Planning Meets Practice New Decarbonization Tools

31 Chambers Street

September 23, 2025 9:00am to 10:30am

from ASHRAE, USGBC, and The Retrofit Playbook

opening remarks

Sophie Cardona, Senior Project Manager, NYSERDA

moderator

Molly Dee-Ramasamy, Director of Deep Carbon Reduction Group, JBB

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NEW YORK STATE

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"GUIDE TO STRATEGIC DECARBONIZATION PLANNING"

Laurie Kerr, Principal Climate Advisor USGBC

WHY DID ASHRAE, NYSERDA & USGBC PARTNER TO CREATE THIS GUIDE?



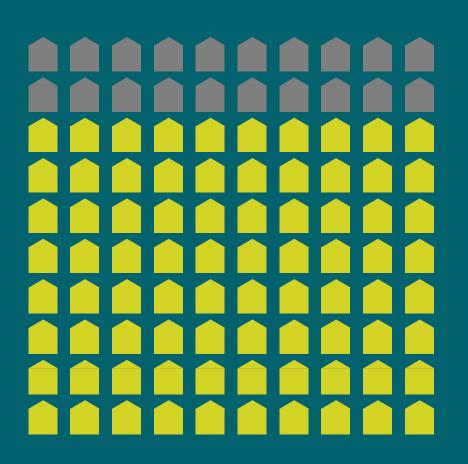
Guide to Strategic Decarbonization Planning











EXISTING BUILDINGS: Not built with carbon in mind, but critical for a low carbon future

In 2050, 80% of the buildings will be buildings we already have today*

AND WE LACK THE TOOLS TO DECARBONIZE EXISTING BUILDINGS



Benchmarking, audits, & retrocommissioning weren't designed for deep decarbonization



A MAJOR PARADIGM SHIFT

ENERGY EFFICIENCY

NEAR-ZERO CARBON

MODEST IMPROVEMENTS

DEEP REDUCTIONS

COST SAVINGS

LARGE INVESTMENTS

NEAR TERM ACTION

LONG-TERM PLANS



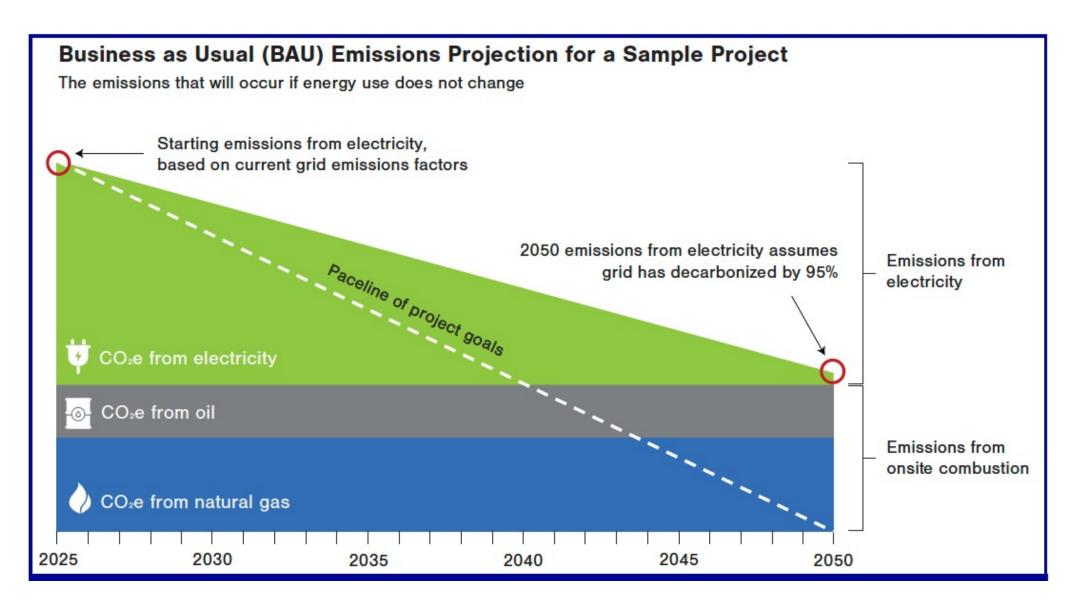
- A long-term plan to achieve deep reductions affordably
- Strategic by taking advantage of events in the lifecycle of the building
- More like new design than an audit, but some overlaps

GUIDE LAYS OUT STEP-BY-STEP PROCESS TO CREATE QUALITY SDP'S

PREDESIGN:

- Assemble multi-disciplinary team
- Compile a building/ profile: energy use and systems, trigger events, etc.
- Create business-as-usual (BAU) carbon and financial projections
- Compile reports and case studies
- Develop conceptual plans

BAU's: Carbon is not static & doing nothing is not free

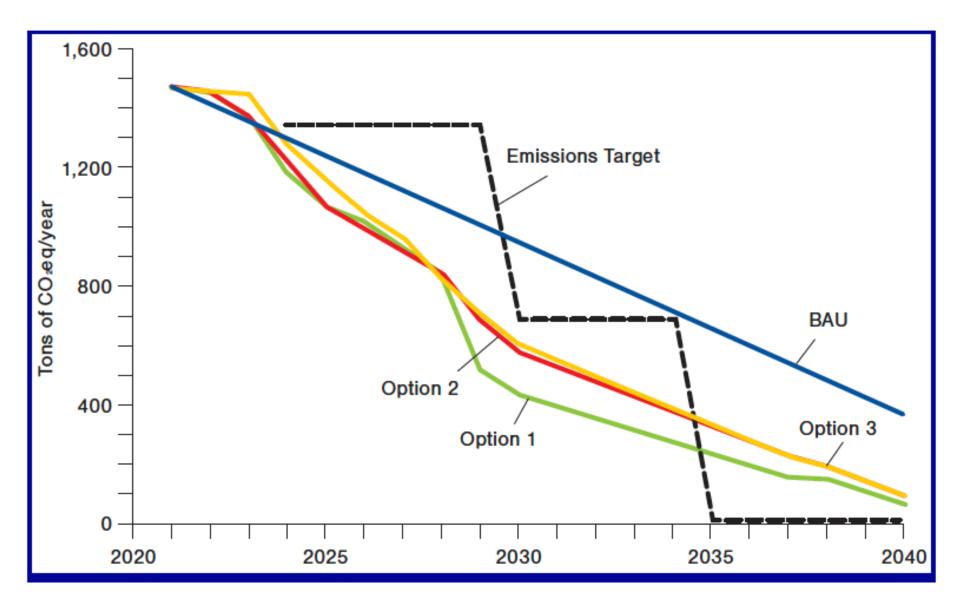


STEP-BY-STEP PROCESS

DESIGN:

- Conduct a charrette level set and discuss plan options
- Create at least two plan options
- Create SDP
- Create five-year capital plan

SDP Options



Technical & Financial Guidance in Guide

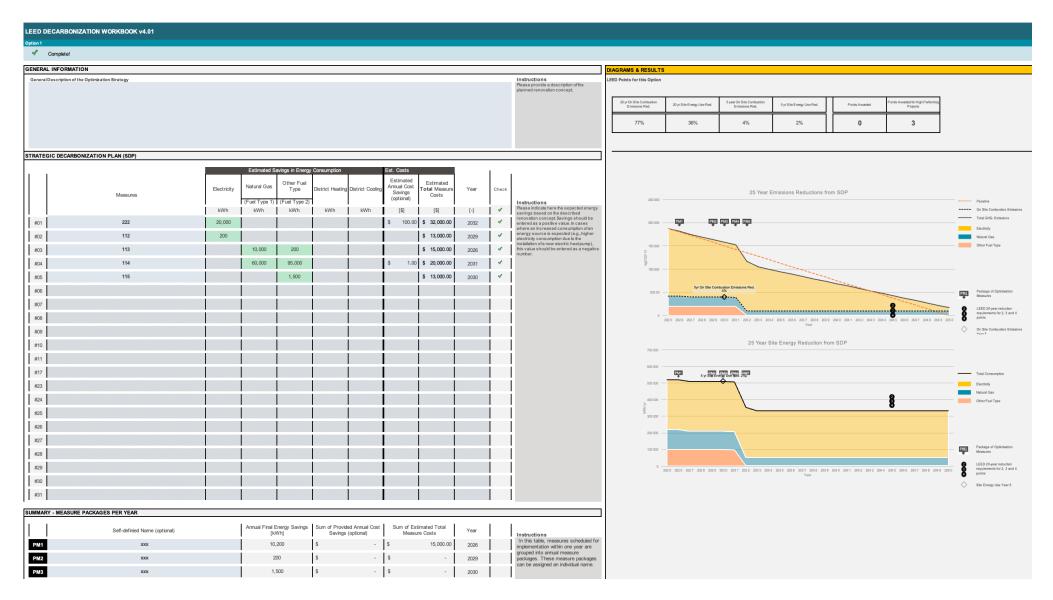
TECHNICAL PRINCIPLES:

- First principles
- Beyond OpEx optimization
- Looking beyond today's constraints

MAKING THE BUSINESS CASE:

- Financial concepts
- Lease impact on decarbonization planning

USGBC WORKBOOK: STANDARDIZES DOCUMENTATION



USGBC: LEED V5 0+M NEW CREDIT FOR DECARBONIZATION PLANS (SDP)

Points	SDP on-site combustion emissions reduction	SDP site energy use reduction	Sum of five-year reductions of on-site combustion emissions and site energy use
2	≥ 50%	≥ 20%	≥ 10%
3	≥ 75%	≥ 25%	≥ 10%
4	100%	≥ 30%	≥ 10%

The Strategic Decarbonization Planning Process

Pre-Planning

Initiate the Project

- Map Project Stakeholders
- Define and Prioritize Project Goals
- Engage Tenants and Modify Leases
- Hire Decarbonization Planning Support
- Hold Kickoff Meeting

Examine Current Conditions

- Define BAU Investment case
- Document Existing Conditions
- Identify Potential Sinks and Sources for Energy Recovery
- Initiate Ongoing Metering
- Identify Policies Impacting Project
- Establish a Calendar of "Trigger" Events

Planning

Design Resource Efficient Solutions

- Hold Charrette
- Align on Retrofit Solutions to be Evaluated
- Complete Energy Analysis

Build the Business Case

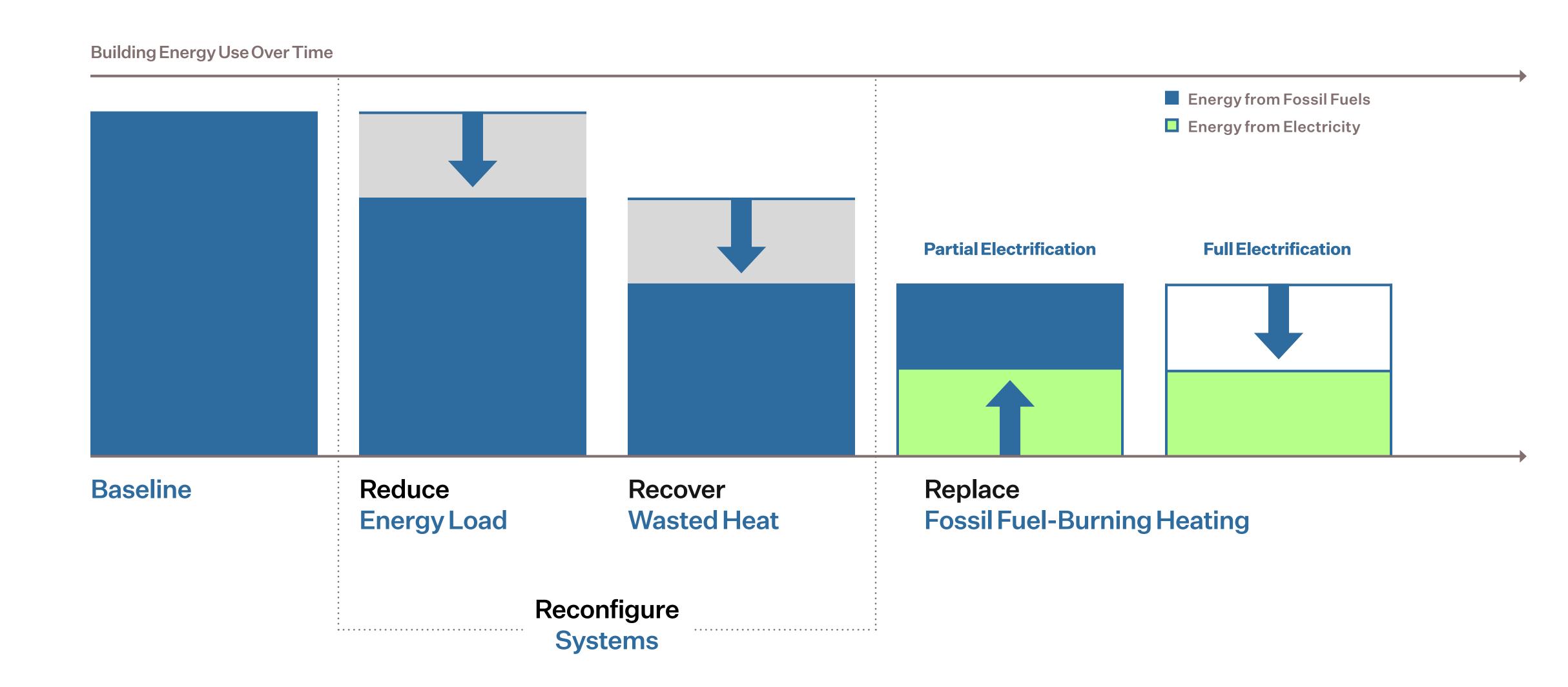
- Define the Business-as-Usual Investment Scenario
- Estimate Implementation
 Cost for Each Retrofit Solution
 Evaluated
- Complete Financial Analysis

Why Use this Process?

Deep Decarbonization Requires a Paradigm Shift

Energy	Carbon	
Optimize existing systems & make targeted upgrades	Capital investments in electric heating and enabling solutions	
Energy Cost Reduction	Multiple Goals	
Individual assessment	Integrative design	
Simple payback	Asset planning	
Viable investments now	Zero-over-time	
Decarb is NOT possible	Decarb IS possible	

Resource Efficient Decarbonization (RED) and the 4 R's



Empire Building Challenge (EBC)

Public-private partnership between NYSERDA and leading real estate owners. Catalyzing demonstration projects showcases best-in-class resource efficient decarbonization strategies.

Multifamily Projects

- The Towers
- Mt. Pleasant
- 78 Herkimer + more
- Lincoln Square Condominium
- George T. Douris Tower
- Joint Ownership Entity NYC; Bronx, NY
- The Heritage
- Whitney Young Manor

Commercial Projects

- 601 Lexington Ave
- 660 Fifth Avenue
- Empire State Building
- 345 Hudson
- 59-17 Junction Boulevard
- Penn One



New Case Studies











865 East 167th St

Pre-war multifamily building electrifying with wastewater heat recovery

Affordable multifamily

George T. Douris Tower

Energy recovery transforms senior affordable housing

Affordable multifamily Office

78 Herkimer St

Thermal battery transforms historic **Brooklyn building**

Mixed income multifamily

Mt. Pleasant

Multifamily affordable building electrifies with ground-source heat pumps

Ascendant Neighborhood Development

Affordable multifamily

James Geddes Development

Innovative Hydronic Shell **HVAC** overclad to transform Syracuse **Housing Authority high**rise



St. Elizabeth Manor

Renewing multifamily senior housing with sustainable electrification

Mixed income multifamily



Electric heat recovery chiller implementation at **Upper East Side high-rise**

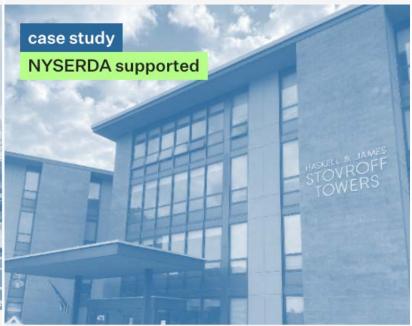
Mixed income multifamily Office



Melrose & Noll St. **Apartments**

Thermal network to support decarbonization of affordable housing

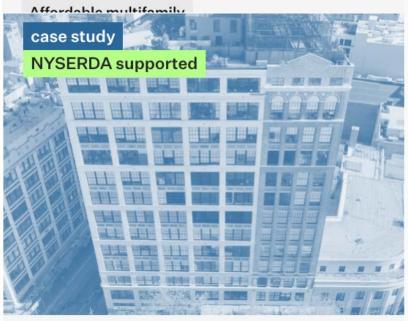
Affordable multifamily



Stovroff Towers

Deep energy retrofit creates new affordable housing

Mixed income multifamily

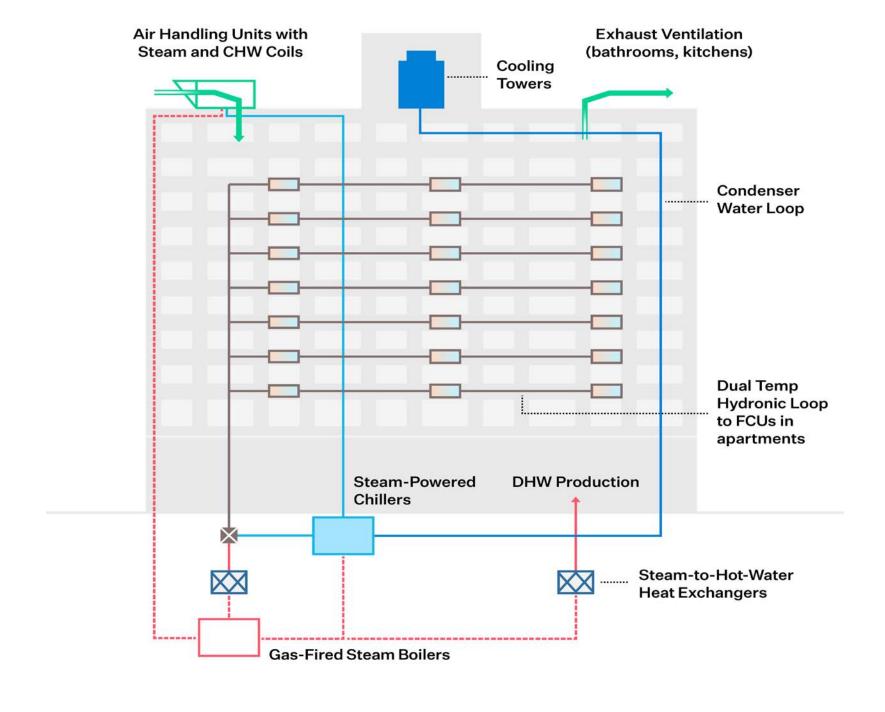


International Tailoring Company Building

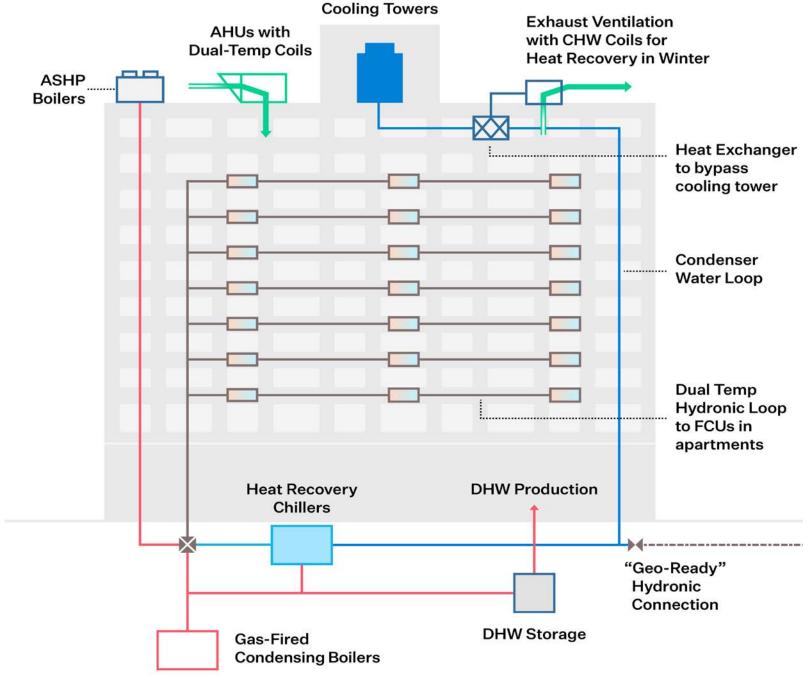
Transformative hybrid electrification retrofit leveraging IRA tax credits

Mixed income multifamily

215 East 68th Street









Retrofit Playbook for Large Buildings

Planning Guides

Strategic decarbonization planning (SDP) is a comprehensive approach to retrofitting buildings that aligns decarbonization activities with typical real estate cycles to cost-effectively achieve deep reductions in emissions. By integrating technical solutions with real estate capital plans, project teams can develop holistic, optimized decarbonization roadmaps for their buildings that prioritize flexibility, reduce risk, and unlock long-term value.

Getting Started	Step 1 Examine Current Conditions	Step 2 Design Resource Efficient Solutions	Step 3 Build the Business Case
 Establish Clear, Aligned Goals Engage Tenants Choose the Right Analysis Tools 	 Document Existing Conditions Establish an Events Calendar Review Leases and Modify as Needed Characterize Relevant Policies 	 Reduce Energy Load Recover Wasted Heat Reconfigure Systems Replace Fossil Fuel-Burning Heating Manage Peak Demand Right-Size Equipment and Partial Electrification Convene a Design Charrette 	 Define Business as Usual Investment Scenario Use Financial Analysis with Comprehensive and Forward-Looking with Financial Inputs Explore Financing Options Pressure Test Analysis and Usu Insights to Build a Compelling Business Case
Guide to Getting Started	Guide to Step 1	Guide to Step 2	Guide to Step 3

New Tools and Resources

Recover Wasted Heat

Waste heat isn't waste—it's an opportunity. Capturing energy that would otherwise be rejected from the building can reduce emissions and significantly improve project economics.

Integrating heat recovery strategies early in the planning process boosts overall system efficiency and allows for smaller, lower-cost equipment. Common approaches include tempering ventilation air, transferring heat between building zones, and raising source temperatures to improve heat pump performance.

Maximizing the value of existing heat is a smart first step—before investing in additional capacity.

Helpful Resources

Energy Recovery Analysis Tools

Waste heat isn't waste—it's an untapped resource.



High Rise / Low Carbon Event Series: Take the Heat!

Webinar featuring projects deploying breakthrough heating & cooling recovery solutions across the commercial and multifamily buildings sector.



High Rise / Low Carbon Event Series: Sharing Heat

Webinar on hydronic systems, thermal networks, and waste heat recovery, supporting the Empire Building Challenge.



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Questions?

