



REGIONAL INDICATORS INITIATIVE

Data for Local Action: Efficient Buildings

Becky Alexander, LHB Inc.

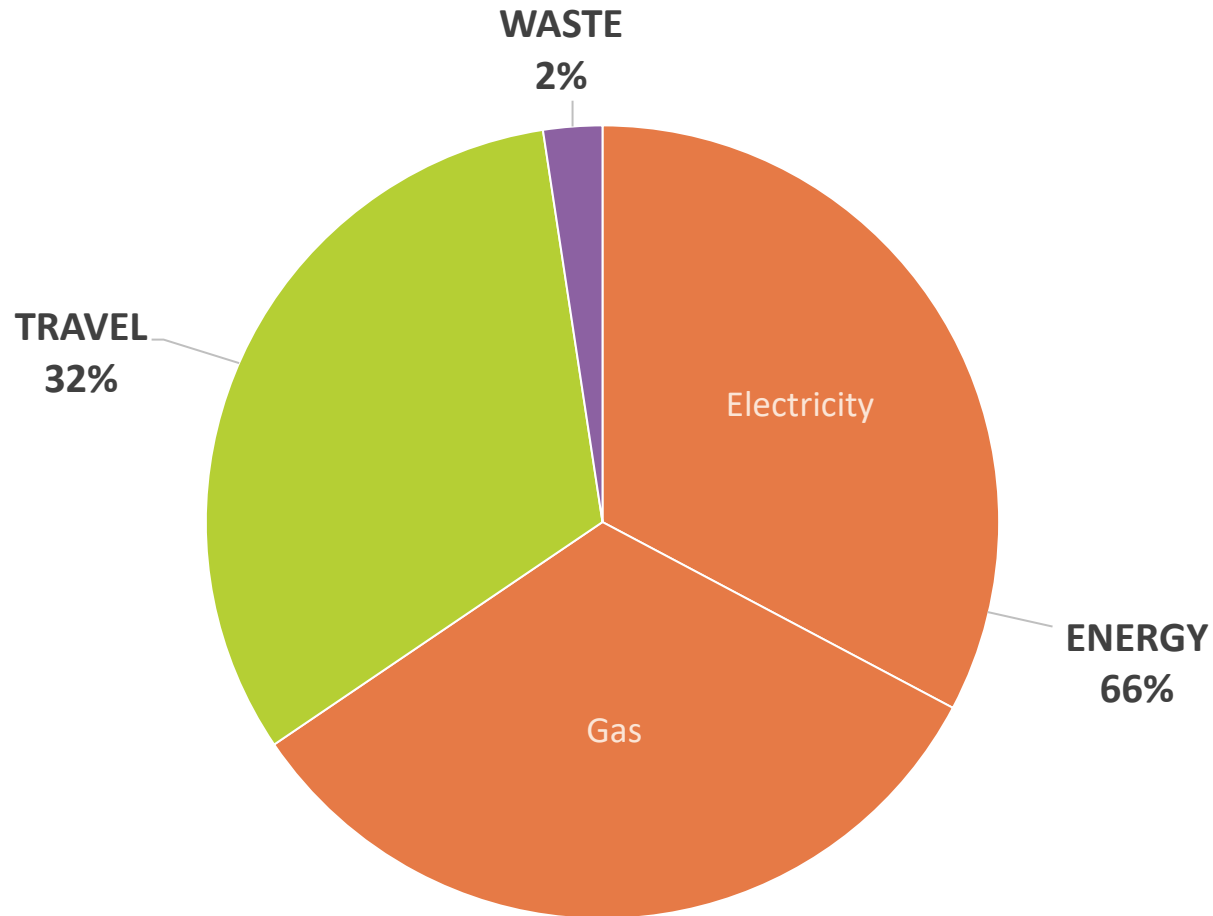
These slides include data from an analysis of the cities included in the Regional Indicators Initiative – a program that tracks citywide performance metrics for Minnesota cities. More information – including city-specific data – can be found at the program’s website.





GREENHOUSE GAS EMISSIONS

2020 – TOTAL FOR 31 CITIES



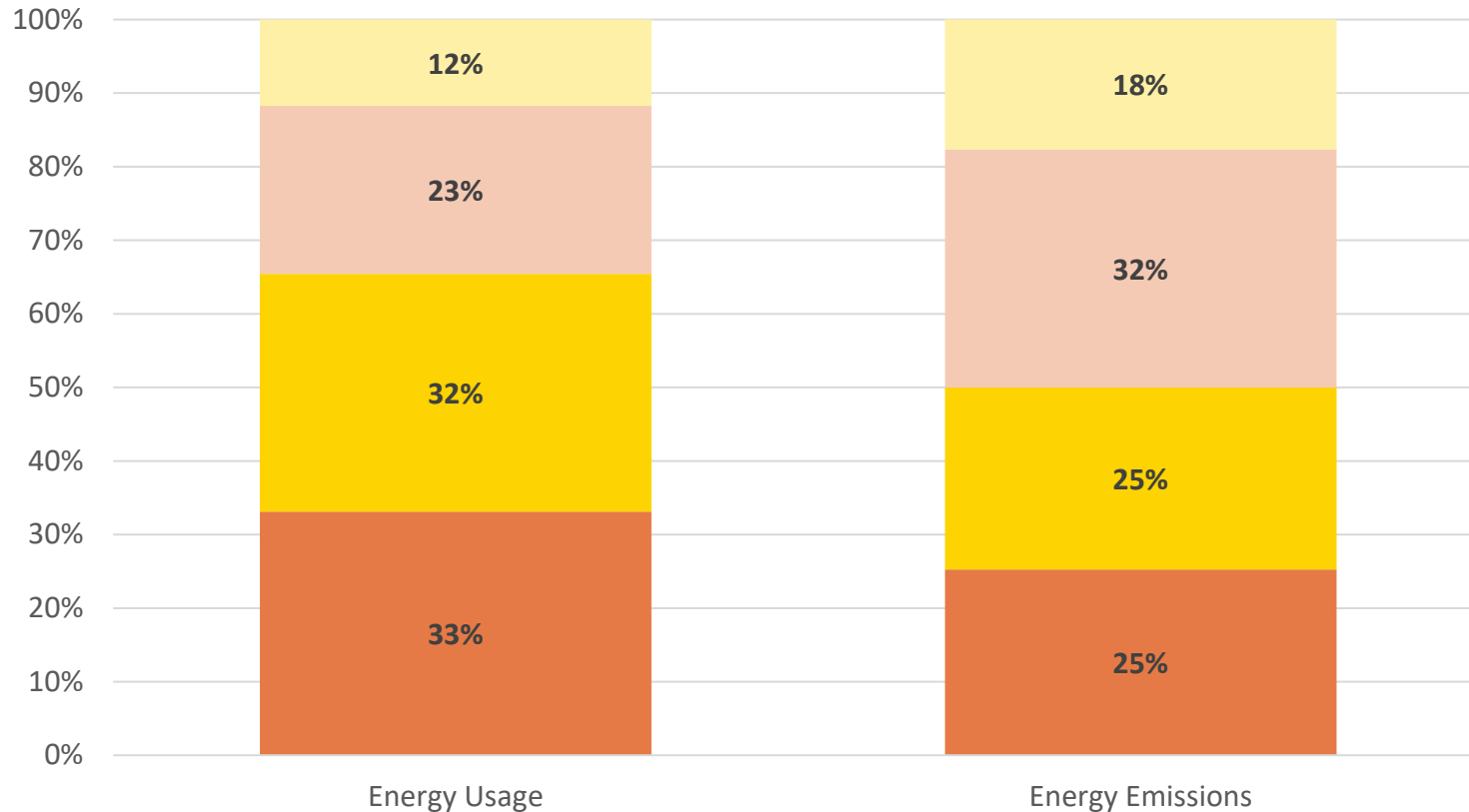
Non-travel energy is the largest contributor to community-wide emissions.

Focus efforts there.



ENERGY USE AND EMISSIONS

2020 – 31 CITIES



Commercial/Industrial Gas Residential Gas Commercial/Industrial Electricity Residential Electricity

We use more gas than electricity.

Gas use is split evenly between homes and businesses.

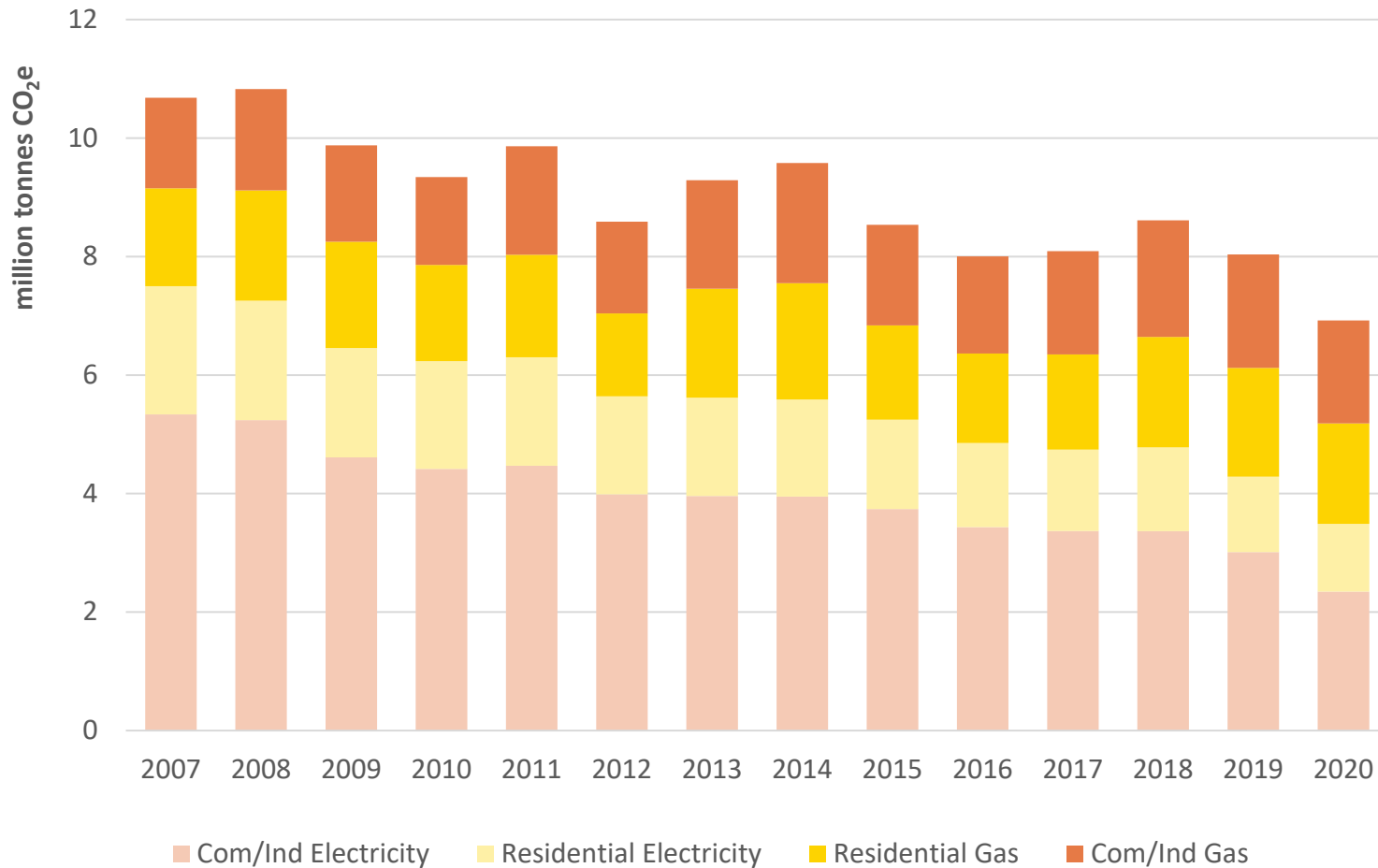
We use more electricity in businesses than homes.

Address electricity and gas use in all sectors.



ENERGY EMISSIONS

TOTAL – 18 CITIES



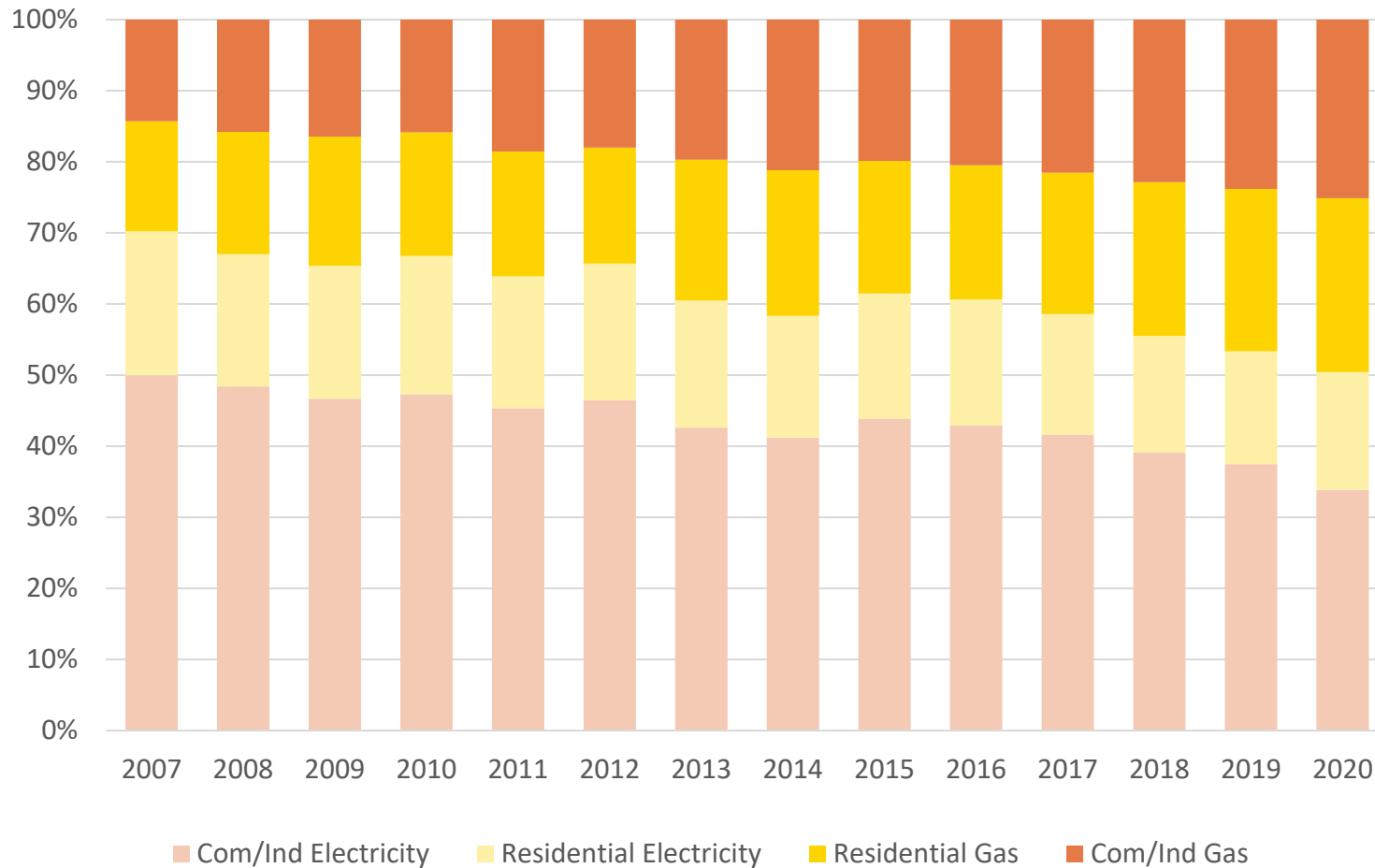
Electricity emissions have dropped by 53% since 2007, while gas emissions have increased.

Keep pushing electricity while finding long-term solutions for gas.



ENERGY EMISSIONS

TOTAL – 18 CITIES



Gas emissions are now equivalent to electricity emissions and are likely to surpass them.

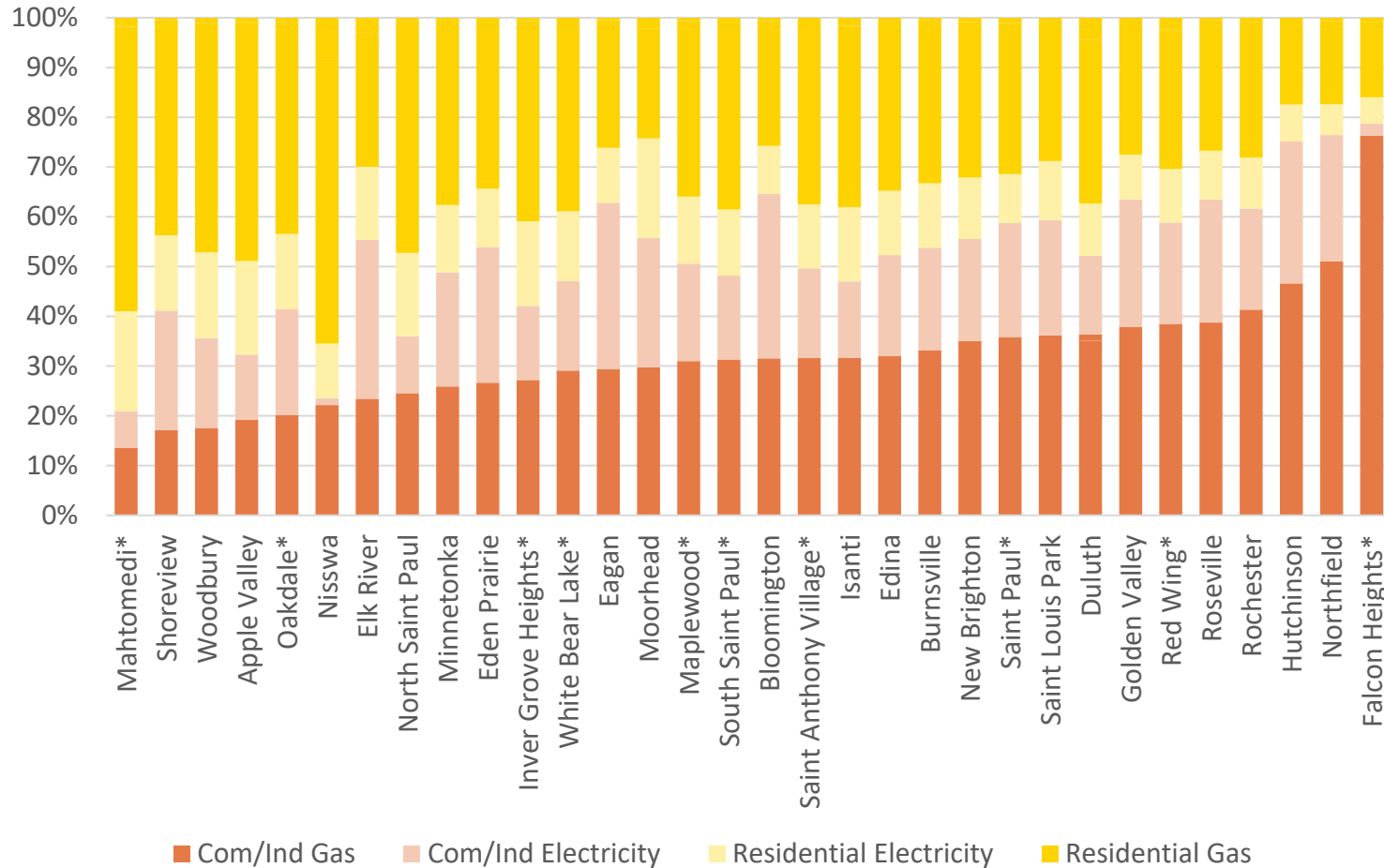
Electrify building heating, cooking, and process loads.

Use high-efficiency district energy systems for heating and cooling.



ENERGY USE

2020 – 31 CITIES



Energy use breakdowns vary by city.

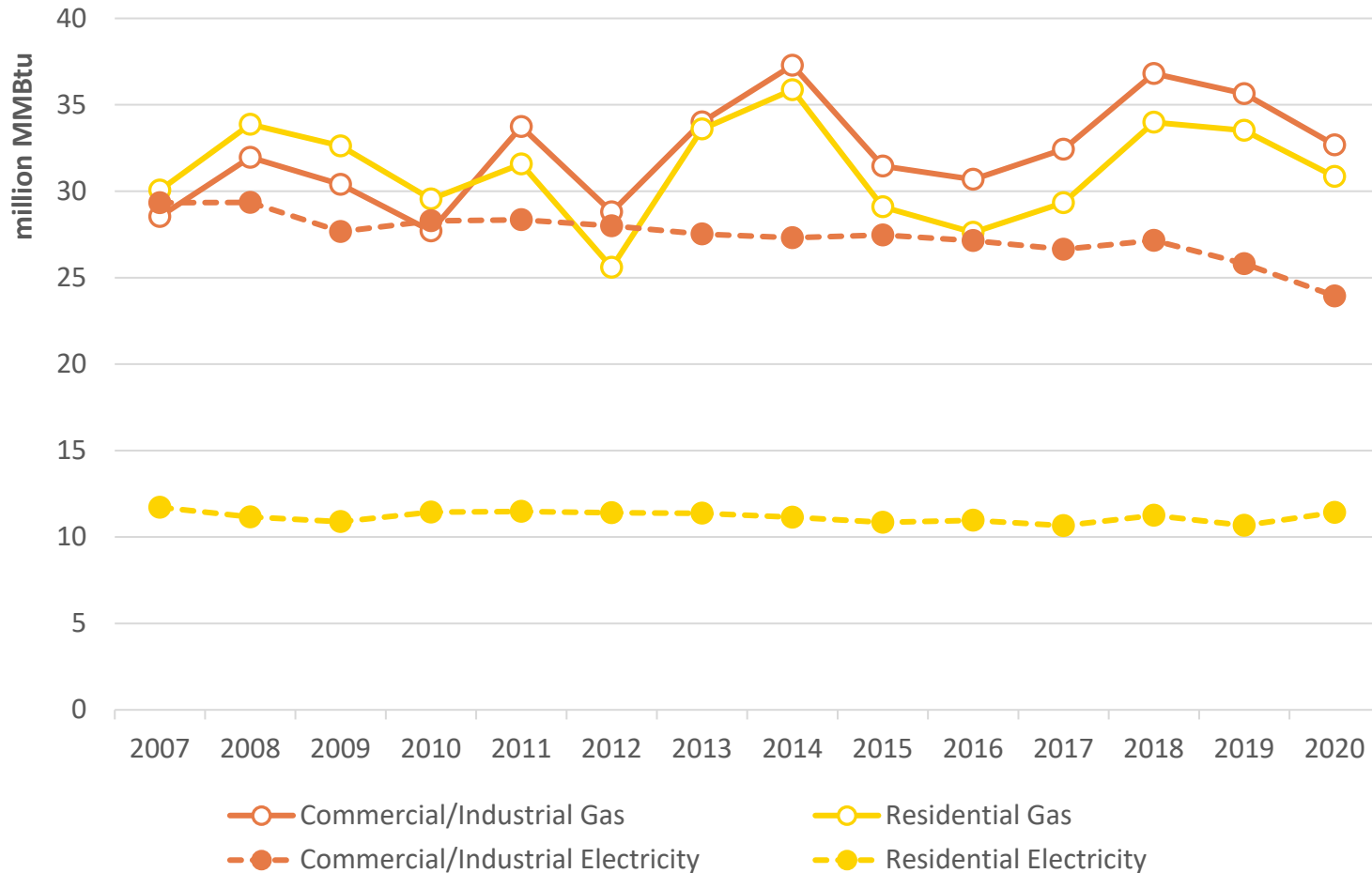
When available, use city-specific data to prioritize action.

* some commercial/industrial energy data excluded to protect customer privacy



ENERGY USE

TOTAL – 18 CITIES



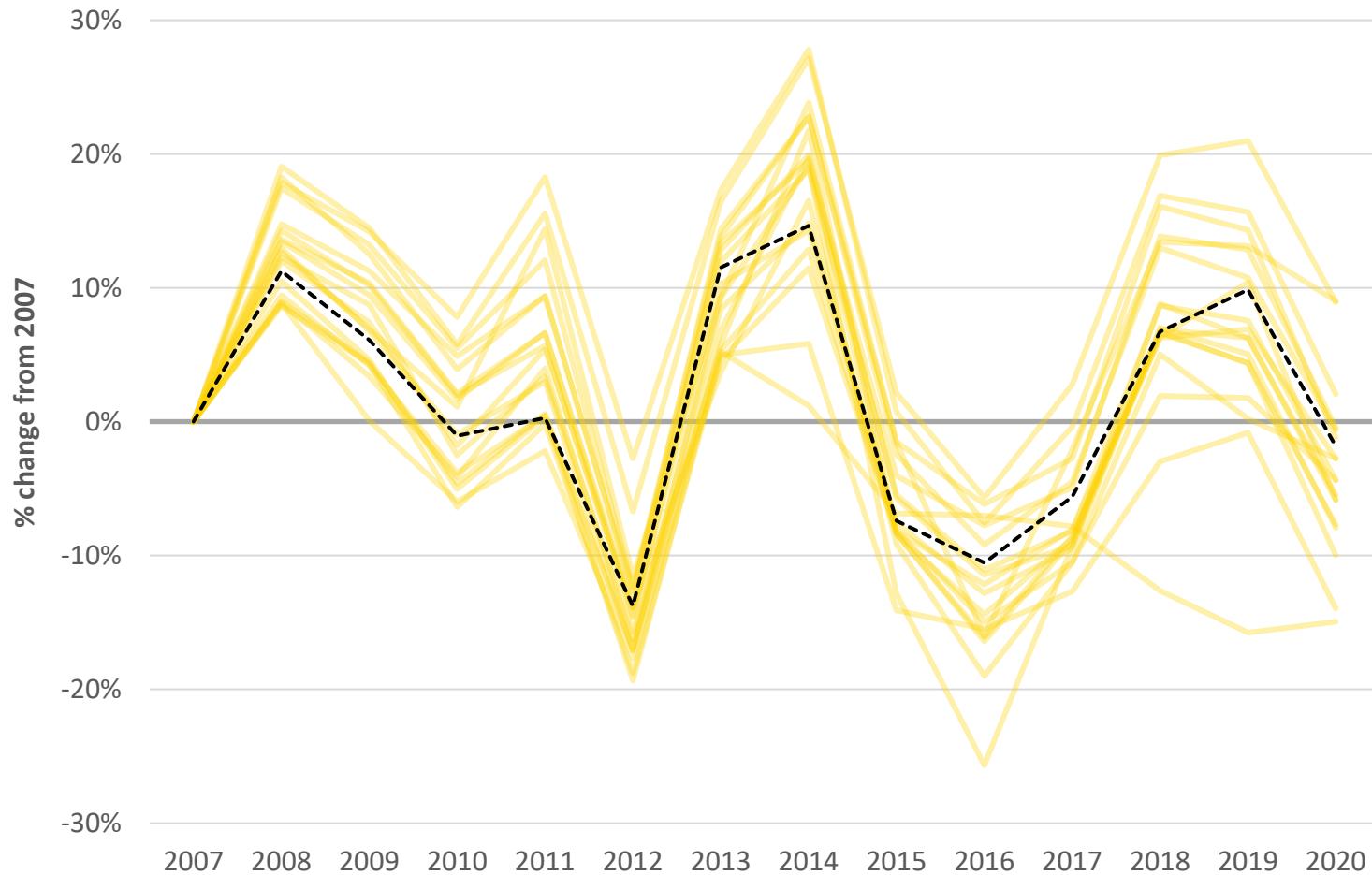
Residential electricity use stayed relatively constant while commercial/industrial decreased by 18%.

Gas use is highly variable but is trending up in non-residential uses.



RESIDENTIAL GAS

RESIDENTIAL GAS USE PER HOUSEHOLD – 18 CITIES



Residential gas use is very weather dependent and has not decreased over time.

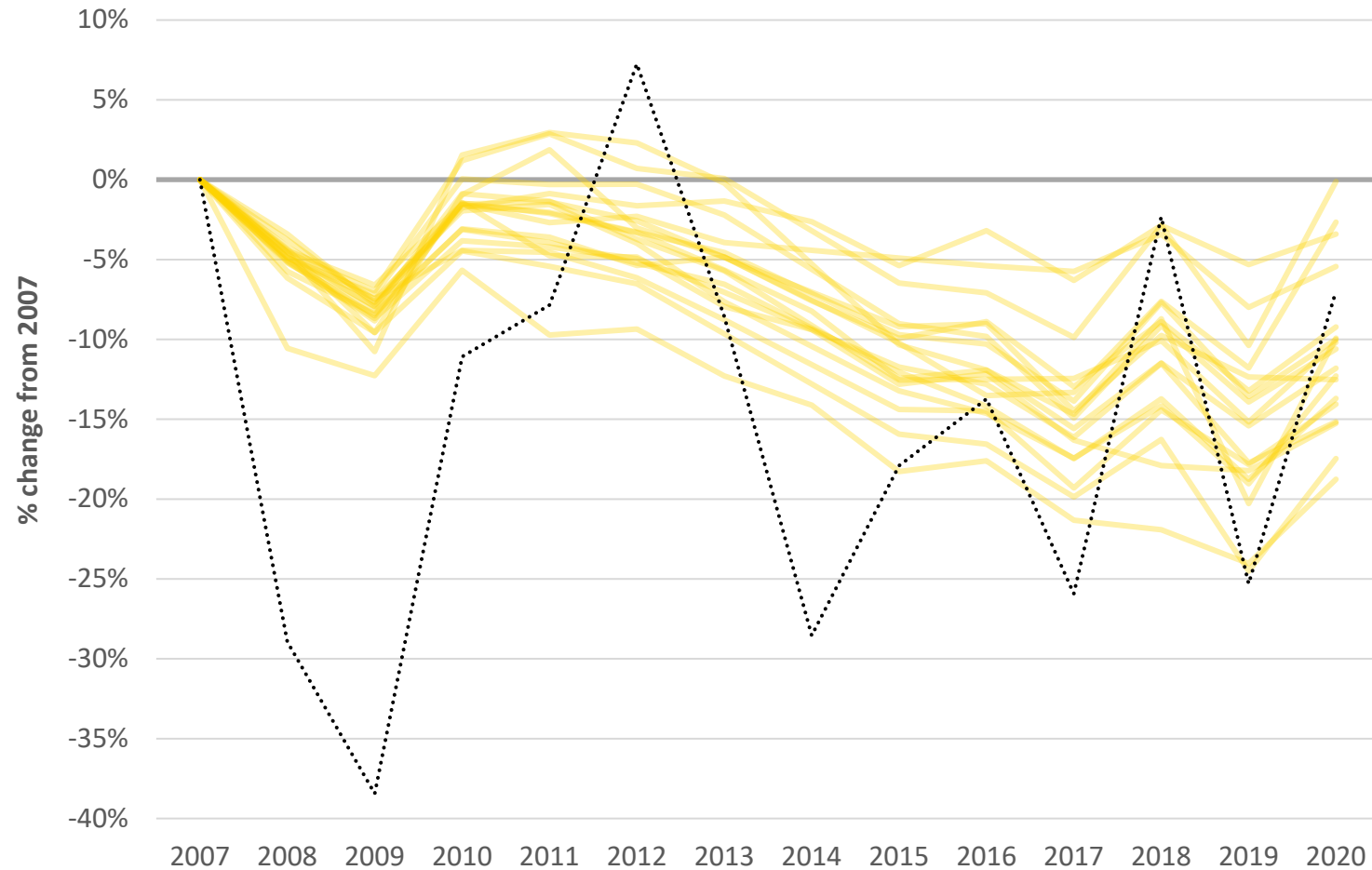
Weatherize and electrify homes.

----- Heating degree days



RESIDENTIAL ELECTRICITY

RESIDENTIAL ELECTRICITY USE PER HOUSEHOLD – 18 CITIES



Household electricity use decreased by an average of 11%.

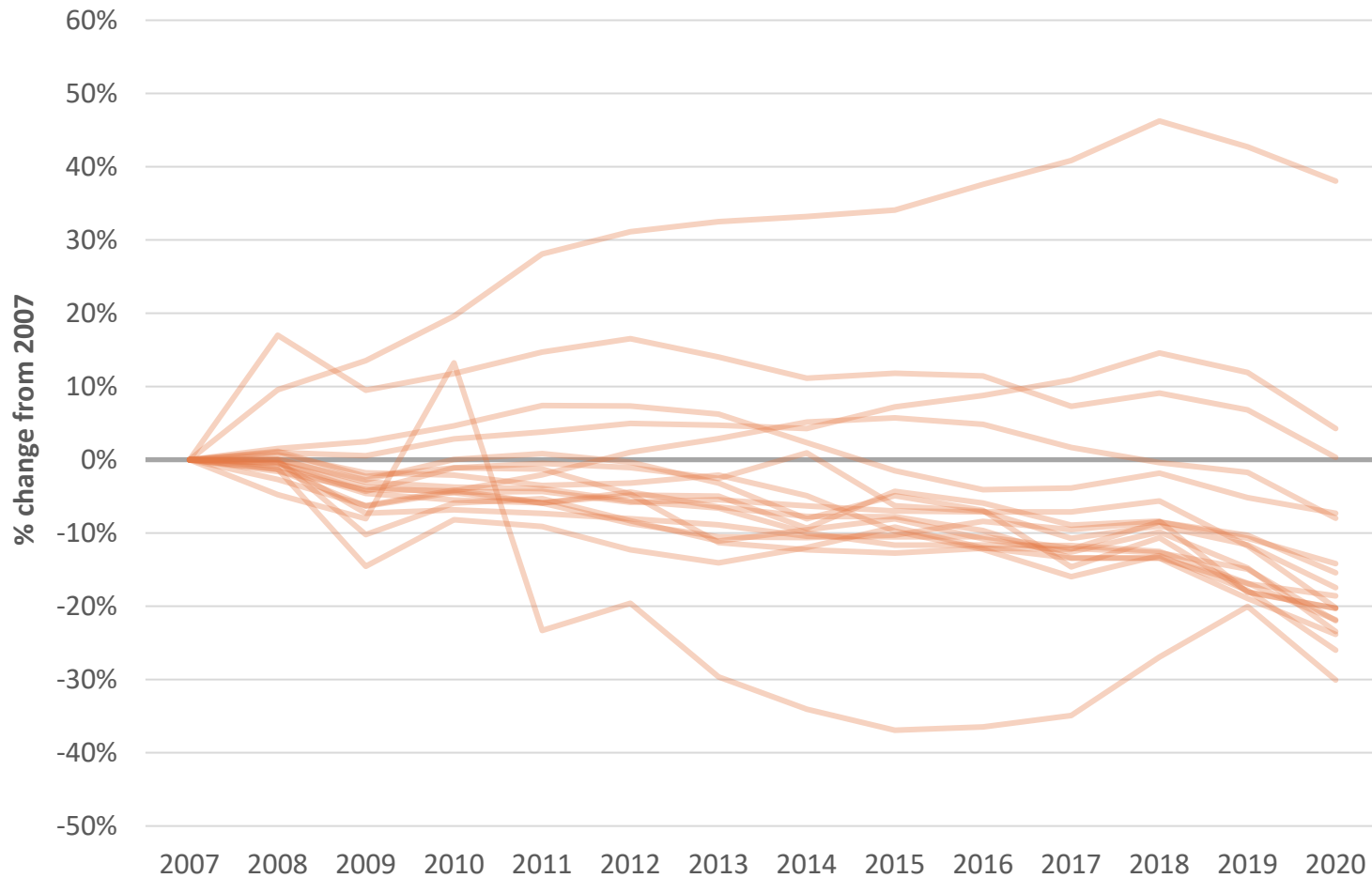
Continue supporting household energy efficiency.

..... Cooling degree days



COMMERCIAL/INDUSTRIAL ELECTRICITY

COMMERCIAL/INDUSTRIAL ELECTRICITY USE – 18 CITIES



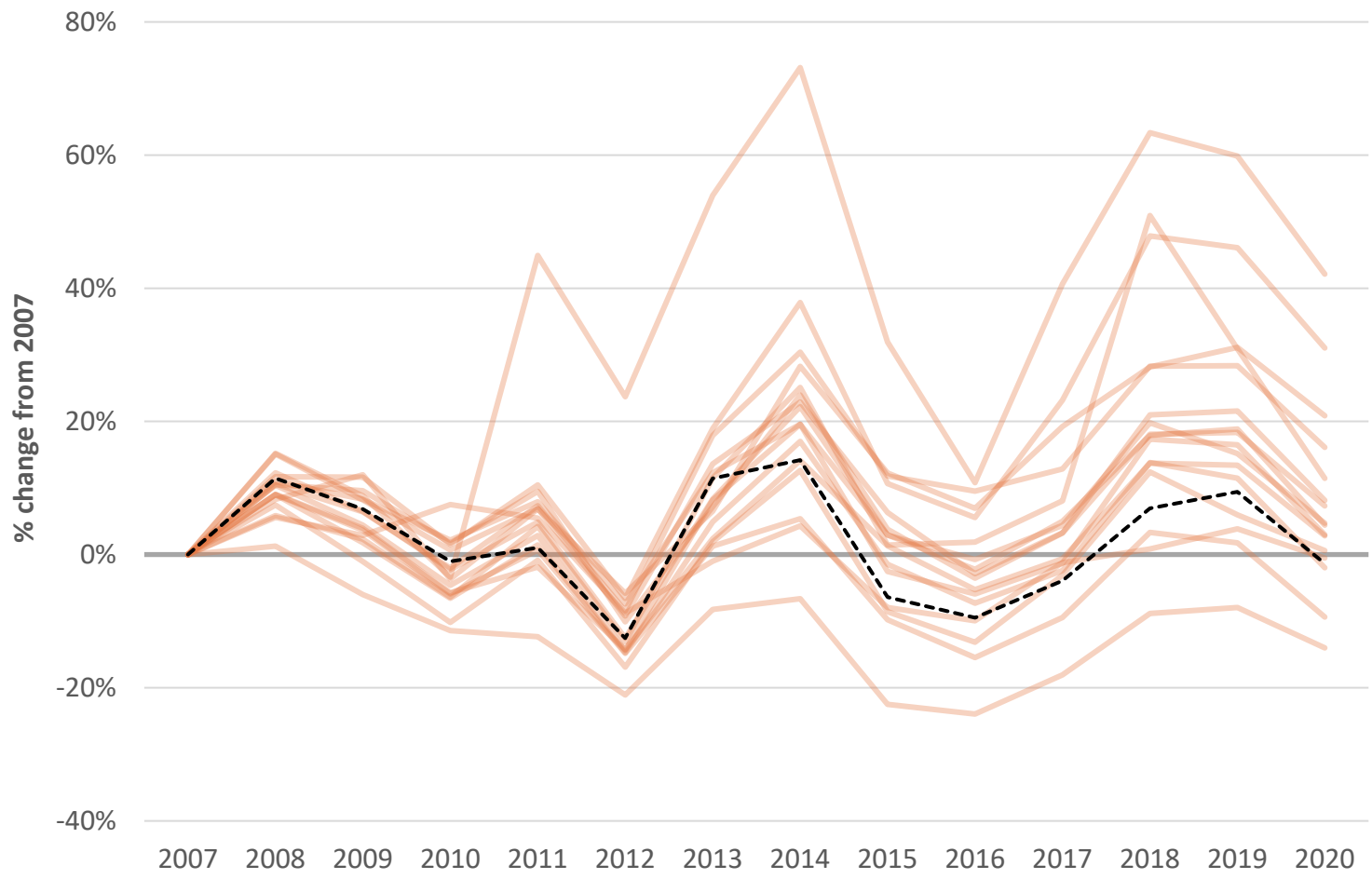
Commercial/industrial electricity use decreased by an average of 19%.

Continue supporting energy efficiency in commercial and industrial buildings.



COMMERCIAL/INDUSTRIAL GAS

COMMERCIAL/INDUSTRIAL GAS USE – 18 CITIES



Commercial/industrial gas use is weather dependent.

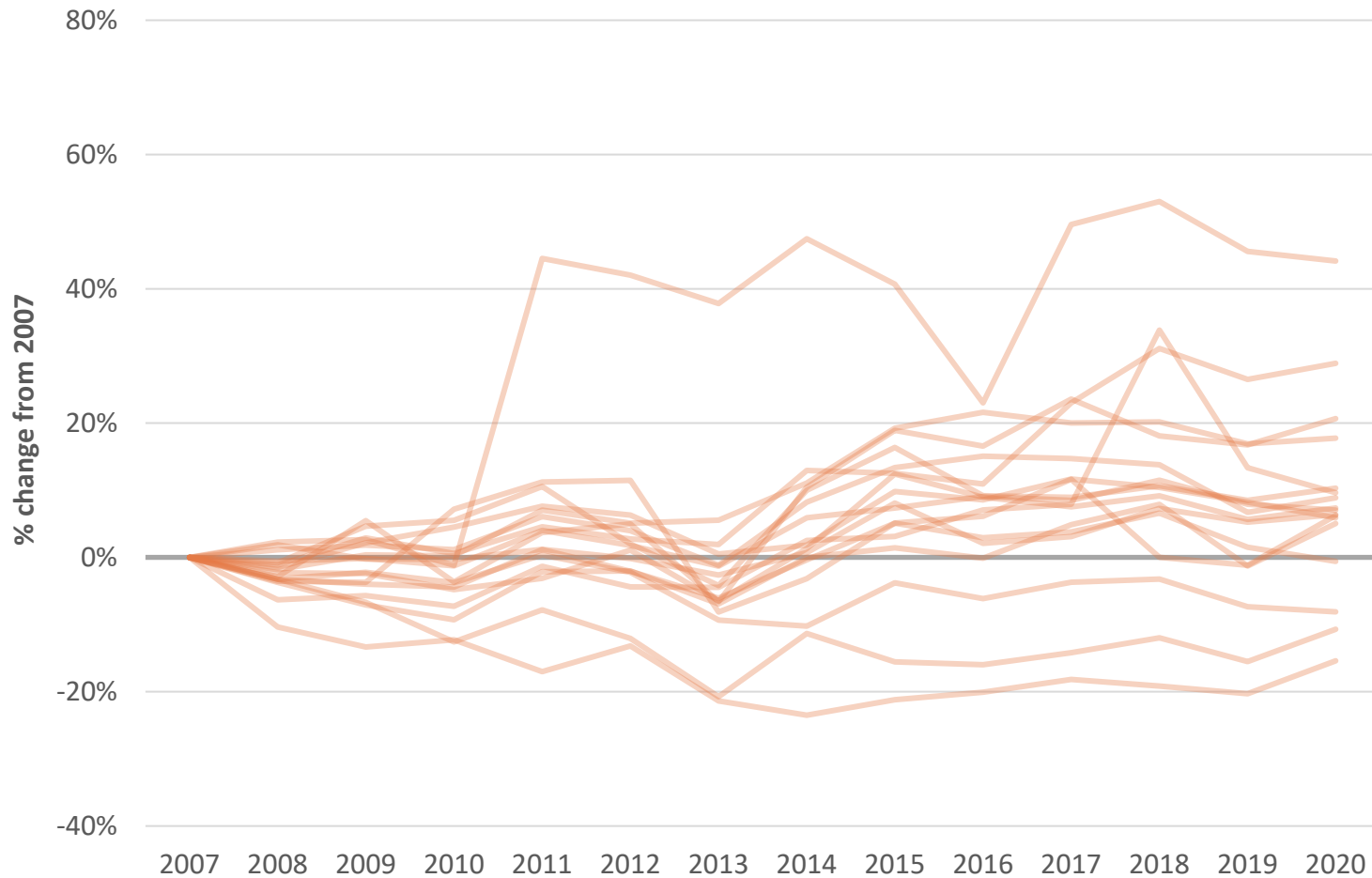
Commission commercial buildings.

----- Heating degree days



COMMERCIAL/INDUSTRIAL GAS

COMMERCIAL/INDUSTRIAL GAS USE PER HEATING DEGREE DAY – 18 CITIES



Commercial/industrial gas use per heating degree day increased by an average of 7%.

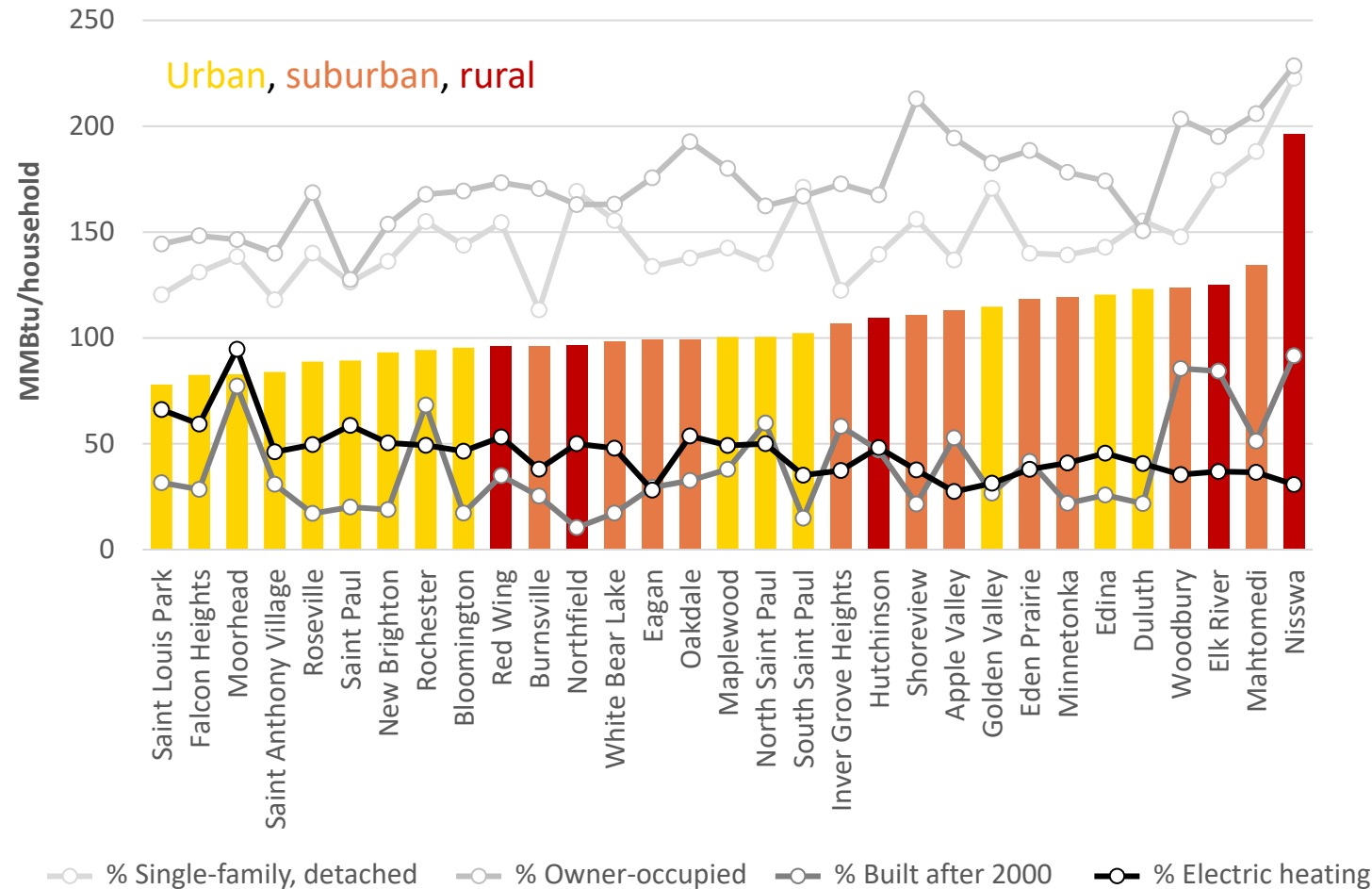
Invest in electrification.

Design and operate buildings with the flexibility to meet changing energy needs such as remote work.



RESIDENTIAL ENERGY USE

2019 – 31 CITIES



Cities with high percentages of single-family homes and owner occupancy used more energy.

Increase housing density where appropriate.

Cities with more new homes do not use less energy than cities with older homes.

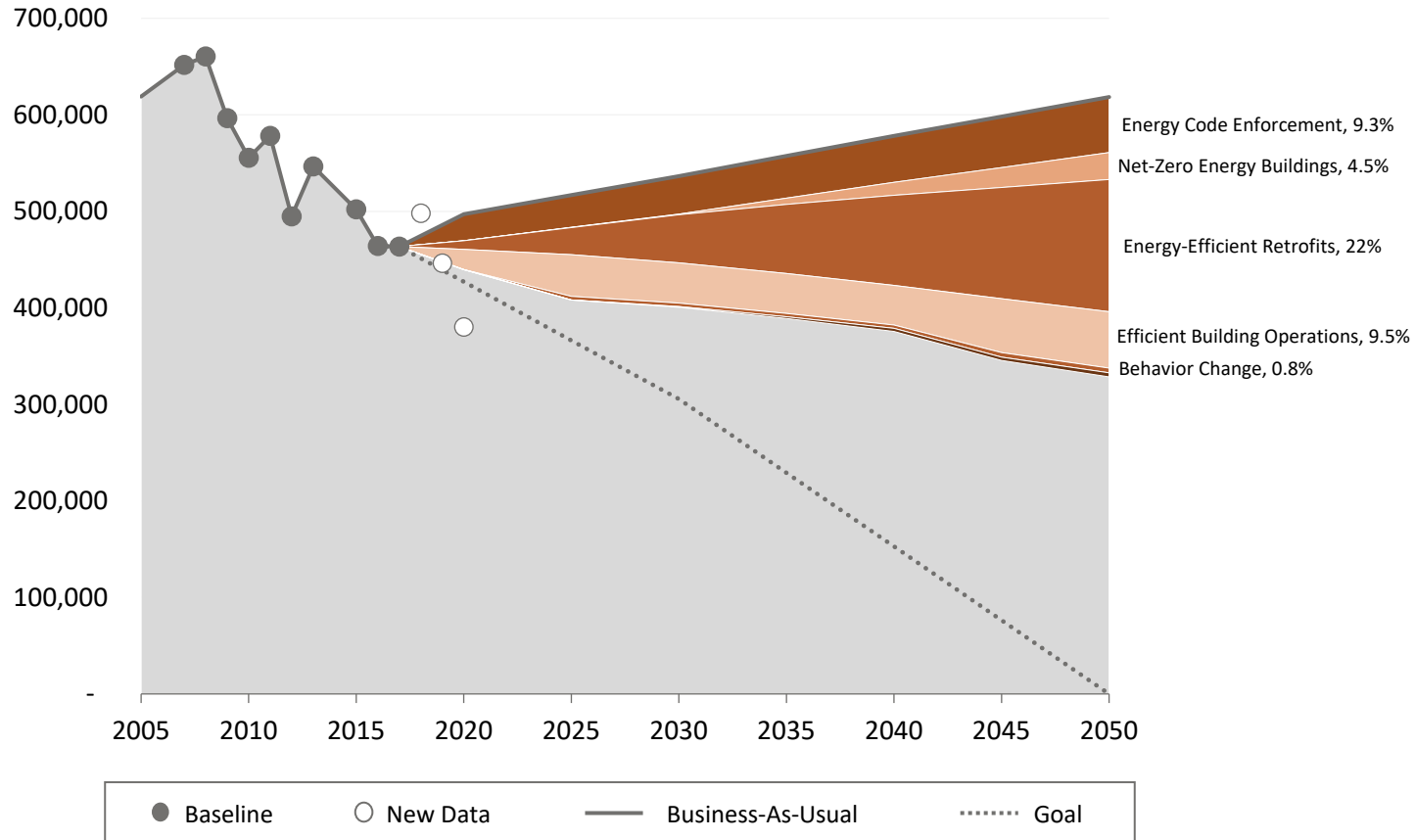
Improve energy efficiency of new construction.



SCENARIO PLANNING

COMMERCIAL/INDUSTRIAL BUILDING EFFICIENCY | EDEN PRAIRIE

tonnes CO₂e



There is a lot of potential for reducing energy use in new and existing commercial buildings.

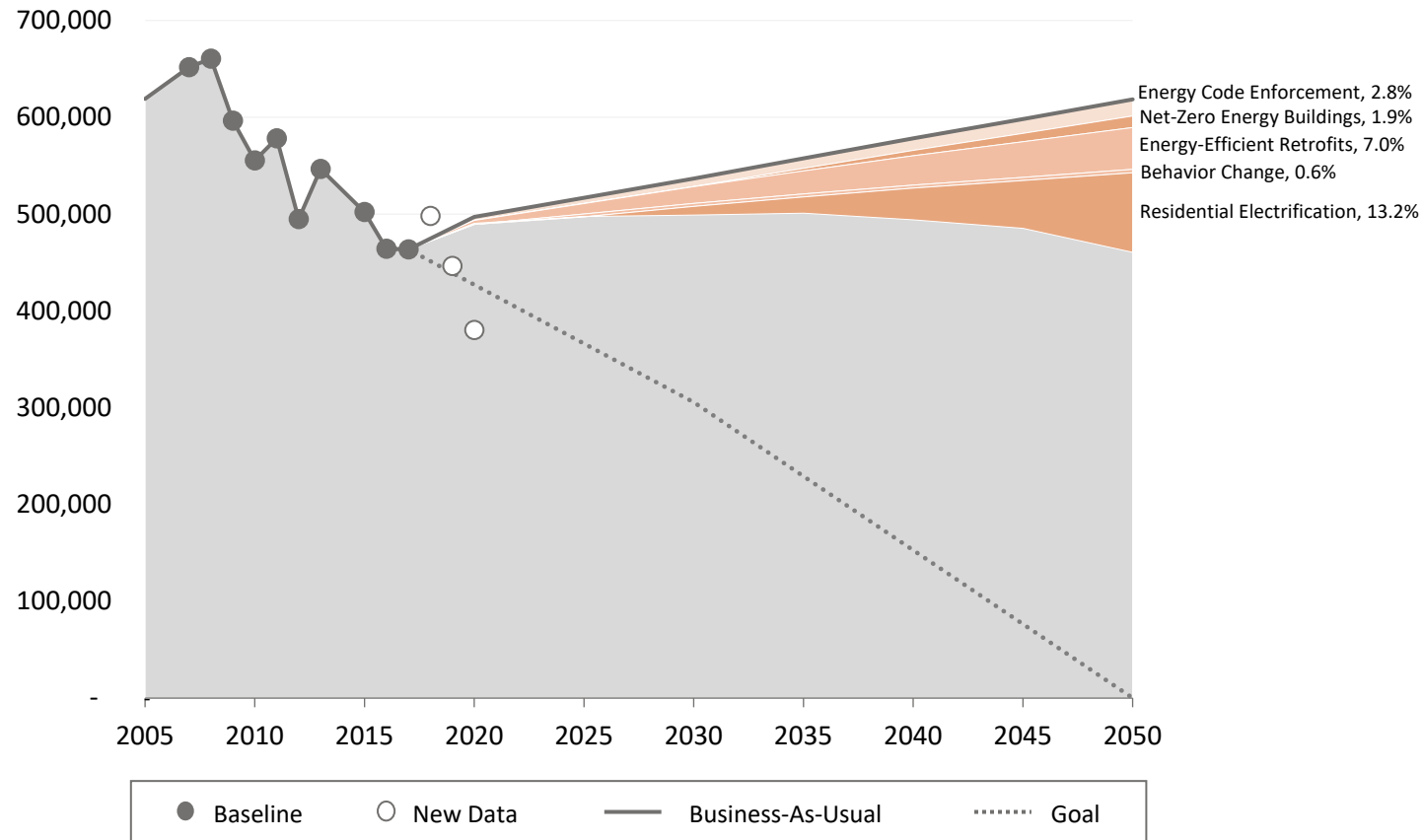
Graph shows potential impact of commercial/industrial building efficiency strategies on business-as-usual energy emissions from all building types in Eden Prairie. The impacts of electrifying space and water heating in commercial buildings are included in the Energy-Efficiency Retrofits strategy. Modeled strategies include ongoing energy code enforcement for new buildings, having all new buildings be net-zero energy starting in 2032, having 84% of non-residential buildings participate in energy-efficient retrofits by 2050, having 85% of non-residential buildings engaged in building operations best practices, having a third of businesses participate in behavioral energy management, and electrifying 70% of commercial space and water heating by 2050.



SCENARIO PLANNING

RESIDENTIAL BUILDING EFFICIENCY | EDEN PRAIRIE

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The impact of residential efficiency strategies on GHG emissions varies by community but can have a big impact on equity and resilience.

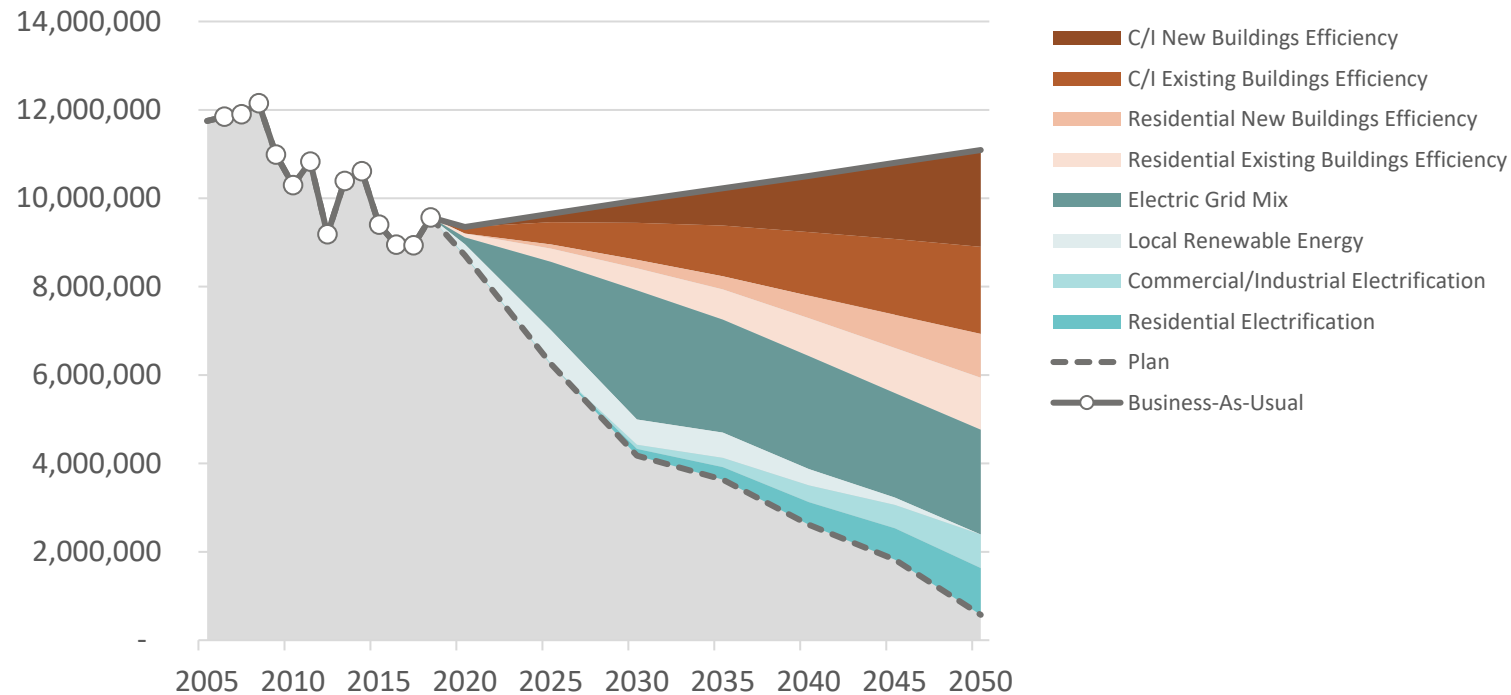
Graph shows potential impact of residential efficiency strategies on business-as-usual energy emissions from all building types in Eden Prairie. Modeled strategies include ongoing energy code enforcement for new homes, having all new homes be net-zero energy starting in 2032, having 82% of homes participate in energy-efficient retrofits by 2050, implementing an opt-out behavior change campaign, and electrifying 97% of homes' space and water heating by 2050.



SCENARIO PLANNING

BUILDING ENERGY STRATEGIES | HENNEPIN COUNTY

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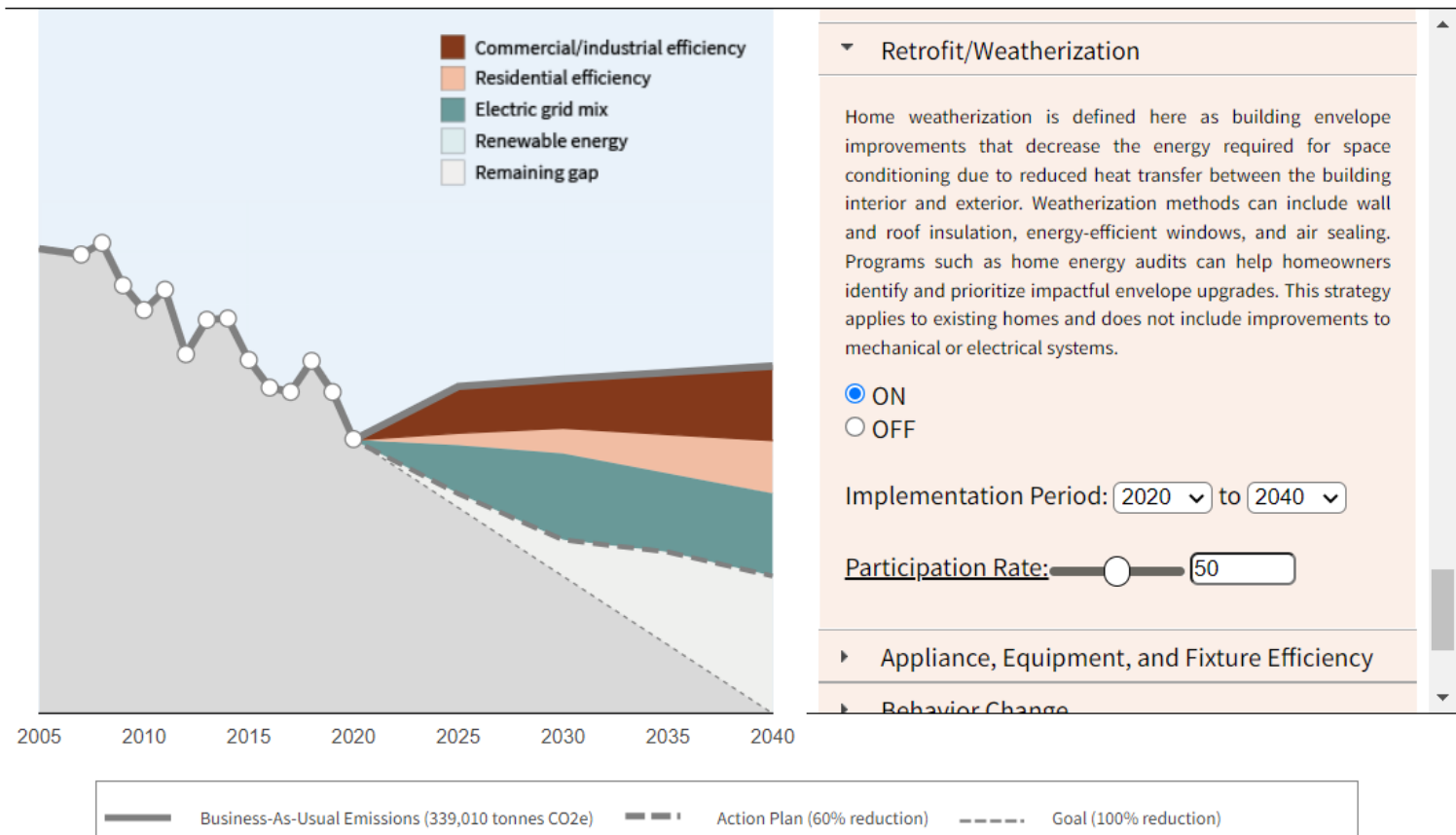
Building efficiency and electrification can play a major role in meeting GHG goals.

Graph shows potential impact of various strategies on business-as-usual energy emissions from all building types in Hennepin County.



SCENARIO PLANNING

REGIONAL INDICATORS INITIATIVE WEDGE TOOL

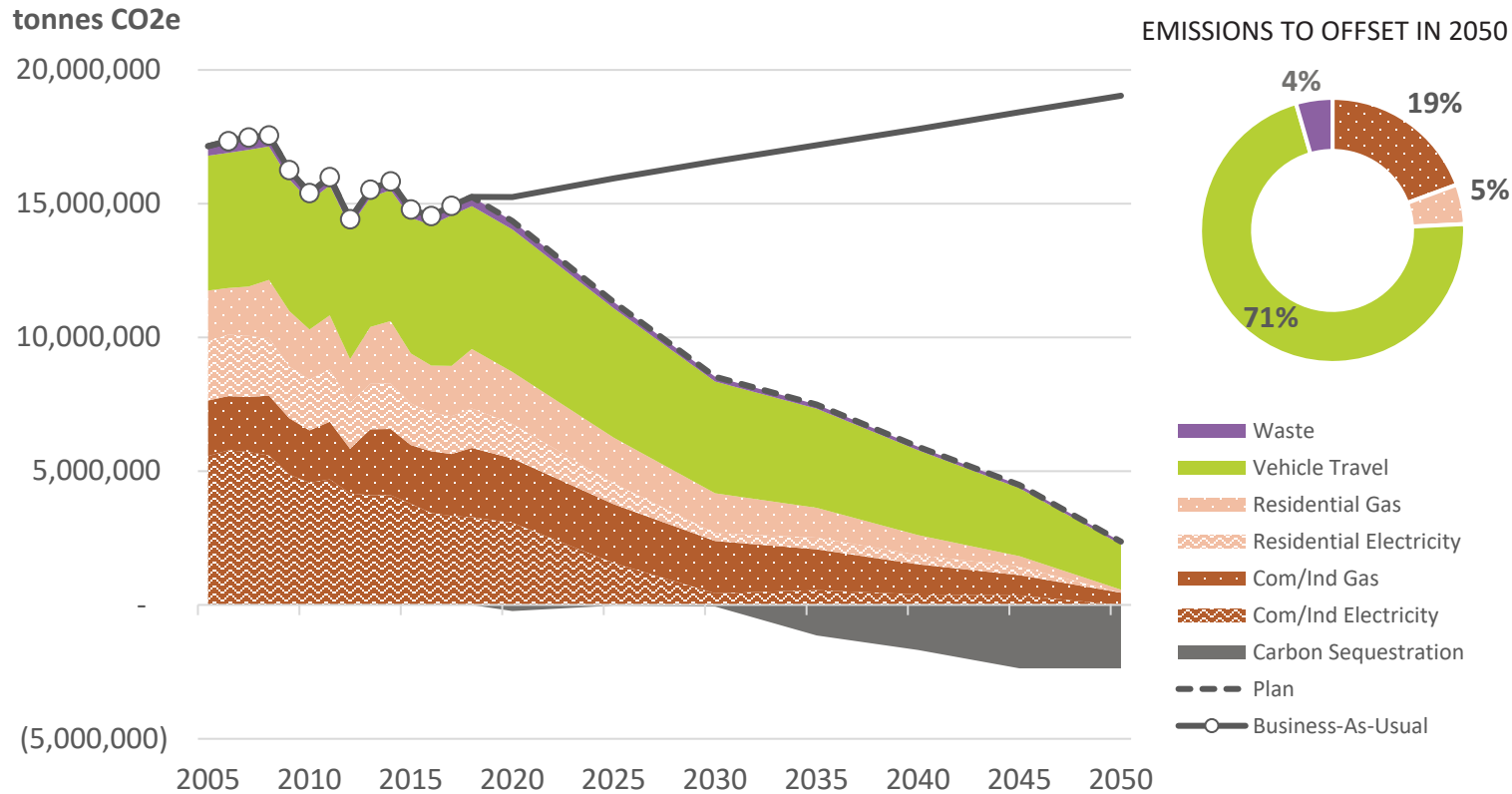


Explore the impacts of building efficiency strategies using the Regional Indicators Initiative Wedge Tool.



SCENARIO PLANNING

REMAINING EMISSIONS | HENNEPIN COUNTY



Challenges:

- Rapid, widespread building retrofits
- Rapid, widespread electrification of homes and businesses
- Solutions for industrial gas process loads
- Net-zero energy new buildings



LEARN MORE

RegionalIndicatorsMN.com

QUESTIONS?

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