BREAKOUT II SESSION B

Lessons from the Leaders: Battle of the Buildings Winners

Rick Samson – Facility Engineer, Michigan State University

Jason Flanigan – Manager, Energy and Engineering, Meijer

Devan Dodge-Frye – Sustainability Manager, The City of Royal Oak

Kendal Kuneman – Executive Director, Detroit 2030 District

Kendal Kuneman,
Executive Director,
Detroit 2030 District

MODERATOR

Veterinary Diagnostic Laboratory
Michigan State University

- Campus Energy Reduction
- Project Overview and Incinerator Upgrades

Energy Efficiency at MSU – Go Green!

- Achieve GHG reduction target
  - Baseline emissions 2010
  - 50% reduction by 2030 (MSU 2030 Strategic Plan)
  - Achieved 31% as of FY25 (Scope 1 & 2)
- Development of Campus Temperature Control Policy – September 2025
  - Office, conference, and classroom spaces only
  - 68 deg F heating / 75 deg F cooling
  - Estimated $450,000 annual savings (using our internal utility rates, very conservative)
- Energy Projects / Initiatives
  - Annual investment in energy conservation measures (ECMs) since 2010
  - Campus-wide steam trap management (est. Fall 2010) – failures reduced from 20% down to 2%
  - Campus Retro-Cx program: 2009 to present, partnering with Industrial Training and Assessment Center
  - Currently updating MSU Construction Standards to reflect ASHRAE 90.1-2019 (consistent w/ SOM Energy Code)
  - Automated fault detection and diagnostics (Clockworks Analytics) on all new builds and select existing buildings
  - Over 20% reduction of campus energy consumption since 2010 (even with over 2M sq ft of growth)

Project Overview

- Comprehensive energy efficiency initiative
- Multiple ECMs implemented across building systems
  - Walk-In Cooler Refrigeration System Upgrade
  - Lab/Non-Lab Space HVAC Control Optimization
  - Celeris One to Celeris Two Lab Control Upgrade
  - Thermostat Setpoint Optimization
- Flagship project: Pathological Incinerator
- Goal: Improve reliability, longevity, and reduce energy use

Temperatures

Incinerator Upgrades

- Refractory
- Vent connector
- Burners
- HMI and control panel

Execution Challenges

- Tight working space and complex equipment removal
- Roof cutting and crane operations required
- Frost law delays affecting crane availability
- Supply chain issues (material sourcing challenges)
- Refractory cure cycle

Operational Improvements and Energy Performance Gains

- Optimized operating schedule
- Extended cooldown cycle to retain ~500°F
- Reduced thermal shock on refractory
- Improved system reliability and lifespan
- Reduced number of active burners (4–5 typical)
- 34% natural gas reduction; Overall 27% Energy Reduction
- Improved thermal efficiency over run cycles
- Reduced startup energy demand
- Shell temperature reduction

Project Impact

- Multi-year transformation (approx. 3 years)
- Significant energy and emission reductions
- Improved operational stability
- Recognition: MI BOB Winner under Healthcare & Science Category

Special thanks!

Mike Bingham, MSU IPF Project Services

Janet Hengesbach, MSU VDL Laboratory Technologist Manager

Andy Douglas, H and R Electrical Contractors

MSU IPF Electrical

MSU IPF HVAC/Boiler

Chase Nedrow Industries

Applegate Sheetmetal Contractors

Gunthorpe Plumbing and Heating, Inc.

Energy Efficiency

May 2026

meijer

Purpose-Based Sustainability

Enriching Lives in the Communities We Serve

CARBON EMISSIONS

Maintain 50% Reduction of Scope 1 and 2 Emissions (2018 Baseline)

FOOD WASTE

Divert 50% of Food Waste from Landfill by 2030

CIRCULAR ECONOMY

Divert 70% of Waste from Landfill by 2025

Own Brand Packaging Goals

GREAT LAKES STEWARDSHIP

Coastal Cleanup Work

Green infrastructure

50% Reduction in Carbon Emissions

Achieved 2025 goal one year early through innovation in environmental stewardship

CO_2 Refrigeration
Leading to decreased on-site carbon emissions & electric savings in Greenville and Port Huron, MI

Solar Farm
Reducing carbon emissions by partnering with a Texas-based solar project

Rooftop Solar
Offsetting 55% of store energy use with on-site solar power in Sycamore, IL

Wind Energy
Investing in renewable energy portfolio to support reduction in carbon emissions

Linear Generator
Converting fuel to energy in a cleaner & more cost-effective way in Valparaiso, IN

Project Background

Distributed CO_2 Refrigeration

Project Background:

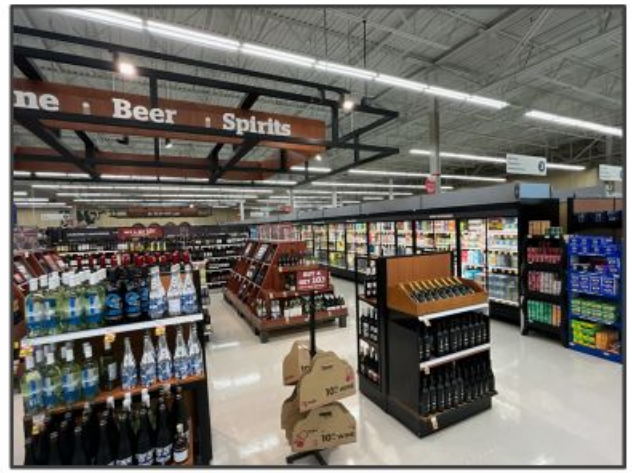
- Replacement of end-of-life refrigeration system
- Transition to natural refrigerants
- Port Huron, MI

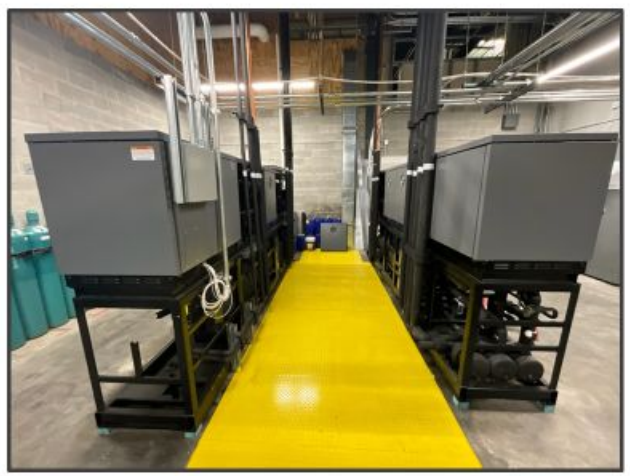
Project Goals:

- Learn how to transition while keeping a store open
- Pilot a distributed CO_2 system

Project Partners:

- Hussmann: Refrigeration OEM & CM
- Siwek: General Contractor





Project Details

Distributed CO_2 Refrigeration

Closed previously open meat preparation space

Project Details

Distributed CO_2 Refrigeration

Added doors to previously open cases

Project Details

Distributed CO_2 Refrigeration

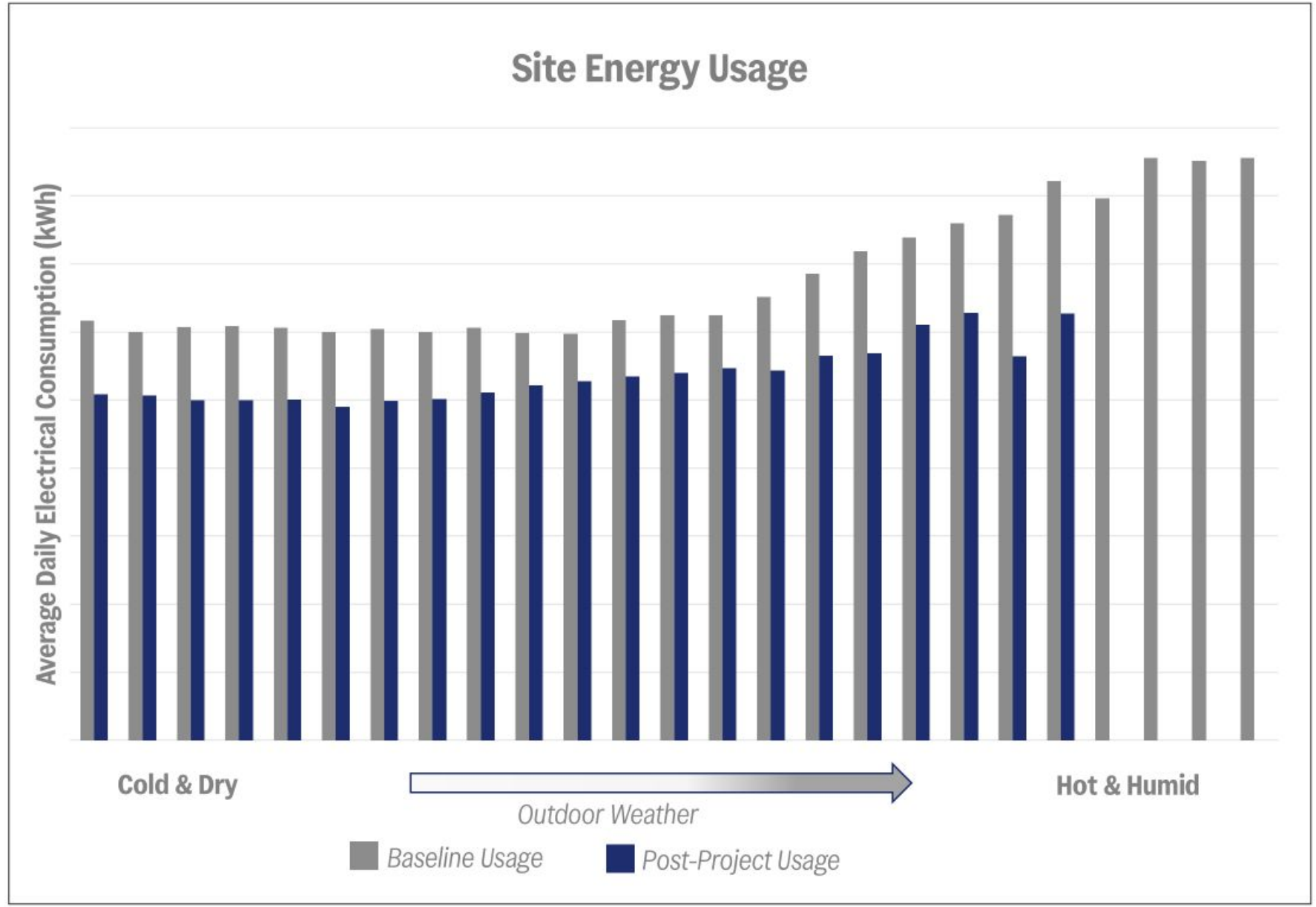
Transitioned from a primarily rack system to a protocol system

Project Impact

Distributed CO_2 Refrigeration

To date, project implementation has provided a total store *16% energy reduction!*

Data reflects information from 10/18/25 to 4/16/26.



CITY OF ROYAL OAK
Sustainability & Climate

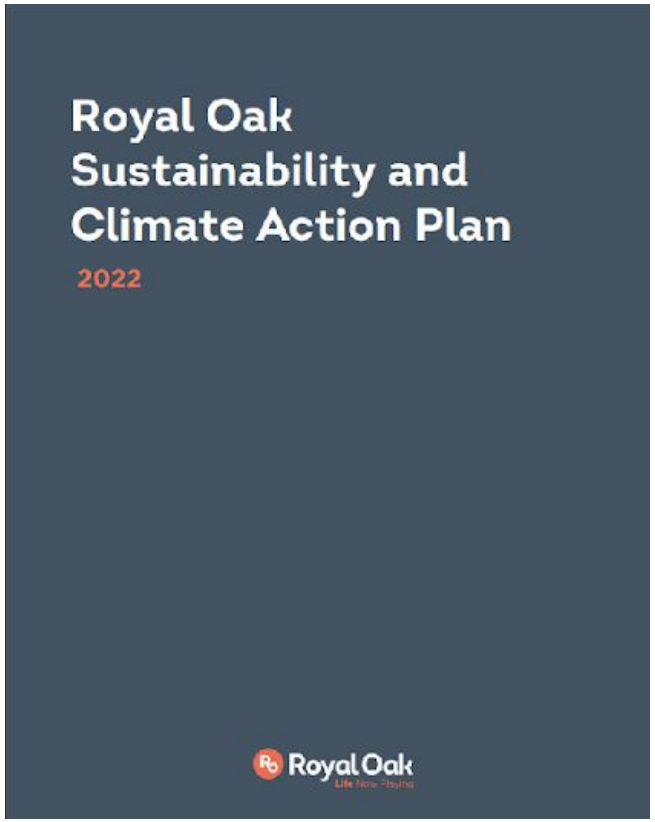
INTRODUCTION

Devan Dodge-Frye

Sustainability Systems Manager

City of Royal Oak

SUSTAINABILITY & CLIMATE ACTION PLAN



"The City of Royal Oak Sustainability & Climate Action Plan will guide and coordinate all aspects of city service delivery and investments to ensure the most sustainable, inclusive, climate-friendly options are implemented and help City of Royal Oak leaders and staff foster regional cooperation and local participation in sustainability efforts"

GOALS & FOCUS AREAS

Reduce GHG emissions by 40% by 2030 and achieve net-zero by 2050, based off the 2018 study.

Operate the city in a way that supports the three pillars of sustainability: the community, the economy, and the environment.

ROYAL OAK MASTER PLAN

Adopted in 2025

Goal #2: Advance Sustainability and Climate Action

2.2. Reduce Energy Use in Buildings

Integration into all divisions through policies and practices

Royal Oak SUSTAINABILITY

HISTORICAL SOCIETY

1920’s firehouse

Museum & office since 2010

Volunteer operated

Royal Oak SUSTAINABILITY

PROJECT OVERVIEW

- **Main Exhibit Floor:** Replaced three aging window units with a single Comfort Aire 13,500 BTU portable air conditioner. This unit includes a heat pump feature, allowing the museum to provide warmth during transitional spring and fall days without activating the central boiler.
- **Upper Level:** Consolidated three individual 5,000 BTU units into one high-capacity Perfect Aire 18,000 BTU window unit, which more effectively cools the historically "hot zones" of the second floor.
- **Energy Management:** Both new AC units feature automated energy-saving modes that power the units down completely when target temperatures are reached.
- **Winter Strategy:** The museum lowered the central boiler thermostat to 67°F during winter months, utilizing Powersone 1,500-watt portable heaters to provide localized heat in volunteer spaces while occupied.

RESULTS AND FUTURE

Realized a 22% reduction in Weather Normalized Source Energy Use Intensity (EUI).

$1,500 in savings – HUGE for them

HVAC replacement up next!

QUESTIONS?

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Royal Oak

Life Now Playing

THANK YOU!

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