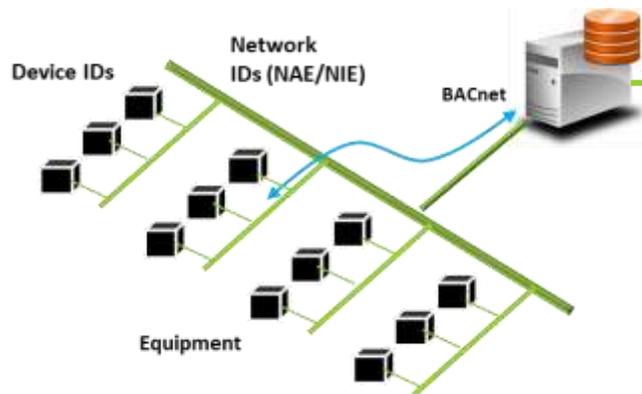
FDD Compliments Your BAS

BMS/BAS Strengths

- Provides Network/Sensors and Control for Facility Equipment (Requires Your Experts)
- Some Systems have Historical Trending
- Some have Rudimentary Detections and Notifications
- Most Facilities have Multiple BMS Vendors

BMS with FDD Strengths

- FDD is an IoT Platform Connected to Disperse Systems
- FDD is built for Action Prioritization
- FDD is built for Monitoring the Outcome
- FDD is built for Energy and Emissions Reduction
- FDD is built for System Agnostic
- FDD is built for Monitoring Your BAS System!

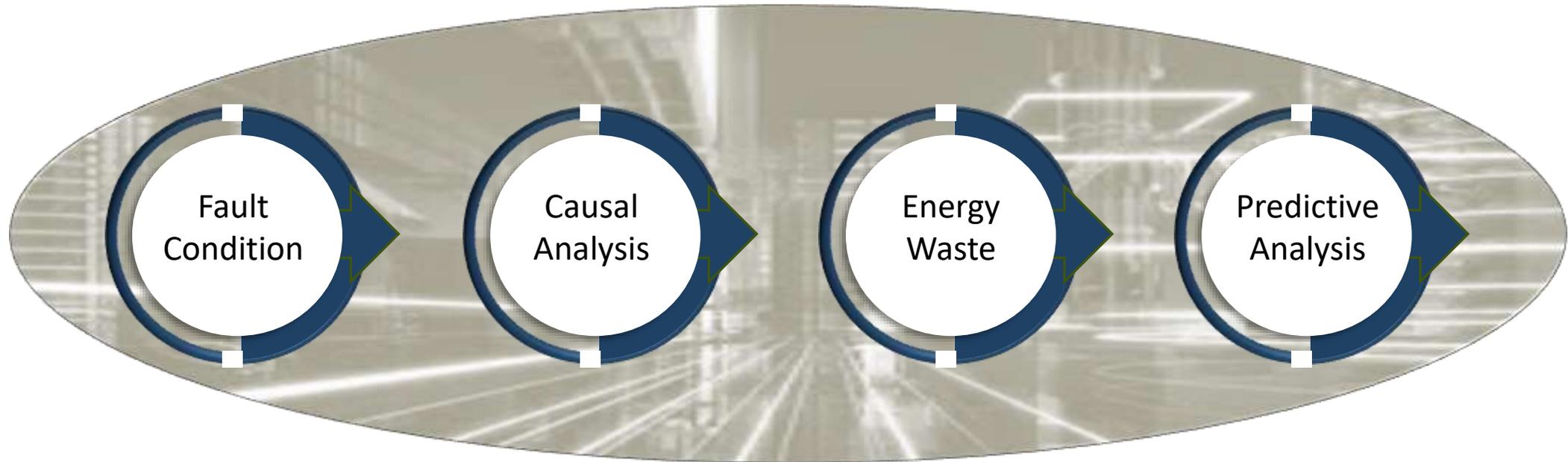


With a Single Connection...

- ... decrease energy costs from 15%-20% (Equipment)
- ... increase operation efficiency by 20%
- ... drive down complaints by 30%



What drives an FDD Analytic...



A Typical 500,000 Sq Ft Building has 5000+ Equipment Data Points
Analytics Can Do 100,000+ Checks Per Day

FDD.1 - Unexpected Schedules

Who is Responsible – Who is Watching?

▼ A_AHU034 - Unexpected equipment schedule (OS Capable)	\$6,340.97
200C_AHU_R3 3rd and 4th Floor South	\$264.18
HMOB_AHU_003 3rd Floor	\$316.92
200B_AHU_001 1st and 2nd Floor South	\$1,499.53
200B_AHU_003 1st and 2nd Floor North	\$394.96
HMOB_AHU_001 1st Floor	\$182.74
200C_AHU_R4 1st and 2nd Floor South	\$484.92
200A_RTU-1	\$68.67
200A_RTU-3	\$90.39
200A_RTU-2	\$107.16
HMOB_AHU_002 2nd Floor	\$225.69
200C_AHU_R2 1st and 2nd Floor North	\$145.12
200C_AHU_R1 3rd and 4th Floor North	\$97.91
OCOS_AHU_001 Basement	\$14.53
200B_AHU_004 1st and 2nd Floor South	\$6.53
200B_AHU_002 3rd and 4th Floor North	\$5.75
PMH_AHU_006 Diag_Treatment	\$2,435.97

OUR \$\$ TRACKER

Preserved Revenue (Annualized)

OUR RELIABILITY TRACKER

Preserved Revenue (Extracted)



FDD.1 - Unexpected Schedules

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HMOB_AHU_001	\$2.74
200C_AHU_R4 1st	\$4.92
200A_RTU-1	\$3.67
200A_RTU-3	\$0.39
200A_RTU-2	\$7.16
HMOB_AHU_002	\$5.69
200C_AHU_R2 1st	\$5.12
200C_AHU_R1 3rd	\$7.91
OCOS_AHU_001	\$4.53
200B_AHU_004 1st	\$6.53
200B_AHU_002 3rd	\$5.75
PMH_AHU_006 D	\$5.97
	\$145.12
	\$97.91
	\$14.53
	\$6.53
	\$5.75
	\$2,435.97

Simple Fix, Tough to Manage
30 Day - \$6,340.97

OUR \$\$ TRACKER

Preserved Revenue (Annualized)

FDD.1 - \$ 44,386

OUR RELIABILITY TRACKER

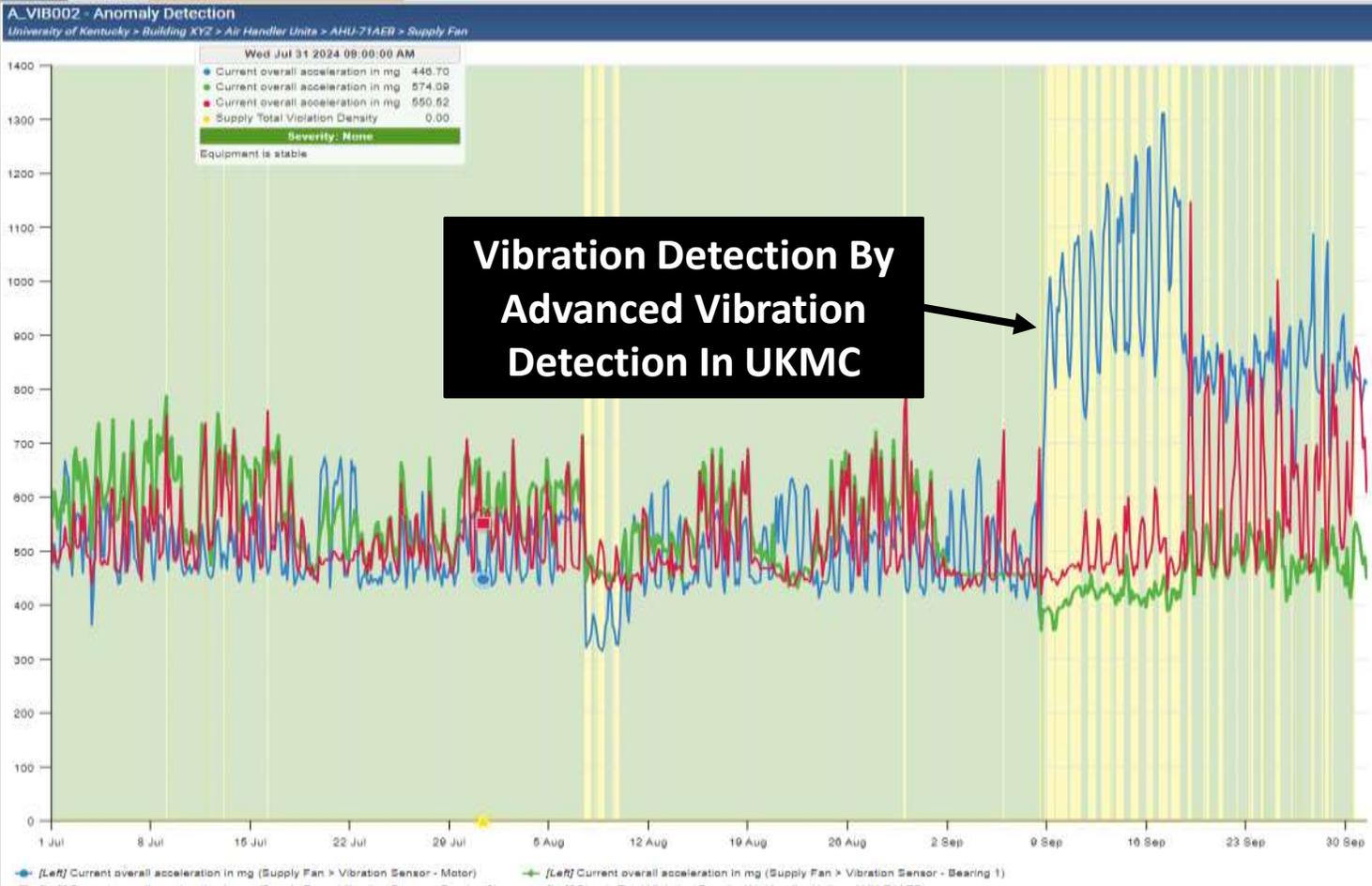
Preserved Revenue (Extracted)

FDD.1 – Wear and Tear (Lifespan)



FDD.2 – Motor Bearings

Preventative Detection – Early Warning



OUR \$\$ TRACKER

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FDD.1 - \$ 44,386

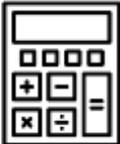
FDD.2 – No Energy Waste

OUR RELIABILITY TRACKER

Preserved Revenue (Extracted)

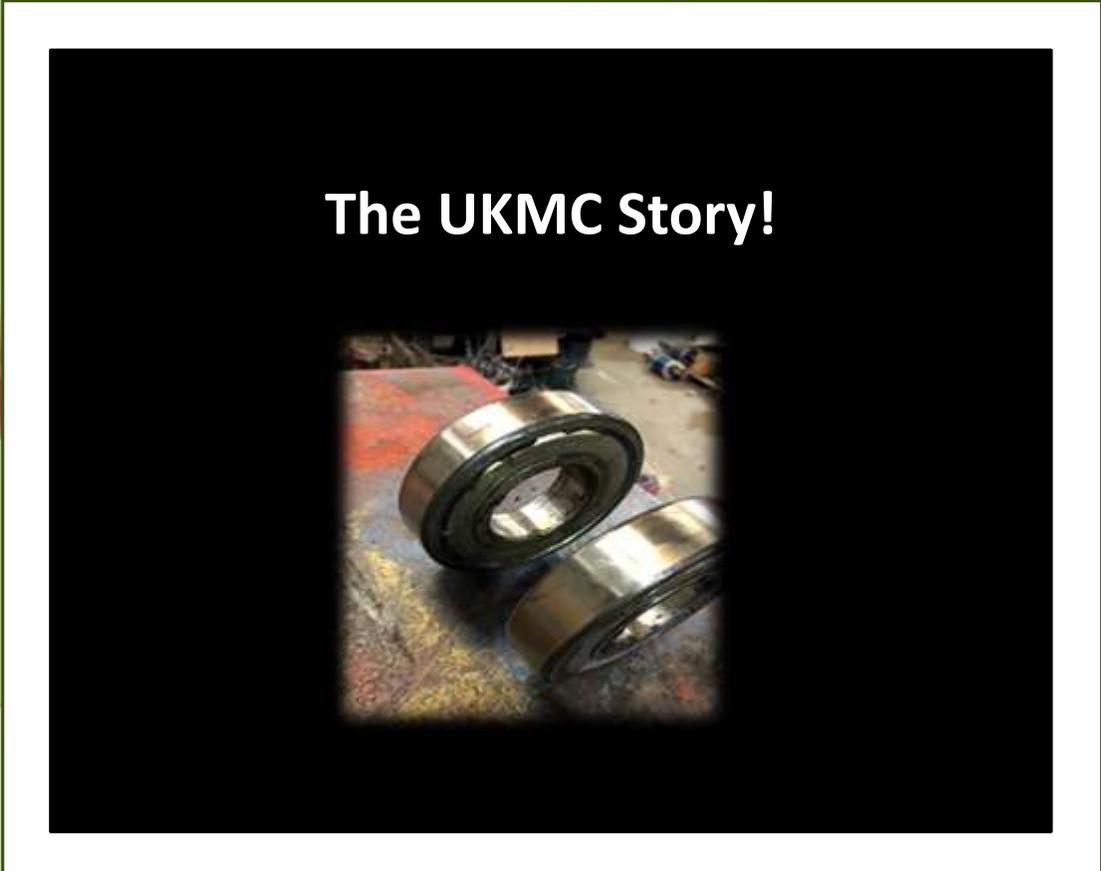
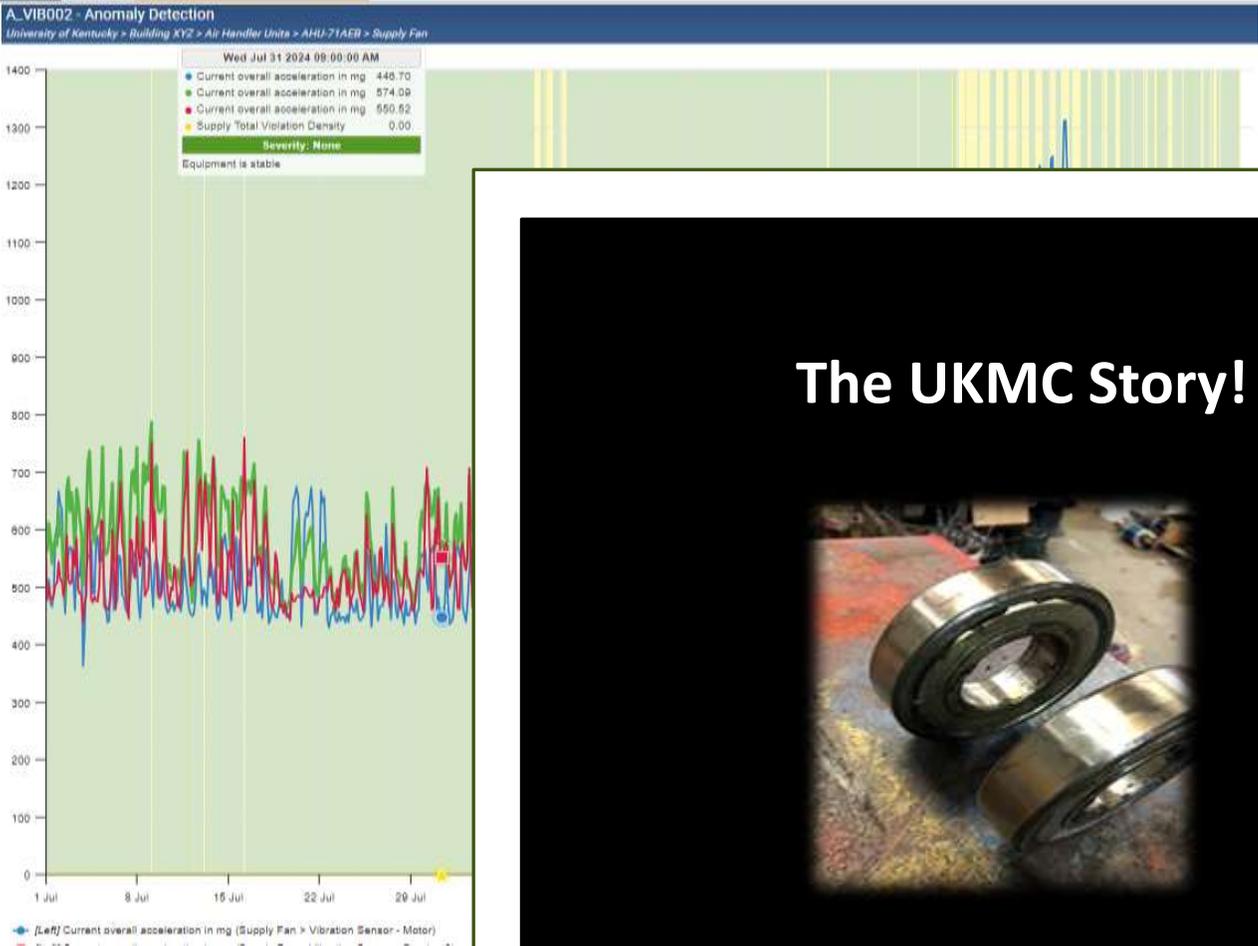
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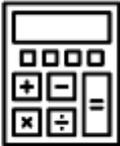
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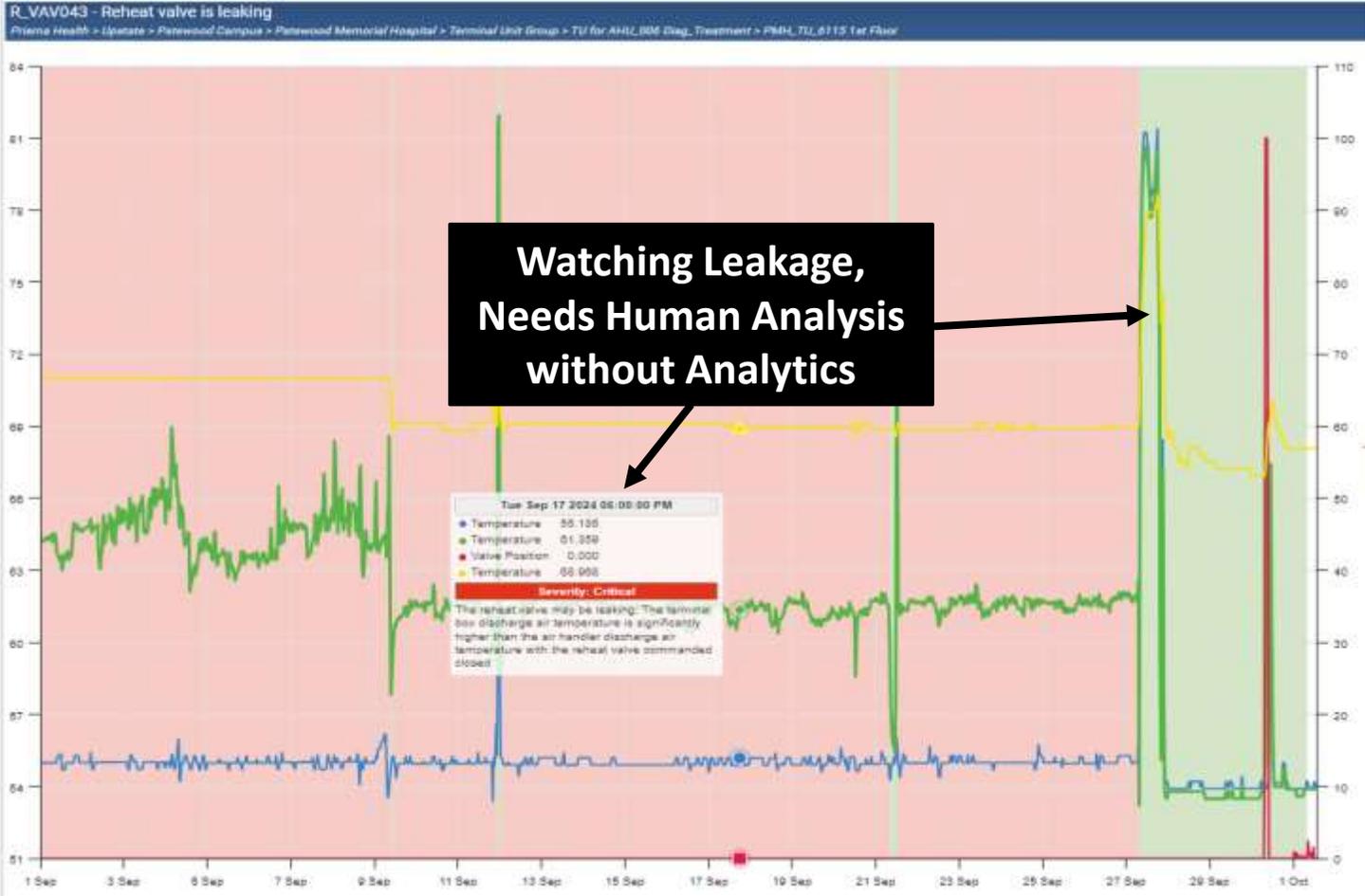
FDD.1 – Wear and Tear (Lifespan)

FDD.2 – Predictive (OR Motor)



FDD.3 – Leaky Coils and Valves

Undetected Unless You Are Watching



OUR \$\$ TRACKER

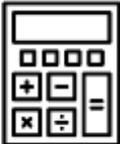
Preserved Revenue (Annualized)

- FDD.1 - \$ 44,386 (Prisma)
- FDD.2 - No Energy Waste
- FDD.3 -

OUR RELIABILITY TRACKER

Preserved Revenue (Extracted)

- FDD.1 – Wear and Tear (Lifespan)
- FDD.2 – Predictive (OR Motor)
- FDD.3 – Damaged Equipment



FDD.3 – Leaky Coils and Valves

Undetected Unless You Are Watching



OUR \$ TRACKER

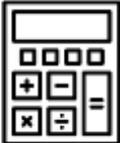
Preserved Revenue (Annualized)

- FDD.1 - \$ 44,386 (Prisma)
- FDD.2 – No Energy Waste
- FDD.3 - \$ 56,023 (Southcoast)

OUR RELIABILITY TRACKER

Preserved Revenue (Extracted)

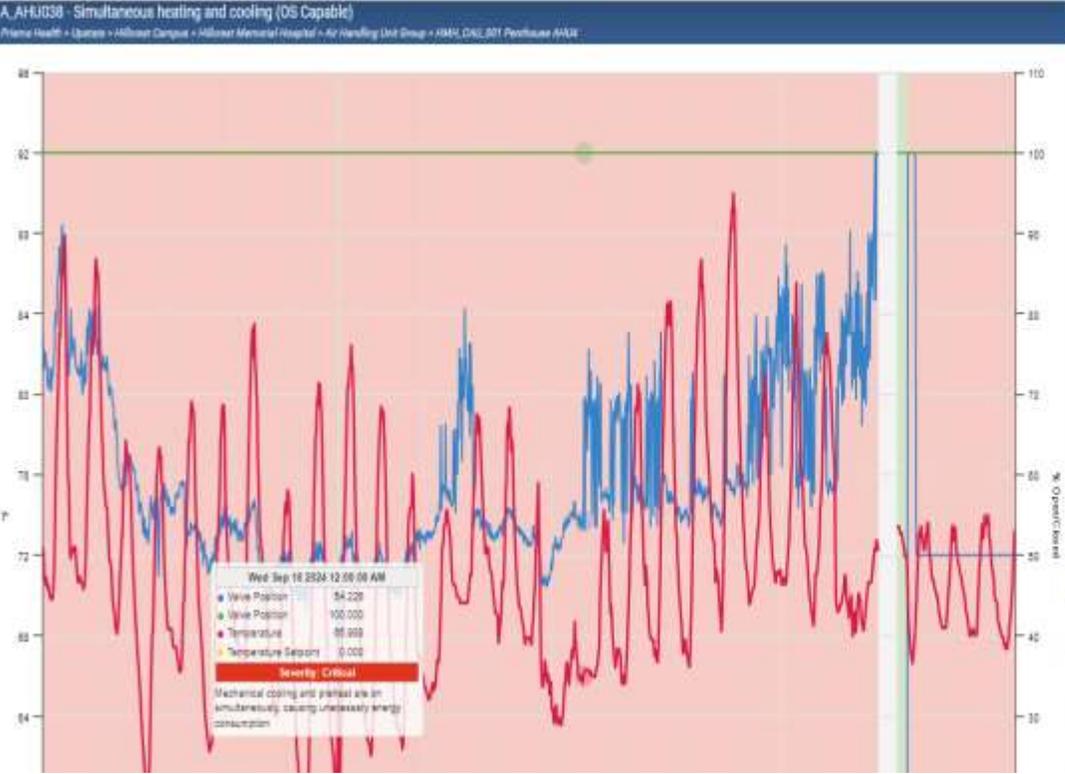
- FDD.1 – Wear and Tear (Lifespan)
- FDD.2 – Predictive (Motor)
- FDD.3 – Damaged Equipment



FDD.4 – Simultaneous Heating and Cooling

Your BAS Will Never Know

▼ A_AHU039 - Simultaneous heating and cooling w/ Direct Expansion (OS Capable)	\$5,419.96	<div style="width: 100%; height: 10px; background-color: red;"></div>
TM_GRD_B17B - AHU012	\$5,419.96	<div style="width: 100%; height: 10px; background-color: red;"></div>



Analytic Results

Severity: Critical

From: Sat Sep 28 2024 4:35:00 AM
To: Tue Oct 01 2024 12:30:00 PM

Finding: Mechanical cooling and preheat are on simultaneously causing unnecessary energy consumption

Probable Causes

Likelihood / Description

- 80% Temperature control sequence of operation needs improvement
- 20% Preheat and/or cooling valve position(s) are overridden
- 10% Preheat valve and/or actuator are damaged
- 10% Cooling valve and/or actuator are damaged

Configuration Parameters

Asset Name	Severity ↓
AHU-3 4 Air Handling Unit Grp...	<div style="width: 100%; height: 10px; background-color: red;"></div>
AHU-8	<div style="width: 100%; height: 10px; background-color: red;"></div>
BBH_CA01 Perouse Air/Lk	<div style="width: 100%; height: 10px; background-color: red;"></div>
202B_AHU_201 1st and 2nd Fl.	<div style="width: 10%; height: 10px; background-color: red;"></div>
HSH_AHU_002 Operating Rooms	
BBH_AHU_002 Deaerated DR4-B	
AHU-7 4 Air Handling Unit Grp...	
AHU-1 4 Air Handling Unit Grp...	

OUR \$\$ TRACKER

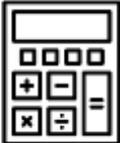
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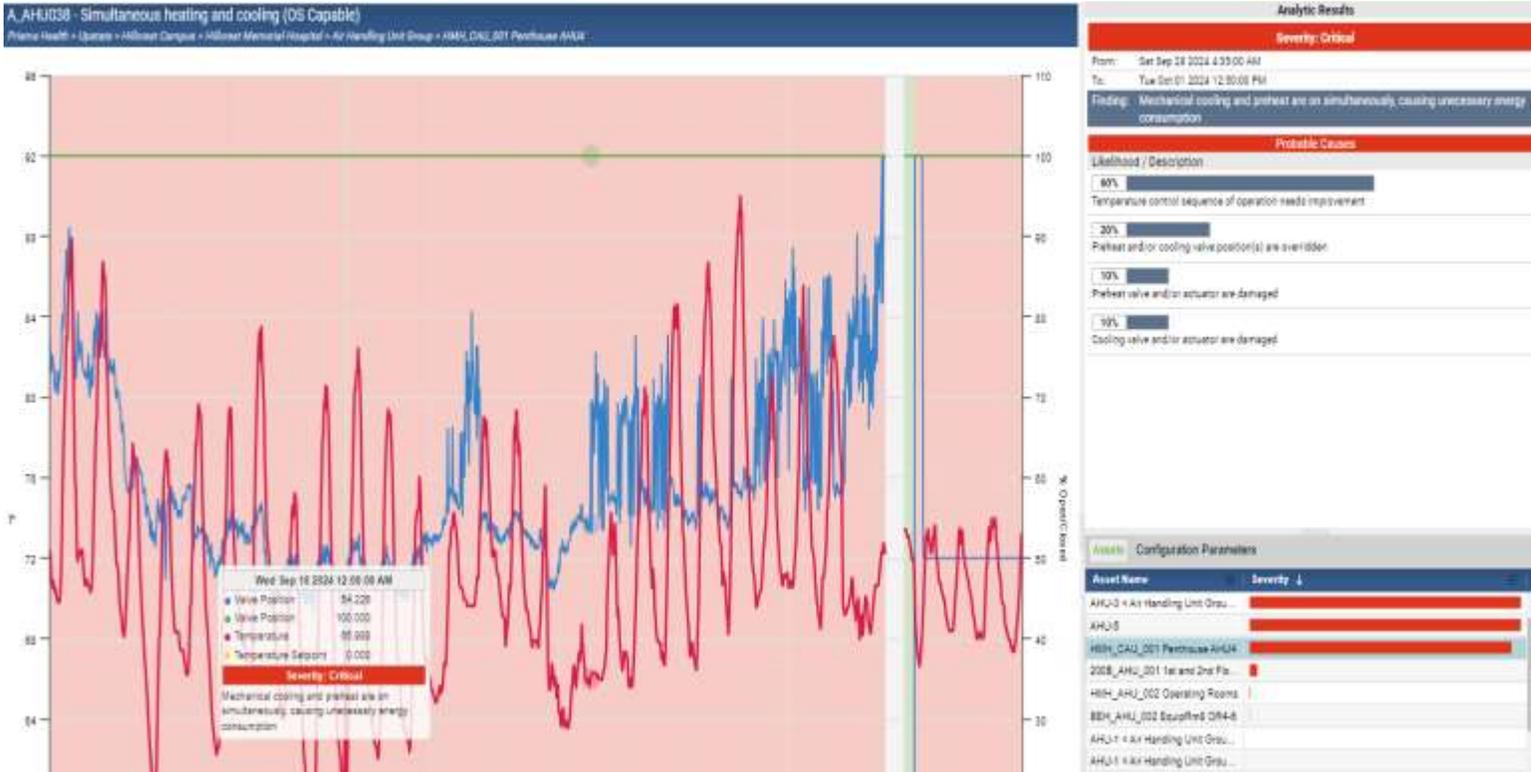
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OUR \$ TRACKER

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- FDD.1 - \$ 44,386 (Prisma)
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- FDD.4 - \$ 37,933 (Baystate)

OUR RELIABILITY TRACKER

Preserved Revenue (Extracted)

- FDD.1 – Wear and Tear
- FDD.2 – Predictive (Motor)
- FDD.3 – Damaged Equipment
- FDD.4 – Wear and Tear



FDD.5 – Economizers, Temperatures, Heating

Cost Savings when it is On!

Analytic	Savings Oppo...	Historical Severity Distribution
> R_VAV014 - Reheating while above minimum airflow set-point	\$13,671.57	
> A_AHU073 - Discharge temperature less than mixed while cooling is off w/ Evap Cooling (...)	\$9,871.33	
> R_VAV004 - Airflow detected while damper is closed	\$2,457.15	
> R_VAV043 - Reheat valve is leaking	\$1,301.13	

- Reheating While Above Setpoints
- Discharge Temperature Less Than Mixed While Cooling
- Airflow Detected While Damper is Closed
- Static Pressure Issues
- Economizer Modes
- Weather Station Calibration

OUR \$\$ TRACKER

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- FDD.5 -

OUR RELIABILITY TRACKER

Preserved Revenue (Extracted)

- FDD.1 – Wear and Tear
- FDD.2 – Predictive (Motor)
- FDD.3 – Damaged Equipment
- FDD.4 – Wear and Tear
- FDD.5 – Predictive Failure Rate

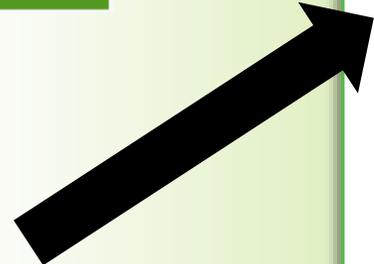


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Savings Oppo...	Hi
\$13,671.57	
\$9,871.33	
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OUR \$ TRACKER

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OUR RELIABILITY TRACKER

Preserved Revenue (Extracted)

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- FDD.2 – Predictive (Motor)
- FDD.3 – Damaged Equipment
- FDD.4 – Wear and Tear
- FDD.5 –

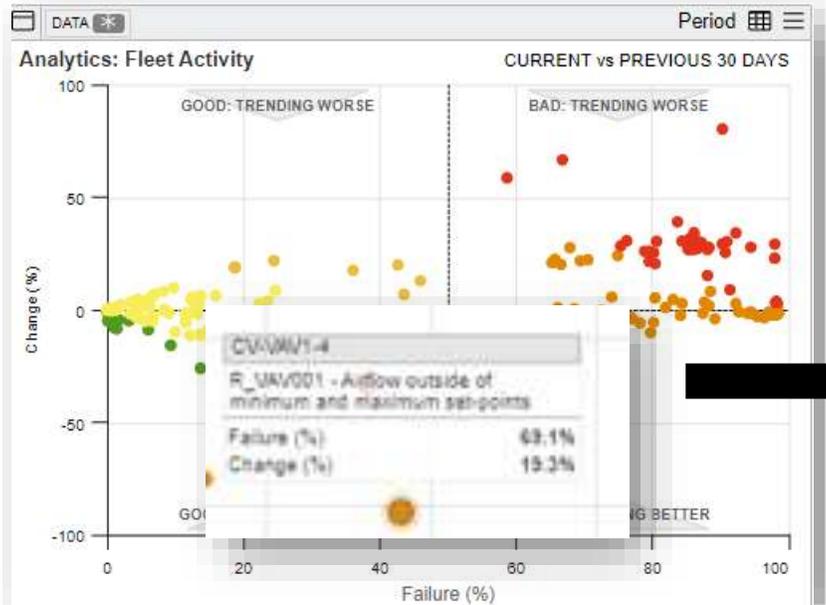


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Prediction and Reliability



Savings Oppo...	Hi
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FDD.6 – Air Balancing In Critical Areas

Safety and Energy

▼ R_LAB006D - Zone air change rate reduction recommendation	\$7,923.09
OR-05	\$696.67
OR-06	\$677.80
OR-03	\$656.97
OR-02	\$608.51
OR-10	\$601.09
OR-11	\$579.12
OR-08	\$562.63
OR-09	\$558.35
OR-12	
OR-07	
OR-13 UOR-1	
OR-14 UOR-2	
SURG_G_CATH3	
OR-15	
MB_G_10069 Clean Workroom	
OR-18 Rm 1107	
OR-04	
OR-01	



Look at the Balance!

OUR \$\$ TRACKER

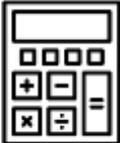
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OUR RELIABILITY TRACKER

Preserved Revenue (Extracted)

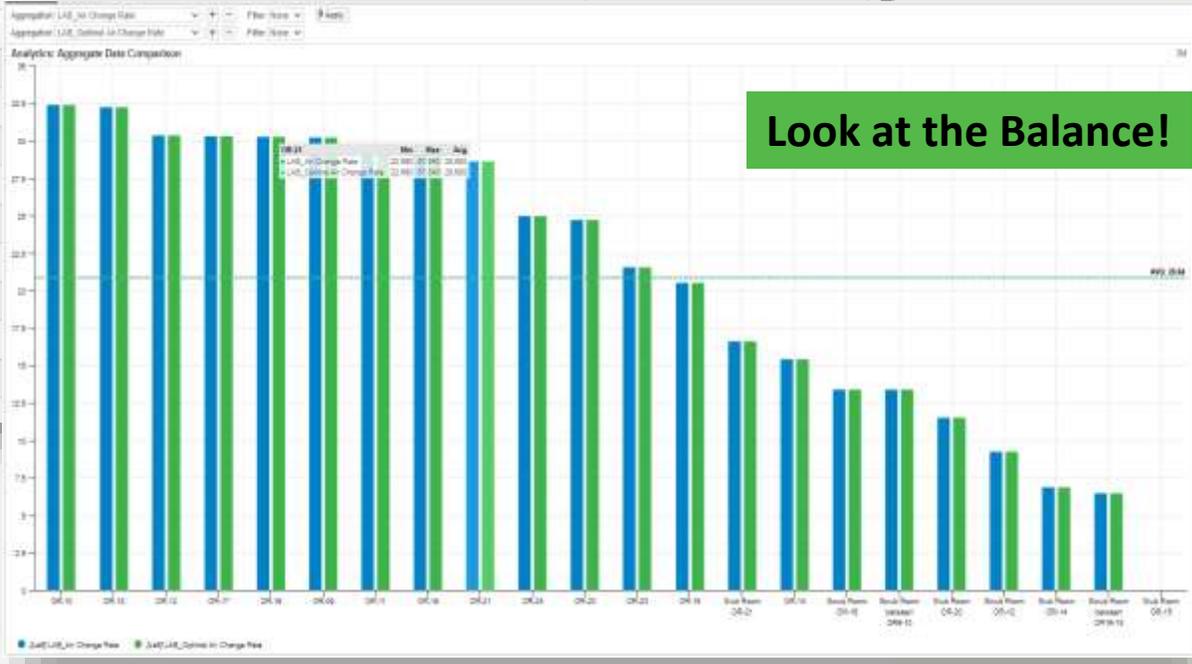
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FDD.6 – Air Balancing In Critical Areas

Safety and Energy in ORs and Pharmacy

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Look at the Balance!

OUR \$\$ TRACKER

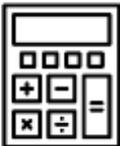
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- FDD.5 - \$ 68,099 (Moffitt)
- FDD.6 - \$ 95.077 (Lifespan)

OUR RELIABILITY TRACKER

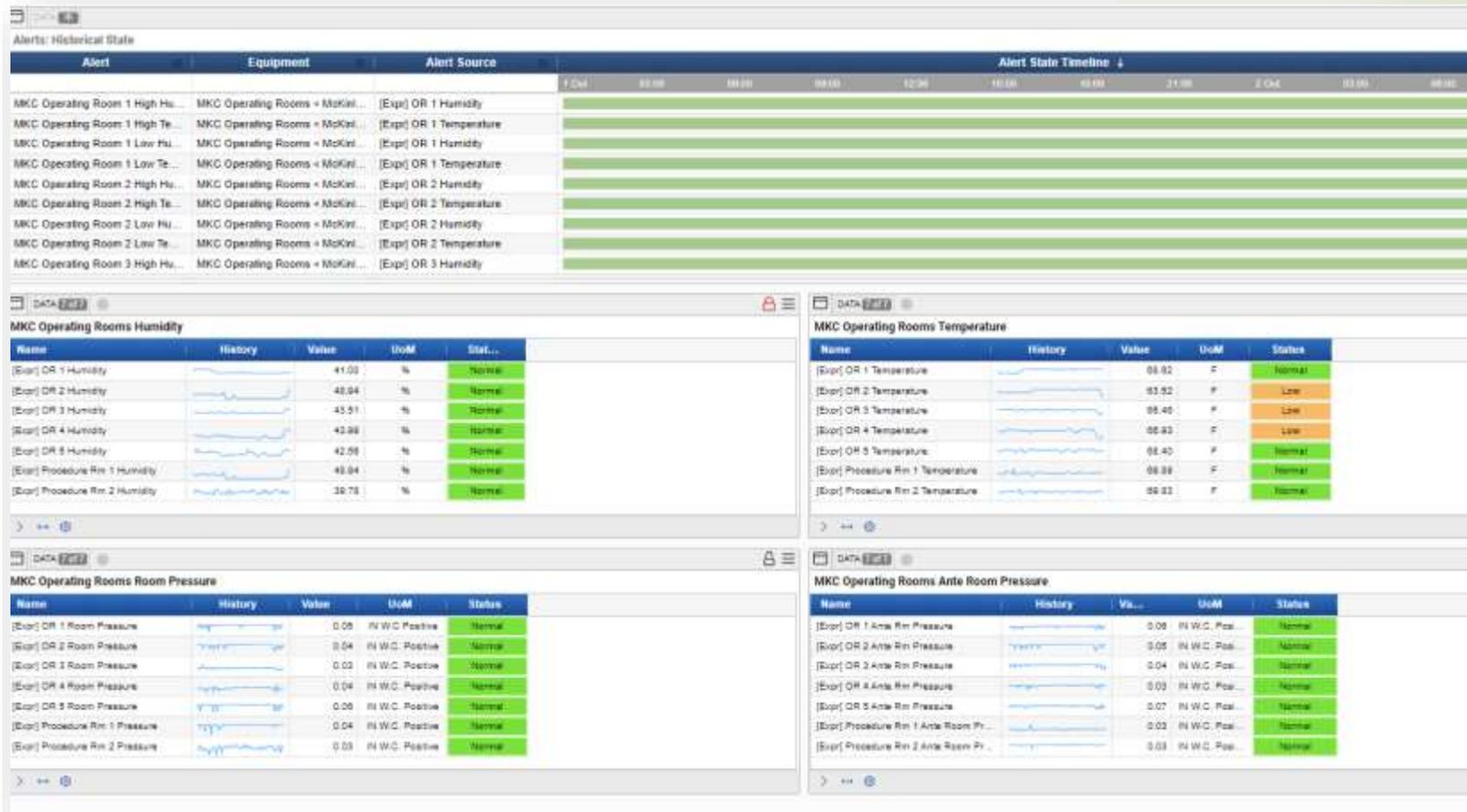
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- FDD.4 – Wear and Tear
- FDD.5 – Predictive Failure Rate
- FDD.6 – PRICELESS



FDD.6 – Air Balancing and Pressurization

Safety and Energy in ORs and Pharmacy



OUR \$\$ TRACKER

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OUR RELIABILITY TRACKER

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- FDD.4 – Wear and Tear
- FDD.5 – Predictive Failure Rate
- FDD.6 – PRICELESS



FDD.7 – Chiller Optimization

Leverage the World of Advanced Machine Learning



The chilled water plant is very energy intensive and will typically account for 25%-50% of a commercial building's total electricity consumption.



Chillers, Pumps and Cooling Towers in this system have varying efficiency profiles that are interdependent to one another, making it very challenging for humans to optimize.



Chiller plants are systems governed by the laws of thermodynamics so there is an optimal way to control them. The power of machine learning, simulation and optimization is able to pinpoint these precise setpoints from Day 1.

OUR \$\$ TRACKER

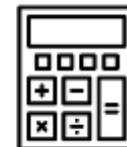
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- FDD.7 -



FDD.7 – Chiller Optimization

Leverage the World of Advanced Machine Learning

The chilled water plant is very energy intensive

SAVINGS & COST SAVINGS

Energy Savings 16.4%

Peak Demand Reduction 10.8%

MECHANICAL PERFORMANCE IMPROVEMENTS

Start/Stops 33.1%

Short Cycles 22.5%

Runtime Equalization 10.2%

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- FDD.6 - \$ 95,077 (Lifespan)
- FDD.7 - \$ 103,499 (Prisma)

OUR RELIABILITY TRACKER

Preserved Revenue (Extracted)

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- FDD.5 – Predictive Failure Rate
- FDD.6 – PRICELESS
- FDD.7 – Longevity



Biggest Challenge – Your Time!

FDD Increases Operation Efficiency Upwards of 25% to 30%

“The 24/7 Assistant Facility Technician”



Does the Work of **Analysis**
For You!



Consolidate,
Prioritize, and Improve

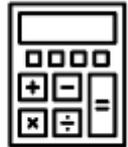


The Heads Up!

Cultural Shift To Decision Making

Adding Up The Numbers...

Preserving Revenue



OUR \$\$ TRACKER

Preserved Revenue (Annualized)

- FDD.1 - \$ 44,386 (Prisma)
- FDD.2 - No Energy Waste (UKMC)
- FDD.3 - \$ 56,023 (Southcoast)
- FDD.4 - \$ 37,933 (Baystate)
- FDD.5 - \$ 68,099 (Moffitt)
- FDD.6 - \$ 95,077 (Lifespan)
- FDD.7 - \$ 103,499 (Prisma)

OUR RELIABILITY TRACKER

Preserved Revenue (Extracted)

- FDD.1 – Wear and Tear
- FDD.2 – Predictive (Motor)
- FDD.3 – Damaged Equipment
- FDD.4 – Wear and Tear
- FDD.5 – Predictive Failure Rate
- FDD.6 – PRICELESS
- FDD.7 – Longevity

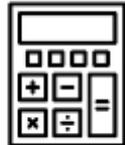
LABOR

Analysis Time (1000s Checks Per Day)

25% Efficiency

Adding Up The Numbers...

Preserving Revenue



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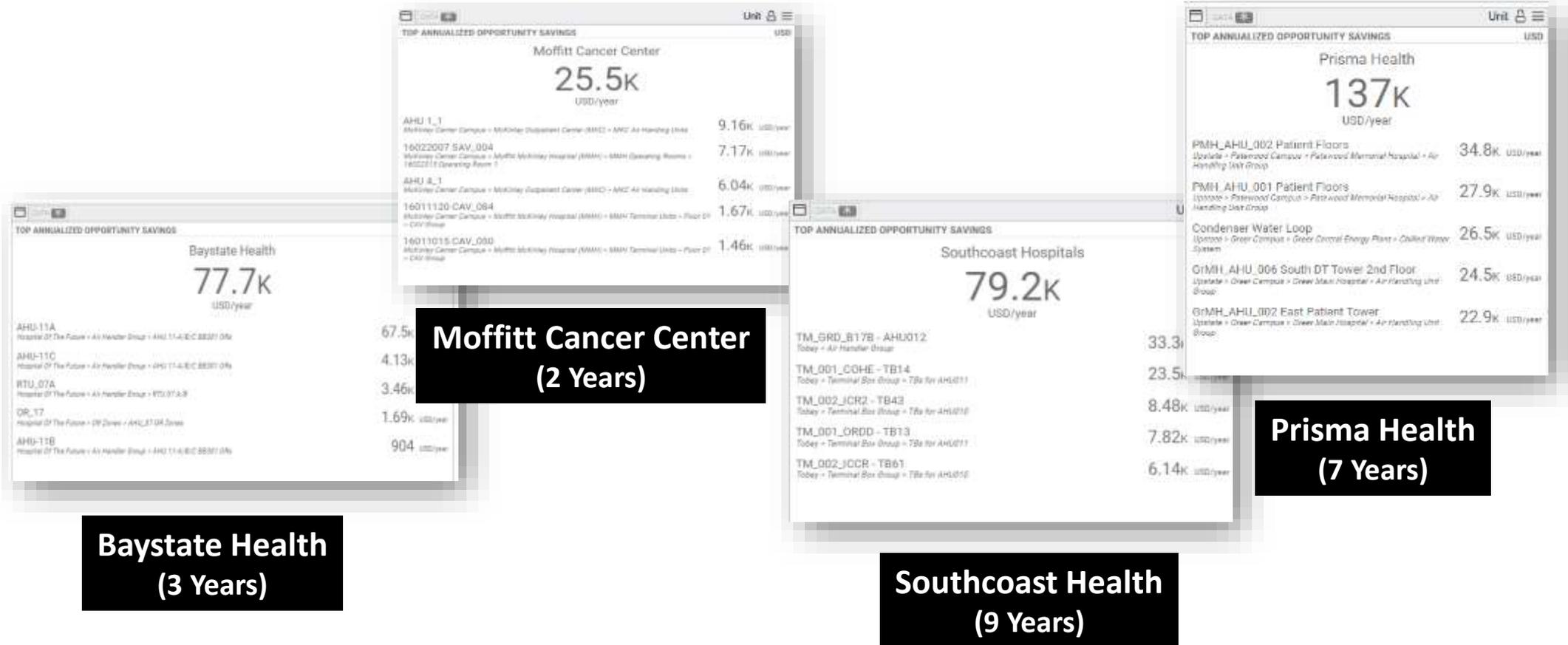
LABOR

Analysis Time (1000s Checks Per Day)

25% Efficiency

In the Seven FDD Examples , **\$405,017.00**

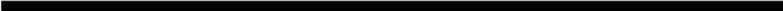
Real Time Top 5 Annualized Energy Waste Exposed by FDD



Preserving Your Revenue and Margin

\$400,017.00

Energy Waste Identified
on 7 FDDs



\$8,100,340

Top Line Revenue

QUESTIONS?



Audience Survey

How many people in the room think that a solution like this could positively impact your organization?

