THE BUILDING ENERGY HUB

Start Here: A Building Retrofit Series
Episode 3

Making it Happen: Implementation Pathways

→

December 16, 2025

DOE-ELEVATE-0010930-39

The Building Energy Hub is a project of Illinois Green Alliance

ILLINOIS GREEN ALLIANCE

THE BUILDING ENERGY HUB

The Goals of the Hub are to:

- Educate & train building professionals
- Support diverse contractors
- Connect contractors to a project pipeline
- Build capacity for advanced codes and policies
- Streamline access to financial resources

The Hub is growing capacity for commercial & multi-family building retrofits.

Start Here: A Building Retrofit Series for Owners and Operators

Register here

Episode 1

The Business Case for Decarbonization – Why It Matters Now

Learn why investing in building upgrades makes financial and strategic sense, with insights on savings, risk reduction, and long-term value.

Watch recording on YouTube

Episode 2

Planning for Action – From Awareness to Strategy

Learn how to get started with assessments, benchmarking, and incentive programs to create a customized, actionable plan.

Watch recording on YouTube

Episode 3

Making it Happen – Implementation Pathways

See why investing in building upgrades makes financial and strategic sense, with insights on savings, risk reduction, and long-term value

Today!

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Poll Questions:

1. What industry do you represent?
2. What do you hope to learn today?

Speakers

Jamie Johnson
Founder and CEO
Verde Energy
Efficiency Experts

Matt Zweibruck
Studio Lead, Sustainability
Stantec

Maya Coyle
Senior Project Manager
Elevate

Jamie Johnson

Founder and CEO

Verde Energy Efficiency Experts

Decarbonization

Pros

- Lots of interest in Chicagoland
- Benefits of cooling spaces
- Good approach for steam boiler replacements
- Better indoor air quality can be an outcome
- Huge reduction in greenhouse gas emissions from building stock

Cons

- Painful to retrofit buildings
- Start and Stop of incentives, both federal and local
- Need a dedicated planning phase, but people don't typically want to spend money on that step
- Not always less expensive to operate so ROI calculations can be negative

Oak Park Temple - VHE HVAC

VRF Heat Pump + Energy Recovery Ventilation. 60% energy savings. Not necessarily cost savings due to natural gas low cost.

Wendy’s VHE HVAC

Costs more than you would think to upgrade to VRF in a restaurant, especially with the makeup air challenge

Indoor Agriculture in Norway

CO2 heat pumps - better heating, added cooling benefits and natural refrigerants.

US application - breweries and anywhere with refrigeration.

Dual Fuel Heat Pumps - Best of both worlds

Work with traditional ducted single zone systems, of which there are millions of buildings

Backup with electric resistance or natural gas for low temperatures (when COPs drop)

Matt Zweibruck, CEM, LEED AP BD+C

Studio Lead

Stantec

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Technical Background

- 10+ years in demand side energy services
  - Energy Auditing
  - Building Performance Programs (Benchmarking/Compliance)
  - ENERGY STAR
  - **Retro-Commissioning (RCx)**
  - **Monitoring-Based Commissioning**
  - Net-Zero Analysis
  - Utility Incentive Support

Retro-Commissioning (RCx)

- **Systematic tune-up of existing systems:** Verifies HVAC, controls, and sequences are operating as intended, not as designed years ago
- **Data-driven and hands-on:** Uses trend data, field testing, and site walkthroughs (not just drawings or models)
- **Finds low-cost operational:** Setpoints, schedules, sensors, economizers, and control logic before capital projects
- **Improves reliability and comfort:** Reduces nuisance alarms, hot/cold calls, short cycling, and operator workarounds
- **Delivers measurable results:** Documented energy savings, operational improvements, and clear corrective actions

Retro-Commissioning (RCx) through ComEd

- **Utility-funded engineering analysis:** RCx study and investigation phase are fully funded by ComEd
- **Large pool of qualified providers**: Dozens of approved RCx service providers to choose from
- **Implementation incentives available:** Controls programming and corrective actions can be fully or partially reimbursed based on verified savings
- **Focused on real operational savings:** Incentives tied to measured energy reductions, not theoretical upgrades
- **Repeat participation allowed:** Facilities that have participated previously can re-enroll after a defined period

Project Profile: ComEd RCx for Commercial High-Rise

- 151 N Franklin, Chicago IL
  - Completed in 2018
  - +800,000 square feet
  - 35-floor Class-A high-rise office building
  - ENERGY STAR Certified
  - LEED Core & Shell Gold
  - WELL Core & Shell Gold
  - Full DDC Building Automation System (BAS)

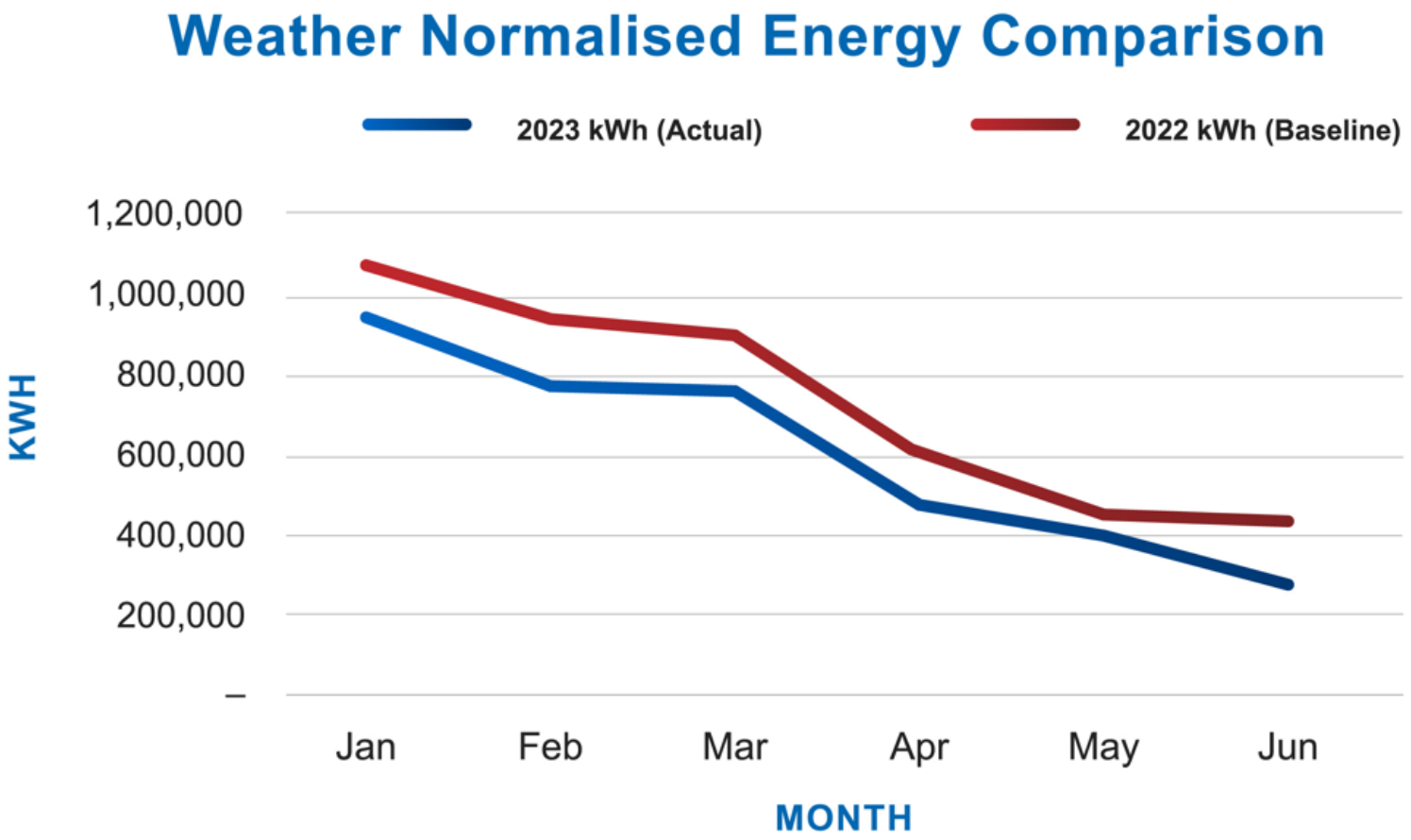
Implemented Control Strategies

- **Reducing Simultaneous Heating and Cooling:** By adjusting control set points between DOAS and AHUs, the project team successfully reduced instances of simultaneous heating and cooling.
- **Improving Unoccupied Operational Efficiency:** Adjustments of the night setback set points reduced unoccupied energy consumption.
- **Adjustments to Energy Recovery Systems:** By optimizing energy recovery set points, the system maximized the efficiency of heat exchange processes.
- **Aligning Conditioning Requirements with Building Demand:** The team aligned the conditioning requirements more closely with the actual building demand by modulating AHU duct static pressure setpoints.
- **Optimizing Outdoor Air Ventilation:** The team recalibrated and optimized the outdoor air ventilation rates to match the occupied spaces' requirements.

Project Results

- **Annual kWh Savings:** 880,000 kWh
- **Annual Cost Savings:** $ 62,000
- **Energy Conservation Measures (ECMs):** 7
- **Final Project Cost:** $ 0
- **Cost to Implement ECMs:** $ 8,160
- **Program Incentives:** $ 8,160

Energy Savings Profile



Maya Coyle

Senior Project Management

Elevate

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Decarbonization Retrofits for Affordable Housing: A Chicago Case Study

December 16, 2025

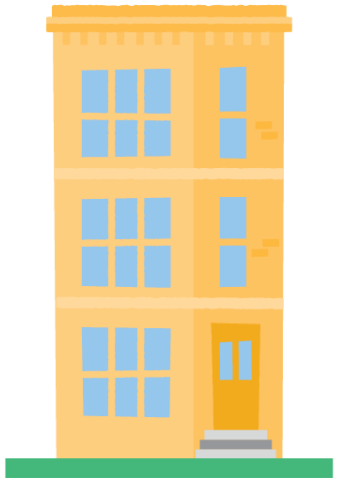
Illinois Green Alliance

ELEVATE

Elevate's Mission

Elevate is a nonprofit organization that works nationally and is headquartered in Chicago. Elevate designs and implements programs to ensure that everyone has clean and affordable heat, cooling, power, and water in their homes and communities —no matter who they are or where they live.

How Do We Create High Performing Buildings?



We center equity by providing personalized services for **affordable multi-family** and **nonprofit property** owners, managers, and developers to meet their performance and sustainability goals, and include:

Portfolio Performance Strategy
Develop roadmap to achieve decarbonization goals over time

Property Assessments
Identify and analyze energy, water, solar, and electrification opportunities

Construction Management
Support the implementation of energy, water, and solar upgrades

Design Review
Ensure integration of energy, water, health, and resiliency attributes

Energy Modeling
Model energy usage to meet high-performance building requirements

Green Certifications
Complete feasibility checklist and manage green certification process

Benchmarking
Track energy and water use in ENERGY STAR® Portfolio Manager®

Financing
Identify predevelopment and implementation financing, including utility rebates

Industry Research
Performance monitoring and analytics of innovative technologies

Case Study: La Paz Place

Project Background: Project Team & Partners

Assessment: Electrification Feasibility

- Technical/infrastructure
  - Replacement Timing
  - Equipment Options
  - Resident Impacts
- Bilingual resident engagement
  - Property-wide community meeting
  - Flyers
  - Door-knocking
  - Cash incentives

Assessment - Retrofit Scope

End Use	Pre-Retrofit	Post-Retrofit	Resident or Owner Paid	Resident Experience Changes
Space Heating & Cooling	Individual gas furnaces & window AC units	Ducted cold-climate ASHPs	Resident	Central cooling & reduced costs
Domestic Hot Water	Central gas boiler	Heat pump water heaters	Owner	None
Cooking	Natural gas stoves	Non-induction electric stove	Resident	Gas to electric & improved IAQ
Clothes Dryers	Natural gas dryers in common area	Electric resistance dryers	Owner	None
Renewable Energy	None	70 kW solar PV array	Owner & select Residents	Select residents have solar

Journey to Full Electrification

2013	2020	2021	2022	2023
• Energy assessment • Air Sealing and insulation install	• Electrification assessment (Oct) • Design (HVAC, Electrical, Plumbing)	• RFP (Apr) • Permitting (Aug) • Stove installs (Dec) • Air Source Heat Pump (ASHP) Phase 1 (Dec) • Tenant electrical upgrades	•Stove installs (Jan-Feb) •Meter upgrades (Jan-Mar) •HP DHW Phase 1 (Spring) Manufacturer engineering visits (July) ASHP Phase 2 (Nov)	• Operations and controls site visit with staff (Jan) • Solar design (Spring) • HP DHW Phase 2 (Spring) • Close-out (Mar)

Evaluation Approach

- Utility bill and carbon analysis (entire property)
  - What are the expected utility bill cost and carbon impacts of electrification without solar? And with solar?
- Pre- and post-retrofit monitoring (9 apartments)
  - What are the projected annual energy (kWh and therms) and carbon impacts for each end use (heating and cooling, water heating, and cooking)?
  - What is the utility cost impact of the electrification retrofit? What are the time-of-use impacts?
  - What are the indoor air quality implications of the electrification retrofit?

Lessons Learned from Full Electrification Journey

- Communicate LIHEAP benefits (electric heat)
- Lock settings (and/or training) on thermostats
- Consider location of ASHPs (include drain pans)
- Design for commercial size heat pump domestic hot water heaters
- If owner only saves after solar, install solar sooner
- Plan installs for non-heating months if possible
- Involve electric utility sooner to avoid delay in meter installation

Utility Bill and Carbon Analysis Results

Utility Bill Annual Impacts (Modeled)

Utility Payer	*Pre*-Retrofit Annual Energy Cost	*Post*-Retrofit Annual Energy Cost (no solar)	*Post*-Retrofit Annual Energy Cost (with solar)	Percent Cost Savings
Resident	$61,452	$49,362	$48,811	21%
Common Areas	$14,253	$21,034	$13,692	4%
Total	$75,705	$70,396	$62,504	17%

Carbon Annual Impacts (Modeled)

Metric	*Pre*-Retrofit Annual Carbon	*Post*-Retrofit Annual Carbon (no solar)	*Post*-Retrofit Annual Carbon (with solar)	Percent Carbon Savings
Total	635,661 lbs CO_2	400,977 lbs CO_2	356,021 lbs CO_2	44%

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Engage with the Hub

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