

WELCOME TO THE DLC SUMMIT!





DLG
CONTROLS
SUMMIT '23





Andrew
Antares



Stuart
Berjansky



Aaron
Feldman



Kasey
Holland



Jason
Jeunnette



Adrian
Martin



Katy
McSurdy



Bagwat
Mohan



Levin
Nock



Leora
Radetsky



Andrea
Shapiro



Steve
White

Transformational Impact 2012-2022

Over 1 million products qualified

Over 2500 manufacturers participating

75% of energy efficiency programs in North America require DLC

Efficacy in fixtures and lamps of 30-40% over 10 years

Lighting consumption in the U.S.
commercial sector has dropped from

17% to 11%

Between 2012 and 2022

eia.gov



Today

**75% of DLC qualified products
have integrated controls**

**99.5% of qualified products
are dimmable**

We envision a net zero future....

Energy
Efficiency

LEDs + Controls

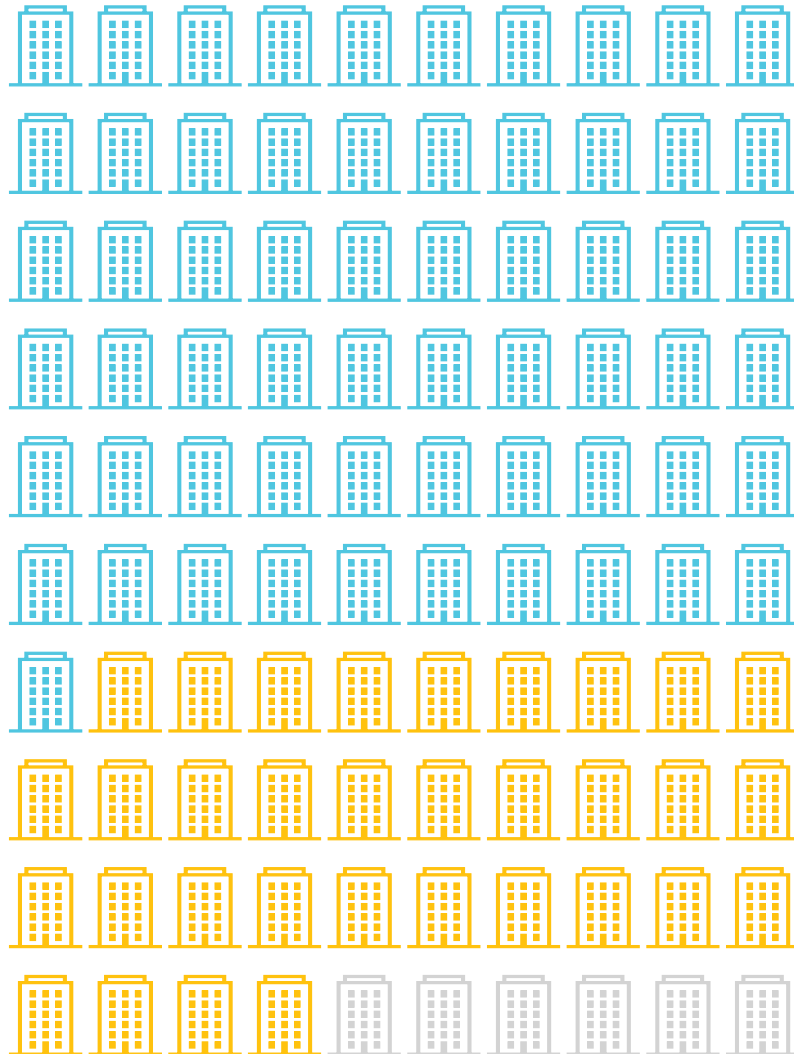
Demand
Flexibility

Networked Lighting
Controls ready
System integration

Equitable
Solutions

Solutions for advanced energy savings across
all buildings

Untapped Opportunity



94%

of US commercial building stock is less than 50,000 square feet (5.55 million).

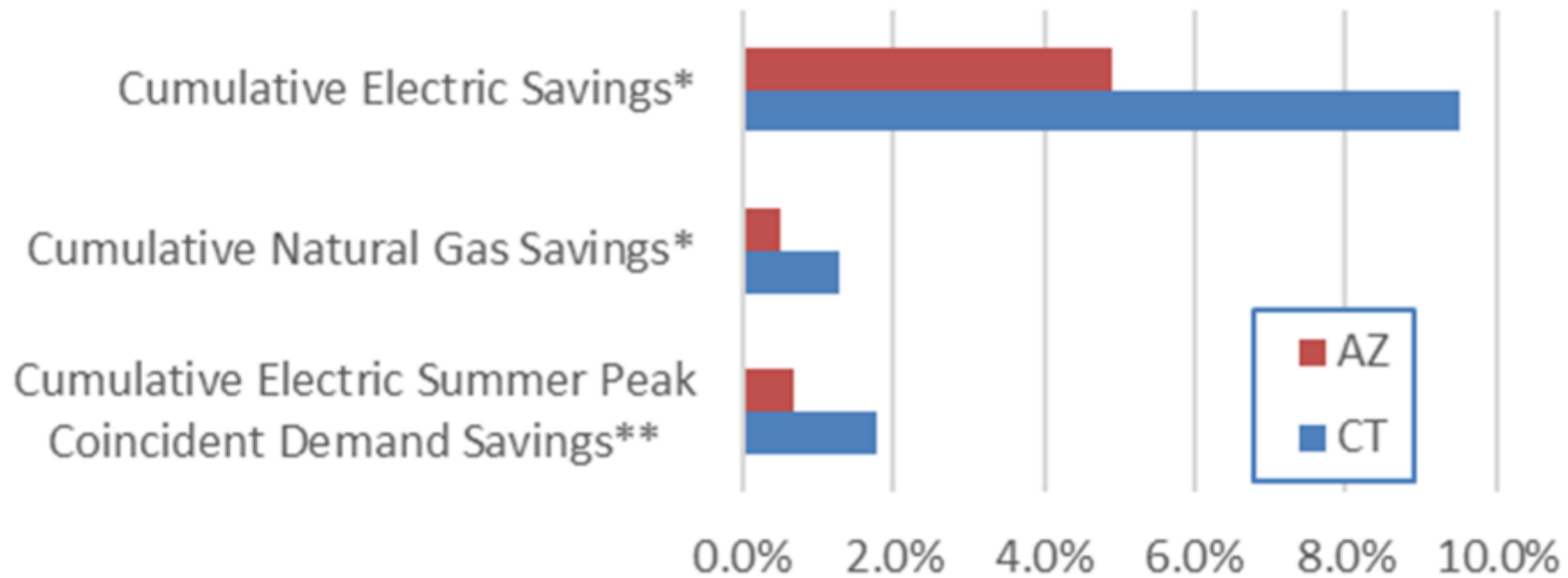
<33%

of those have lighting controls



The BIG opportunity

NLC Potential Benefits, Cumulative to 2030



* as % of 2020 Sales

** as % of 2020 Net Summer Capacity



COMING TOGETHER IS A BEGINNING

STAYING TOGETHER IS PROGRESS

WORKING TOGETHER IS SUCCESS

- Henry Ford



Network Lighting Control Systems in Action

Aaron Kwiatkowski & Andrew Johanns
2023 DLC Controls Summit
9/27/2023





Consumers Energy & DTE Energy

Consumers Energy Incentives

- **Large Business - over 100,000 sq ft**
 - \$0.18 per kWh
 - *Manufacturing, industrial, etc.*
 - \$0.25 per kWh
 - *Commercial spaces, education, healthcare, etc.*
- **Small Business - less than 100,000 sq ft**
 - \$0.25 per kWh

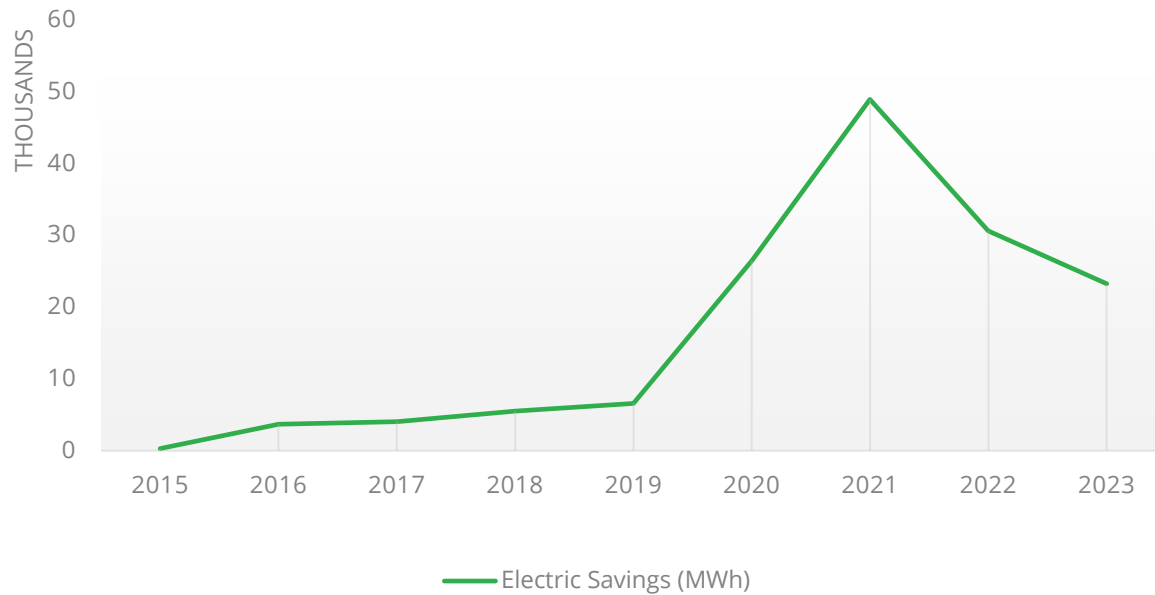
DTE Energy Incentives

- **All Businesses**
 - \$800.00 / 10,000 sq. ft. for DLC-listed NLC System
- **Limited time offer:**
 - 15% Lighting Bonus until Oct 31st.

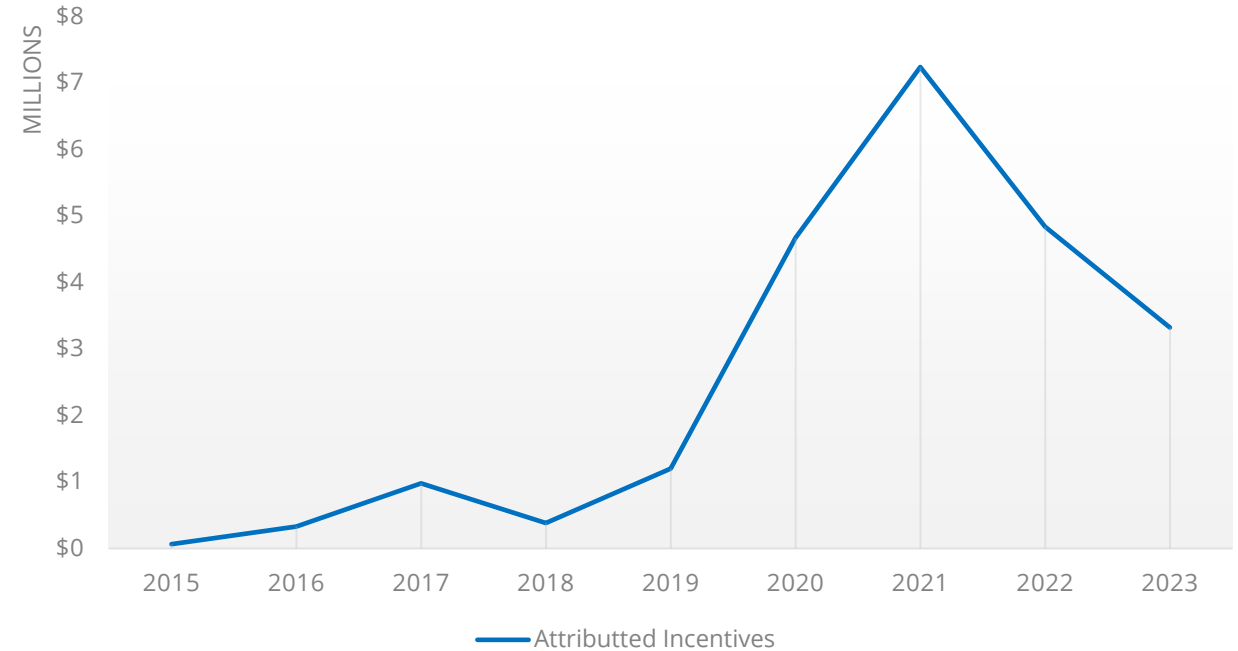


Network Lighting Control Savings

Electric Savings (MWh)



Attributed Incentives

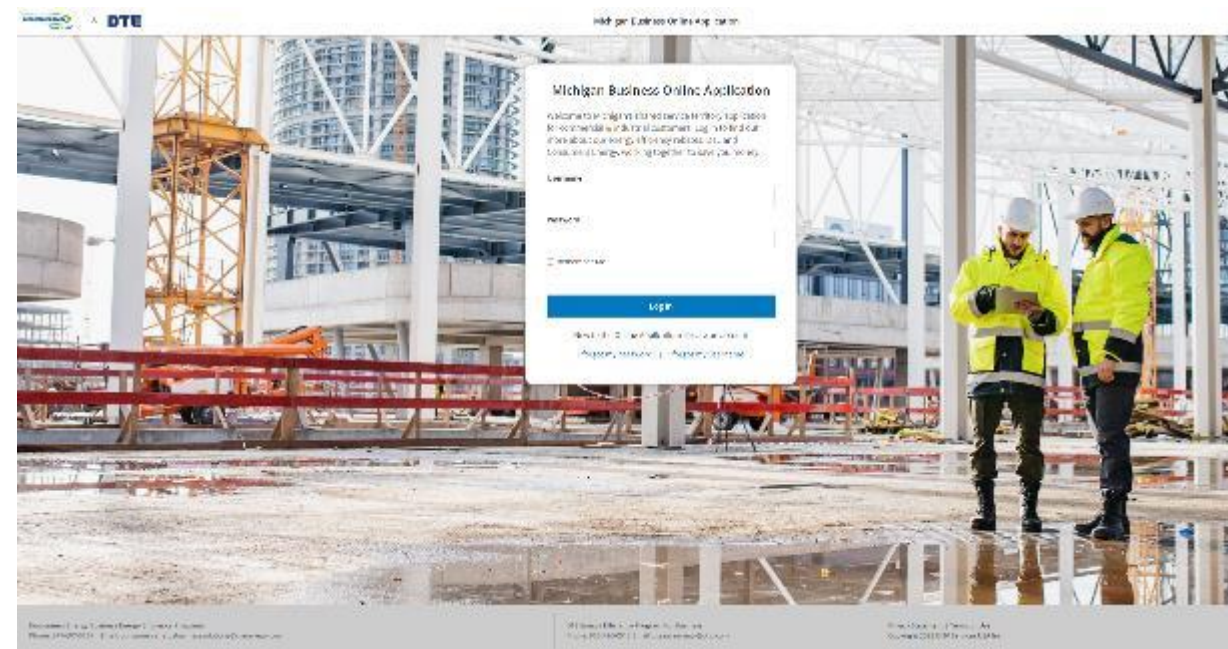


Total Savings = 149,198 MWh

Total Incentives Paid = \$6,729,573

Ideas/Concepts:

- LiTES Initiative 2016-2018
- 2019 Customer Demo Day
- DLC/NLC Trainings: over 270+ Trade Allies trained
- Joint Online Application for CE & DTE customers



[Mienergyrebates.com](https://mienergyrebates.com)

NLC Case Studies & Benefits

Manufacturing Example: Paragon D&E



Paragon D&E

Total Square Footage	114,376
Annual Hours of Operation	8,760
Baseline kWh/year	2,552,236
Post kWh/year	472,441
kWh Saved/year	2,079,795
% Saved from Lighting Retrofit	59%
% Saved from Implementation of Control System	81%
Total Project Cost	\$433,667
Total Incentive Received	\$216,833
Simple Payback Period	2.1 years

NLC Case Studies & Benefits

Large Industrial Facility Example: Brembo

“Through great collaboration, Consumers Energy and Brembo North America partnered together to pioneer an innovative solution that provided illumination for Brembo’s 400,000 sq.-ft. facility in Homer, MI. Through the use of energy efficient LED lighting and smart-sense technology, Brembo’s energy [use] and carbon footprint decreased while at the same time paving the way for finger-tip control of the entire facility’s lighting needs.”

- Jay Compton, Maintenance Manager, Brembo

Brembo	
Total Square Footage	400,000
Annual Hours of Operation	7,190
Baseline kWh/year	2,341,753
Post kWh/year	628,163
% Saved from Lighting Retrofit	57%
% Saved from Implementation of Control System	73%
Total Project Cost	\$528,445
Total Incentive Received	\$264,222
Simple Payback Period	4.60 years

NLC Case Studies & Benefits

University



University

Total Square Footage	35,000
Annual Hours of Operation	3,542
Baseline kWh/year	93,169
Post kWh/year	15,407
kWh Saved/year	77,762
% Saved from Lighting Retrofit	45%
% Saved from Implementation of Control System	83%
Total Project Cost	\$59,814
Total Incentive Received	\$13,997
Simple Payback Period	6.9 years

NLC Case Studies & Benefits

Retail Store



Retail Store

Total Square Footage	108,000
Annual Hours of Operation	8,760
Baseline kWh/year	1,394,592
Post kWh/year	170,594
kWh Saved/year	1,223,998
% Saved from Lighting Retrofit	25%
% Saved from Implementation of Control System	88%
Total Project Cost	\$119,652
Total Incentive Received	\$59,826
Simple Payback Period	1 year

NLC Case Studies & Benefits

School: Parma Elementary



Parma Elementary

Total Square Footage	38,200
Annual Hours of Operation	2,144
Baseline kWh/year	72,639
Post kWh/year	10,388
kWh Saved/year	62,252
% Saved from Lighting Retrofit	73%
% Saved from Implementation of Control System	86%
Total Project Cost	\$35,733
Total Incentive Received	\$15,563
Simple Payback Period	4.1 years

In total, NLC Systems have **saved** enough energy to power **23,529 gas-powered vehicles** or **13,326 homes**.

That's the equivalent of **105,734 Metric Tons of CO₂** not emitted into the atmosphere!



<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

*Household data based on estimates from the U.S. Energy Information Administration

*CO₂ calculations based on U.S. Environmental Protection Agency guidelines

Conclusion

- Consumers Energy and DTE Energy both offer incentives for NLC projects across the state of Michigan
 - Millions of dollars distributed to utility business customers
 - Hundreds of satisfied customers

Thank You!



CONTROLS SUMMIT '23

September 26-27, 2023 • Detroit, MI



Harnessing Savings and Greater Benefit from the LED Workhorse











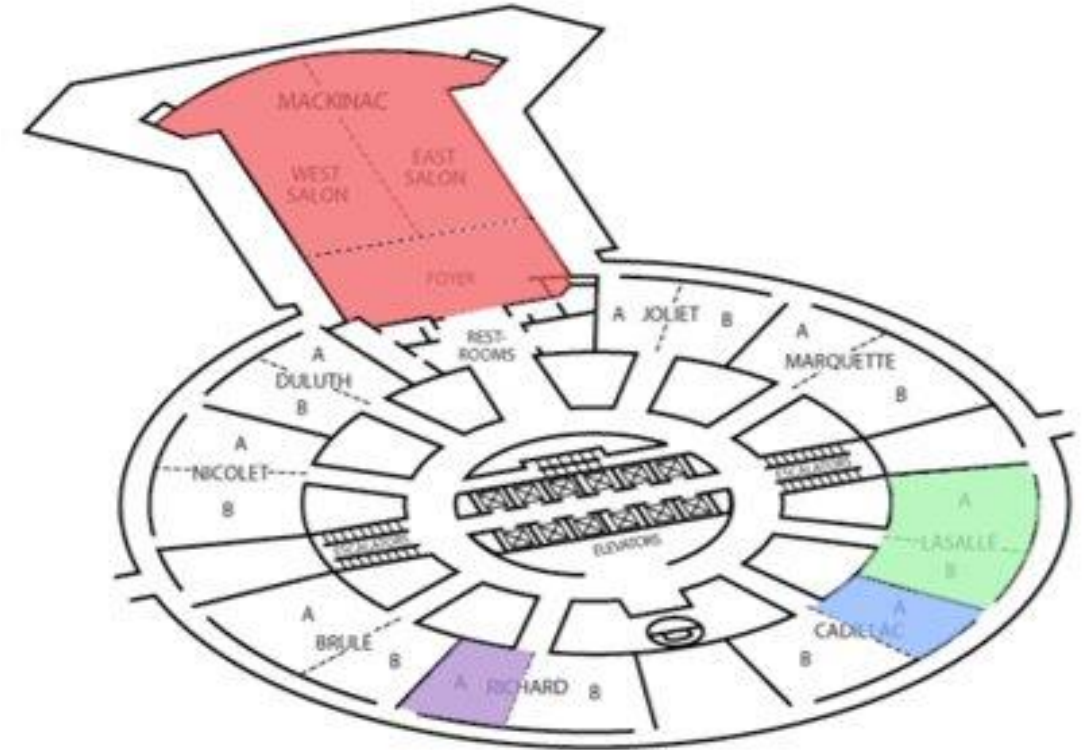
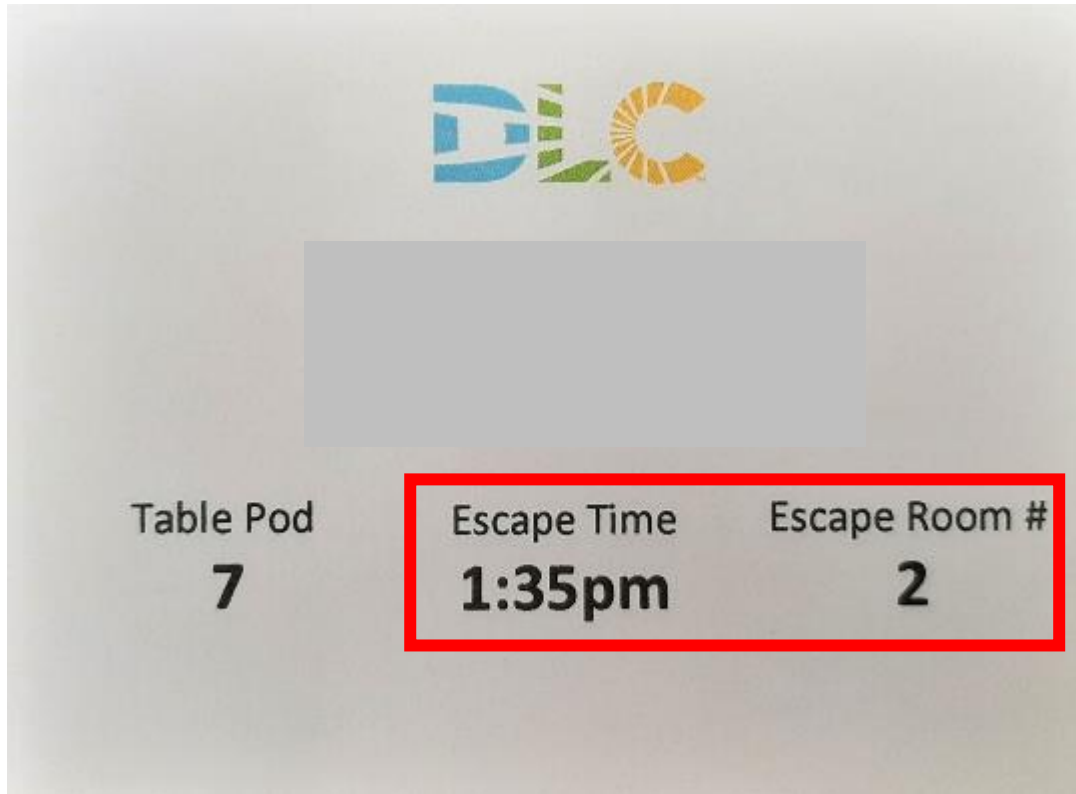






Logistics

- Name badges have Escape Room information





CONTROLS SUMMIT '23

September 26-27, 2023 • Detroit, MI



A Brighter Future for NLC Energy Savings Through External Systems Integration



Panelists



Connie Lilley
Detroit 2030 District



Levin Nock
DesignLights
Consortium



Kyle Hemmi
CLEAResult



Lauren Morlino
Evergreen Consulting
Group

DETROIT
2030
DISTRICT®



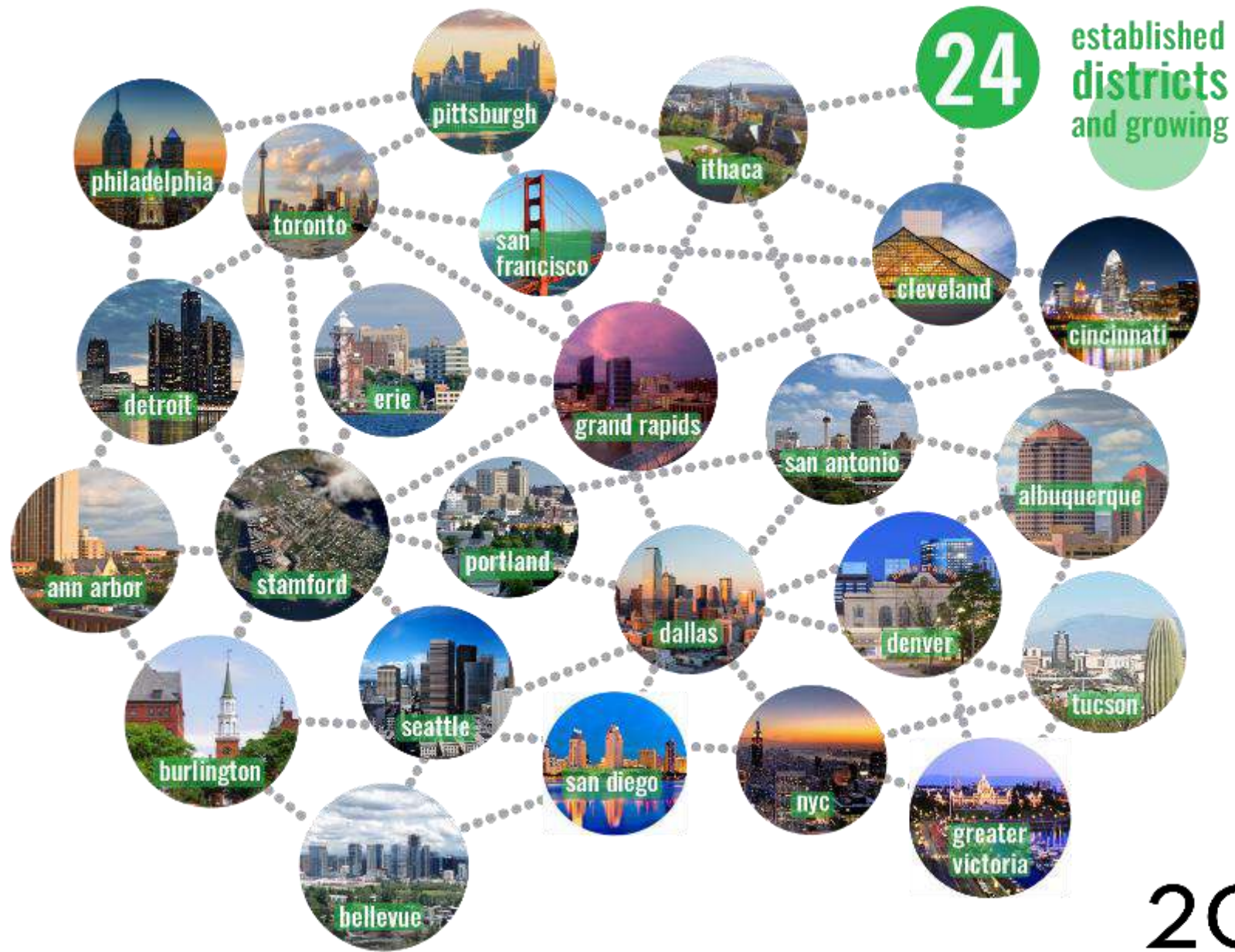
2030 Districts came from the 2030 Architecture Challenge

In 2005, architect Ed Mazria created the **2030 Architecture Challenge**. He challenged architects to design and renovate buildings better to reduce emissions by reducing energy, water consumption and transportation emissions.

Architecture 2030 was formed and then this program was introduced as a city-wide program.

This led to the Seattle 2030 District being launched in 2010 with support of the DOE and it was made replicable.





602 MILLION square feet committed

2030
DISTRICTS[®]
NETWORK

Three Districts in Michigan!



ANN ARBOR
2030
DISTRICT®



GRAND RAPIDS
2030
DISTRICT®

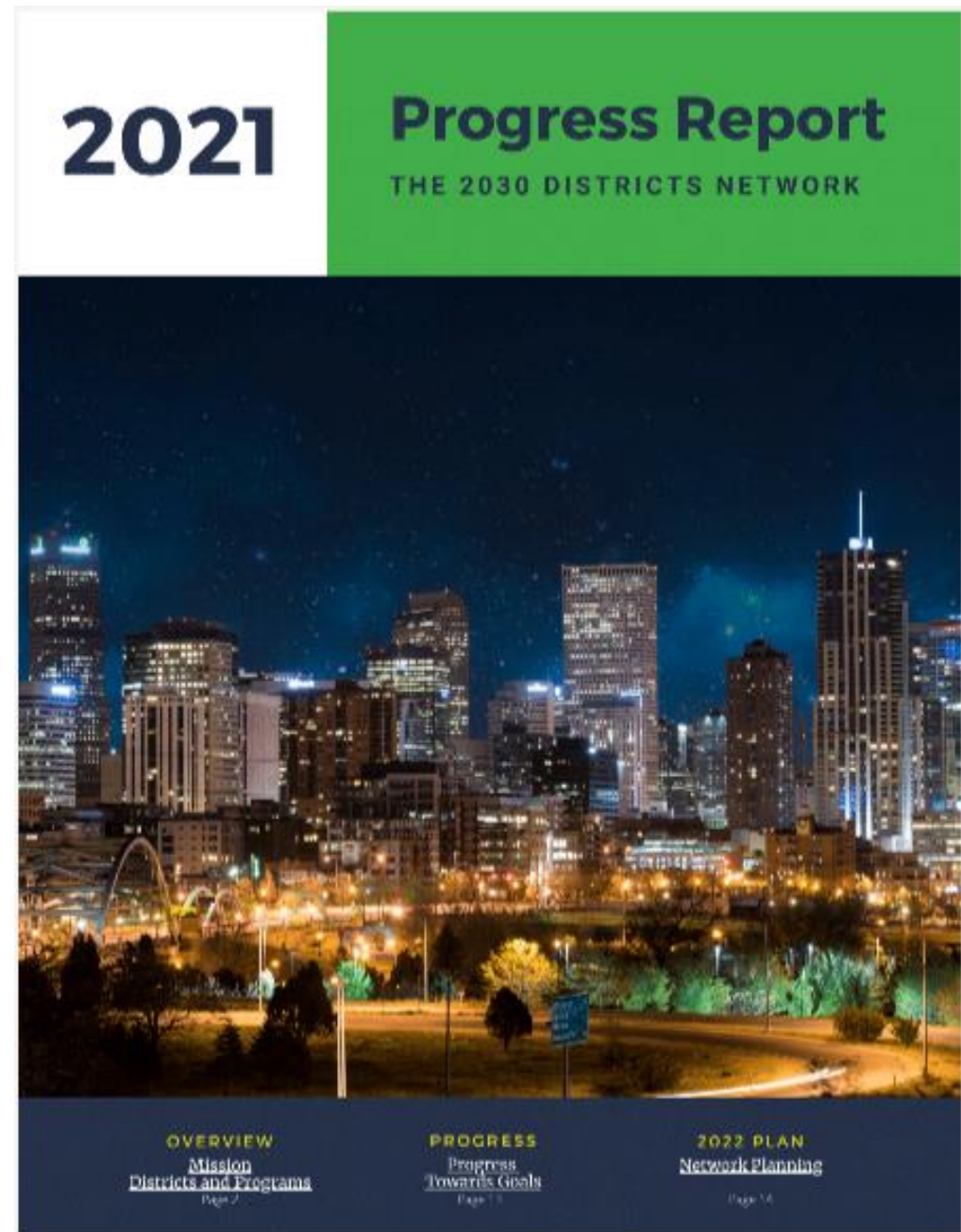


DETROIT
2030
DISTRICT®

Accelerating to Zero, Beyond 2030

Network adopted this new goal:

Provides critical leadership and resources to reduce emissions in the entire built environment by 50-65% by 2030 and reach zero emissions by 2040.



Accelerating to Zero, Beyond 2030



Provides critical leadership and resources to reduce emissions in the entire built environment by



50-65% by 2030 *and* reach zero emissions by 2040.

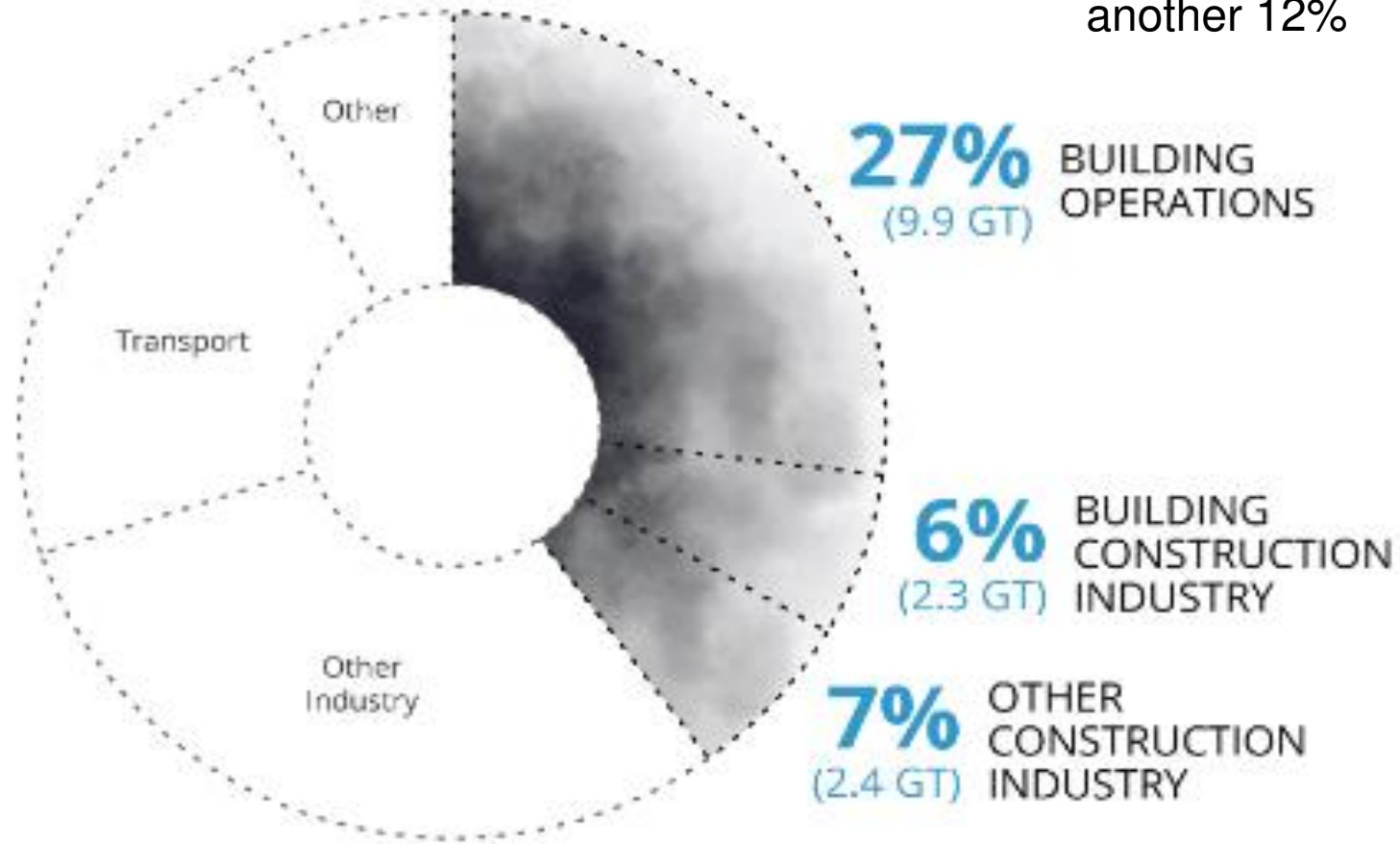
To get there we are focusing on:

- **Energy efficiency**
- **Electrification (with renewables- clean energy)**
- **Clean grids**
- **Reducing embodied carbon emissions**
- **Advocating for building codes, policies and incentives**

2030
DISTRICTS[®]
NETWORK

Why the built environment?

Annual Global CO₂ Emissions



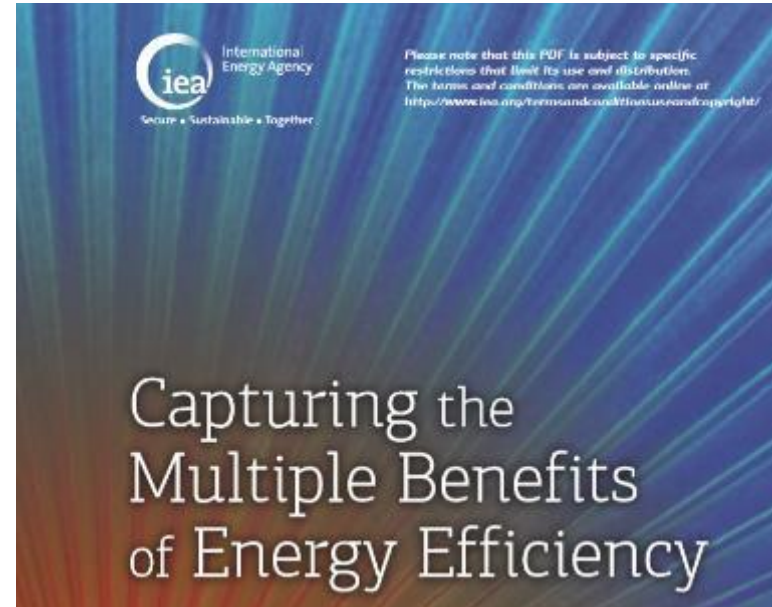
Economic Benefit for High-Performance Buildings

Direct cost savings:

- Return on Investment from lower utility bills
- Lower landfill costs
- Lower wastewater costs
- Building lifetime extended

Indirect economic benefits:

- Promote better health, comfort and well-being
- Increased productivity of building occupants
- Reduced level of absenteeism
- Attract new, progressive employees
- Increased asset value



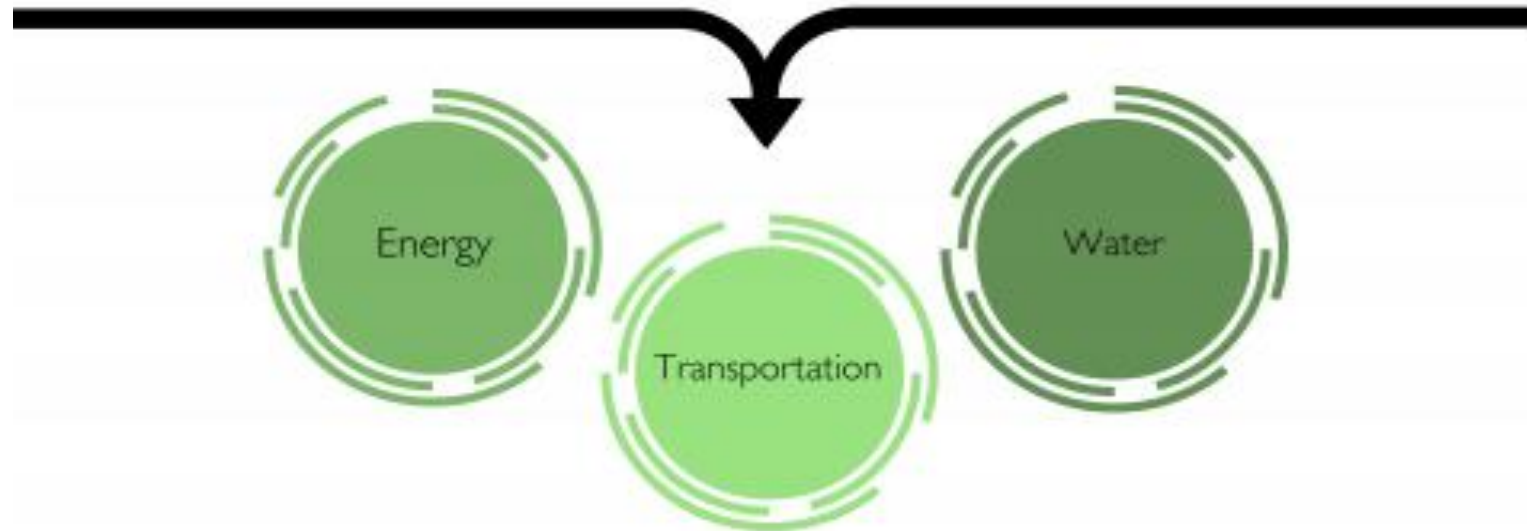
The impact of energy efficiency can be substantial:

- Energy efficiency delivers as much as 2.5 times the value of the energy reduction
- Energy efficiency can stimulate economic and social development, enhance energy system sustainability, contribute to environmental sustainability and increase prosperity.

What are we aiming for?

- Reduce Energy and Water in Commercial Buildings transportation GHG Emissions city-wide by 50% by 2030
 - Build only carbon neutral buildings by 2030

Working together to reduce CO2 in our city:



In Detroit add Stormwater Management, Recycling and ReUse

Who are 2030 District Members?

A successful 2030 District is a Private-Public Partnership, comprised of:



PROPERTY OWNERS AND MANAGERS

That own, manage, and/or develop real estate within a District boundary.



PROFESSIONAL STAKEHOLDERS

providing related services within a District boundary.



COMMUNITY STAKEHOLDERS

representing either non-profit organizations and/or local government.





Why a 2030 District in Detroit?

- **At time of launch buildings accounted for approximately 63% of citywide GHG emissions**
- **Large stock of older, aging buildings that are in efficient, rebirth was just starting**
 - **Create healthier buildings and city**
 - **Spur economic development and job creation**
- **Support Detroit's Sustainability Action Agenda:**
 - **A strategic roadmap to create a more sustainable Detroit**
 - **Outlines actions and measurable goals, including Goal 10:**
 - **Reduce municipal and citywide greenhouse gas emissions**



Launched in 2017

2023 CURRENT STATS

59 million total square feet

470 buildings enrolled

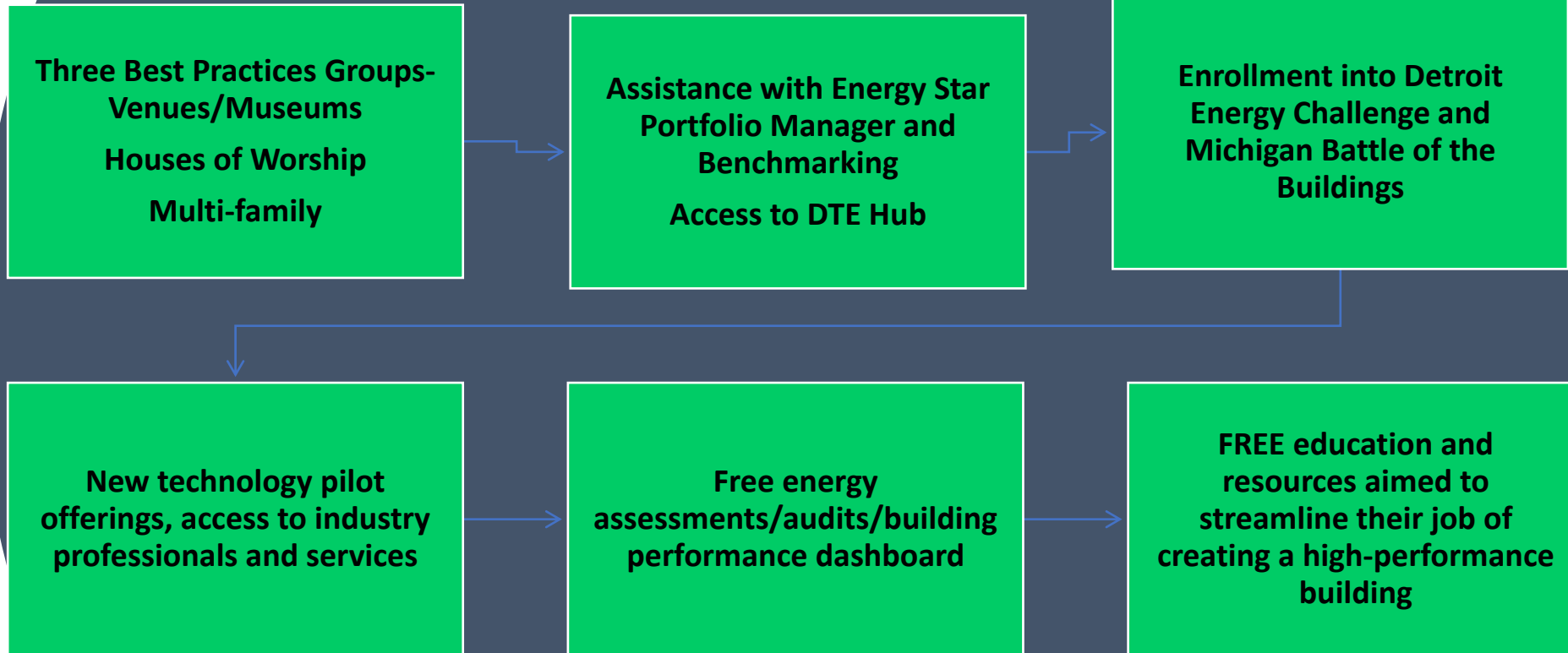
42 Professional Stakeholders

7 Statewide Professional Stakeholders

41 Community Stakeholders

3rd largest in 2030 Districts Network

MEMBER PROGRAMS



MEMBER EDUCATION

Educational programs & webinars

- Virtual Monthly Lunch & Learns
- Statewide webinars
- All member meetings

In-person events

- Member meetings, tours, workshops
- Annual Detroit Energy Challenge Awards Breakfast



Join us for an outdoor meeting and
Come learn about this amazing waterfront
Music, beer & wine, homemade pizza and bev



Thursday, June 9, 2022 3:00 p.m. to 4:30 p.m.

This project was implemented through years of planning for a historical rehabilitation by bringing energy efficiency and sustainability to Beach Club Detroit (previously River Terrace 1932) a 177-unit apartment development. A geothermal heat pump and a common boiler system replaced an old steam heating system. The new system brought central air and eliminated the cost of gas heat. This project includes cool white roofs, LED and solar lighting and more.

Attributes of Project:

- ✓ Cool roof rated system
- ✓ LED Lighting
- ✓ Low flow toilets
- ✓ Nest thermostats
- ✓ Energy start appliances

**Free for
Detroit 2030
District Members!**

**Detroit 2030 District
Multifamily Best Practices Group**

Tuesday, November 15, 2022
12:00 p.m. to 1:15 p.m.

*Free for Detroit multifamily
managers & owners!*

Join us for a virtual Lunch & Learn with these Guest Speakers!



TRICIA DEMARCO
PE, AICP, LEED AP
Detroit Market Lead



LOGAN APPLEBEE
Director of Community
Development



Tricia will review recent projects around the City of Detroit that have worked to achieve green development goals through her work with Spalding DeDecker. She will highlight lessons learned, and key opportunities for other new developments or existing property owners within the City and region.

Logan will discuss challenges and solutions to recycling in multifamily housing. Specifically, he will share some opportunities and solutions for property owners in Metro Detroit.

For more information on Detroit 2030 District visit
2030districts.org/Detroit

DETROIT 2030 DISTRICT

Michigan Interfaith Power & Light

DETROITERS WORKING FOR ENVIRONMENTAL JUSTICE

ENERGY STAR

2021 Detroit 2030 District House of Worship Treasure Hunt Graduates

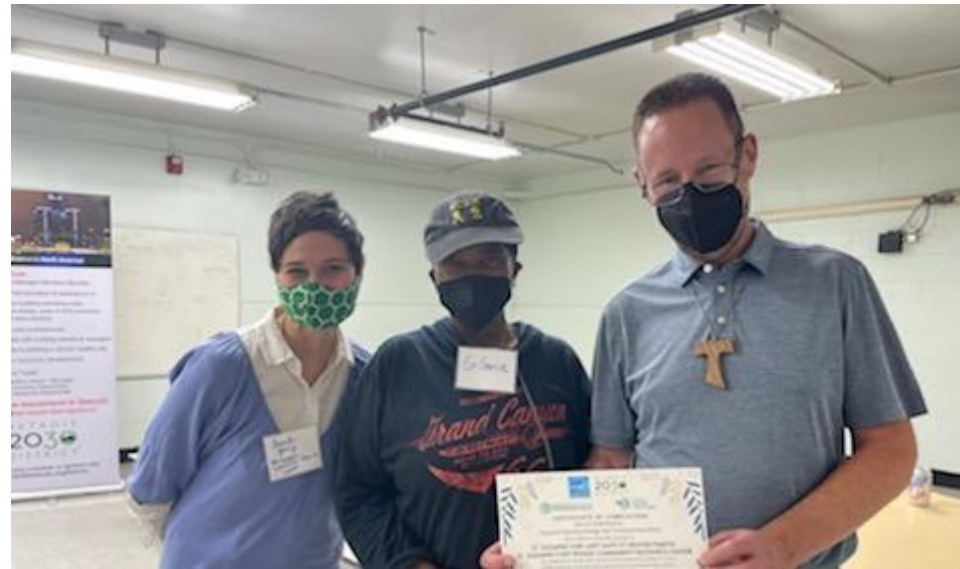
Community of Christ

Bethany Lutheran

Church of the Messiah

St. Suzanne Our Lady Gate of Heaven Parish

Thank you partners:





DETROIT
DTE 2030
DISTRICT



Are you leaving money on the table?

Join us for an outdoor afternoon learning session.

Learn about DTE's simplified application for incentives for construction and renovation projects.

- Increase your client's bottom line
- Add value to your construction projects
- New simplified process
- Special assistance for contractors, architects, etc.



Beacon Park/Lumen Restaura

Thursday, May 19, 2022

3:00 p.m. to 5:00 p.m

Hot hors d'oeuvres - beer - wine - network



DTE BUILDING ENERGY USAGE DATA HUB

Building members now using



A pilot to automate energy usage data into ESPM.

Members receive:

- Ongoing monthly aggregated whole-building data
- Historic data (2 years)
- Automatic data import into ENERGY STAR Portfolio Manager.



Benchmark Your Building
DTE Building Energy Usage Data Hub



Energy Star® Portfolio Manager®

A secure online tool that business owners can use to track their building's energy consumption and compare their buildings to other similar buildings nationwide. The program was created by the Environmental Protection Agency (EPA) to help building owners run energy management programs and gain recognition for their energy-saving efforts.

DTE can help.

We have created a free program to help business owners share and automatically upload their energy data directly to their Energy Star® Portfolio Manager® account.

How does the process work?

To request access to the energy usage data hub sharing tool, send an email to energypartnership_account@dteenergy.com. Our team members will provide you with a customer consent release from that must be completed and signed by an authorized company representative as well as an enrollment form prior to gaining access. Once your request has been processed, a link and instructions for accessing the tool will be provided.

Who is eligible?

DTE electric and gas business customers are eligible to participate in the program. Don't have a Portfolio Manager® account? No problem, DTE's new tool will guide you through creating an account for your buildings.

Get started today!

To apply, or to get more information on the tool, please send an email to ENERGYPARTNERSHIP_ACCOUNT@DTEENERGY.COM. We can check your eligibility and answer any questions you may have.

Detroit 2030 District teams up with MSU Industrial Assessment Center (IAC)

Participants will receive a no-cost technical assessment (ASHRAE Level 1-2) conducted by a team of MSU students and faculty.

MSU's IAC helps small and medium sized US manufacturers & commercial building owners **save energy, improve productivity, and reduce waste** by providing **no-cost** technical assessments conducted by a team of students and faculty.

Eligible commercial buildings must be 100,000 sq. ft or less. See MSU's website for eligibility criteria for manufacturers.

For more information and to apply, visit: <https://iac.msu.edu>

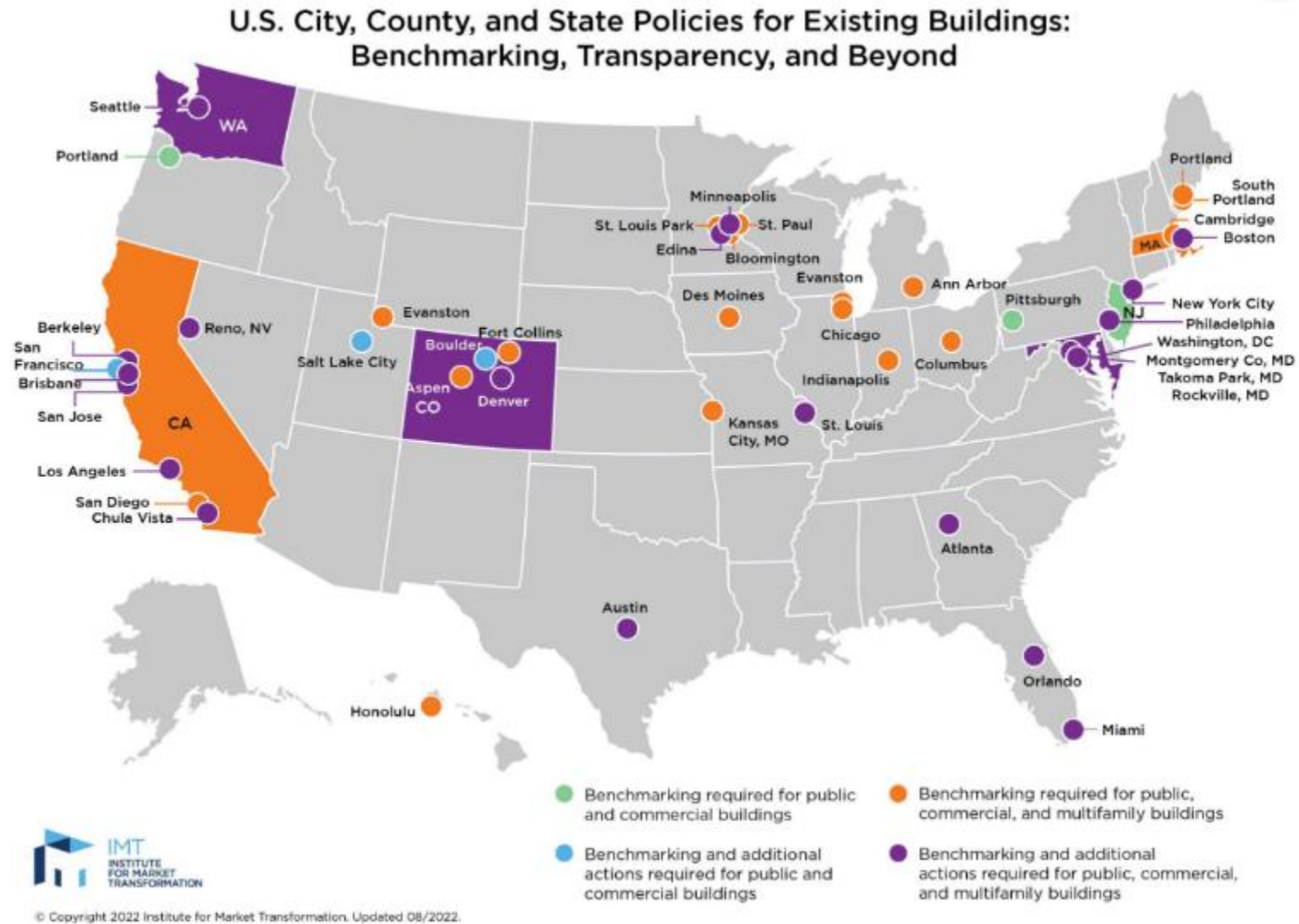


Pre-assessment meeting at the building location will include:

- Provide utility data to MSU team
- One-day site visit by MSU team
- Final review on energy and waste reduction recommendations
- Provide feedback to MSU and Detroit 2030 District
- Complete online survey for MSU and Detroit 2030 District
- Track initiatives and upgrades following an assessment

For more information or questions, reach out to Kendalkuneman@2030districts.org or ConnieLilley@2030districts.org.

Nationwide Benchmarking Ordinances/Policies



Source: [Map: U.S. City, County, and State Policies for Existing Buildings: Benchmarking, Transparency and Beyond - IMT](#)

Detroit Benchmarking Policy Update

Years of work for by City of Detroit, Green Task Force Group, Energy Efficiency Committee has a final draft in review and will be submitted to City Council soon.

Detroit 2030 District Building Members will receive assistance with compliance.

Building members share data voluntarily which we aggregate anonymously and will use for reduction reporting in the future. This data can be used for compliance.







**AWARDS
BREAKFAST**

June 14, 2022

8:30 AM - 11:00 AM

Zero Net Energy Center

Detroit

Sponsored By:










michiganbattleofthebuildings.org/detroit



State of the art LED lighting & controls;
daylighting

Geothermal grid- 39 wells, 350 feet deep

SIP panels (building envelope-insulated walls)

Energy Efficient Windows

Roof system

Solar Array - Photovoltaics (roof) 600 panels

Updated building controls





1st Place Biggest Loser –
Shelborne Development –
The Beach Club Detroit Apartments
59.63% Reduction



**2nd Place Biggest Loser
Fifth Third Bank
8 Mile & Livernois
21% Reduction**

3rd Place Biggest Loser
Bedrock / Detroit Media Partnership
20.78% Reduction

615 W. LAFAYETTE BLVD

Project Type: Building Automation System (BAS) retro-commissioning study through the DTE Retro-Commissioning (RCx) Program.

DTE's RCx Program offers a free study and incentives, and results in significant annual energy savings. Like many shared spaces and office buildings, the BAS was no longer optimized for the intended use of the space. The DTE RCx program was a process used to tune-up the existing equipment for more efficient performance rather than replacing it.

- ✓ Savings over 12% annually on electric consumption.
- ✓ The simple payback period was 2.3 months
- ✓ Annual energy cost savings estimated at 5.7%.



Honorable Mention
Biggest Loser
Comerica Bank/CBRE
16.36% Reduction

An aerial photograph of a city skyline at dusk. The sky is a mix of blue, orange, and grey. In the foreground, a large, modern, white circular building with a glass facade is prominent. To its right, a curved walkway or ramp leads down to a waterfront area. The water in the foreground reflects the city lights. In the background, several tall skyscrapers are visible, some with lights on. One building has a sign that says "city".

Honorable Mention
Biggest Loser
Huntington Place
20.54% Reduction

District Building Member Highlight

**Energy Reduction from
2020 to 2021
20.54%**



ENGINEERING BUILDING PERFORMANCE

- Energy Conservation
- Daylight Harvesting
- Air Conditioning
- Energy Dashboards
- Loading Docks
- Utility Auditing
- Air Quality
- States largest Gold LEED Certified bldg



MICHIGAN BATTLE OF THE BUILDINGS

Join Michigan's exclusive state-wide energy reduction competition!

- ✓ Improve your bottom line
- ✓ Get Recognized for your energy reduction efforts
- ✓ Gain valuable knowledge and network with building owners and managers all over Michigan
- ✓ Show Michigan pride & leadership
- ✓ Have fun!

Register Today

www.michiganbattleofthebuildings.org

WILL
YOU BE A
BIGGEST
LOSER?



Building Energy Analysis Manager (BEAM)

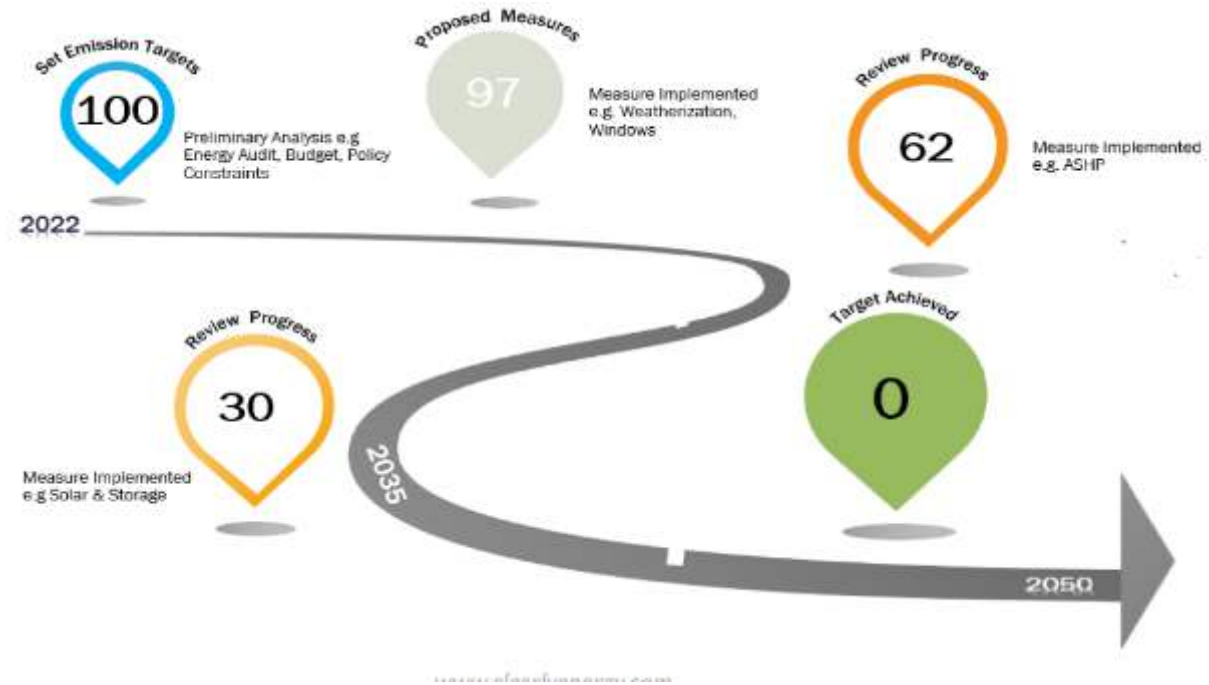
- *District reporting through the BEAM tool*
- *Will facilitate automatic data collection and analysis*
- *BEAM hosts a communication tool and FAQ page*
- *Emails you receive from BEAM will be from detroitreporting@2030districts.org*
- *Submit inquiries through BEAM*

<https://detroit-2030district.beam-portal.org/helpdesk/>

BEAM & future emissions projections

Use BEAM to identify future emissions projections for your building and build a roadmap towards your energy savings goals.

Feature coming soon!



It takes a village! So, we created one.

Over 40 local nonprofits joining in on the Detroit 2030 District Mission.

Detroit 2030 Community Partners



Thank you to our funding partners:



Thank you to our Platinum Stakeholders

The logo for DTE consists of the letters 'DTE' in a bold, dark blue, sans-serif font.

Founding Partner



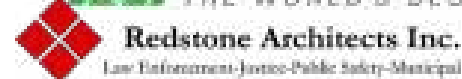
Founding Partner



Thank you to our Professional Stakeholders



MI GreenPower

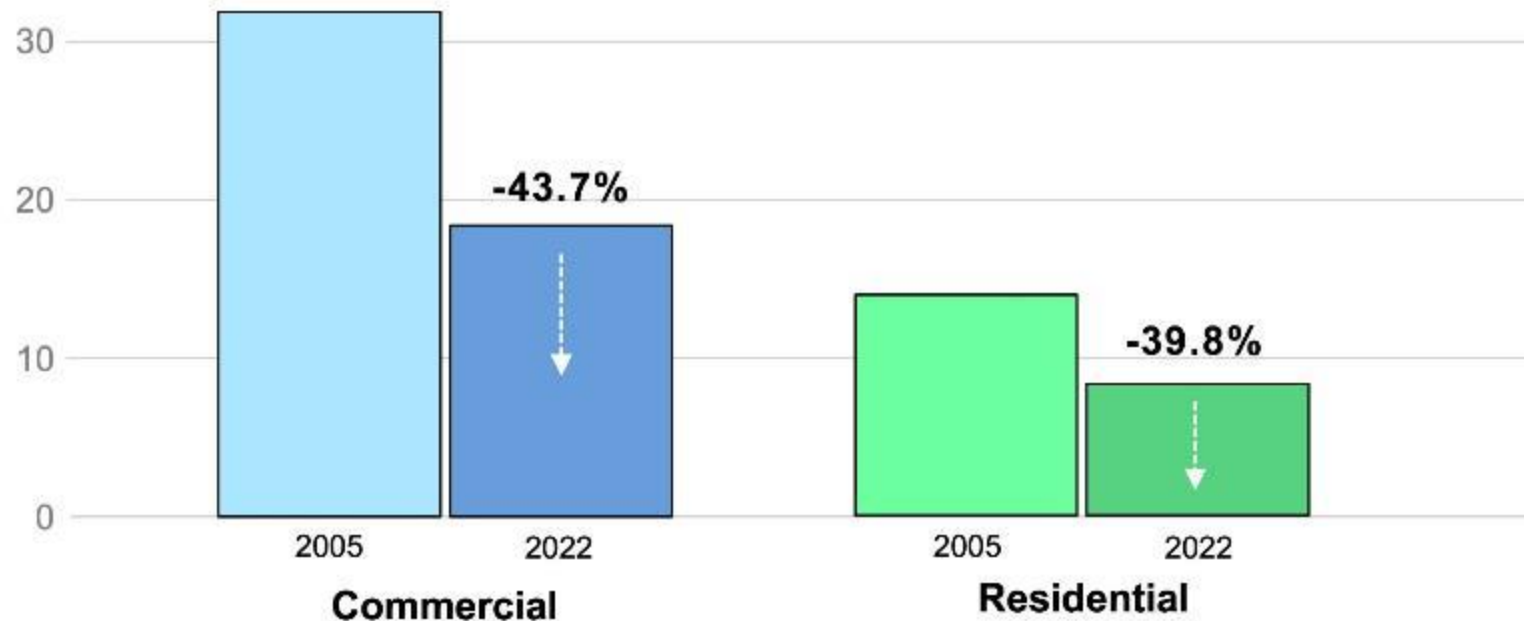


Ending with some good news!

Since 2005, the carbon intensity of the entire U.S. building stock (CO₂ emissions per square foot of floor area) declined by 43.7% for commercial buildings:

U.S. Building Sector Operations: CO₂ Emissions Intensity

lbs CO₂ / sf

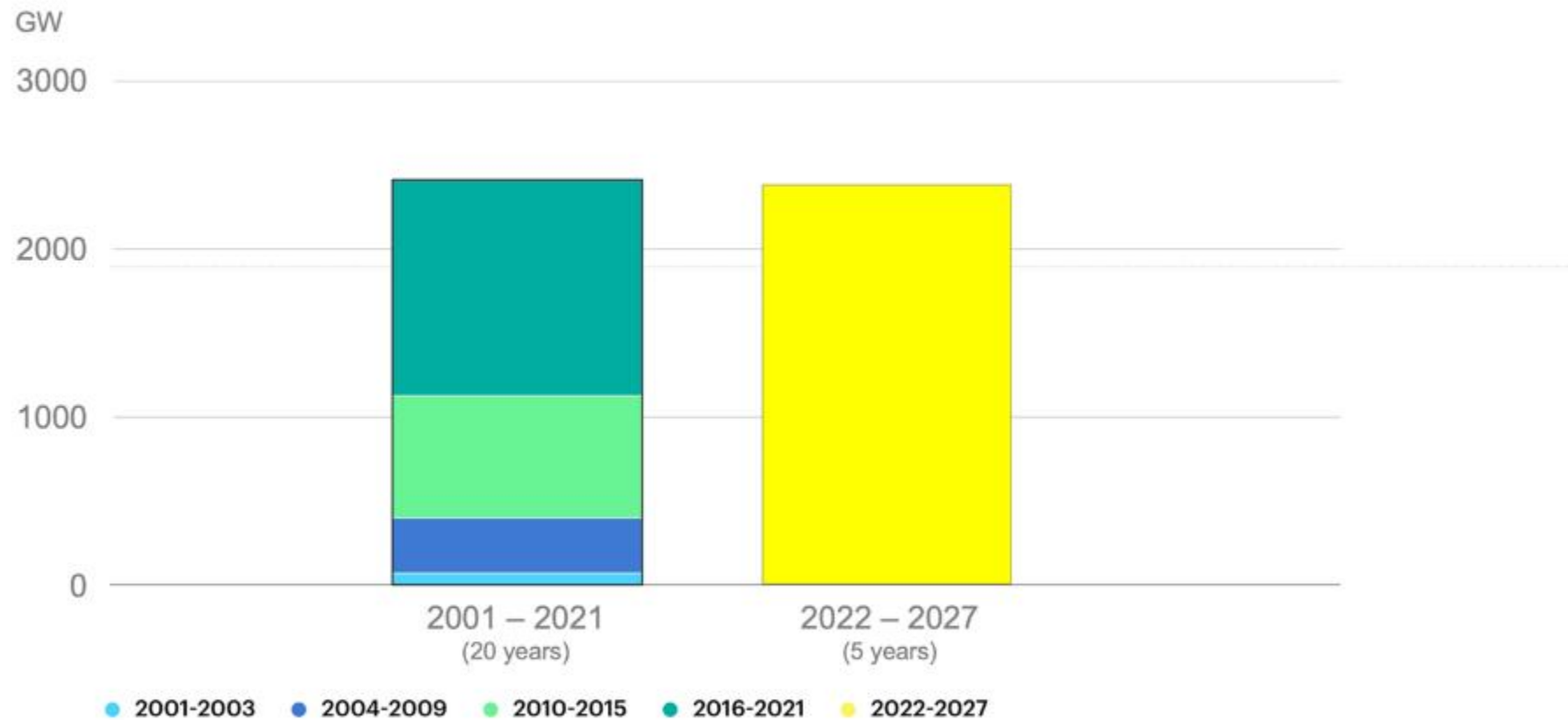


Source: Architecture 2030,
U.S. Energy Information Administration (EIA),
Annual Energy Outlooks (AEO)

Globally, we are seeing a dramatic increase in worldwide activity towards developing renewable energy, and by 2025 the International Energy Agency estimates that renewables will become the largest source of electricity generation worldwide:

Global renewable electricity capacity additions

2001-2021, 2022-2027 (projected)



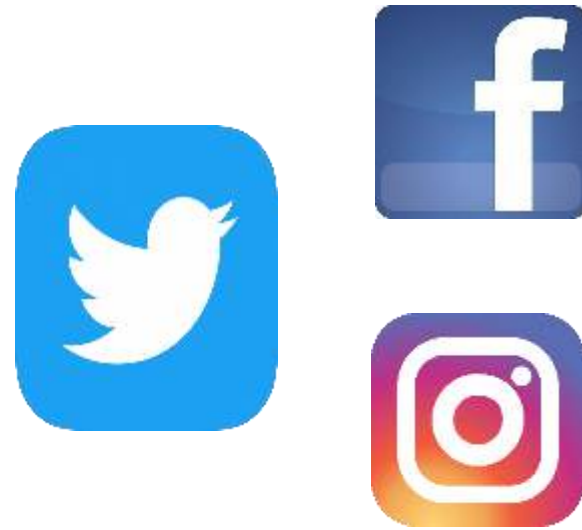
Join the movement to build a carbon free Detroit!

How can YOU participate?

Become a Member by:

- Adding a building into the program
- Become an event sponsor
- Become a professional stakeholder
- Become a Volunteer

It's easy to find us and get involved!
Go to www.2030districts.org/Detroit



Linked in



Contact Information:

Connie Lilley

Executive Director

connielilley@2030districts.org





Future Proofing Energy Efficiency with Networked Lighting Controls

What we are hearing

Lighting incentive programs are going away.

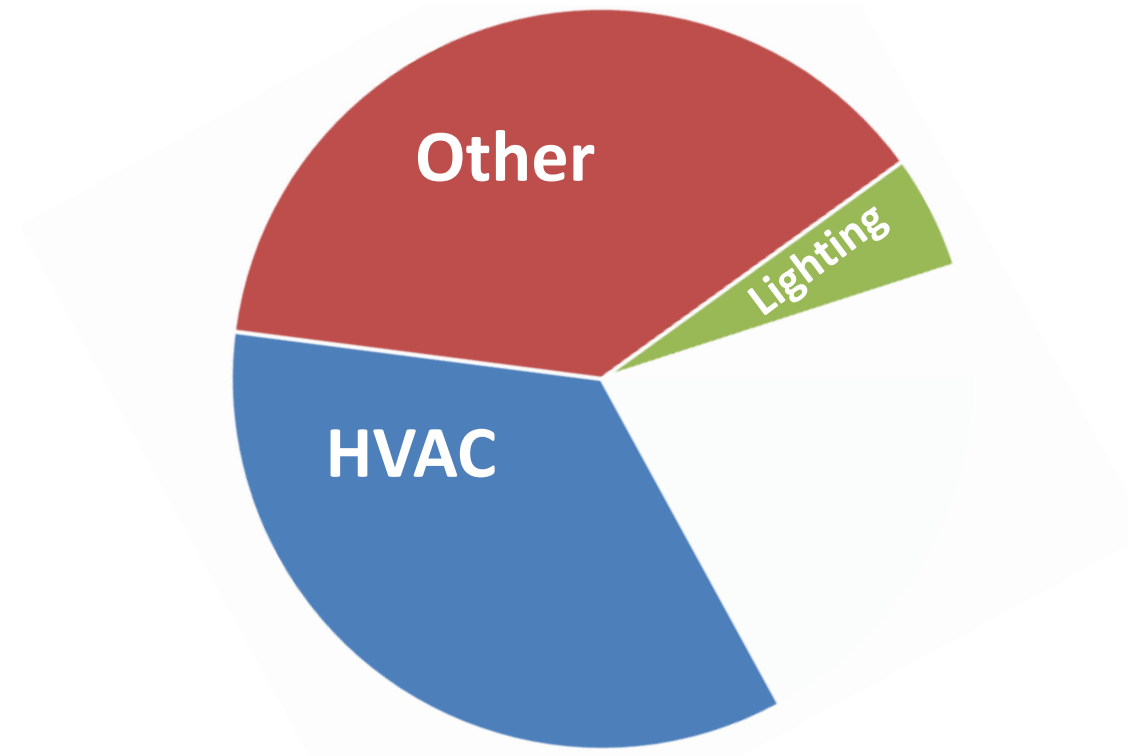
With LED lighting, controls don't save enough additional energy to matter.

Energy efficiency is all about heat pumps now, not lighting

A photograph showing a person's hands reaching up towards a modern, recessed ceiling light fixture. The ceiling is composed of white acoustic tiles with a dark metal grid. The light fixture is a long, narrow, recessed strip that is illuminated, casting a bright glow. The hands are positioned on either side of the light fixture, with fingers slightly curled as if reaching towards it. The overall scene is brightly lit, emphasizing the efficiency of the lighting fixture.

Lighting is more efficient.

Can Networked Lighting Controls save significant energy?



Energy Usage in US Commercial Buildings, 2018



Are NLC incentives good investments for utilities?

Are NLC's good
investments for
building owners?

**Out of
scope**



Computer model of energy savings potential to 2030

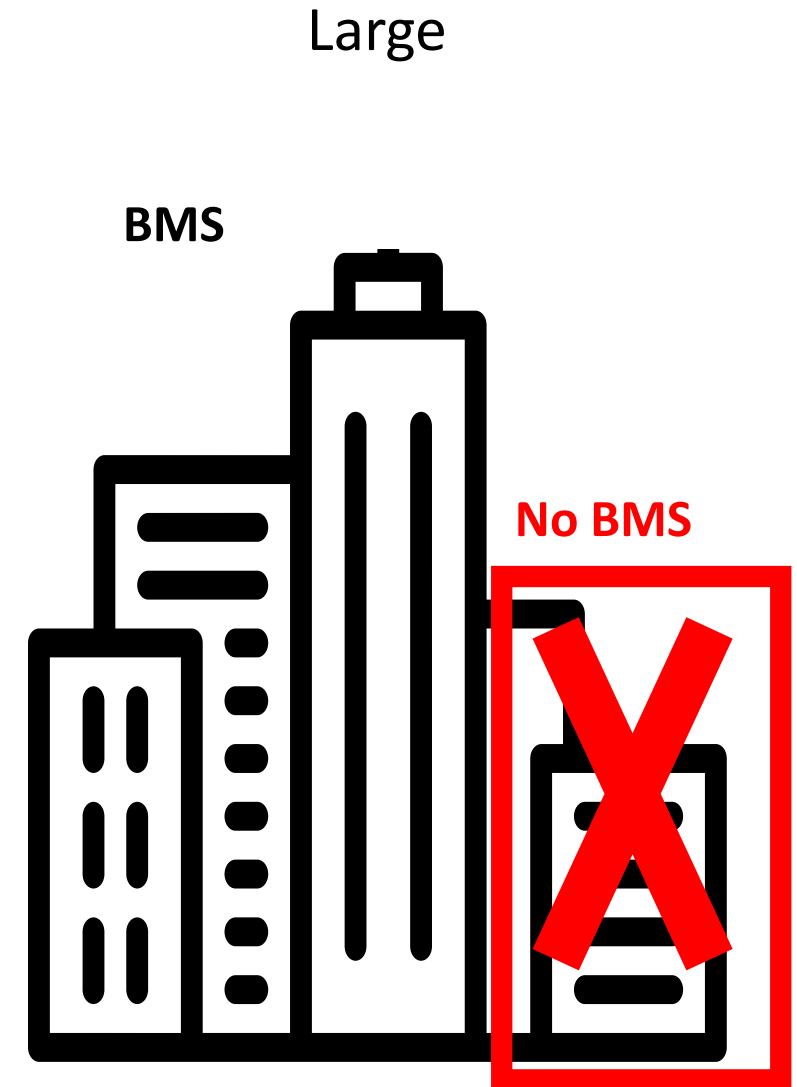
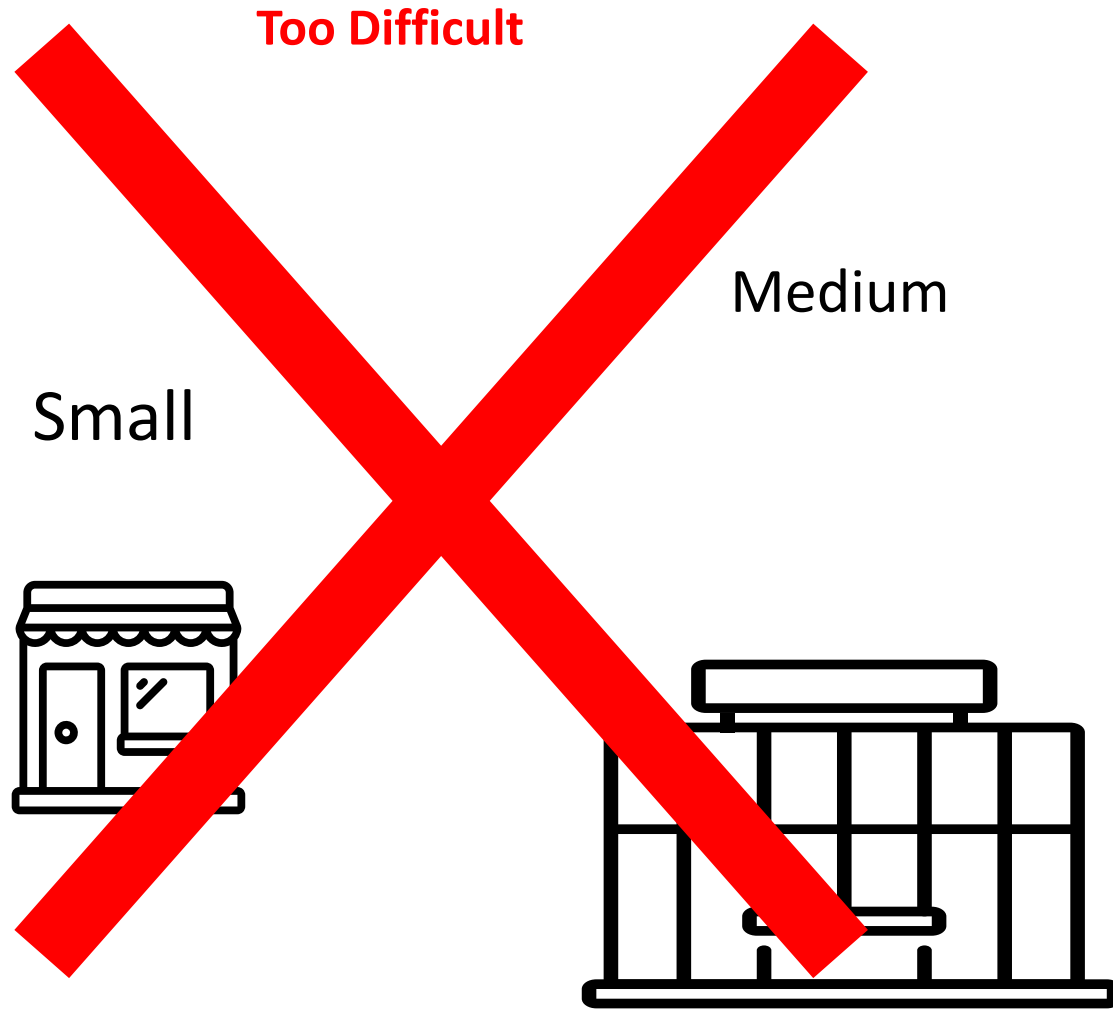


When lighting is updated

+ NLC	(S/M/L)
+ Demand Response	(S/M/L)
+ Plug Load	(M/L)
+ HVAC	(L)

LED controls-ready now
+ NLC etc. later

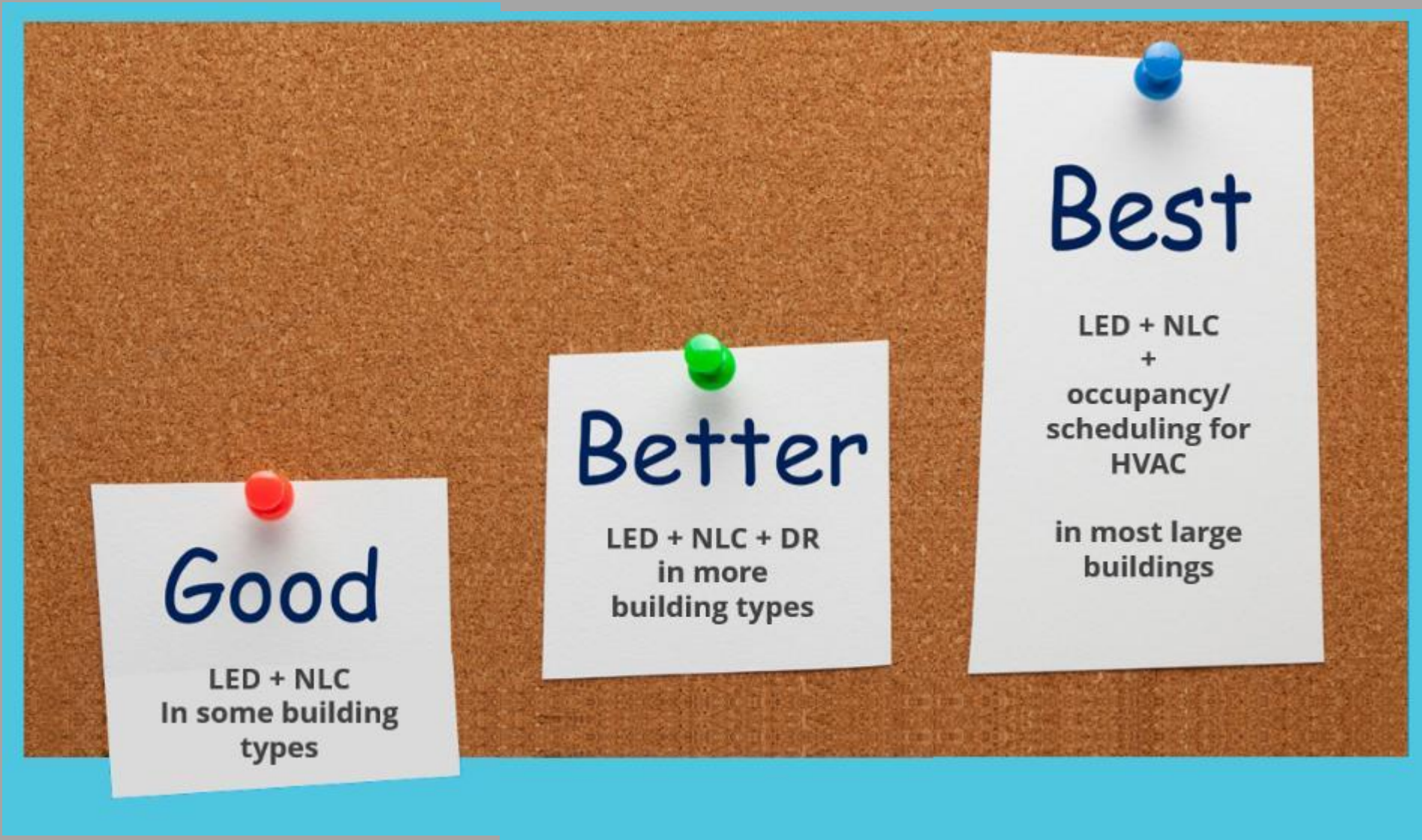
NLC-HVAC integration



Results

When lighting is updated

- + NLC (S/M/L)**
- + Demand Response (S/M/L)**
- + Plug Load (M/L)**
- + HVAC (L)**



Good

LED + NLC
In some building
types

Better

LED + NLC + DR
in more
building types

Best

LED + NLC
+
occupancy/
scheduling for
HVAC

in most large
buildings

**Plug load was
disappointing.**



Serve more customers with NLC-HVAC integration



Serve fewer customers with NLC alone



35 wind turbines for Connecticut



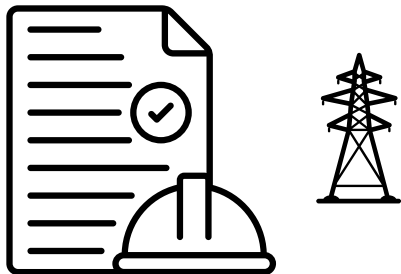
47 wind turbines for Arizona



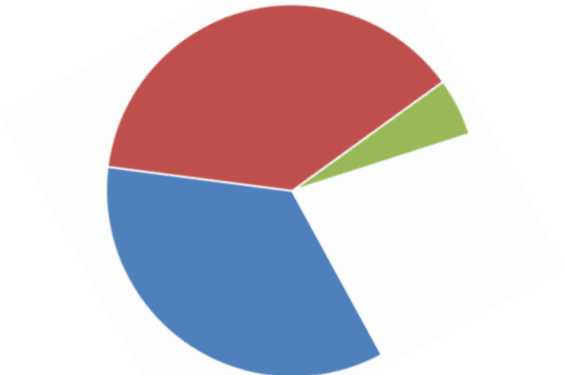
Wind Turbines



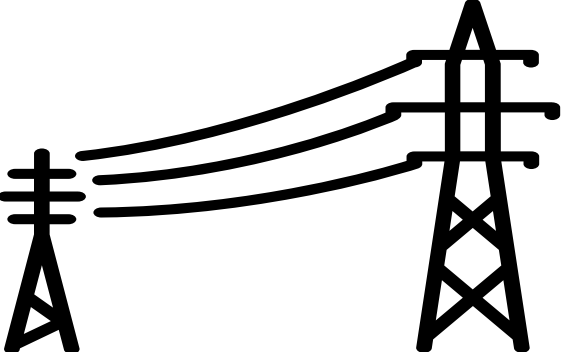
**need new
transmission**



Energy Efficiency

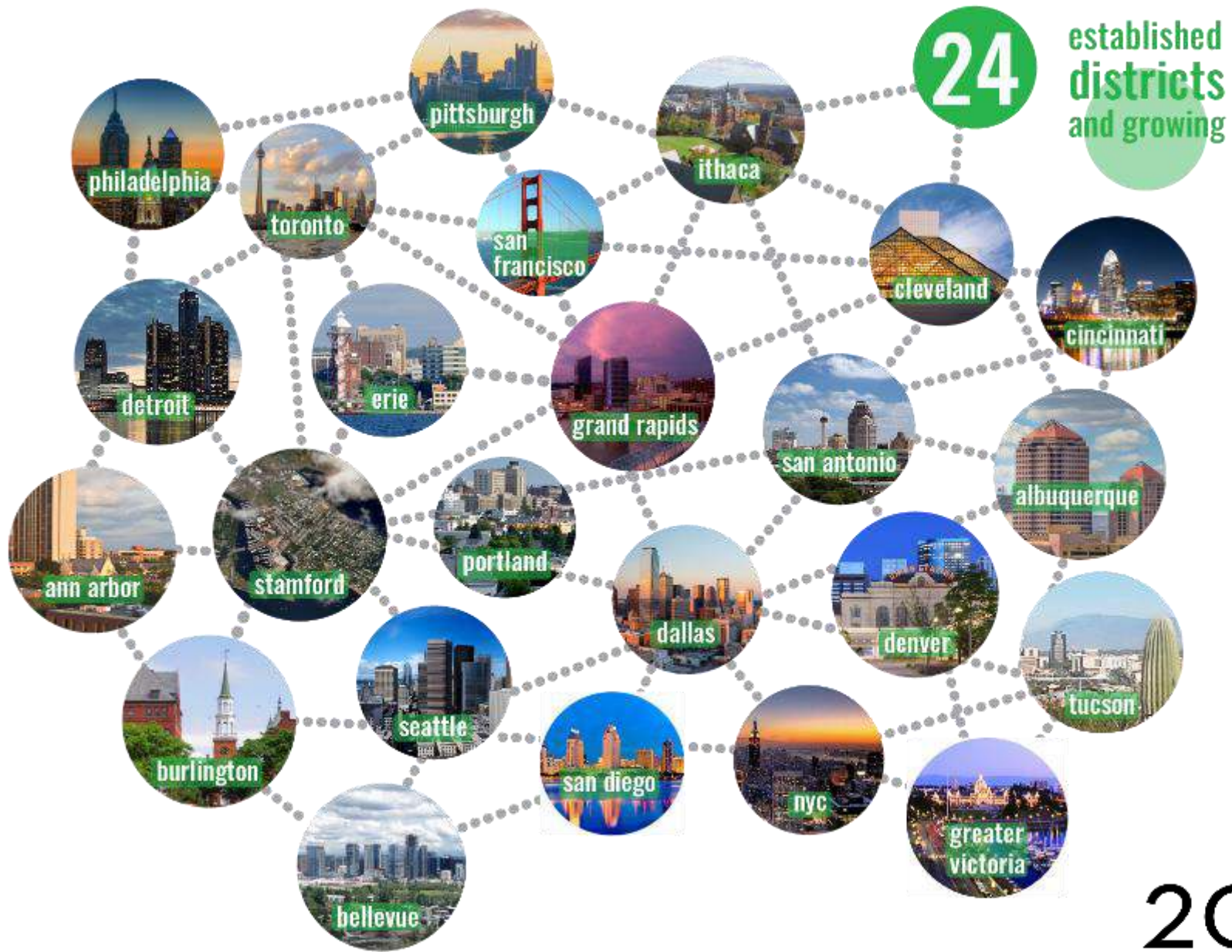


**frees up
transmission**



Energy Savings in Commercial Lighting: Next Chapter?

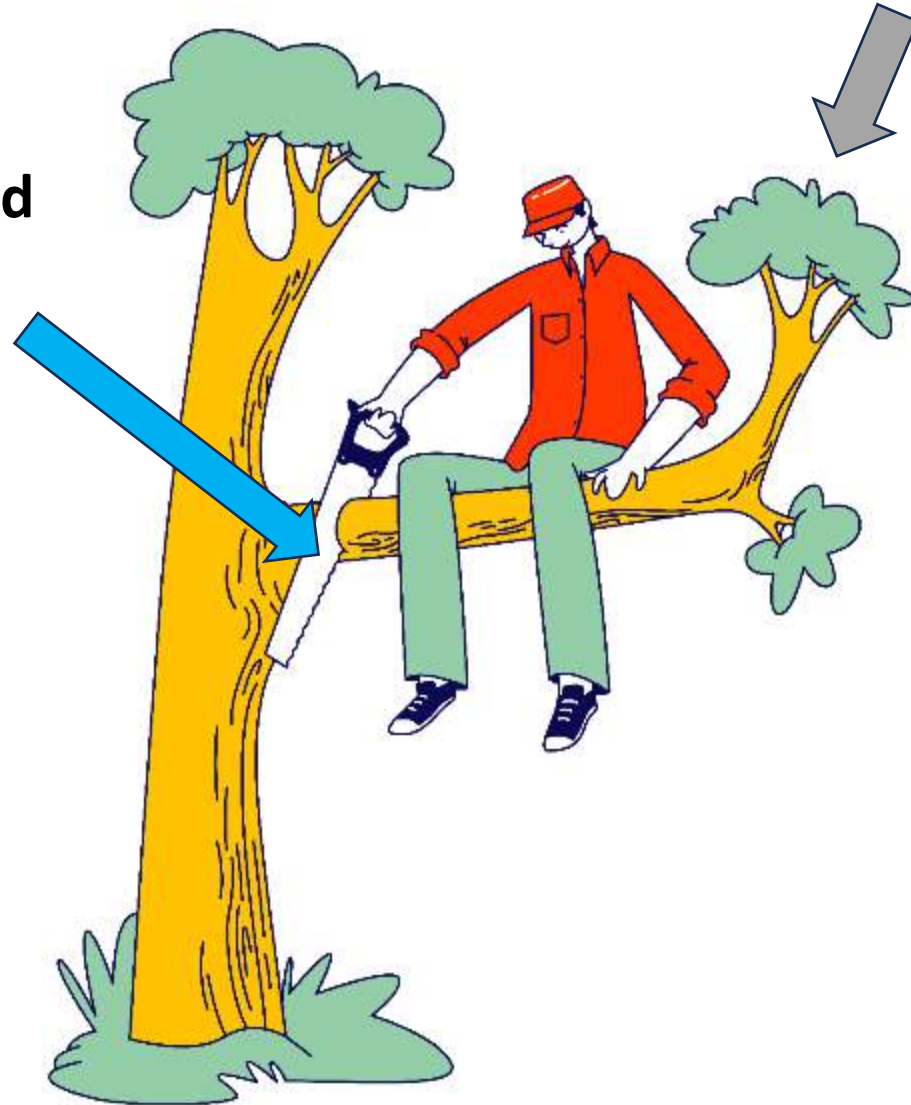




602 MILLION *Square feet committed*

2030
DISTRICTS[®]
NETWORK

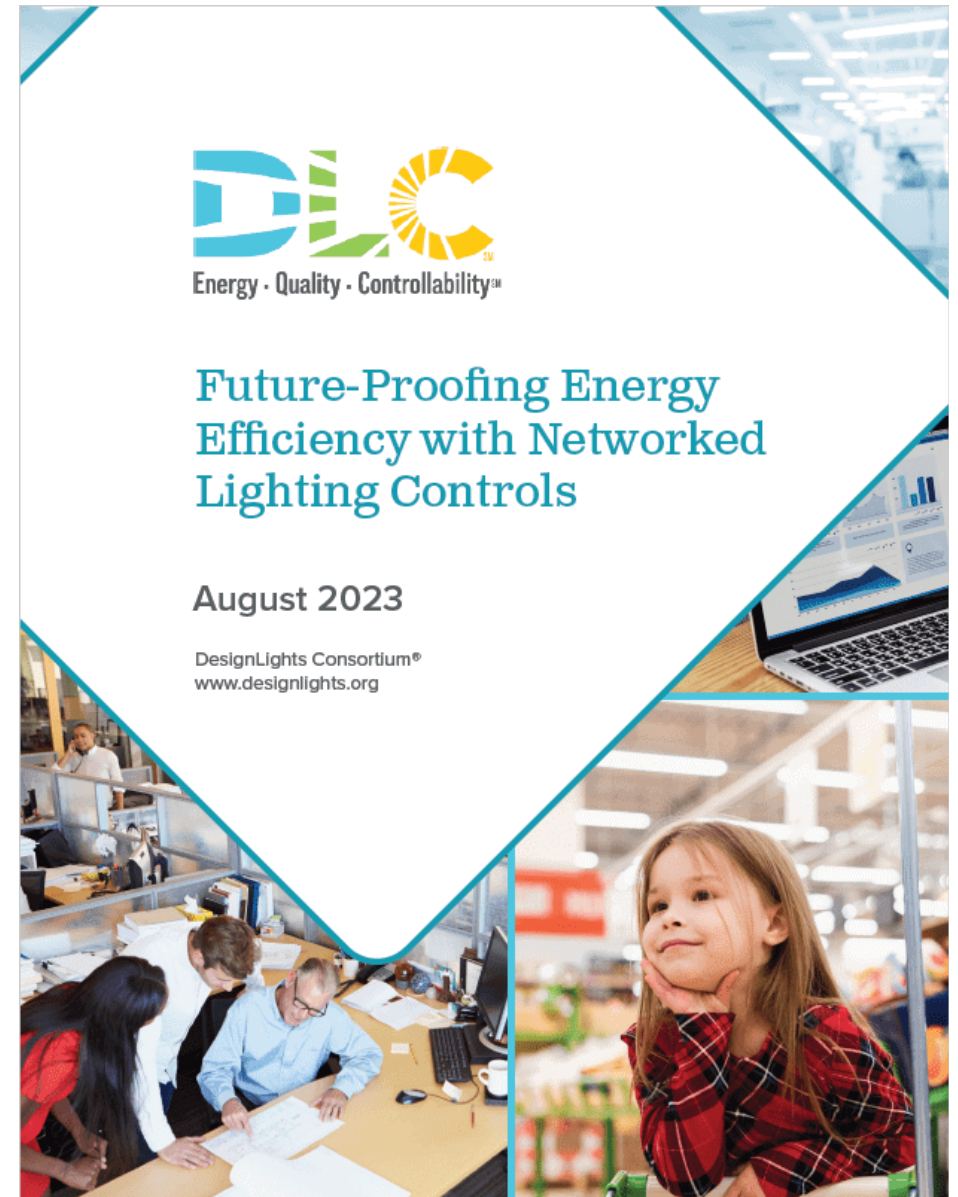
**Incentives for Uncontrolled
Lighting**



**2030
Savings Potential**

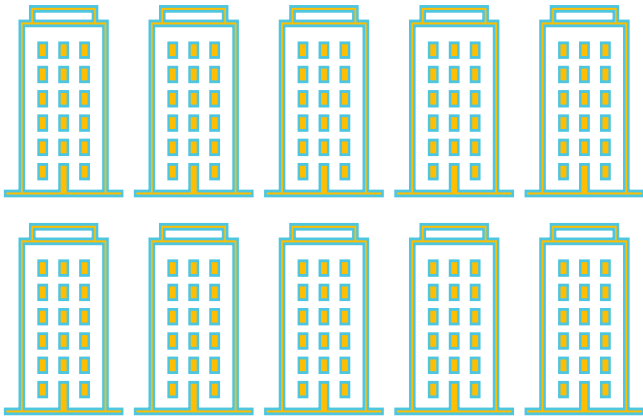
More Information

- 8 page summary
 - <https://www.designlights.org/resources/reports/future-proofing-energy-efficiency-with-networked-lighting-controls/>
- September 6 webinar recording
 - <https://www.designlights.org/news-events/events/future-proofing-energy-efficiency-with-networked-lighting-controls/>
- Full report for DLC members
 - <https://www.designlights.org/resources/reports/economic-potential-of-networked-lighting-controls/>



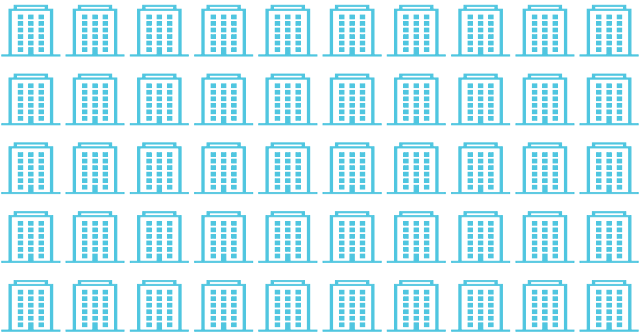


Untapped Opportunity



50%

of US commercial building stock is in buildings larger than 50,000 square feet



50%

of US commercial building stock is in buildings smaller than 50,000 square feet



CLEAResult[®]

DLC Controls Summit

Integration Use Cases

September 27, 2023



Relevant Background

- ✓ *25+ Years in Industry*
 - *~ 7 in Industrial Automation (distributor)*
 - *~ 20 in Energy Efficiency & Evaluation*
- ✓ *IES Lighting Controls, Upgrades, Economics Technical Committees*
 - *Member and Past Chair*
- ✓ *DLC Technical Steering Committees SSL/NLC*

The 'Bench' @ CLEAResult

- ✓ *2,400+ Employees in North America*
- ✓ *140+ Engineers (50+ PE or P. Eng.)*
 - *22 Focus Area SME teams*
- ✓ *Practices, Business Intelligence, IT/Product, Legal, Diversity, Marketing, National Accounts, +*
- ✓ *Industry Relationships*

SPEAKER



Kyle Hemmi, LC

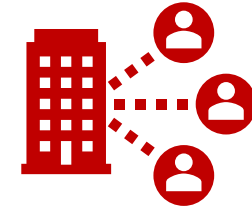
Senior Engineer and
Lighting SME

CR Lighting Integration Program/Measure Use Cases

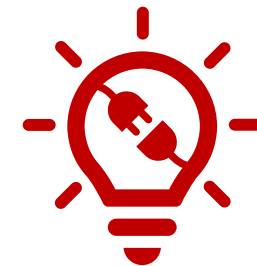
✓ Pilots • Custom • NC • Design Assistance • RCx • SEM



✓ Occupancy-based HVAC and Plug “Load” Control



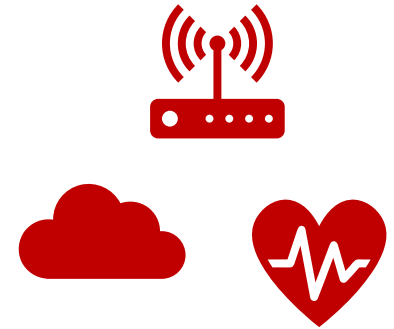
✓ Lighting ADR and Plug “Load” Controller ADR



CR Medium-Term Use Cases for Integration

Enhanced Sensing (Temp, Pressure, Humidity, People Count, CO₂)

- ✓ Lighting and HVAC Fault Detection and Diagnosis (FDD)
- ✓ Deeper and Wider HVAC Control



Vacancy at 30-yr High + Decreased Occupancy

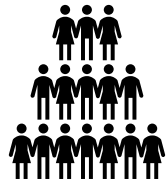
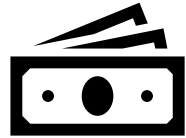
- ✓ Return-to-work, Getting employees back to office
- ✓ Renovating and Repurposing spaces



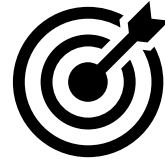


Coming at Integration from Outside of the Box

Residential Wisdom



IRA / IIJA Legislation



Workforce Development



Small Businesses/
Equity-Justice40



Resiliency and
Capacity



Electrification



Carbon/GHG
Reduction



Health Outcomes

CR Seizing opportunities along a pathway forward

Community Energy Concierge for Equity-Eligible Buildings Delivering innovation via equity & workforce development

Braided funding and pooled resources to stretch utility investments and accelerate comprehensive impacts and capacity-building in underserved communities



Lighting
Integration



Energy
Efficiency



Energy
Transition



Decarbonization



DLC Controls Summit

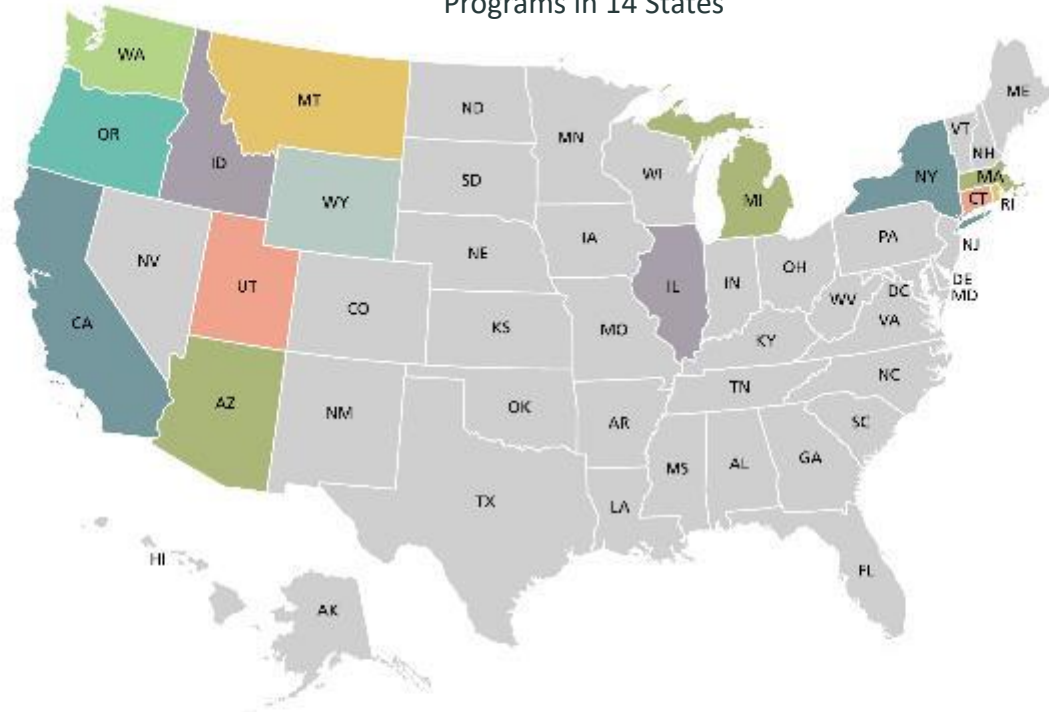
A Brighter Future for NLC Energy Savings
Through External Systems Integration

September 27, 2023

Who is Evergreen?

- Certified B-Corporation
- Full-service consulting firm since 1997
- Drive engagement and participation in energy efficiency
- Virtual company of 100+ staff, across U.S.
- Fully insured and SSAE16 SOC2 certified
- 25 years of independent business operations

Programs in 14 States



- | | | | |
|--|---|--|--|
| <ul style="list-style-type: none"> • Arizona Public Service • Benneville Power Administration • Central Electric Cooperative • City of Bialne • City of Chelawah • City of McCleary • City of Portland • City of Sumas | <ul style="list-style-type: none"> • Clark Public Utilities • DTE Energy • Elmhurst Mutual Power & Light Company • Energize CT • Eversource • Idaho Power • Jefferson County PUD | <ul style="list-style-type: none"> • Lane Electric • Midwest Energy Efficiency Alliance • National Grid • North Shore Gas • Northwest Energy Efficiency Alliance • NorthWestern Energy • Orcas Power & Light Co-op • Pacific Power | <ul style="list-style-type: none"> • Parkland Light & Water • People's Gas • PNGC Power • Rocky Mountain Power • Salt River Project • Tanner Electric Coop • Town of Stellacoomb • Utility Buddies |
|--|---|--|--|

Relevant Experience

- NEEA Luminaire Level Lighting Controls
- BPA Expert Panel on Non-Residential Lighting
- Evergreen Heat Pump Strategy Lead
 - Heat Pump Integrated Controls
 - Evergreen Heat Pump Technical Advisory Council
- Controlled Environment Agriculture
 - Resource Innovation Institute Controls Working Group
 - DLC Horticulture Working Group
- Structured Custom Rebate Design for HVAC + Lighting Integration
- Decarbonization



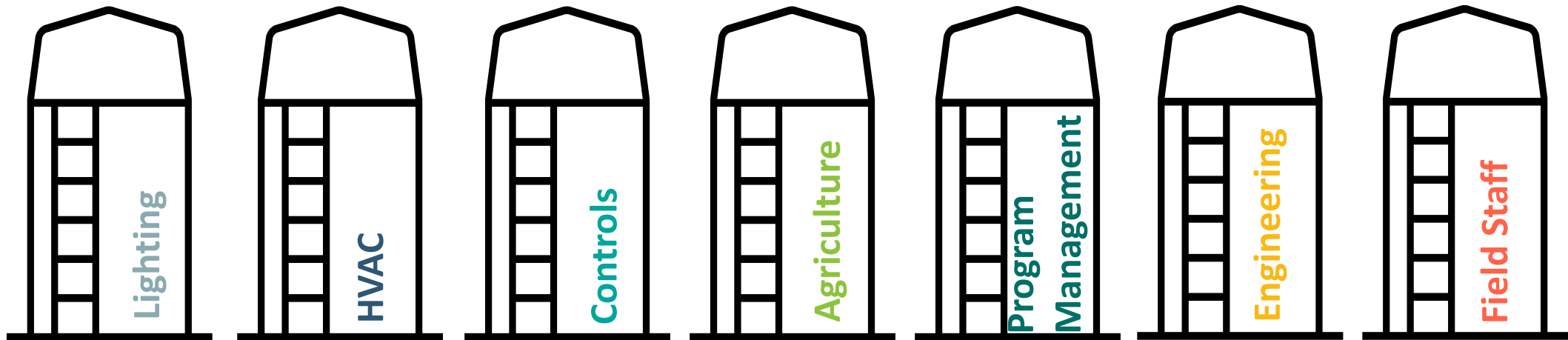
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 - DLC Horticulture Working Group
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- Decarbonization



Utility Challenges

- Reduced savings ahead, especially in the lighting portfolio
- Uncertainty of commercial energy usage post-pandemic
- Silos
- Peak demand reduction
- Decarbonization





Luminaire Level Lighting Controls (LLLC)

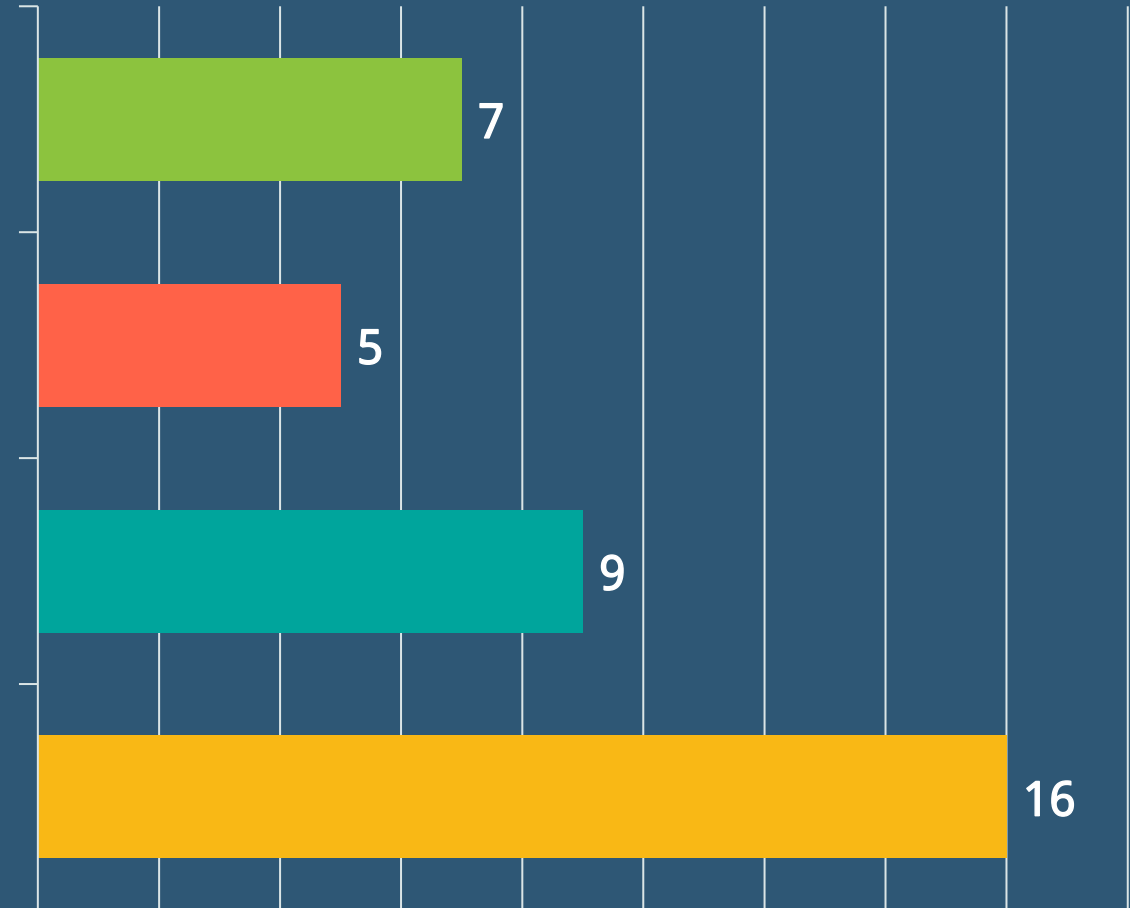
Technical Advisory Council

Regional Energy Efficiency Organizations

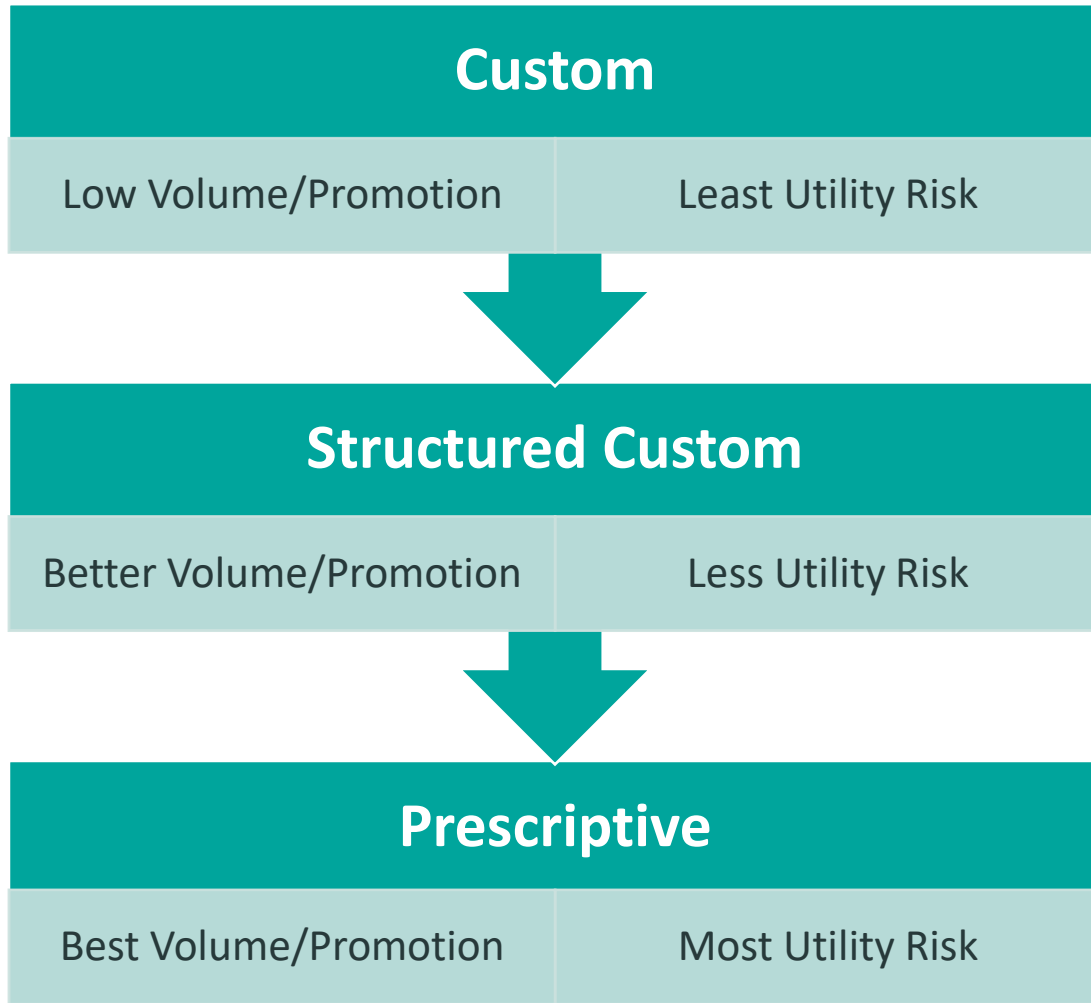
Government/Policy

Internal Subject Matter Experts

Manufacturer Reps



Structured Custom Rebate Benefits



1. Control HVAC building management system, networked lighting controls, and more systems in one location
2. Ramp HVAC up and down based on occupancy, variable ventilation, and small thermal zones
3. More granular occupancy sensors than existing HVAC sensors which can lead to maintenance and energy savings opportunities
4. More connected building load creates opportunity for flexible load management
5. Structured custom rebates limit risk for utility programs

Structured Custom Rebate Example

Rebate Example

- Total Payment = 50% of total cost for programming labor, troubleshooting installation, and setting up safe overrides.
 - Payment #1: 40% cost of controls integration paid when project is completed
 - Payment #2: 10% cost of controls integration after 9 months of data paid upon receipt of controls report

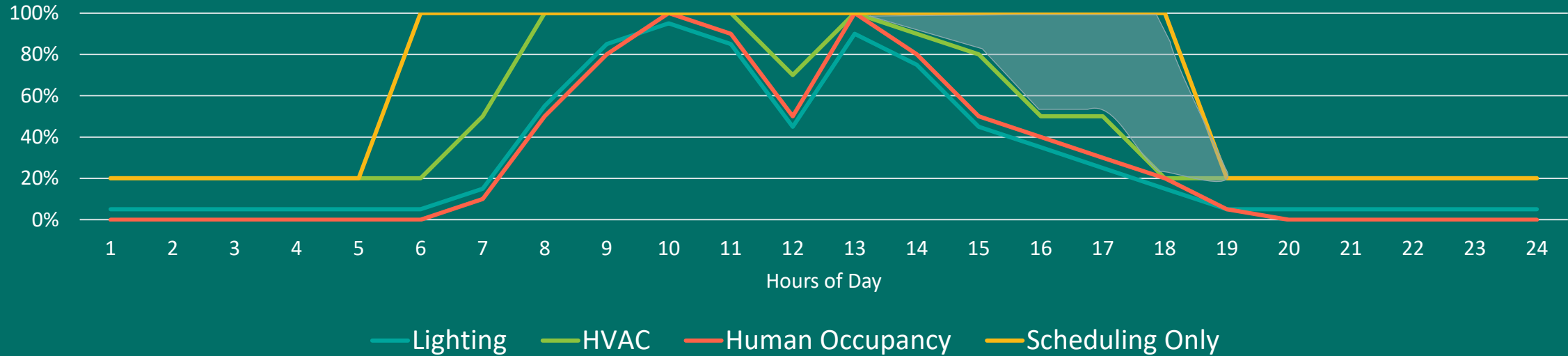


Eligibility & Requirements Example

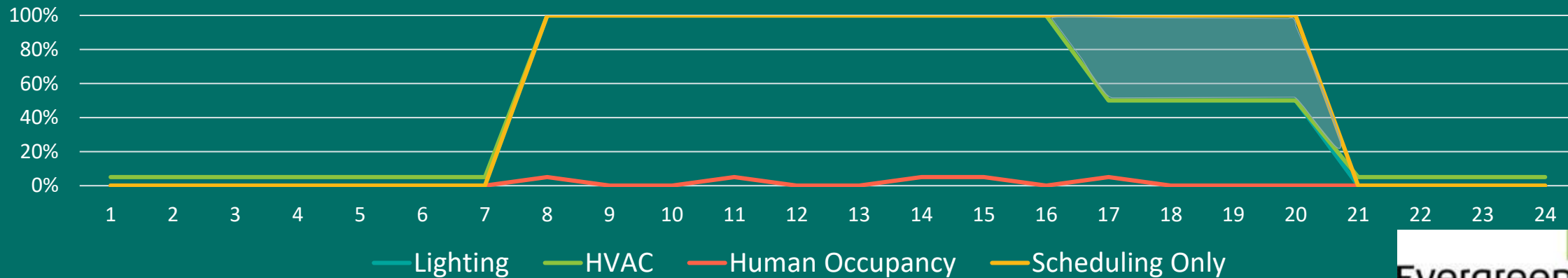
- Must have BMS
- Retrofit or new construction
- Must be BACnet compatible
- Hardware or other upgrades could be handled through different measures/rebates

Decarbonization

Office Example



Controlled Environment Agriculture Example



Utility Solutions Summary

- LLLC is a great pathway to later adding integrated HVAC controls
- Break down utility silos through cross-functional groups
- Structured custom rebates limit utility risk while supporting awareness and promotion
- Anticipate portfolio changes by developing measures now
- Trade ally training and engagement
- Build contractor networks to value integration
- Decarbonization

Thank you!

Lauren.Morlino@evergreen-efficiency.com



Panel Q&A



What's Next?

- Break until 10:45
- Discussion Session #1: Planning for Easier NLC-HVAC Integration



CONTROLS SUMMIT '23

September 26-27, 2023 • Detroit, MI



- **Panel Discussion** **10:50 – 12:00**
- **Lunch** **12:00 – 12:45**
- **Escape Room** **12:50 – 1:50**
- **Sessions restart** **2:05**



DLG
CONTROLS
SUMMIT '23





CONTROLS SUMMIT '23

September 26-27, 2023 • Detroit, MI

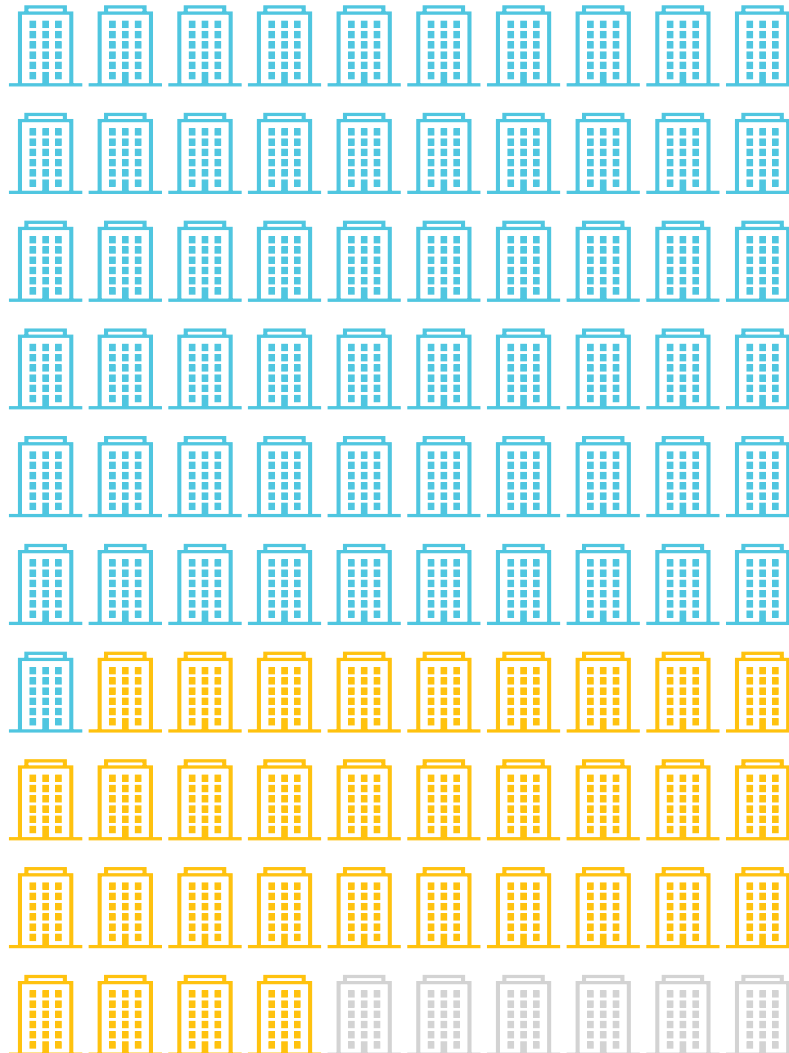


After the Escape

Scaling Up System Integration to Hard-to-Reach
Buildings and Contractor Engagement



Untapped Opportunity



94%

94% of US commercial buildings are smaller than 50,000 square feet (5.55 million).

<33%

of those have lighting controls



~30

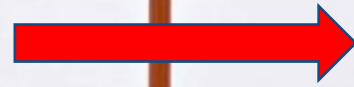
TWh Annually





**Spaces/Buildings
≤50,000 sf**

QPL



Tools



Lighting Operations Tool + NLC-Local TR



A program that utilizes pre-qualified packages of light fixtures and controls to maximize sustained energy savings for small to medium size spaces.



Lighting Operations Tool

Project Requirements



Retrofit



**Under 50,000
sq ft**



**Local Control
Only**



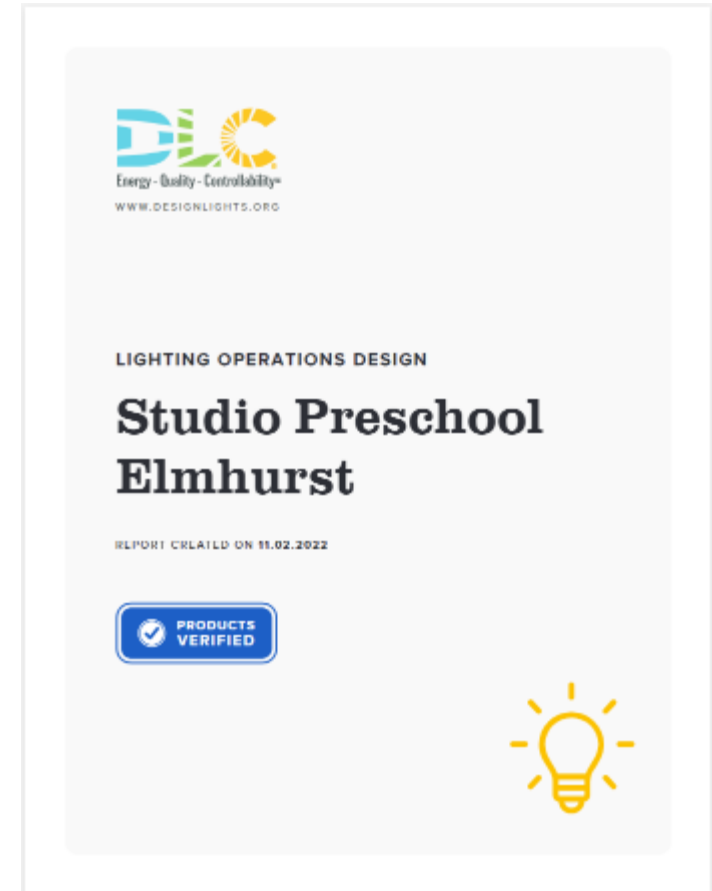
**No System
Integration**

Lighting Operations Tool

Project Install Report

Report Will Include:

- Project Site Information
- Existing Lighting and Controls
- New Lighting and Controls Details
- Sequence Of Operations
- Project Details by Room
- Occupant Leave Behind Sheet
- Bill Of Materials



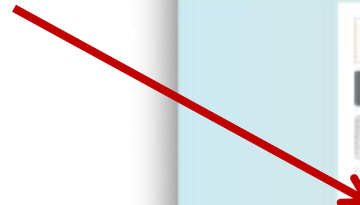


QPL Designation Product Tables

NLC-Local TR



NLC-Local Filter



The screenshot displays the 'DLC Qualified Product Lists > Networked Lighting Controls' page. On the left, a sidebar filter is active for 'NLC-Local Technical Requirements Version' with '1.0' selected. Below this, 'Manufacturer' and 'Brand' filters are visible. The main content area features a search bar with the tip 'Search Tip: For an exact search, use quotes around the search term (ex. "PV05LXDK")'. Below the search bar, there are pagination controls and a list of 72 results. The first five results are:

- EarthConnect**: Manufacturer: EarthTronics Inc., Brand: EarthConnect, Interior Scope: Room or Zone, Structured Parking, Technical Requirements Version: 5.0
- Athena**: Manufacturer: Lutron Electronics Co Inc, Brand: Athena, Interior Scope: Whole Building, Room or Zone, Technical Requirements Version: 5.0
- Aleo Blue**: Manufacturer: Aleo Lighting, Inc., Brand: Aleo Lighting, Interior Scope: Portfolio/Enterprise, Whole Building, Room or Zone, Structured Parking, Technical Requirements Version: 5.0
- SkyFi Blu Pro**: Manufacturer: Maverick Energy Solutions International, Inc, Brand: Maverick, Interior Scope: Room or Zone, Structured Parking, Technical Requirements Version: 5.0
- Silvair**: Manufacturer: Silvair, Brand: Silvair, Exterior Scope: Structured Parking, Area/Building Exterior/Parking, Technical Requirements Version: 5.0

NLC-Local TR



Product ID: N6U1MOK4L5V

DLC LISTED NLC-Local Logo

Aleo Blue
Manufacturer: Aleo Lighting, Inc.
Scope: Interior
Scale: Portfolio/Enterprise, Whole Building, Room Zone, Structured Parking
Technical Requirements Version: 1.0
Products Listed: 204
PUDs Covered: Wall Wash Luminaires, High Bay Luminaires, Recessed Fixed Downlights, Battery Powered Wall Mounted Manual Control Device, 2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces

PRODUCT OVERVIEW	
Manufacturer	Aleo Lighting, Inc.
Product Website	View Website
QPL	Networked Lighting Controls
Listing Status	Listed
Date Qualified	2023-05-30
Product Case Studies	View Website
Technical Support Phone	(877) 358-8825
Standard Warranty Length	5 Years
Extended Warranty Needed?	No

SUMMARY	
✓ Networking	✓ Occupancy Sensing
✗ Traffic Sensing	✓ Daylight Harvesting
✓ High-End Trim	✓ Zoning
✓ Individual Luminaire Addressability	✓ Continuous Dimming
✓ Control Persistence	✓ Scheduling
✓ Energy Monitoring	✓ Remote Diagnostics
✓ User Interface	✓ Luminaire Level Lighting Control (LLLC)
✓ Personal Control	✗ Load Shedding/Demand Response
✗ Plug Load Control	✓ External Systems Integration
✓ Emergency Lighting	✓ Cybersecurity
✓ Color Changing/Tuning	✓ Scene Control

NETWORK	VIEW DETAILS
INTEROPERABILITY	VIEW DETAILS
ENERGY SAVING STRATEGIES	VIEW DETAILS

Products Listed

PUDs Covered





NLC-Local TR

System Requirements



Wireless



Standalone



Embedded

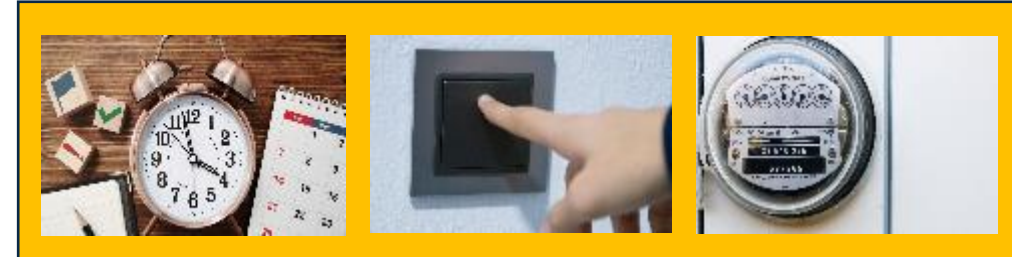


**Self-Serve
Startup**

Required Capabilities



Optional Capabilities





Panelists



Wes Whited
DNV



Jason Oliver
RAB Lighting



Shane Perry
Ameren IL



Rob Moss
All City Harrison
Electrix



The Solution

Panel Discussion



DLG
CONTROLS
SUMMIT '23

