

# GRADIENT

## COMPANY OVERVIEW

April 2026

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# A Shift in HVAC is Urgent

AGING SYSTEMS, RISING COSTS, AND CLIMATE PRESSURES FORCE UPGRADES NOW



## AGING INFRASTRUCTURE IS FAILING

Old buildings rely on 100-year-old boiler tech—**expensive, high maintenance, impossible to customize.**

Tenant complaints of boiler failures are rising: **up 17% y/y in NYC<sup>1</sup>**



## LOOMING STATE/LOCAL REGULATORY PRESSURE

State/city laws and electrification mandates are forcing building owners to upgrade HVAC systems or face **financial penalties; (\$200/year per 1k ft<sup>2</sup> in NYC)**

**Utilities** aim to reduce dependence on fossil fuels, increase their revenue and decrease infrastructure spend by reducing grid strain.



## EXTREME WEATHER DRIVES HVAC UPGRADES

**Requirements for AC are growing** amid rising temperatures and air quality concerns.<sup>2</sup>

Increasing environmental events such as **flooding** impact vulnerable boilers<sup>3</sup>, driving demand for more reliable and adaptable heating/cooling solutions.

1. <https://comptroller.nyc.gov/reports/turn-up-the-heat-2025-update/>

2. <https://dec.ny.gov/environmental-protection/climate-change/effects-impacts/extreme-heat>

3. <https://climate.citofnewyork.us/ht/ejnyc-report/the-state-of-environmental-justice-in-nyc/exposure-to-climate-change/> and <https://www.nytimes.com/2014/03/24/nuregion/hurricane-damaged-boilers-will-be-replaced-in-new-york-public-housing.html>

# A Massive Market Left Behind: Pre-1980s Multifamily

TRADITIONAL HEAT PUMPS HAVE < 9% PENETRATION IN PRE-1980S BUILDINGS<sup>1</sup>,  
DUE TO FUNDAMENTAL DEPLOYMENT CHALLENGES

Traditional heat pump solutions require extensive permitting, construction, retrofits, and skilled labor



HIGH INITIAL  
COST



INFRASTRUCTURE LIMITS:  
DUCTING, ELECTRICAL



PERMITTING, SKILLED  
LABOR SHORTAGES



ASBESTOS,  
TENANT DISPLACEMENT

<sup>1</sup>. 50% lower penetration of heat pumps in pre-1980s buildings. Source: <https://www.eia.gov/consumption/residential/data/2020/hc/pdf/HC%206.3.pdf>

# The Gradient Solution: Connected, Easy-to-Deploy Heat Pump Technology

## ADAPTABLE, MODULAR DESIGN

All-season comfort: operates down to -13°F

3-5x more efficient than resistance heat

Plugs into a standard 120-volt outlet

LL97 Compliant: 95% lower direct emissions

MERV 13 filter option for improved air quality



All-Climate Electric Heating /  
Cooling & Air Purification

## HASSLE-FREE, LOW COST

No permits, drilling, technicians, or  
electrical complexities

30-minute install by 2 non-professionals

Removes single point of failure and  
increases uptime of heating/cooling

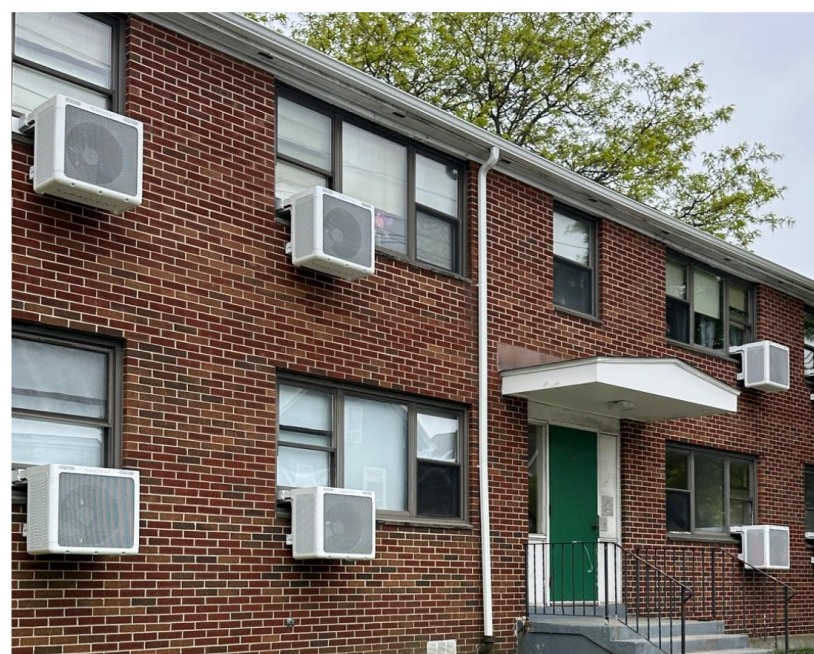
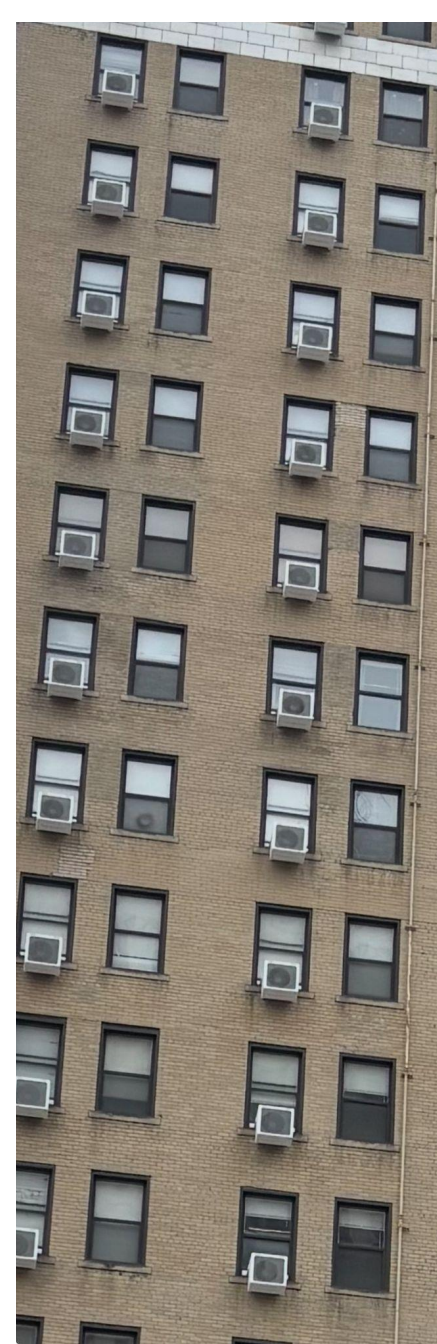
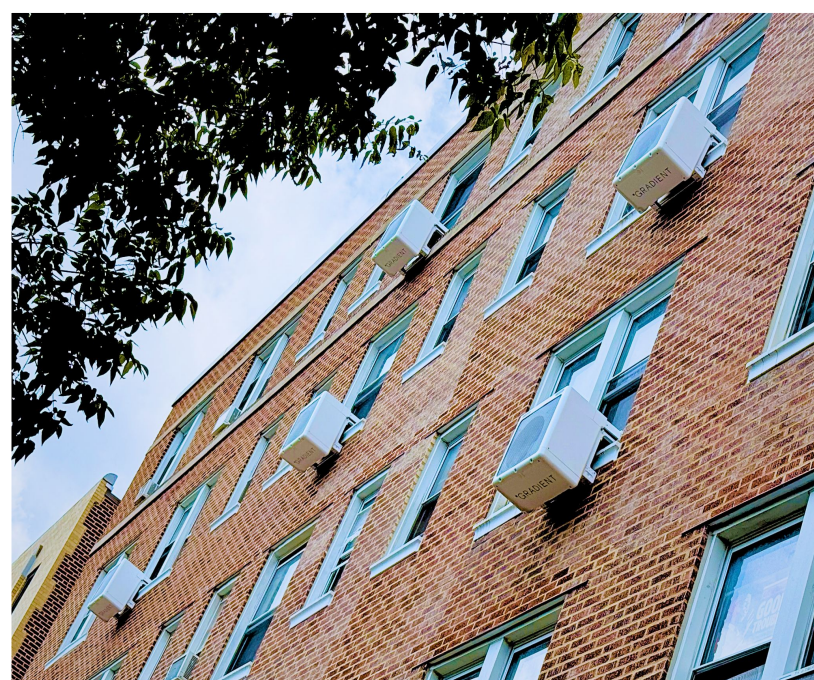
No maintenance beyond filter replacement

## SMART & CONNECTED

Demand response integration

Cloud-based energy management

Enhanced air quality control



# Recognized by World Class Partners

## PRESS, MEDIA, & AWARDS



The Washington Post



FAST COMPANY



## VALIDATED BY 3RD PARTY EXPERTS

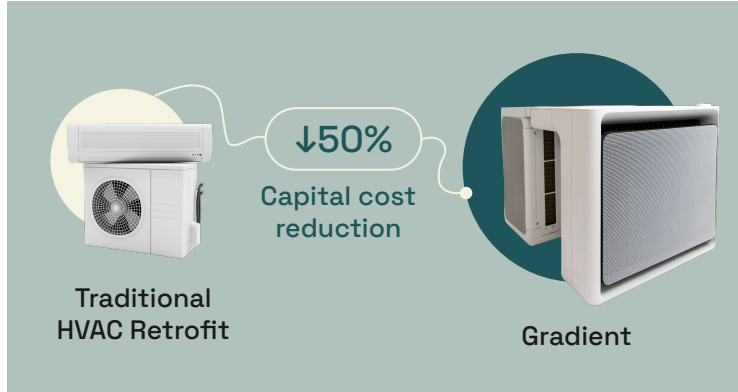


## INDUSTRY-LEADING ENTERPRISE CUSTOMERS



# Winning on Cost, Control, and Comfort

MAXIMIZED SAVINGS AND EFFICIENCY, SMARTER MANAGEMENT, AND HAPPIER TENANTS



## HIGHER NET OPERATING INCOME (NOI) FOR BUILDINGS

**up to 50% lower capex** retrofit<sup>1</sup>: no asbestos mitigation, no drilling results in significantly fewer labor hours and no tenant disruption

**85% energy savings<sup>2</sup>** and **up to 50% Bill savings**



## SMART HVAC MANAGEMENT

Cloud monitoring ensures **instant verification** of resident comfort, energy use, and performance

Enhanced remote diagnostics **lower maintenance expenses.**

Support for **demand response** programs creates new revenue opportunities and improves energy efficiency.



## TENANT BENEFITS SUPPORT HIGHER RETENTION

Built-in AC makes units more attractive, reducing lease-up time and increasing rental property value by up to **11.6%<sup>3</sup>**.

Replacing uncontrollable radiator with **smart controls** greatly improves comfort

Better **air quality** and elegant design reducing turnover costs.

1. Compared to split or PTAC heating retrofit costs shown here: <https://www.urbangreencouncil.org/going-electric-2/>

2. Measured with Gradient system at NYCHA, compared to steam heat:

[https://cdn.shopify.com/s/files/1/0558/4925/5070/files/NYSERDA\\_Room\\_Heat\\_Pump\\_Presentation\\_from\\_2024\\_ENERGY\\_STAR\\_Product\\_Partners\\_Meeting.pdf?v=1736361913](https://cdn.shopify.com/s/files/1/0558/4925/5070/files/NYSERDA_Room_Heat_Pump_Presentation_from_2024_ENERGY_STAR_Product_Partners_Meeting.pdf?v=1736361913)

3. According to Zillow Economic Research: <https://public.tableau.com/app/profile/zillow.real.estate.research/viz/ACPremium/ACPremium>



# “I was thrilled...the best thing.”

- REGINA FRED, NYC HOUSING AUTHORITY RESIDENT

“

‘They did a demonstration for me and I was thrilled,’ Fred said. Now, her grown children call the heat pump ‘the best thing’ she has in her apartment, and her neighbors have knocked on her door to check out the unit.

[Associated Press, 2024](#)

“

This is a *game changer*. Now the unit will tell me when it needs maintenance. Much better and *easier to maintain* than a boiler.

[Brooklyn Co-op Super, 2025](#)

“

This product is a *slam dunk* and a win-win for everyone.

[Noel Cruz, Owner Super Cool HVAC, 2025](#)

“

With these heat pumps, New York is inverting the usual pattern for new energy technology, which is usually too expensive for regular people to afford. ‘It’s the rich who are supposed to be early adopters of the *new, sexy, top-of-the-line climate tech.*’

[WIRED, 2024](#)

Institutional buyers and the communities they serve are proving that Gradient delivers on its promise, further accelerating adoption in target markets.

# GRADIENT

## Appendix: Case Studies

Jan 2026



# NYCHA Clean Heat for All Challenge Case Study

## Report Design / Structure

NYSERDA contracted Taitem Engineering, a leading high performance building firm, to perform Measurement and Verification (M&V) of the initial heat pumps installed.

Full report is being published in Q1 2025

## Key Research Questions

- Do the window heat pump units provide adequate heat at the coldest outdoor temperatures?
- What does the installation prep and process look like?
- What is the impact on electrical consumption and peak demand?
- Are residents comfortable and satisfied with the heat pumps?

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City/State Agencies, Non-Profits  
(bulk purchases of HVAC, specify HVAC requirements)



Building Performance Consultants  
(advise building owners on HVAC)



NY Utilities  
(deploy HVAC incentives)



# Pilot Overview

- 24 apartment units
- 72 window heat pumps
- 3 units per 2 bedroom apartment
- 700 sq ft apartments
- 100% displacement of existing fossil fuel system



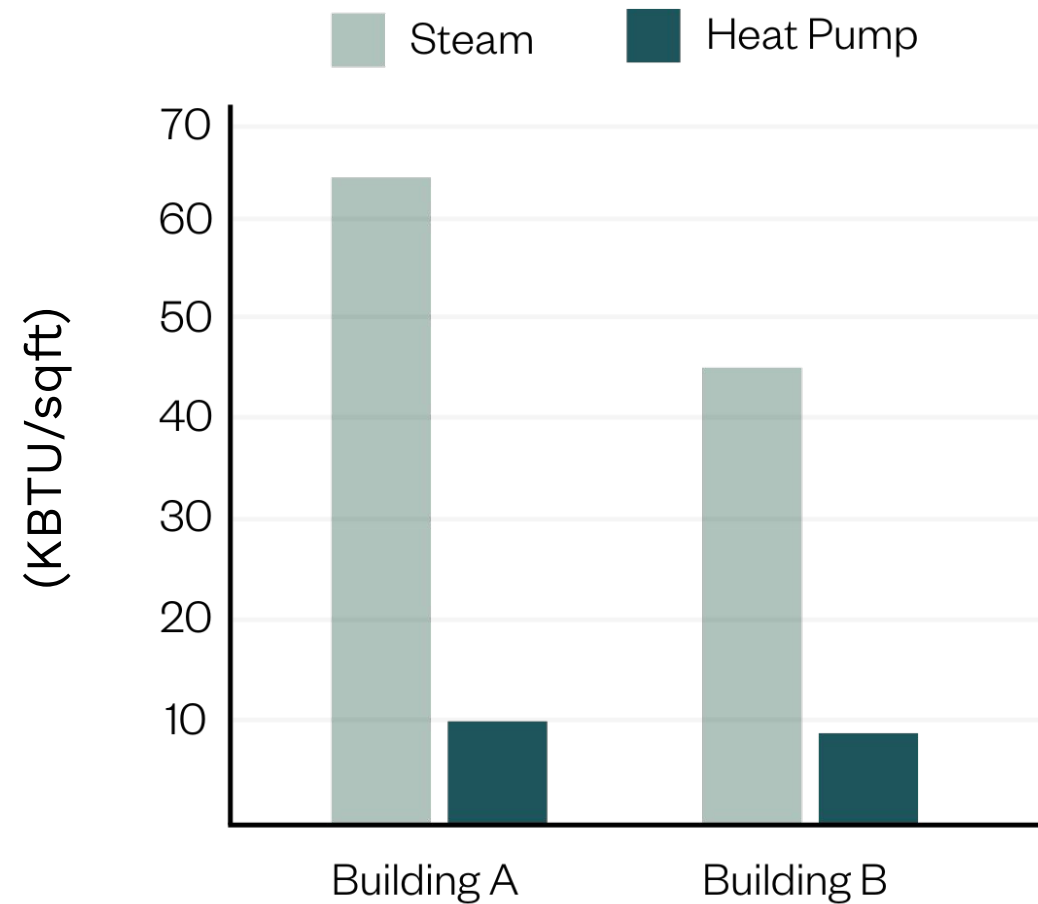
# NYSERDA M&V Results<sup>1</sup>

## Energy Efficiency, Cost Savings, & Environmental Benefits

- Energy & Cost Savings: 85-88% reduction in heating energy; 49-60% cost savings.
- GHG Reduction: 76-81% reduction in emissions.
- Uniform Temperature: Consistent control, even in unheated spaces.
- Minimal Electrical Impact: Only 30% of building load from heat pumps at peak

Source: NYSERDA Roundtable, 7/26/24

## Heating Energy Per Square Foot



# Product Performance at NYCHA: Efficiency and Satisfaction

## Cost Efficiency

Operates 15% to 78% cheaper than fossil fuels, demonstrating significant cost savings across different conditions.

## Partner Satisfaction

NYCHA, NYPA, NYSERDA partners express high satisfaction.

## Residential Approval

Positive resident feedback highlights comfort, control, and improved conditions post-installation.

## Operational Efficiency & Performance

System maintains intended efficiency/capacity within plug load (< 10 amps). Achieved COP of 3.0 to 5.6 in moderate temps (37-44°F) and 2.5 to 4.7 in the coldest conditions (24-27°F).

## Cost Analysis

### Moderate Temp Efficiency

COP 3 (worst) to 5.6 (best) yields cost reductions of **29% to 78%** compared to fossil fuels.

### Coldest Day Efficiency

COP 2.5 (worst) to 4.7 (best) shows cost reductions of **15% to 74%**, far outperforming traditional heating.

## Key Takeaway

Window heat pump technology not only surpasses traditional fossil fuel systems in cost and efficiency but also earns strong partner and resident endorsements, setting a new standard for heating in urban communities.

# Boston Housing Authority

## Overview

- Public housing authority in Boston
- 103 total Gradient Heat Pumps
- Retrofit cost was 86% less than other heat pump options

## Baseline Equipment:

- Electric Resistance
- Window ACs

## Installation

- Direct install contractor through Mass Save program
- 30 minutes to 1 hour per unit

## Boston is piloting window heat pumps in affordable housing

Housing authorities in Boston and two nearby cities are installing plug-in heat pumps from startup Gradient to try to swiftly and affordably cut emissions.



By Alison F. Takemura  
14 October 2025



# Lynn Mass Housing

## Overview

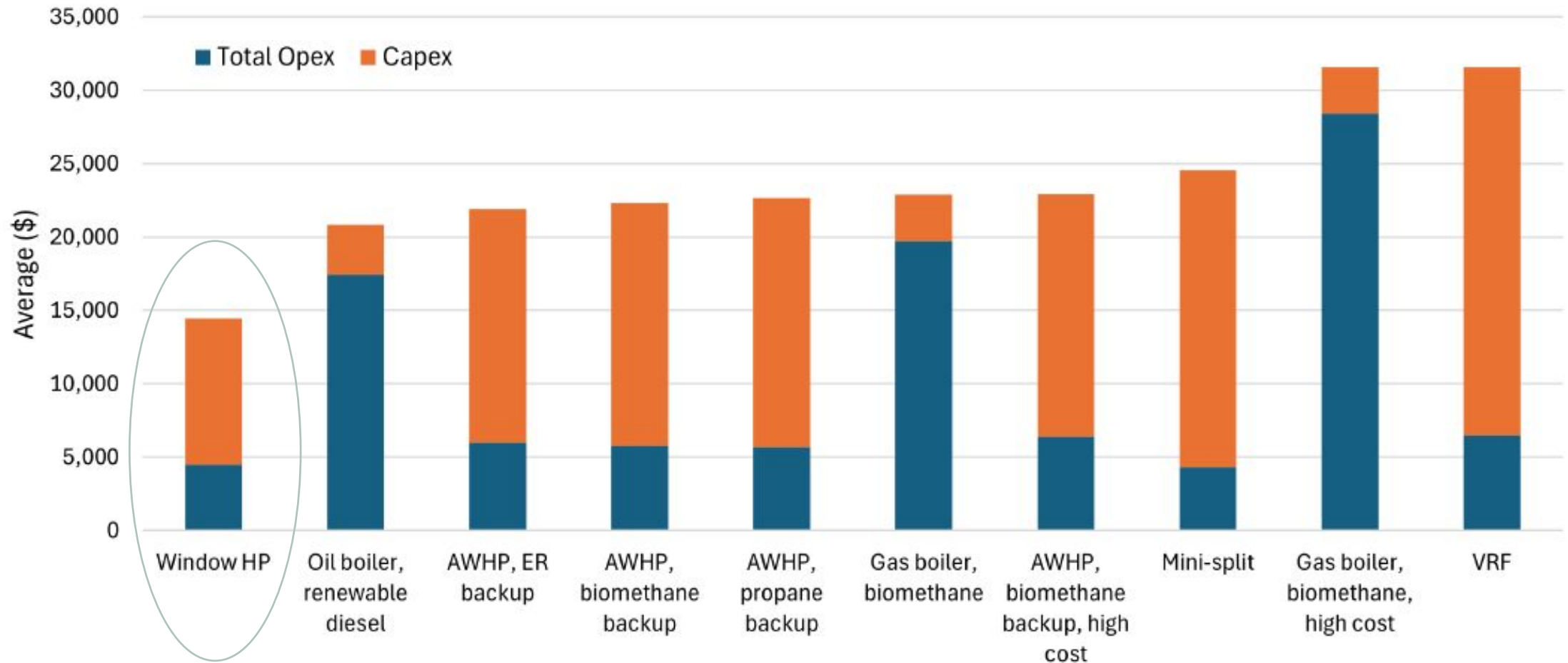
- Public housing authority in Lynn, MA
- 104 total Gradient Heat Pumps
- 51 apartments
- Installation completed in June 2025

## Baseline Equipment

- Failing steam radiators
- Window ACs



# ACEEE Reports Window Heat Pumps are the most cost effective HVAC solution



Source: Nadel, Steven, Elizabeth Traynor, and Skye Gruen. 2025. Decarbonizing Space Heating in Existing Centrally Heated Multifamily Buildings. Washington, DC: ACEEE. [www.aceee.org/research-report/b2506](http://www.aceee.org/research-report/b2506)