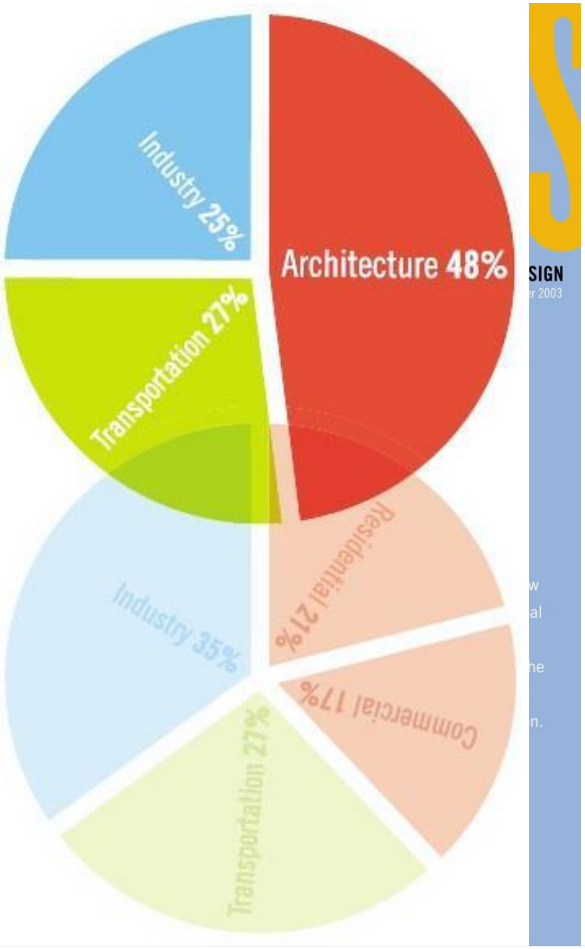
Michigan Energy Summit- 05/14/2026

ENERGY EFFICIENCY: THE FIRST FUEL

Vincent Martinez, CEO
2030, Inc. / Architecture 2030

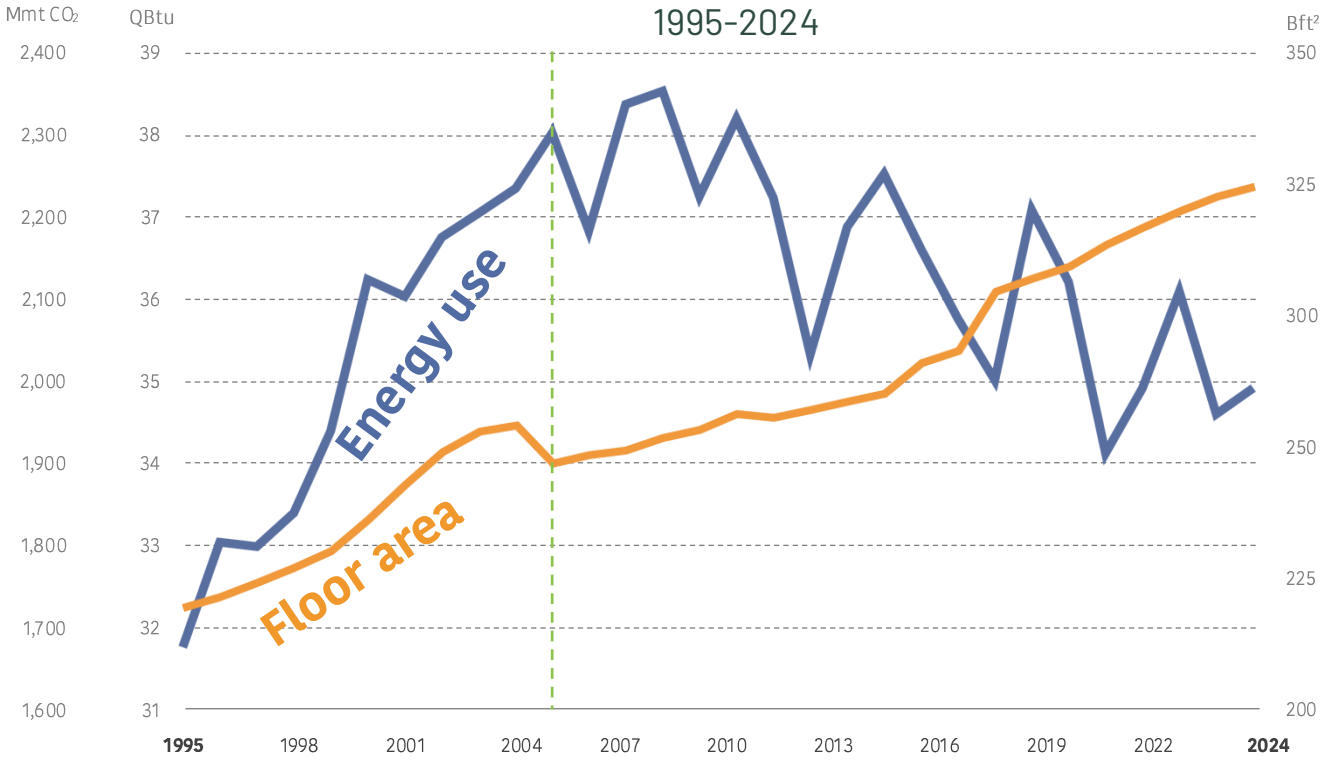

WWW.METROPOLISMAG.COM
USA $4.95 | CANADA $6.95


Industry 25%
Architecture 48%
Transportation 27%
Residential 21%
Industry 35%
Commercial 17%
Transportation 27%
SIGN

Changes in United States Building Sector

Floor Area, Operating Energy Use

1995-2024



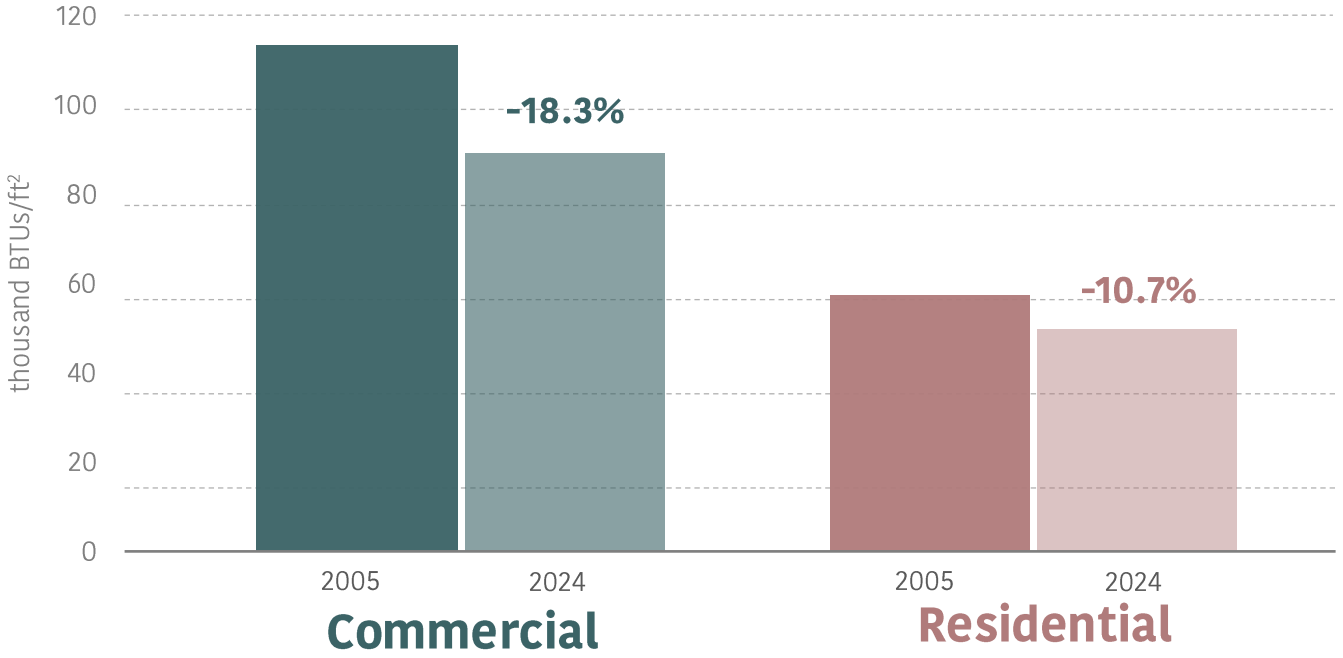
2005-2024

Floor area
+ 70 Bft²

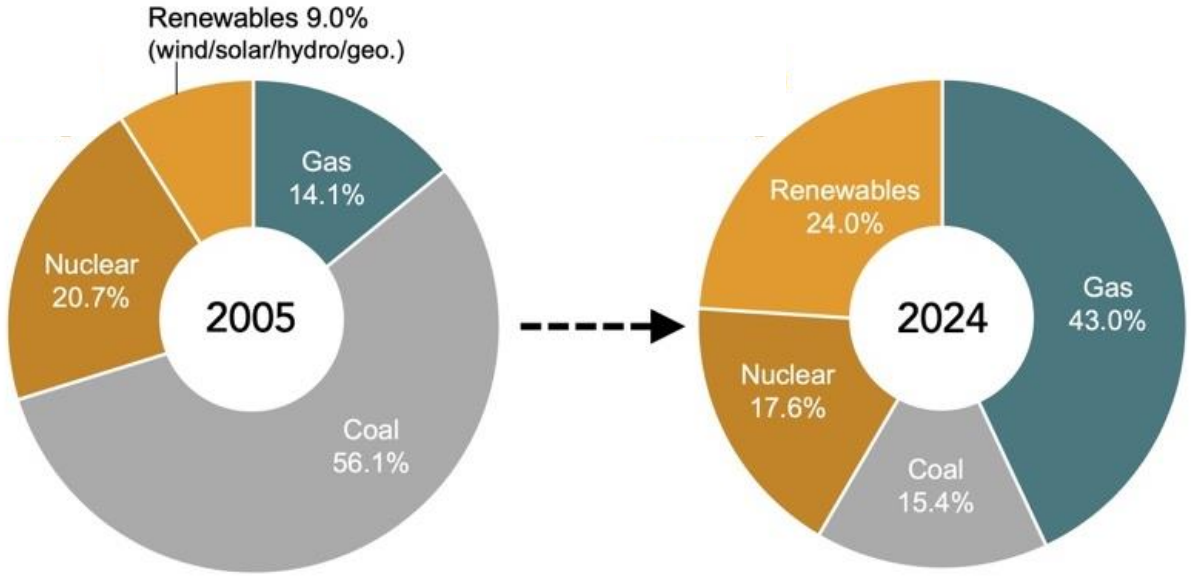
Energy use
- 8.2%

Source: Architecture 2030, U.S. Energy Information Administration, Annual Energy Outlook. Floor area is approximate based onEIA annual data.

United States Building Sector Operations
Energy Intensity



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



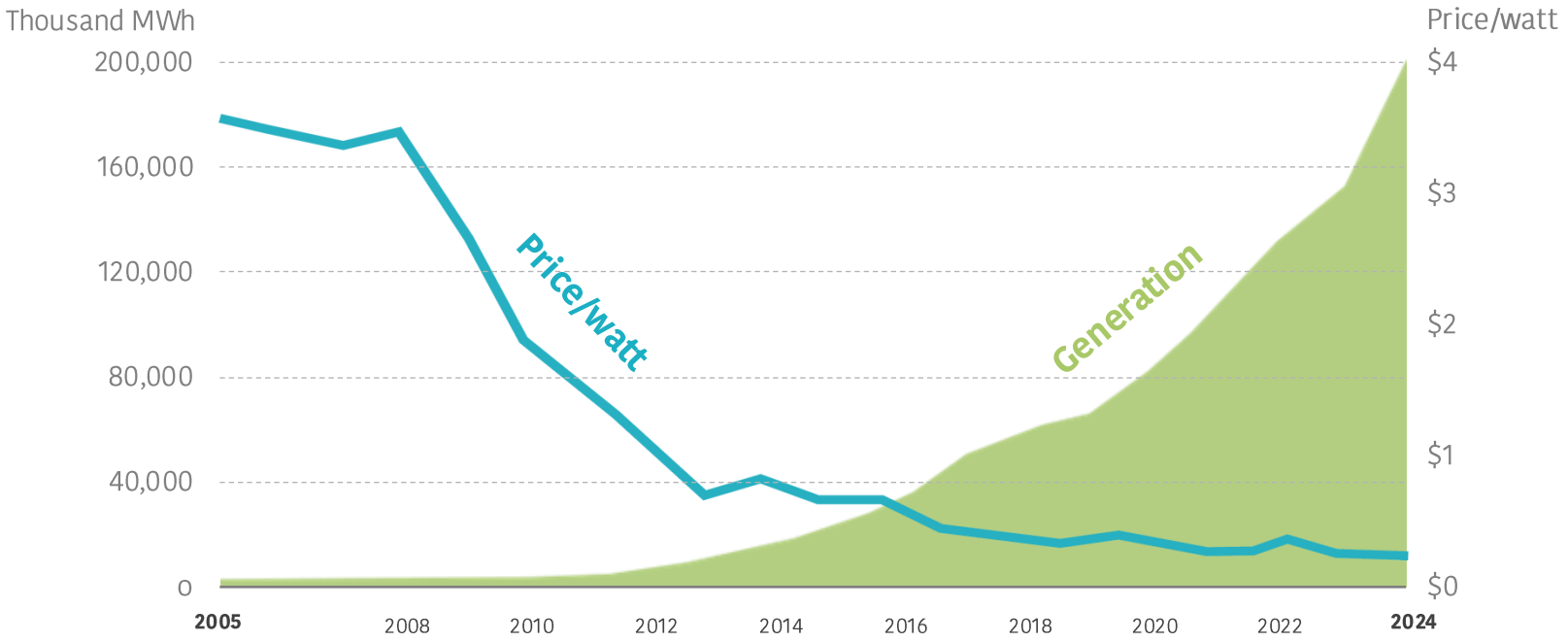
U.S. Electricity Generation by Source

Source: Architecture 2030; U.S. Energy Information Administration's 2006 & 2025 Annual Energy Outlook

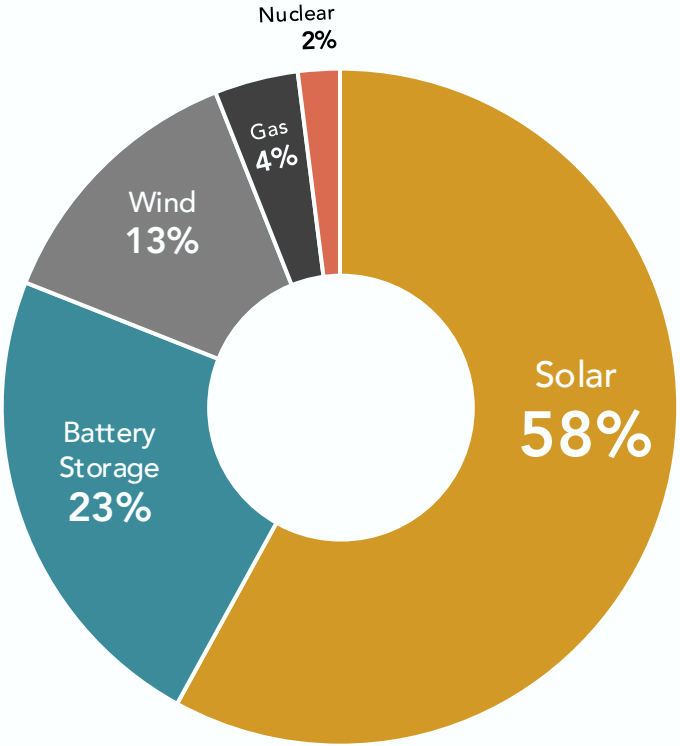
Note: Total electricity generation from petroleum, municipal waste, and other technologies are less than 1% and not included in these charts. All numbers rounded.

United States Utility-Scale Solar Electricity Generation & Price per Watt

2005-2024

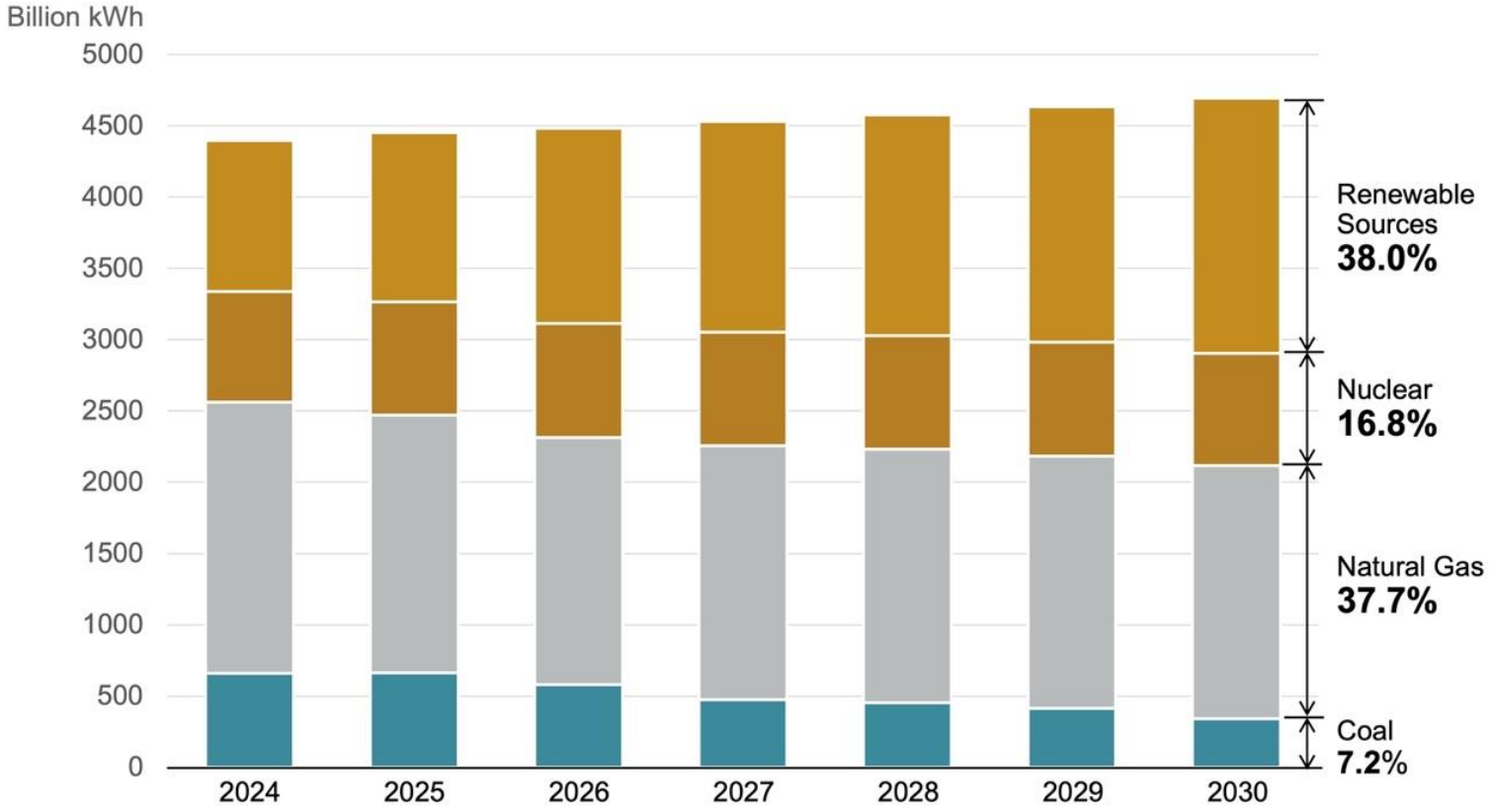


Source: Architecture 2030, U.S. Energy Information Administration (EIA)



U.S. Power Plant Capacity Additions in 2024

Source, planned additions: U.S. Energy Information Administration, Preliminary Monthly Electric Generator Inventory, December 2023

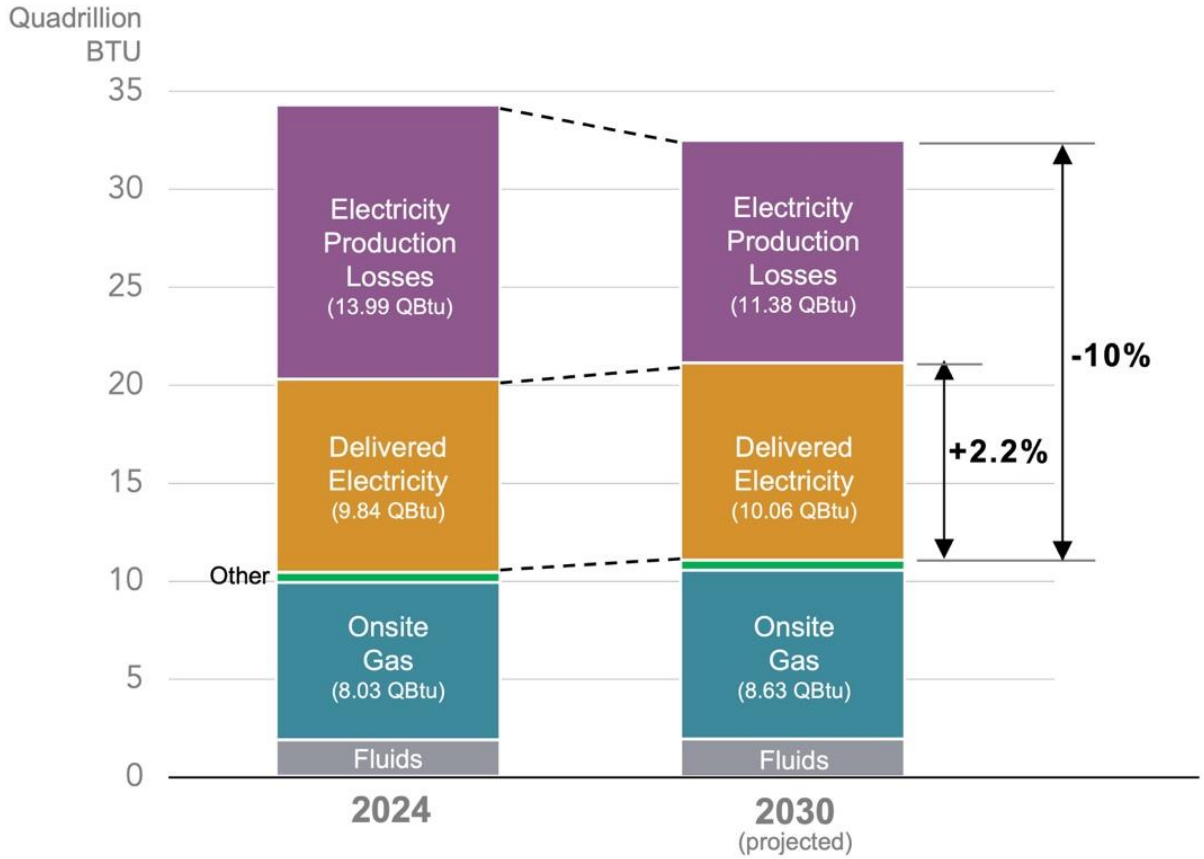


U.S. Electricity Generation by Source

Projections from 2024 to 2030

Source: Architecture 2030; U.S. Energy Information Administration's 2025 Annual Energy Outlook

Note: Total electricity generation from petroleum, municipal waste, and other technologies are less than 1% and not included in these charts.



U.S. Building Sector Energy Consumption by Source

2024 and 2030 (Projected)

Source: Architecture 2030; U.S. Energy Information Administration's 2025 Annual Energy Outlook

ENERGY EFFICIENCY

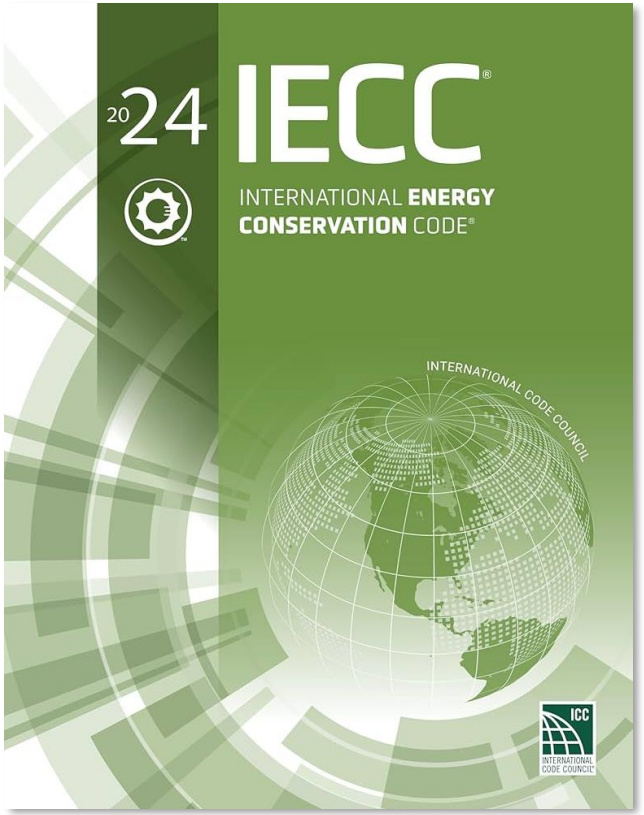
In the Building Sector

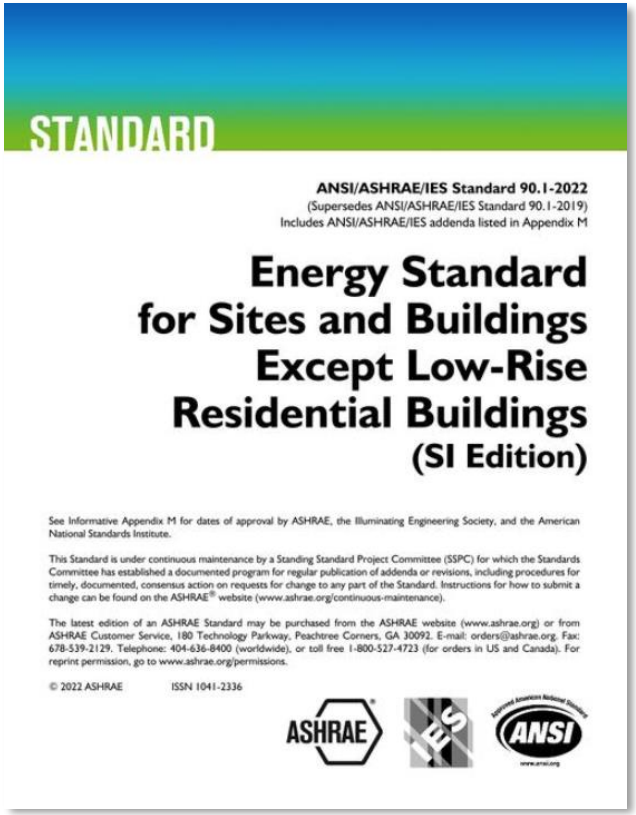
NEW BUILDINGS

EXISTING BUILDINGS

NEW BUILDINGS

We have a model standard





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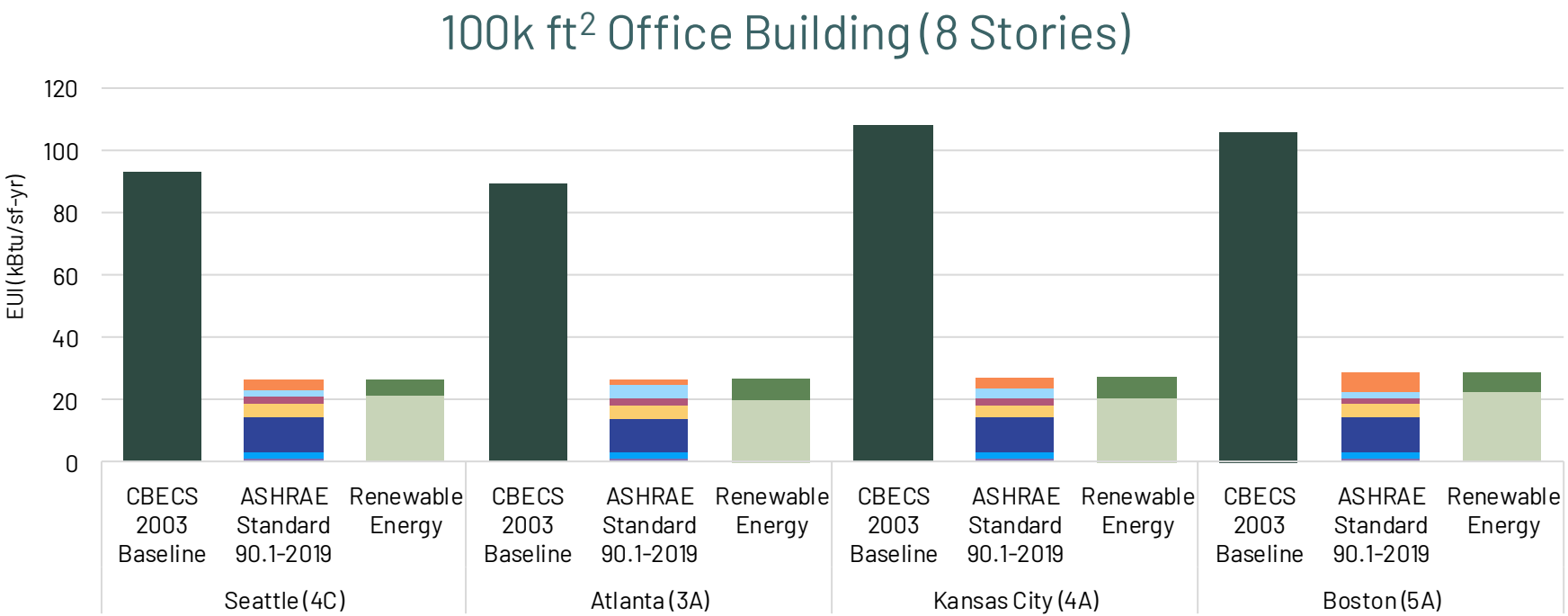
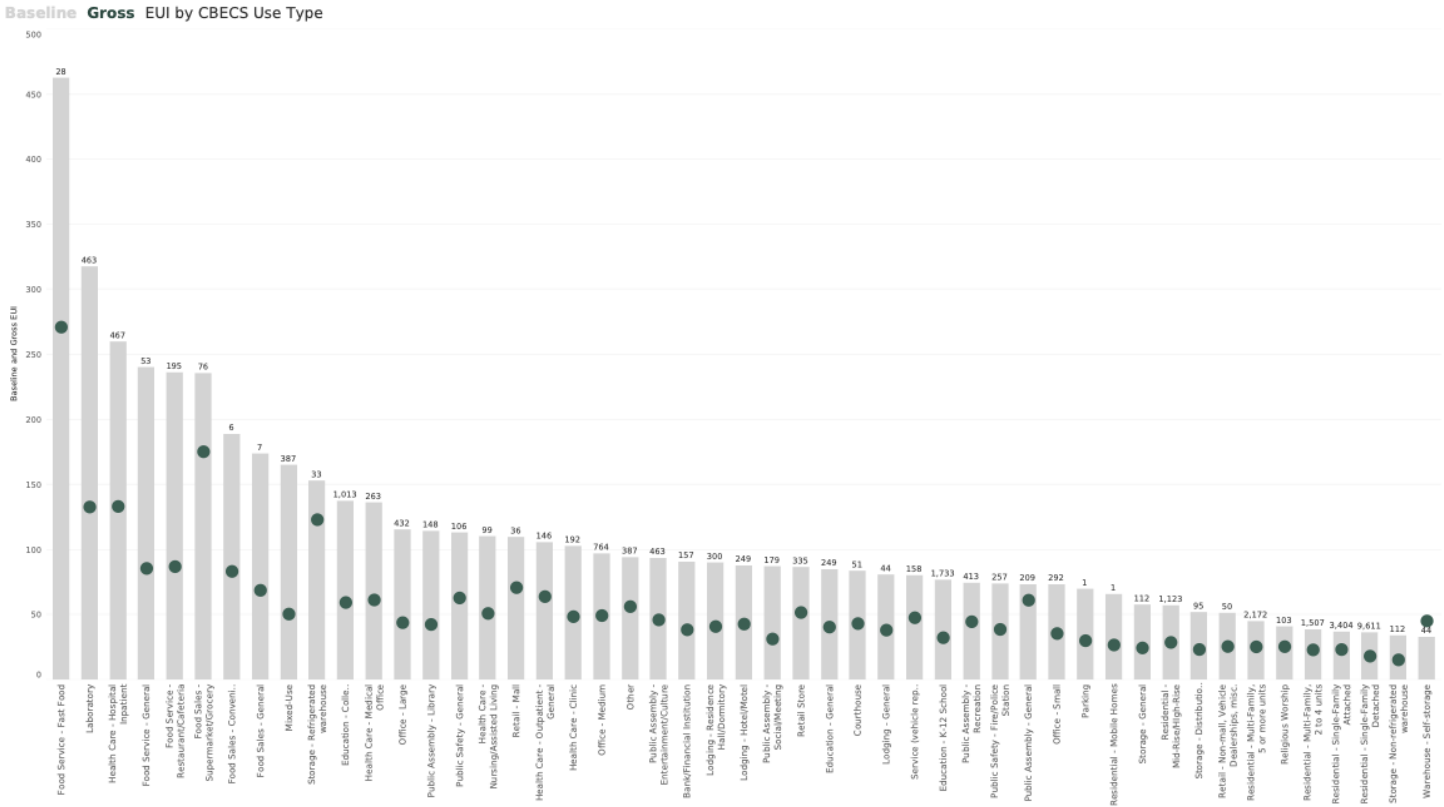
NEW BUILDINGS

We have come a long way!



NEW BUILDINGS

Some building types are further than others



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NEW BUILDINGS

How low can you go?

RP-1651 -- Development of Maximum Technically Achievable Energy Targets for Commercial Buildings

REPORT / SURVEY by ASHRAE , 2016

Jason Glazer

Development of Maximum Technically Achievable Energy Targets for Commercial Buildings

Author: Jason Glazer
Date: July 2017

From: ASHRAE Transactions (Vol. 123, Issue 2)
Publisher: American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE)

Document Type: Report
Length: 10,097 words
Lexile Measure: 1460L

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NEW BUILDINGS

How low can you go?

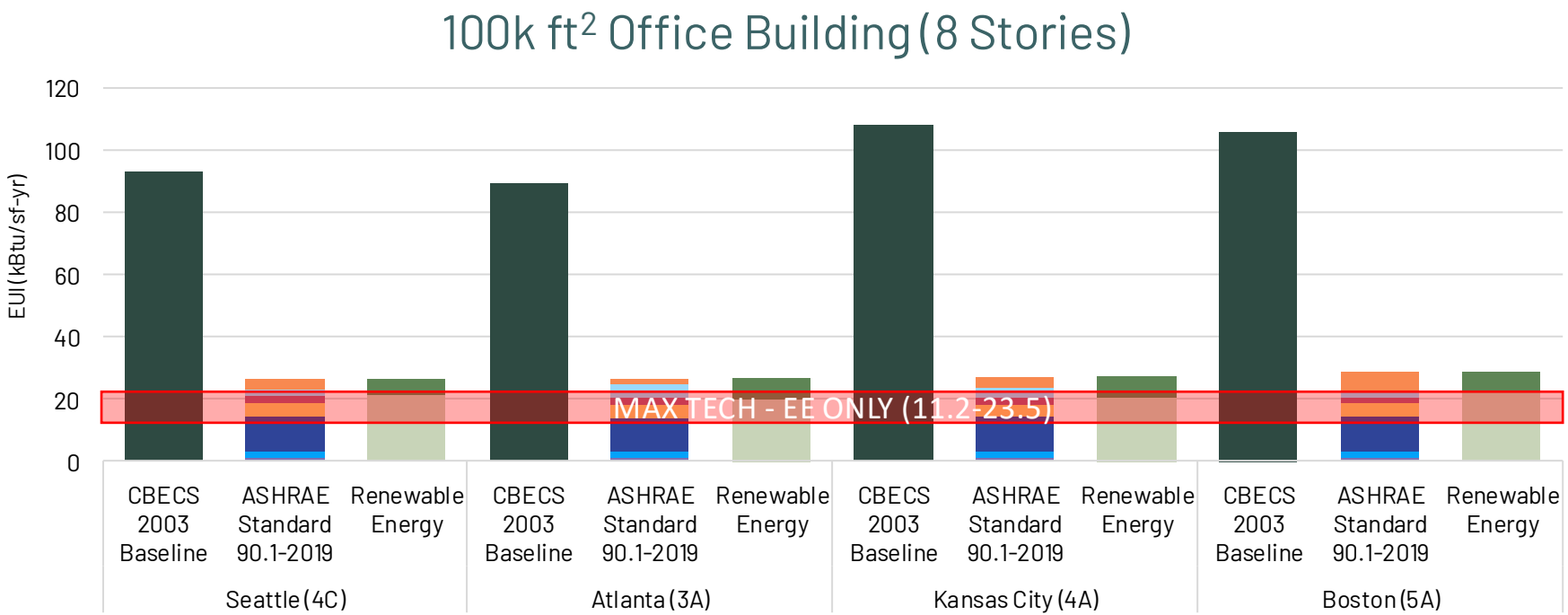
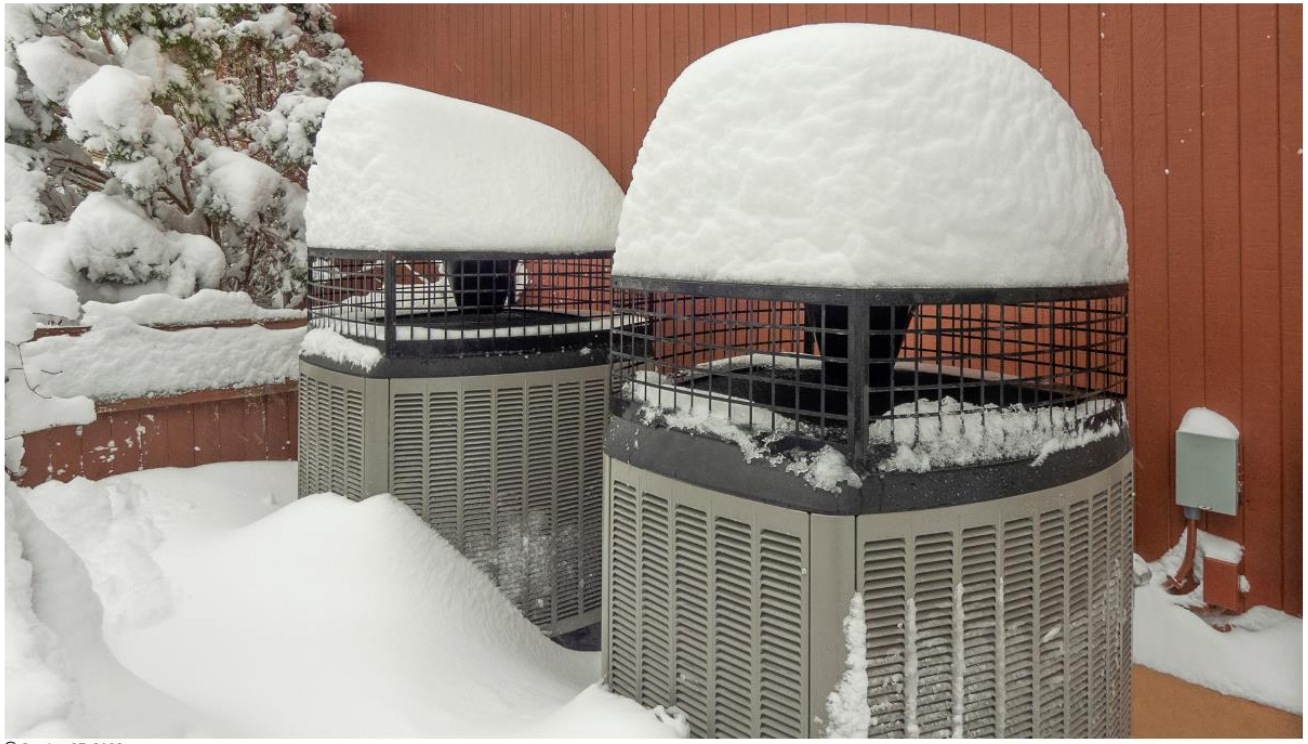


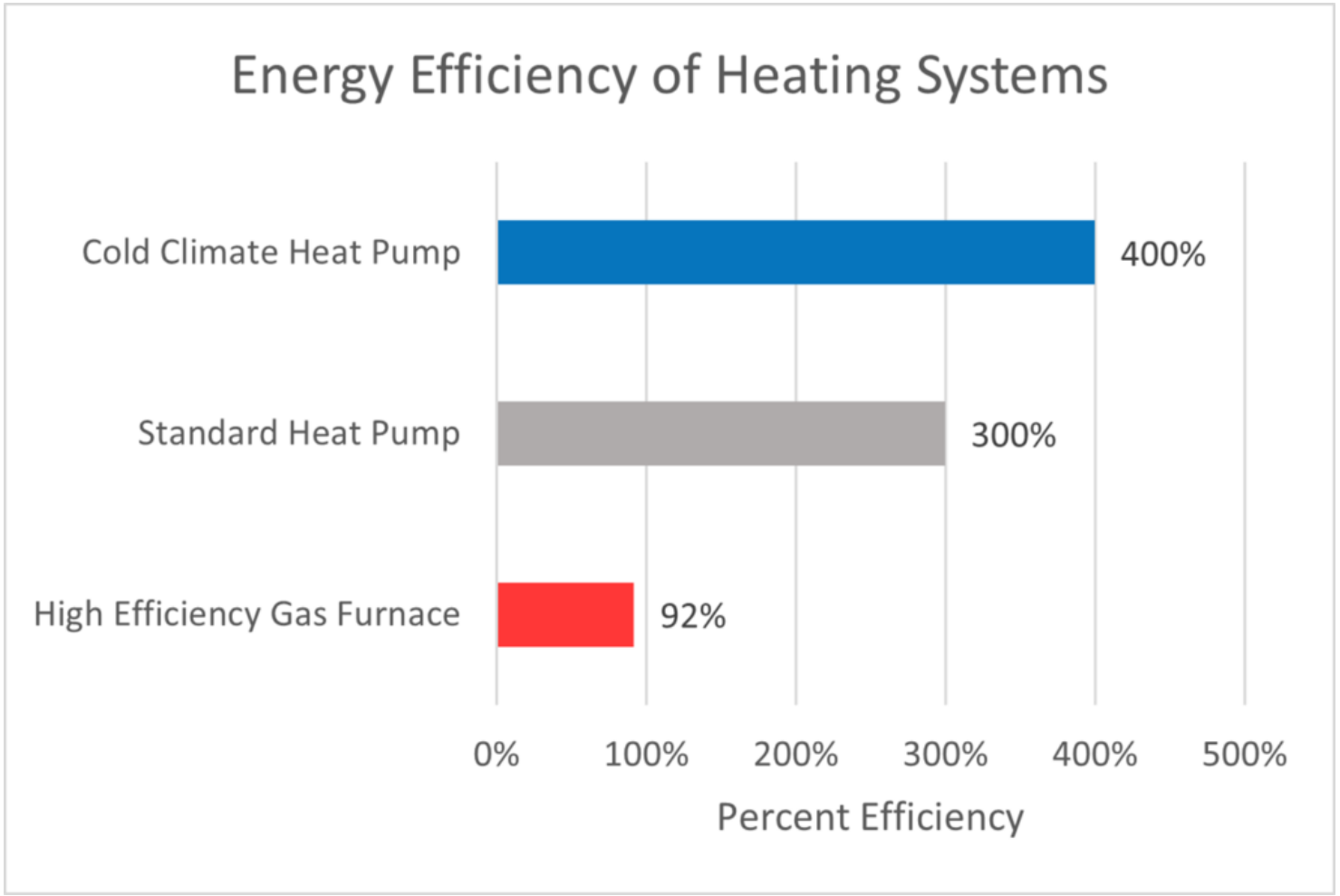
Image generated using Google gemini

Cold Climate Heat Pumps Work!



October 27, 2023

Cold Climate Heat Pump Resource



https://energysense.uillinois.edu/cold-climate-heat-pumps-work/

FREQUENTLY ASKED QUESTIONS ABOUT COLD CLIMATE HEAT PUMPS

ARE COLD CLIMATE HEAT PUMPS WORTH IT?

WHAT TEMPERATURE IS TOO COLD FOR A HEAT PUMP?

HOW MUCH DOES A COLD CLIMATE HEAT PUMP COST?

WHAT IS THE BEST HEAT PUMP SYSTEM FOR COLD CLIMATES?

WHAT REFRIGERANT IS USED IN COLD CLIMATE HEAT PUMPS?

CAN A HEAT PUMP REPLACE MY EXISTING FURNACE IN A COLD CLIMATE?

WHAT MAINTENANCE IS REQUIRED FOR A HEAT PUMP IN COLD WEATHER?

ARE THERE ANY INCENTIVES OR REBATES AVAILABLE FOR INSTALLING A COLD CLIMATE HEAT PUMP?

About The Author: *Travis Baugh is a Digital Brand Marketing Manager for Carrier, where he develops informative, straightforward content to help homeowners better understand heating, cooling, and indoor air quality. His writing is focused on empowering homeowners to make confident, well-informed choices about their home comfort systems.*

Cold Climate Heat Pump

By Anne Fonda

It's a myth that you can't have a **heat pump** efficiently heat your home if you live in a colder climate. Air source heat pump technology has evolved to meet the heating and cooling needs of homeowners in the coldest climates. That includes the Northeast, upper Midwest, and even Alaska.

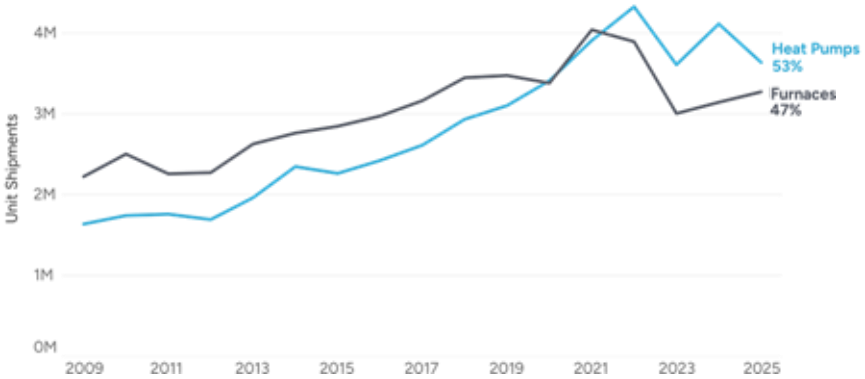
Trane and Cold Climate Heat Pump Technology

Trane is an industry leader in the development of reliable cold-climate heat pumps. Currently, for people who get extremely low temperatures in the winter, we advise implementing a hybrid system where you have a multi-speed heat pump that can handle temperatures down to 5 degrees, with a paired gas furnace that kicks in at even colder temperatures.

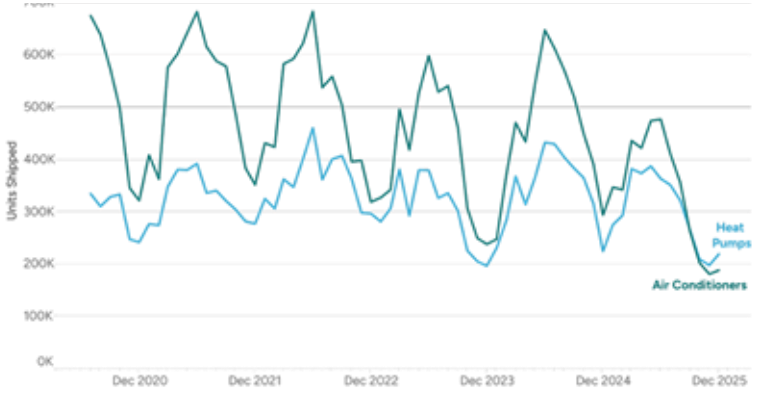
But the technology is changing. Trane Technologies is partnering with the Department of Energy (DOE) in their **Residential Cold Climate Heat Pump Challenge** to develop new cold-climate heat pumps that deliver 100% heating capacity without the use of auxiliary heat and with significantly higher efficiencies at sub-zero temperatures.

When tested at the DOE's lab, Trane's CCHP prototype performed in temperatures as low as negative 23 degrees Fahrenheit, surpassing the mandatory negative 20 degrees Fahrenheit DOE requirement. After completing the challenge, Trane's prototype underwent testing for two winters in the field. After refinements, they should be available to homeowners in 2026.

A growing market



Data source: AHRI Shipment Reports



Data source: AHRI Monthly reports

EXISTING BUILDINGS

In 2040, **2/3 of the global building stock** will be buildings that exist today.
Without upgrades, they will still be emitting GHGs.

Data Source: IEA Energy Technology Perspectives 2020, February 2021 Revised Edition

EXISTING BUILDINGS

BUILDING DESIGN +CONSTRUCTION

JOIN NOW LOGIN

Renovation work outpaces new construction for first time in two decades

By Peter Fabris, Contributing Editor Nov. 8, 2022

Renovations of older buildings in U.S. cities recently hit a record high as reflected in architecture firm billings, according to the American Institute of Architects (AIA). As of spring 2022, the majority of billings came from retrofit work, not new construction. It's the first time in the 20 years AIA data has shown that renovations have surpassed 50%, *Bloomberg* reports.

Trending

LIBRARIES
Reasons to reinvent the Midcentury academic library

ADAPTIVE REUSE
Adaptive reuse project transforms 1840s-era mill building into rental housing

BRICK AND MASONRY
A journey through masonry reclad litigation

An Art Deco neighborhood bank on the West Side of Chicago will soon be reborn as the anchor for a new mixed-use development. *Photographer: Patrick L. Pyszka/City of Chicago*

CityLab | Design

One Nation, Under Renovation

For the first time in 20 years, renovations have overtaken new construction in architectural billings in the US.

By Zach Mortice

October 19, 2022 at 5:00 AM PDT
Updated on October 19, 2022 at 7:08 AM PDT

Save Translate

In late 2019, Chicago Mayor Lori Lightfoot announced a landmark investment in some of the city's poorest neighborhoods. Invest South/West would direct $1.4 billion in total, including $750 million in public funds, to redevelop properties across the city's South and West Sides.

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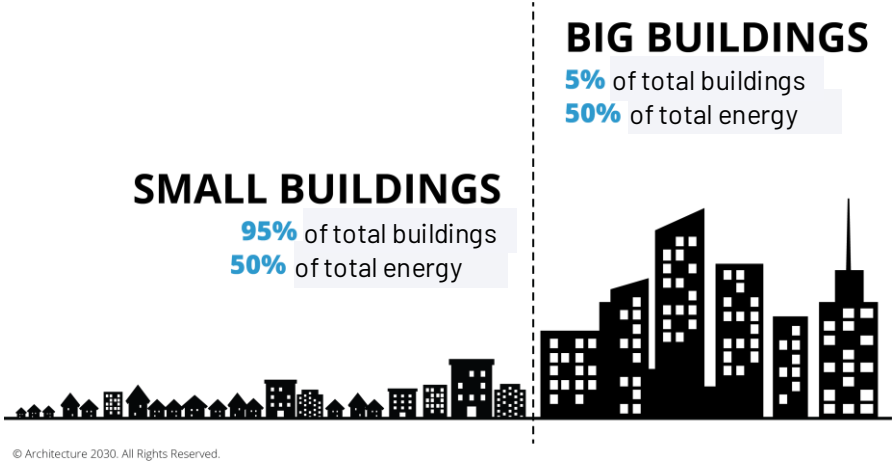
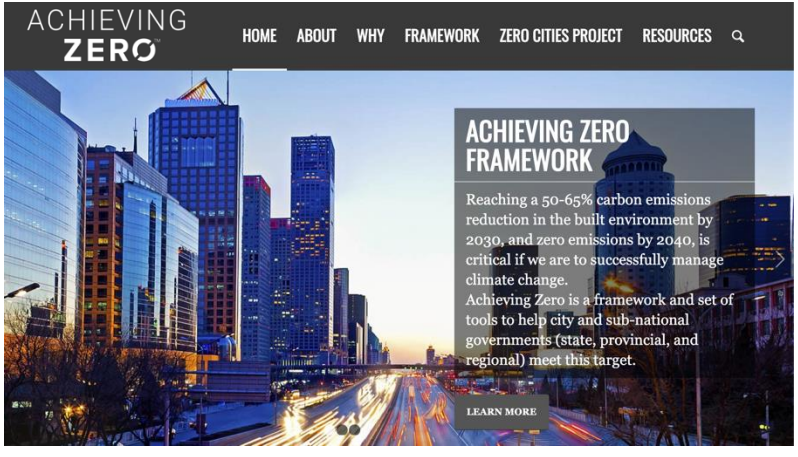
EXISTING BUILDINGS

architecture 2030

EXISTING BUILDINGS

Existing Buildings
Achieving Zero Insights





Existing Buildings
Achieving Zero Insights

BIG BUILDINGS

5% of total buildings
50% of total energy

- Typically have long-term capital improvement cycles and budgets
- Small number of buildings affected
- Systems are complex typically vary significantly from building to building

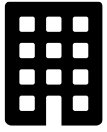
Existing Buildings
Achieving Zero Insights

SMALL BUILDINGS

95% of total buildings
50% of total energy

- Do not typically have planned capital improvement cycles and budgets – adequate financing is critical barrier
- Tens of thousands of buildings affected
- Systems are typically simple and consistent from building to building

A Successful Energy Efficiency Pathway for Existing Buildings
is not one size fits all



WHAT?

What building is be affected?

building type?

building size? (big or small)

owner- or renter-occupied

HOW?

How will it improve performance?

prescriptive upgrades:
- energy efficiency improvements
- electrification
- renewable energy (on- and off-site)

or

performance targets:
- energy targets (EUI)
- energy efficiency targets (% reduction)

WHEN?

When will the upgrade occur?

align with building intervention points

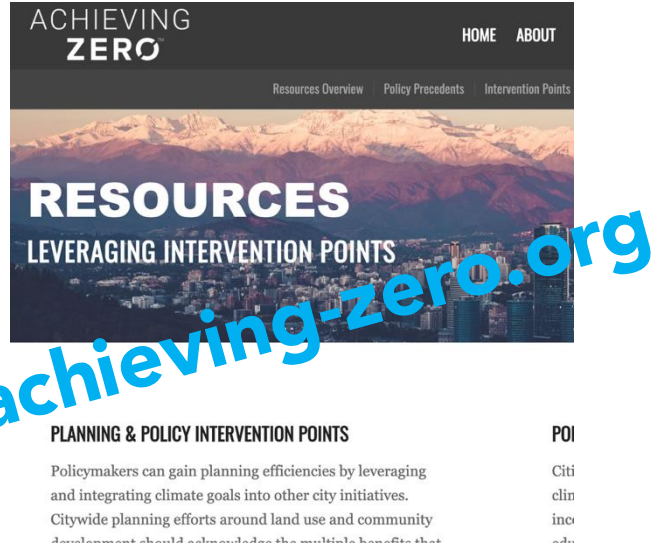
Why Intervention Points?

Intervention points include:

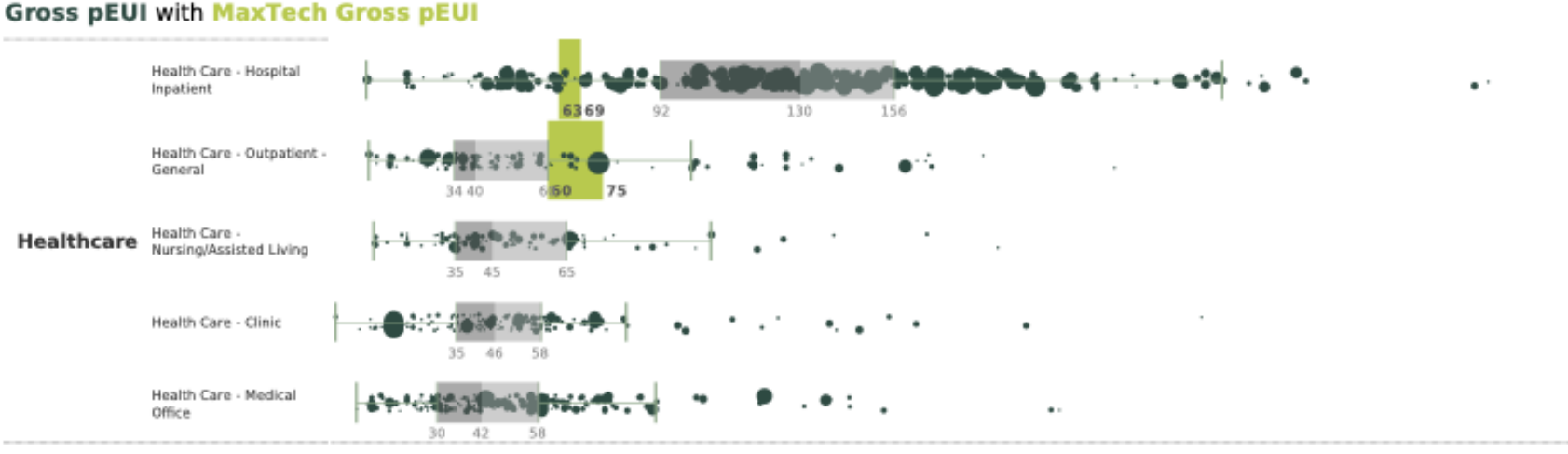
- Planned Capital Improvement Cycles
- Point of Purchase
  - Lease
  - Renovation
  - Equipment Replacement
- Life-Safety and Resiliency Upgrades

Benefits of aligning energy renovation with intervention points include:

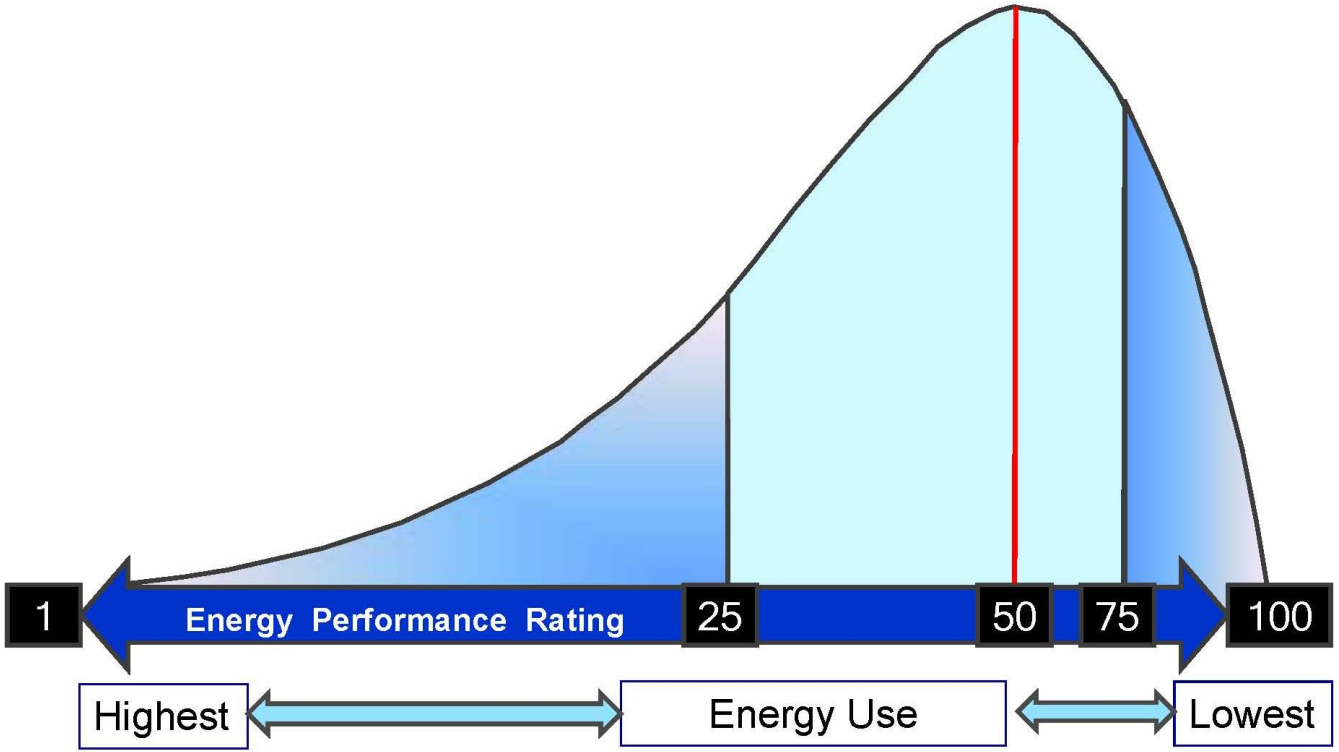
- Reduces upgrade costs
- Reduces disruption to occupants
- Increases financing options



MAKING MEANINGFUL COMPARISONS FOR COMPETITIVE ADVANTAGE



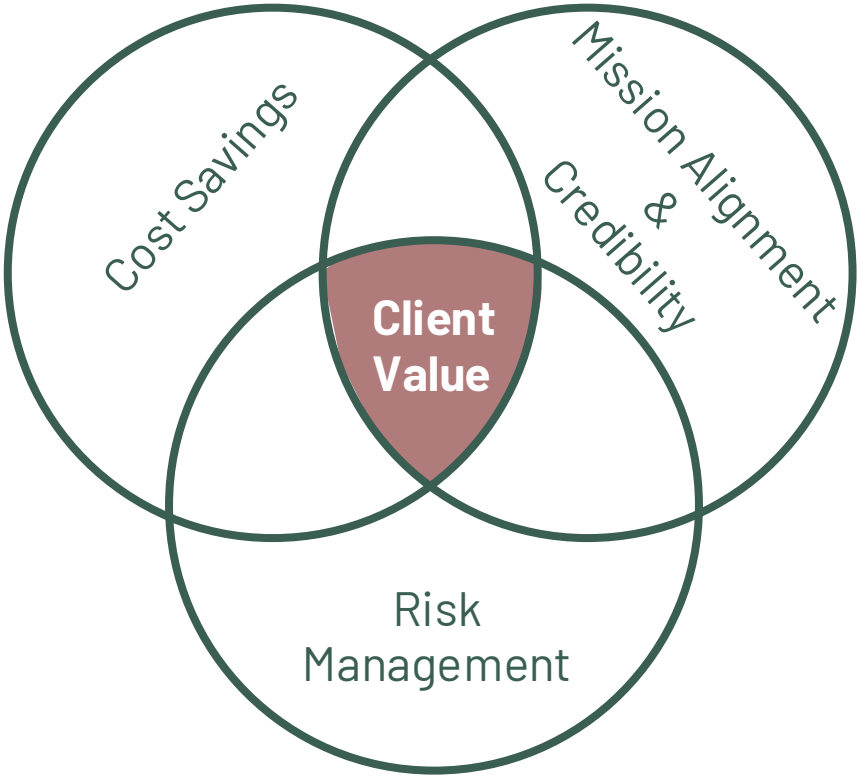
EPA's National Energy Performance Score System



Energy Performance of Buildings Directive

2024/1275 - EPBD

Client Value: Outcomes clients already prioritize



Client Value: Risk Management

Transform Energy Risk into Asset De-Risking and Value Protection

Stranded Assets

Depreciation and costly future mandates

Regulatory Vulnerability

Exposure to new regulatory requirements

Loss of Market Position

Tenant commitments & investor mandates

Client Value: The Market Push and Pull

Convert Performance into Bankable, ESG-Aligned Capital

Asset De-Risking

Protects long-term valuations

Bankable ESG Capital

Unlocks new financing

Trillion-Dollar Market

Predictable demand for required global investment

WE HAVE MORE WORK TO DO!

ON-SITE BUILDING OPERATING ENERGY

Up 5.3%

From 2024 to 2025

comprising 77% fossil fuels (gas and oil) and 23% electricity.

TOTAL U.S. ELECTRICITY GENERATING CAPACITY

Up 2.8%

From 2024 to 2025

with 73% of the increase coming from renewables (mostly solar).

Meet Our 2025-2026 Underwriters

These underwriters are shaping a zero-carbon future, one commitment at a time. Donations as of 3/17/2026.

Anchor Underwriters

Pledged through 2030

DLRGROUP · SMITHGROUP · SOM · HOK · MITHŪN · WRNSTUDIO · FREDERICK + FREDERICK · ARKIN · TILT ARCHITECTS

2025-2026 Underwriters

Catalyst

ZGF · HKS

Supporting

LPA · HDR · MILLER HULL · CORGAN · PAYETTE

Contributing

CANNONDESIGN · ARCADIS · Eskew Dumez Ripple · LAKE FLATO · AYERS SAINT GROSS · mahlum · DCI ENGINEERS