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# Getting Buildings to Net Zero

National Energy Codes Conference  
July 21, 2022

# Overview

- Agency overview
- Denver's greenhouse gas emissions inventory
- Policies for existing buildings
- Policies for new construction
- Incentives

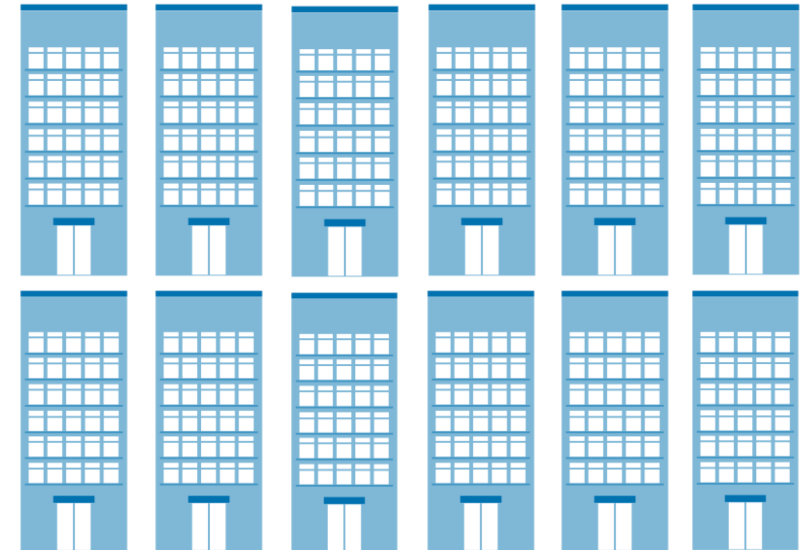
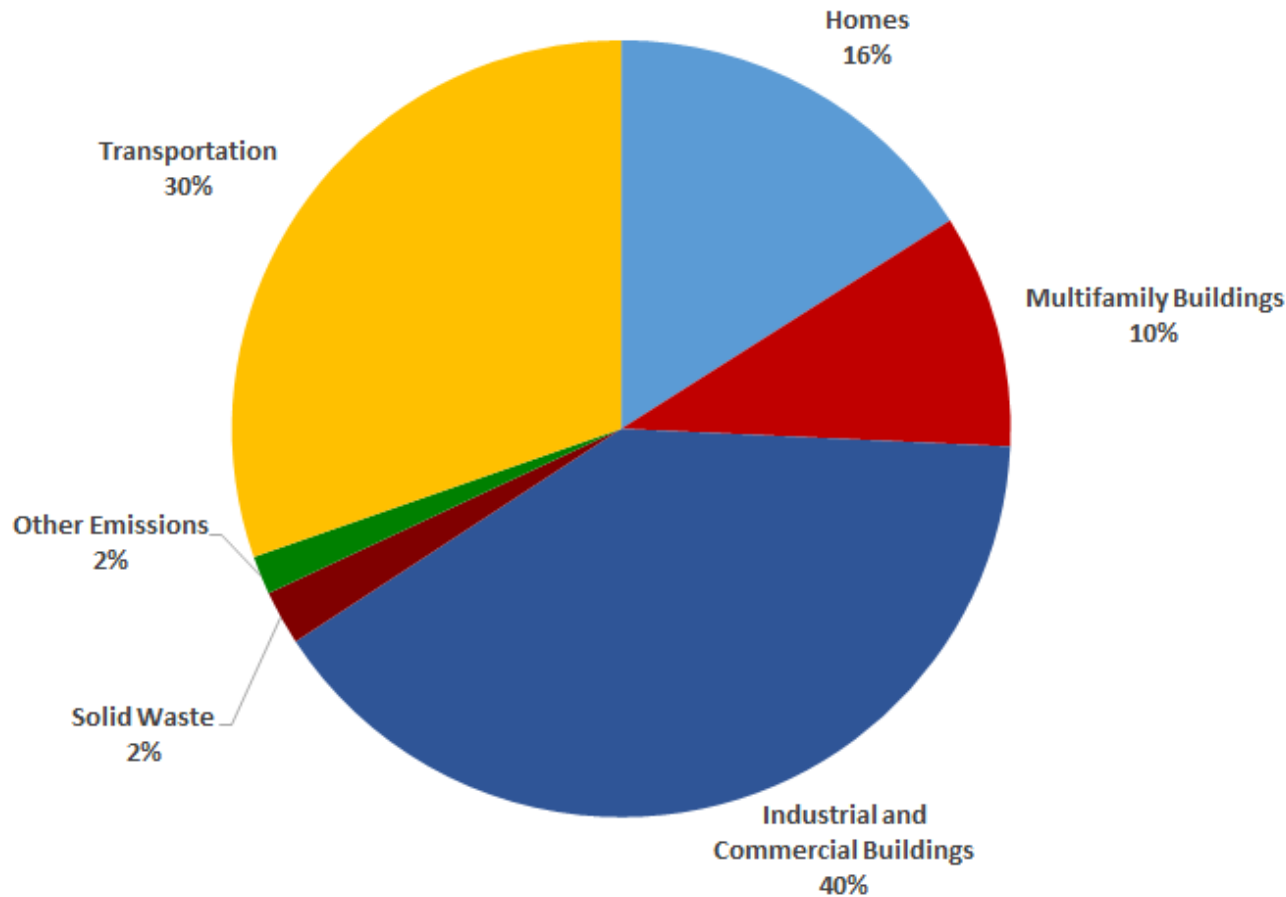
# Mission: Act with Urgency!

- Engage stakeholders
- Science-based strategies
- Cultivate resiliency
- Center on equity

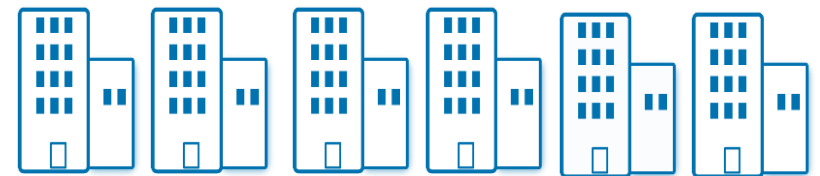


# Denver's GHG Inventory

Denver's 2020 Greenhouse Gas Emissions



> 25,000 sq ft: 82% of sq. footage  
3,000 buildings



< 25,000 sq ft: 18% of sq. footage  
14,000 buildings



**DENVER**  
 CLIMATE ACTION,  
 SUSTAINABILITY &  
 RESILIENCY



**CLIMATE**  
 PROTECTION FUND



*Workforce  
 Development*



*Renewables &  
 Energy Storage*



*Adaptation &  
 Resiliency*



*Climate &  
 Environmental  
 Justice*

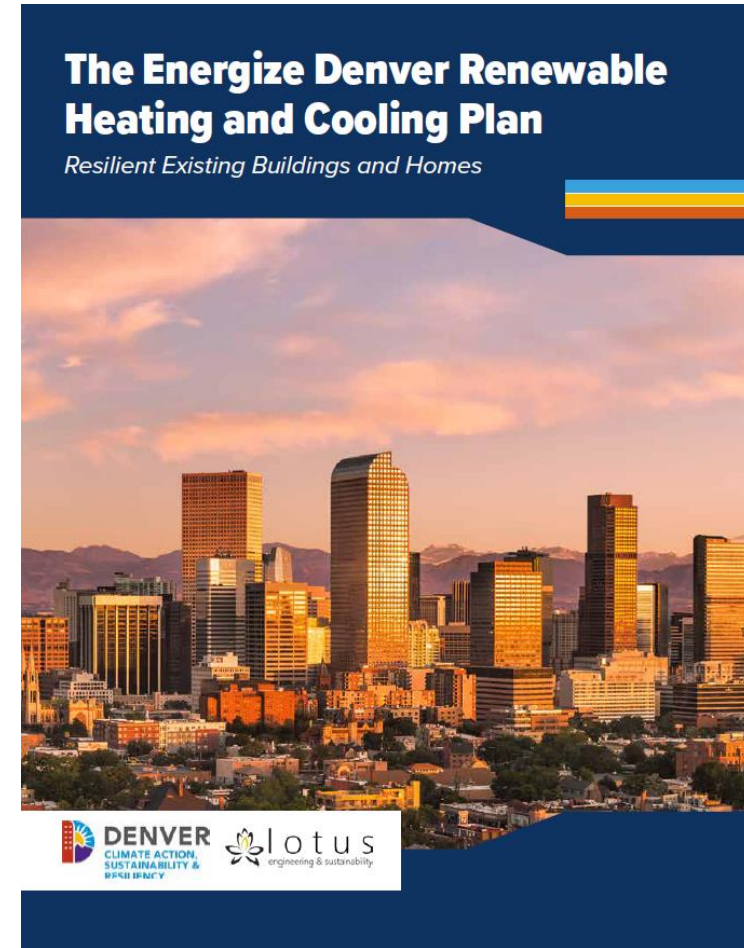
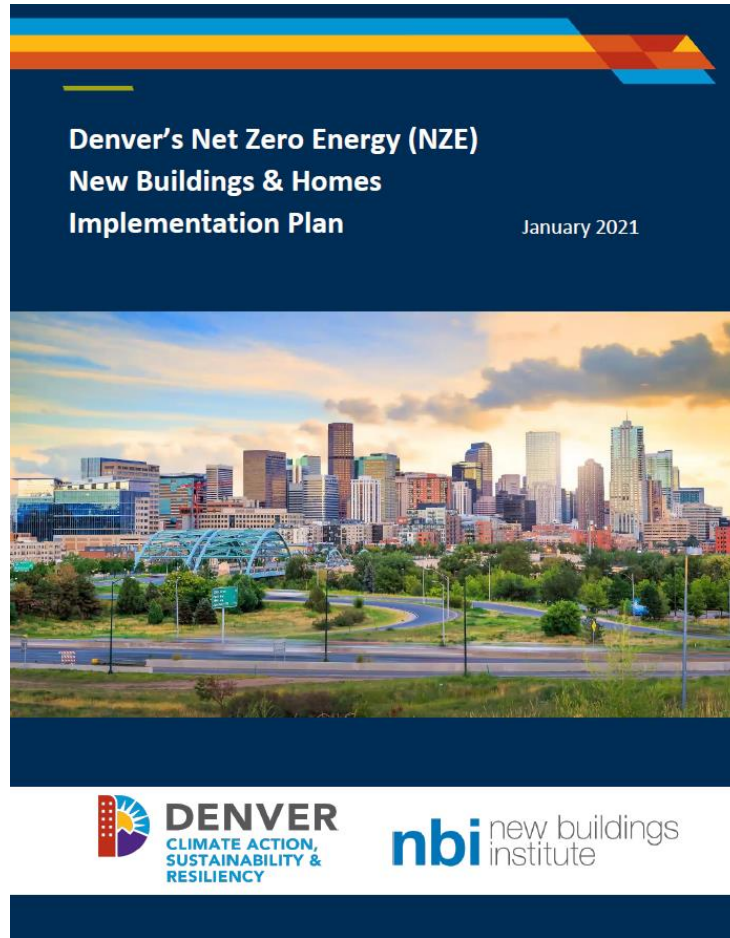


*Sustainable  
 Transportation*



*Energy Efficiency  
 in Buildings &  
 Homes*

# Guiding Plans





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# Policies for Existing Buildings

# Energize Denver Ordinance Sections

## Benchmarking

- Implemented by CASR
- Buildings 25K+ sq. ft. must submit annual energy benchmarking data through ENERGY STAR Portfolio Manager

## Performance

- Implemented by CASR
- 2030 Site EUI energy requirements for buildings 25K+ sq. ft
- Prescriptive Lighting or Solar Requirements for buildings 5,000 to 24,999 sq. ft.
- Focused on improving energy efficiency of existing buildings

## Electrification

- Education/Incentives by CASR
- Building Code updates and permitting implemented by CPD
- All Commercial and Multifamily Buildings must partially electrify space and water heat equipment upon system replacement, when cost effective



# Benchmarking since 2016

**DENVER** CLIMATE ACTION, SUSTAINABILITY & RESILIENCY  
ENERGIZE DENVER  
Benchmarking Map

About Benchmarking | About Performance Requirements | Resource Center

**Filter Covered Buildings**  
Define the filters to show the desired covered buildings

Search  
Search Address  
Reporting Year: 2021  
Property Type: All Property Types  
Map View: Covered Buildings  
[View Comparison](#)

**Energy Performance Metrics**

**ENERGY STAR® Score**  
0-20, 21-40, 41-60, 61-80, 81-100

**Site Energy Use Intensity (kBtu/ft<sup>2</sup>)**  
0-40, 41-80, 81-120, 121-160, 161+

**Office**  
Wellington Webb Municipal Office Building  
201 W Colfax Ave  
Denver, 80202  
Building ID 2659  
677,832 ft<sup>2</sup>  
Built in 1980  
Benchmarking Status - In Compliance

**ENERGY STAR Score**  
82  
0 — 100

**Site EUI / National Median**  
66.0 / 105.0  
kBtu/ft<sup>2</sup>  
120

[Add to Comparison](#)

**Benchmarking Compliance Status**  
● In Compliance  
● Out of Compliance  
● Exempt

- Commercial and Multifamily Buildings 25,000 square feet and larger
- Reports submitted through Energy Star Portfolio Manager
- Due June 1 each year
- <https://energizedenver.org/>

# 2030 Energy Performance Targets

- Applies to all buildings 25,000 sq. ft. and larger
- Uses Site Energy Use Intensity, or EUI, as a measure of your building's total energy usage (kBtu divided by square footage)
- Targets set at 85/15<sup>th</sup> percentile for all covered buildings in Denver
- Mixed-use buildings have a blended target based on % of 3 largest building types
- Unique bldg. types, ag/manufacturing: 30% reduction required

ESPM Building Type	Target EUI
Office	48.3
Hotel	61.1
Multifamily Housing	44.2
Performing Arts Center	53.2
Distribution Center	25.4
Restaurant	194.1
Medical Office	69.0

*Example targets from master list. Targets set for 80 building types.*

# Small Building Performance Requirements

- Buildings 5,000-24,999 sq. ft.
- Perform 1 of these options:
  - Lighting Upgrade (install all LEDs)  
**OR**
  - Solar Installation or Purchase (enough to meet 20% of the building's annual energy usage)

Building Size (sq. ft.)	Compliance Deadline
15,001 - 24,999	December 31, 2025
10,001 - 15,000	December 31, 2026
5,000 - 10,000	December 31, 2027

# Electrification Requirements

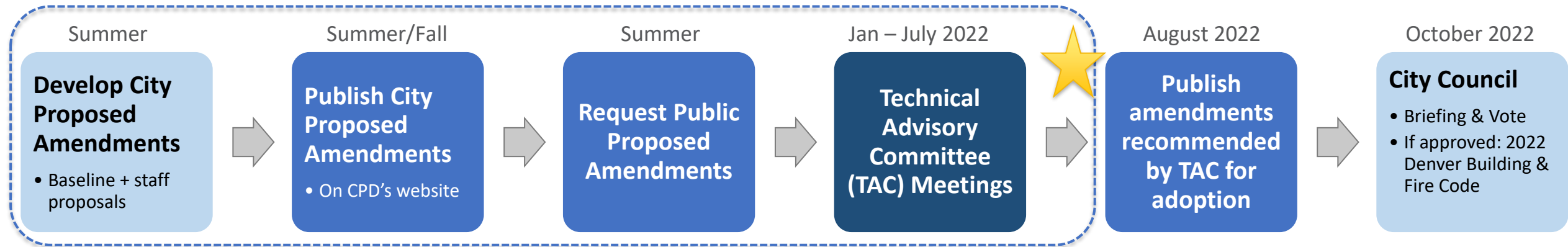
*Partial electrification of Space and Water Heat required in code upon System Replacement, when Cost Effective*

Amending Denver Building and Fire Code	2023	2025	2027
Permit process changes to near parity in permitting between gas systems and electrification.	X		
Heat Pump Required upon Replacement of Easy-to-Electrify Equipment (furnaces, roof top units, individual water heaters) when cost-effective.		X	
Heat Pump Required upon Replacement of Hard-to-Electrify Equipment (PTACs, boilers, central hot water) when cost-effective.			X

# Policies for New Construction

# Denver Code Adoption Process

## Denver Code Adoption Process



### Legend:

- City
- External/Public
- Code Technical Advisory Committee (Code Committee)

# IECC High Impact Proposals: Commercial

- Require Partial Space Heating Electrification
- Require Partial Water Heating Electrification
- Simplify Prescriptive Path
- Expand Energy Modeling Path options



# IECC High Impact Proposals: Residential

- Simplify Prescriptive Path
- Expand Energy Modeling Path options
- Require Minimum Renewables







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# Support and Incentives

# Denver's Support and Resources

- Resources and link to Help Center
- Additional technical assistance for Under-Resourced Buildings
- Steam Conversion Program
- Incentives for New Construction: Design and Pilot Projects
- Pilots for existing building electrification, incentives coming soon

## Energize Denver Hub

Welcome to the Energize Denver Hub. This is your one-stop shop for all things related to the Energize Denver Requirements that were passed by the Denver City Council on November 22, 2021 and are based on recommendations from the Energize Denver Task Force.

Energize Denver will provide over \$1 billion in benefits to the City through avoided social cost of carbon, which is the cost of the damages created by carbon dioxide emissions, while providing co-benefits such as improved local and indoor air quality and reduced energy bills. As the buildings improve their energy use and lower the cost of operations, Denver will become a more competitive, attractive city for businesses and residents.

### Benchmarking

By June 1st each year all buildings in Denver 25,000 square feet and larger are required to annually assess and report their energy performance using the free ENERGY STAR Portfolio Manager tool.

### Resource Center

The Resource Center provides guides, links, and information to building owners and managers as they work to achieve Energize Denver Performance Requirements.

### Under-Resourced Buildings

CASR is in the process of equitably co-creating additional support for under-resourced buildings 25,000 sq. ft. and larger to assist in meeting their performance requirements.

### Regulation Basics

Here you can view detailed

### Energize Denver Forms

Here you will find forms related to

### Find a Vendor: Energize Denver

Search for “Energize Denver Hub” -or-  
[www.denvergov.org/energizedenver](http://www.denvergov.org/energizedenver)

# Other Incentives and Financing

- [Xcel Energy](#): Cost savings programs, lighting and equipment rebates, new building programs, electric vehicle options, renewable energy, strategic energy mgmt. cohort, access to the [National Energy Improvement Fund](#)
- Financing programs for energy improvement projects:
  - [C-PACE](#) financing
  - [Colorado Clean Energy Fund](#) (CO's green bank)



# THANK YOU!



**DENVER**  
CLIMATE ACTION,  
SUSTAINABILITY &  
RESILIENCY

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