

This is Your Pilot Speaking:

Utility RD&D Pilots Showdown

Wednesday, January 29th, 11:15AM – 12:30PM

Utility Presenters

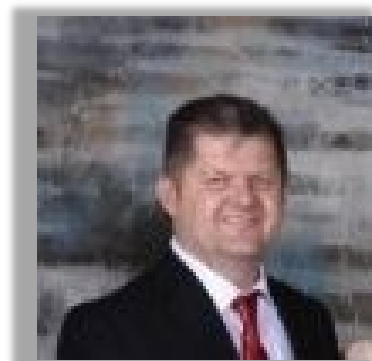
Moderator



Nic Crowder
Ameren Illinois



Zian Trober
Energry



Mark Szczygiel
Nicor Gas



Adam Hammond
AES Indiana



Carrie Harkness
Consumers Energy



Rick Tonielli
ComEd



Thomas Manjarres
Peoples Gas/North Shore Gas

slido

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What aspect of Utility RD&D Pilots excites you the most?

① Start presenting to display the poll results on this slide.

Evergy

Zian Trober - Product Manager



Urban Heat Island

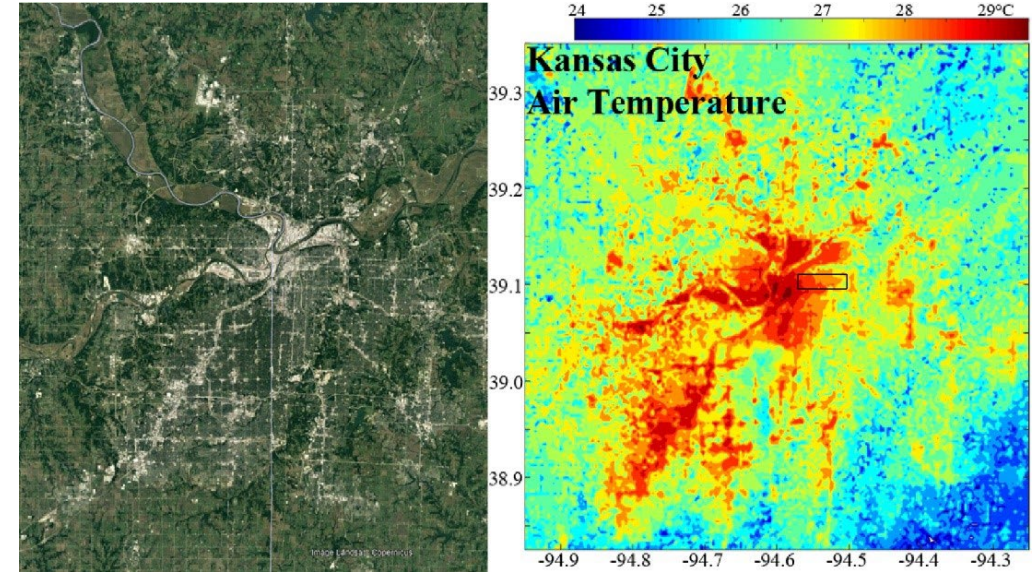
Lowering temperature in urban areas to encourage energy savings and other community benefits.





UHI Overview

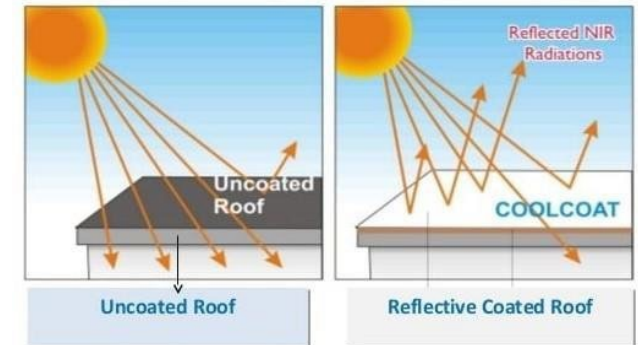
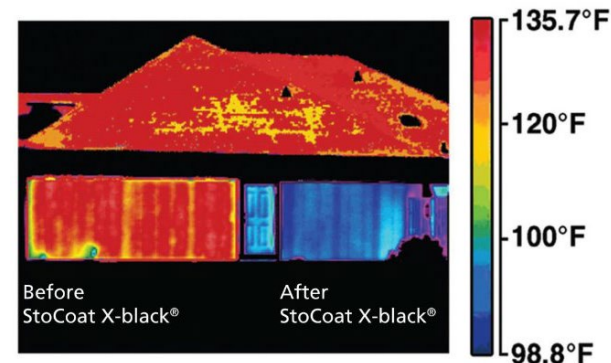
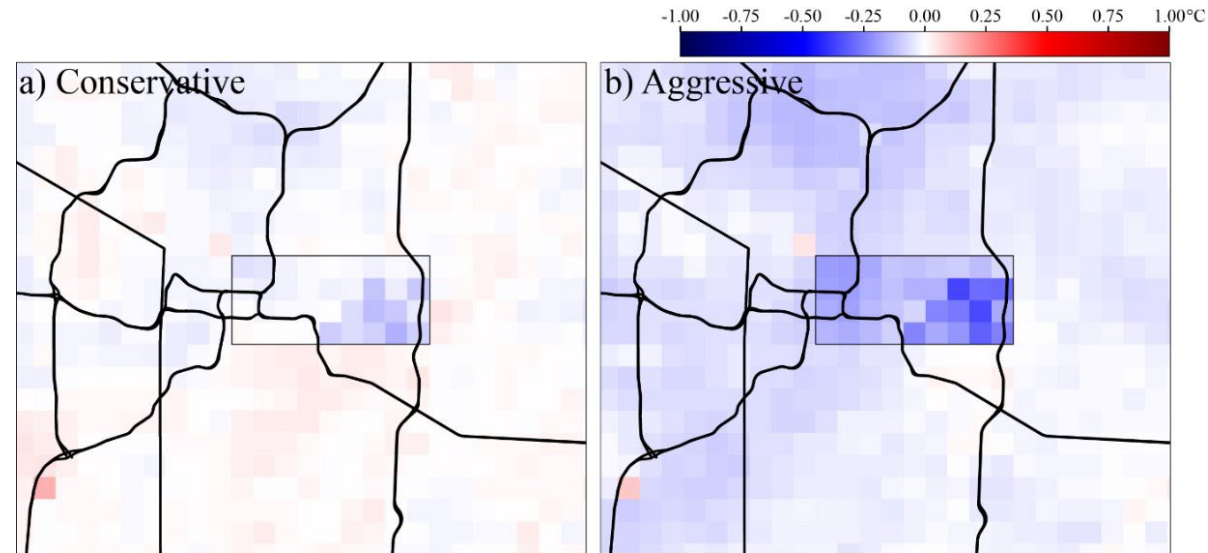
- Urbanization creates heat flux
- High temperatures have impacts
 - Increased AC usage
 - Heat stress and respiratory illnesses
- Objective: Decrease temperature through energy saving measures in target area of Northeast Kansas City
- Innovation: Adding nontraditional measures to Evergy's portfolio that both reduce heat and encourage energy savings
- Project Timeline: 2024-2027
- Participants: Open to the residents/businesses of Northeast Kansas City





Pilot Design and Approach

- Startup
 - Research from local universities (UMKC and KU) on air temperature and canopy coverage
 - Community meetings
 - Location planning
- Key Partnerships
 - Mid America Regional Council
 - City of KCMO
- Planned Measures
 - Tree planting/maintenance
 - Cool/Thermochromic roofs
 - Residential reflective paint coating





Results and Impact

- Planted 719 trees in 2024
 - 3 Income eligible multi-family housing complexes
 - 1 Church
 - Collaborated with the City of Kansas City to plant on the right of way
- Impacts:
 - Positive customer experiences
 - Stronger relationship with City of Kansas City
 - Multiple volunteering opportunities for Evergy employees
 - News coverage to spread awareness





Innovation and Future Potential

- Pushing the boundaries of what can save energy while providing other benefits to customers
- Getting customers to think of the utility outside of traditional DSM programs and their bill
- Geographic Expansion
 - By expanding the coverage of the measures, the heat from urbanization will continue to lower
- Encouraging regulatory bodies to support the broadening of Energy Efficiency's scope into programs like this



Closing

- Next steps
 - Alignment on innovative ways of evaluation
 - Examining the health benefits
 - Continued geographic and measure expansion of the program
- My contact information
 - Zian Trober
 - Email: zian.trober@evergy.com



Nicor Gas

Mark Szczygiel - Manager, Emerging Technology, Market Transformation

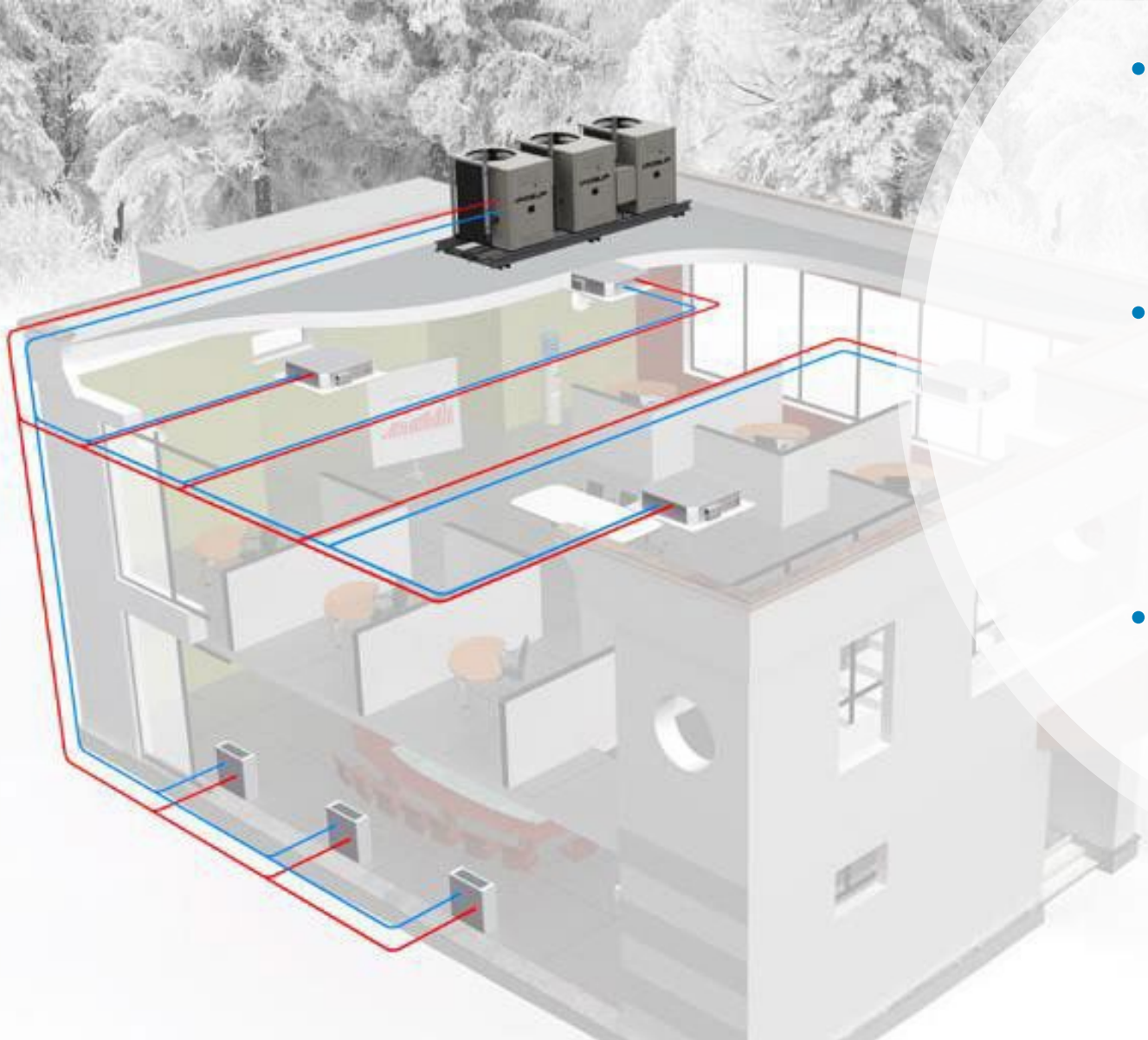
Commercial Gas Heat Pumps

Don't reinvent the wheel –
Setting the stage for C&I adoption



Energy
Efficiency
Program

Pilot Overview



- **Objective:** To increase the overall adoption of commercial GHPs and while creating greater confidence in the market
- **Innovation:** While GHPs have been around in commercial applications for years, broader adoption has stalled for a wide number of factors
- **Growth:** This ongoing effort is set to grow the number of custom applications for GHP projects, increase education and boost excitement for this technology in the commercial and industrial sectors

Pilot Design and Approach

How it Works

- Educate key customers on the benefits and utilize successful installations as case studies to encourage further adoption
- Trade Allies will be a key component in educating customers and buying into the technology

Key Partnerships



Notable Features

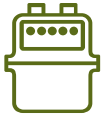
- Ongoing education for Trade Allies
- Key materials to inform customers and contractors
- Incentives through the Custom program

Results and Impact

Results



\$35,000 in incentives



9,000 therms saved



Building management system integration



Wholistic data monitoring



Ease of use



Higher efficiency and long-term benefits



Impact



More confidence for contractor bids, installations and buy-in



Real-life examples on how equipment affects customer load, efficiency and comfort

Innovation and Future Potential

- Innovation:
 - Custom incentives
 - Use case to help sell the equipment
- Scalability: One successful project can lead to another
- Increased visibility and opportunity through case studies



Closing

Let's get pumped about gas heat pumps!



Mark Szczygiel
Manager, Emerging Technology,
Market Transformation

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Energy
Efficiency
Program

A vertical line separates the Nicor Gas logo from the text "Energy Efficiency Program". The text is arranged in three lines, stacked vertically, in a dark grey sans-serif font.

AES Indiana

Adam Hammond - Program Manager, Customer Programs

 Seal in the savings

 aeroseal. duct sealing for Income Qualified Weatherization

 aes Indiana



Goal: Achieve enhanced energy savings for our income qualified customers by leveraging advanced duct sealing technologies.

What?

- Launched a trial of the AeroSeal duct sealing system for our Income Qualified Weatherization Program

Why?

- Challenges from traditional duct sealing resulted in limited energy savings and a high deferral rate

Innovation

- The process works by injecting an atomized non-toxic sealant into a pressurized duct system, allowing the sealant to collect at and seal off areas of the system where the air is escaping.

Timeline

- 2023 initial test period with 10 customers using a local trade ally
- 2024 brought in-house with our program partner **CLEAResult**[®]

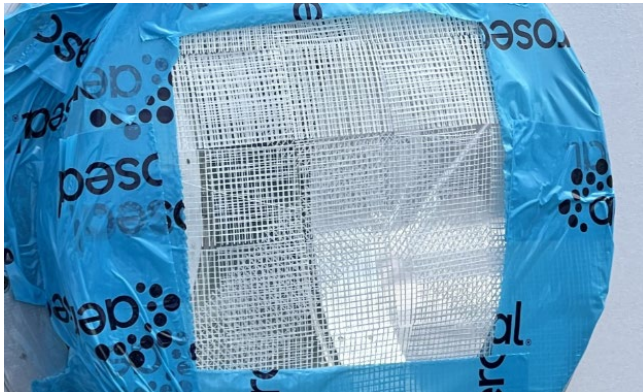
Participants

- IQ residential customers, electrically heated with 75% or more of ductwork in unconditioned space

How it works



Prep the ductwork & registers




Before



Attach equipment, test & apply



After

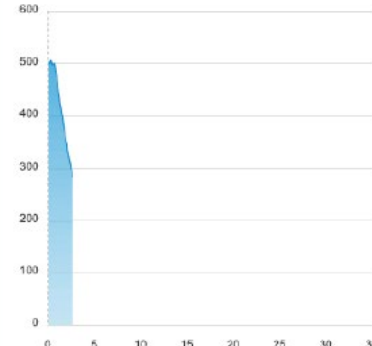


CERTIFIED LEAKAGE REPORT

Duct sealing performed for:
 Test Retro
 Byers
 Marietta, OH 45342
 Phone: (123) 456 7890
 Square Footage: 1000

Technician Name: 9978
 Date: 12/11/2023

Leakage (CFM₂₅)



Duct leakage results are calculated in Cubic Feet per Minute (CFM) calculated at a STANDARD OPERATING PRESSURE of 25 Pa.

Aeroseal Case ID: 9978
 System Description: TestSys
 Seal Description: Event 2
 Hardware: Homesseal Connect

Initial leakage equivalent to
94.3 sq. in. hole

Final leakage equivalent to
50.2 sq. in. hole

Final leakage @ 25Pa
26.6 CFM/100 sq. ft.


Leakage as % of system capacity

62.4%

Before


46.7%

50




Equivalent to
planting 50 trees


Going Beyond Any Other Energy Reduction Service



Improved Indoor Air Quality




Improved Efficiency



Increase Home Comfort

Scan for more details.

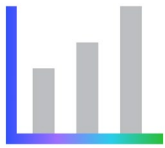


Aeroseal
aeroseal.com
877-FIX-DUCT
info@aeroseal.com

Duct sealing performed by:

Phone:

Aeroseal process uses DuctSeal sealant that is certified to meet requirements listed in UL1381 standard - "Outline of investigation for Aeroseal Duct Sealant."



The results...

Traditional duct sealing vs. Aero seal	15 projects in 2023		10 projects in 2023		66 projects in 2024	
	Traditional		Trade Ally Aero seal	Improvement vs. traditional	In-house Aero seal	Improvement vs. traditional
Avg annual kWh savings achieved	781		2254	189%	2,086	167%
Max annual kWh savings achieved	3,611		6200	72%	8,056	123%
Est. avg. customer bill savings (annual)	\$ 93.72		\$270.48	189%	\$ 250.32	167%
Est. customer savings for max kWh saved (annual)	\$ 433.32		\$ 744.00	72%	\$ 966.71	123%
% of projects achieving >2,000 kWh savings	7%		40%	471%	42%	500%
All-in program cost/kWh for duct sealing	\$ 2.21		\$1.41	-36%	\$ 1.18	-47%

Top 5 Traditional duct sealing projects			Top 5 In-house Aero seal duct sealing projects		
Annual kWh savings	% Improvement	Est. annual bill savings	Annual kWh savings	% Improvement	Est. annual bill savings
3611	29%	\$ 433.30	8056	84%	\$ 966.71
1760	15%	\$ 211.16	7959	94%	\$ 955.11
1559	19%	\$ 187.07	7292	91%	\$ 875.05
990	15%	\$ 118.77	5478	91%	\$ 657.34
937	11%	\$ 112.41	4612	86%	\$ 553.40



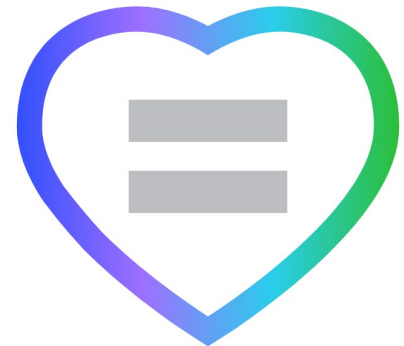
Applying innovation

Considerations

- Must have adequate space to connect equipment ~8-10' w/o bends
- Ducts within wall cavities may have unreparable leaks (gaps $>5/8$ ")
- Ducts may need cleaning and manual repairs prior to application

Advantages

- Significant increase in energy savings
- Reduced lead time for scheduling w/ in-house approach
- Reduced number of deferrals
- Improved indoor air quality
- Improved equity & access to weatherization for IQ customers



Driving transformation

Innovation

Why is this unique?

- Most IQ programs still use manual duct sealing as primary method
- Currently the only utility nationwide that has adopted the in-house model

Scalability

- Adopted as primary method of duct sealing for our IQ program
- Exploring application for manufactured homes & multifamily

Transformational potential

- Provides high savings potential that can help offset missing lighting savings
- Incentives for non-IQ customers can encourage wide-spread market adoption
- Significant reduction in energy burden when paired w/ other measures

Adam Hammond adam.Hammond@aes.com **317-389-1530**



Consumers Energy

Carrie Harkness – Product Manager



Homes That Make a Difference

ENERGY STAR® and
DOE Zero Energy Ready™
New Manufactured Homes Pilot





Our Opportunity

We saw an untapped market.

An underserved community that could significantly benefit from energy efficient homes.

26%
of Consumers Energy
customers are ALICE*

200,000+
manufactured
homes

77%
of homes are
in communities

20%
of MI residents are
rural

*Asset Limited, Income Constrained, Employed

Designed for Rapid Success

Launch: Jun 2023 > Transition to Program: Jan 2026

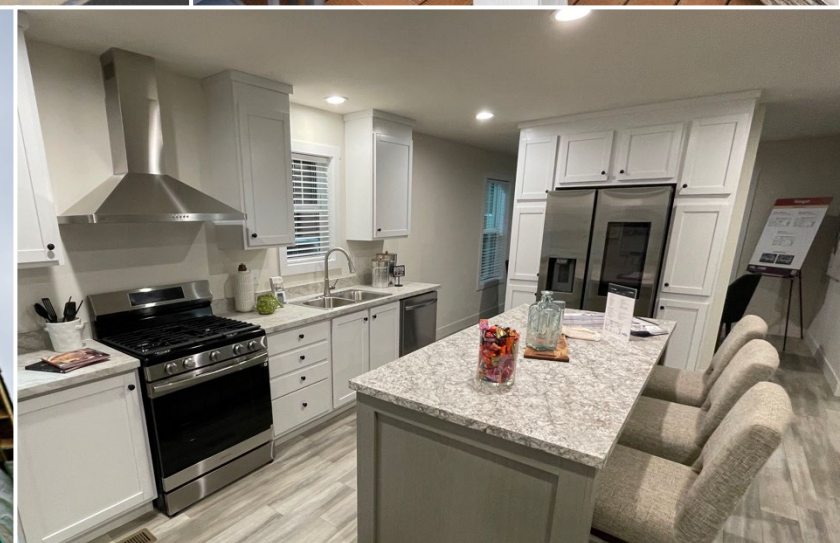
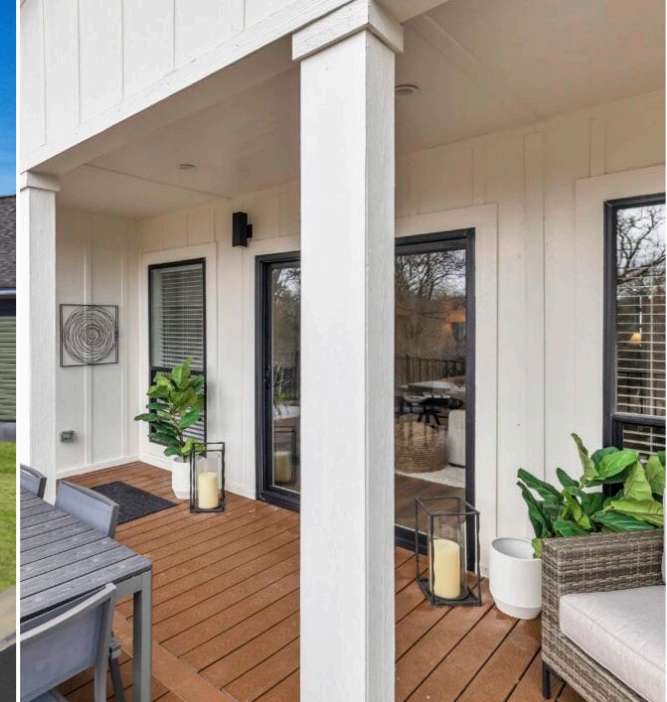
Whole-home measure approach to savings

- Average first year savings per home: 21 MCF and 2500 kWh
- 20-25 year measure life

Market understanding

- Customer demographics
- Myth busting
- Distribution of home types
- Go-and-see visit

Building a new trade ally network



18 Months Later:

524
homes built

\$352,000
total rebates paid

Average incentive paid
per home \$672

Bringing Better Homes to ALICE customers

“ In the summer when we're running everything, it could have been up to \$600 a month [in previous home]. Now, our worst bill is like \$200 a month... **all the energy savings have been very like vital and integral into keeping this house** and being able to, because we wouldn't physically be able to pay \$600 electric bills with our mortgage.”

“ We love it. The kids love it. **The electric bill is great** compared to what it could be.”



“ Honestly, what did it for me was when I walked in here, **I felt like I was home.**”



A Win-Win-Win for Everyone

Manufacturer

Uses Section 45L tax credit to build certified ENERGY STAR or DOE ZER home

Community Owner

Gets up to \$3,000 in incentives per home while offering energy-savings to potential customers

End-Use Customer

Benefits from lower monthly bills thanks to a more energy-efficient home

Making a Real Impact

Addresses underserved customers' critical needs that can be lifechanging

Expands the market for more attainable housing

Gives customers access to more energy efficient homes that help them save from day one



Future homes for today's families.



Consumers Energy

Count on Us[®]

Carrie Harkness

carrie.harkness@cmsenergy.com

(989) 763-7357

ComEd

Rick Tonielli – Senior Energy Efficiency Program Manager



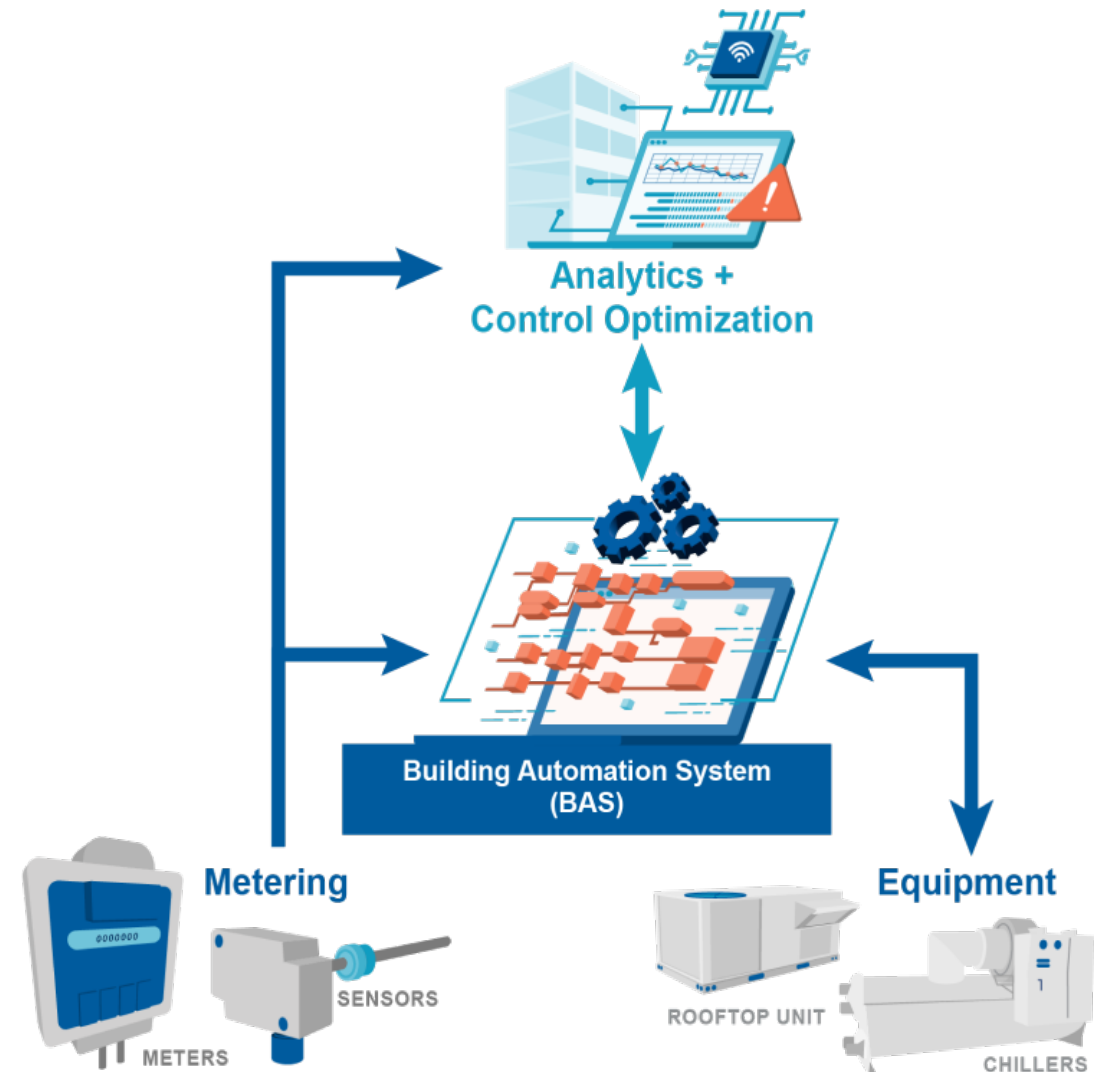
January 29, 2025

Automated System Optimization

Rick Tonielli
Sr. EE Program Manager

ASO Overview

- Traditional building optimization such as RCx identifies operational improvements for HVAC and other building systems that save energy while preserving occupant comfort
 - Energy usage is analyzed under various weather and occupancy conditions to find energy-saving strategies
 - Implementation is done by manually programming the BAS
- ASO technologies use machine learning/AI methods to understand how the building operates, and then implement improvements automatically by taking control of the BAS
- Research questions:
 - Can ASO drive deeper energy savings than RCx/MBCx?
 - Can real-time occupancy data help buildings save energy where tenants are increasingly working from home?
 - Is deployment of ASO a good future EE offering?



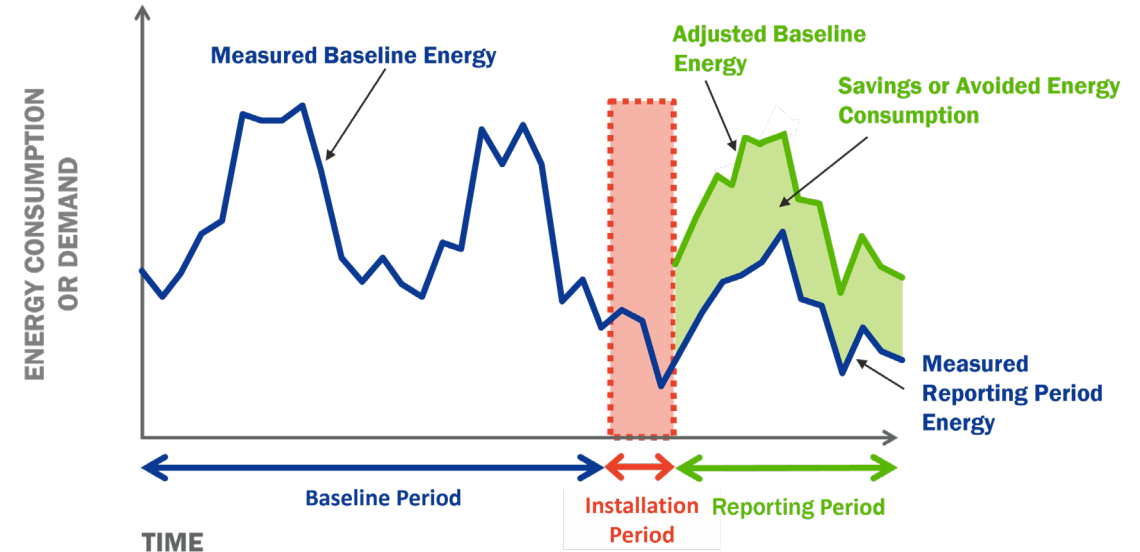
Pilot Design and Approach

- In 2023, ComEd partnered with a 1M square foot building in the West Loop to deploy ASO
- ASO software provided by Hank, a subsidiary of JLL
- Technical support and M&V provided by Resource Innovations
- Process
 - Router installed onsite to connect building automation system with the Hank software platform
 - Hank constructed digital twin of the building (machine learning model) to understand how the building reacts to different conditions
 - Bands of control provided to software for optimization
 - Hank overrides BAS to implement improvements
 - Building engineering staff can override Hank at any time
- Key takeaways:
 - Software integration takes a long time
 - Support of building management and staff is paramount to success



Results and Impact

- IPMVP Option C (whole building model) used to quantify energy savings
- Initial cooling season results unclear
 - Personnel turnover resulted in loss of familiarity with system and increased overrides
- Initial heating season results appear to show energy savings
- M&V will continue into summer 2025
- Lessons learned:
 - Integration process uncovers various issues that need to be addressed (i.e. mechanical, missing data)
 - Staff education and turnover are significant hurdles
 - Software provider needs to be very responsive
 - Early involvement of evaluator is very helpful



Innovation and Future Potential

- If energy savings prove significant, ASO could be a good fit for ComEd's RCx portfolio, targeting buildings with up-to-date building automation systems and controls, and well-managed buildings looking for the "next big thing" on their EE journey
- BAS manufacturers are increasingly incorporating ASO functionality into their product, which would avoid many of the integration hurdles faced by this pilot
- The Software-as-a-Service model of ASO is becoming common, and EE programs have an opportunity to educate customers and to evolve program incentive design



Contact Info

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Sr. Energy Efficiency Program Manager

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comedSM

AN EXELON COMPANY

Thank You

Peoples Gas & North Shore Gas

Thomas Manjarres - Principal Business Analyst



Heat Recovery with Carbon Capture Pilot

**A decarbonization solution
designed to enhance efficiency
while capturing carbon
emissions**

An economizer that captures carbon

- CarbinX™ saves gas and captures CO₂ emissions
- **Cash rebate for captured carbon (\$0.9/kg)**
- Ideal for small businesses, multifamily buildings, schools and others
 - ✓ Laundromats
 - ✓ Commercial laundry
 - ✓ Hotels and hospitality

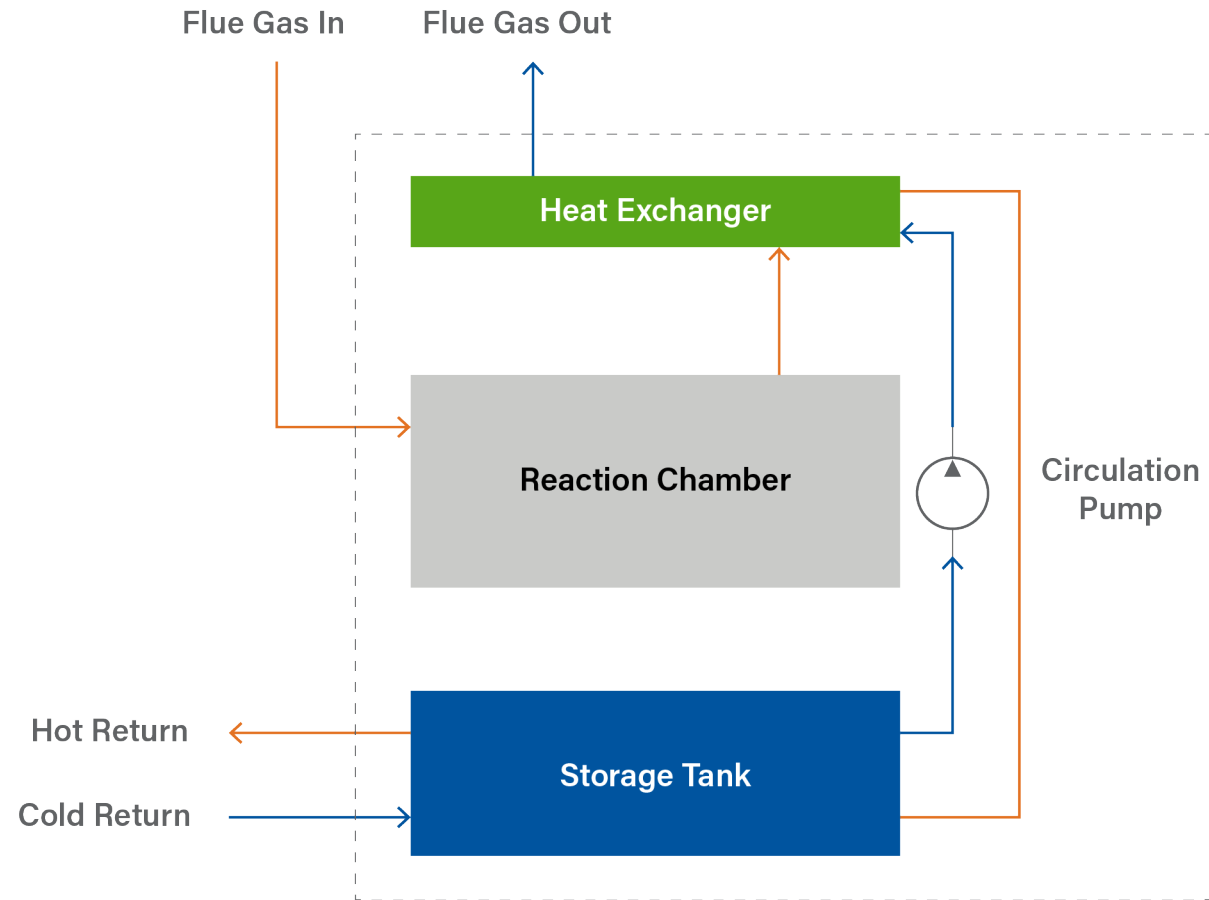


Approach

- Develop local supply chains and service provider network
- Validate efficiency gain and percentage of carbon captured
- Develop real-time savings and CO₂ capture dashboards

Key partners

- Grayslake and Waukegan high schools
- GTI Energy
- CleanO2 - manufacturer





Annual impact

10%-25%

Natural gas savings

13%-33%

CO₂ emissions reduced

\$0.9/kg

Cash rebate for captured carbon

Pairing carbon capture with low carbon fuels like renewable natural gas and synthetic natural gas can help customers achieve **carbon neutral or carbon negative status today.**

IN USE AT WAUKEGAN AND GRAYSLAKE HIGH SCHOOLS

14

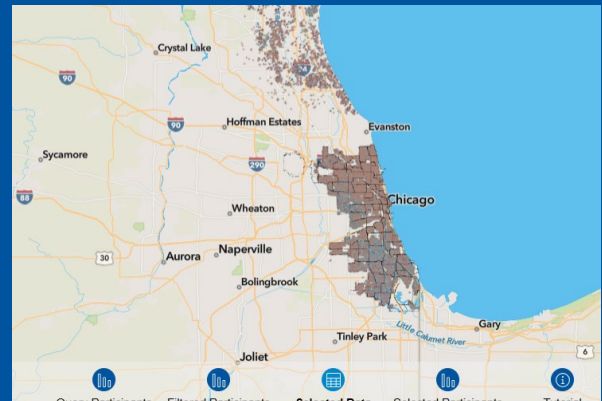
Acres of U.S. forests

1,131,855

Smartphones charged



Innovation and future potential





Help us spread the word

Energy efficiency and carbon capture are coming together to transform possibilities. Join the conversation and help share the possibilities of this groundbreaking innovation.



Thomas Manjarres

Technical Lead — Peoples Gas and North Shore Gas
Energy Efficiency Programs

thomas.manjarres@wecenergygroup.com

slido

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Which Utility Presented the Most Innovative RD&D Pilot?

① Start presenting to display the poll results on this slide.

And the Winner Is.....