

# Newton GHG Emission Trends 2013-2019

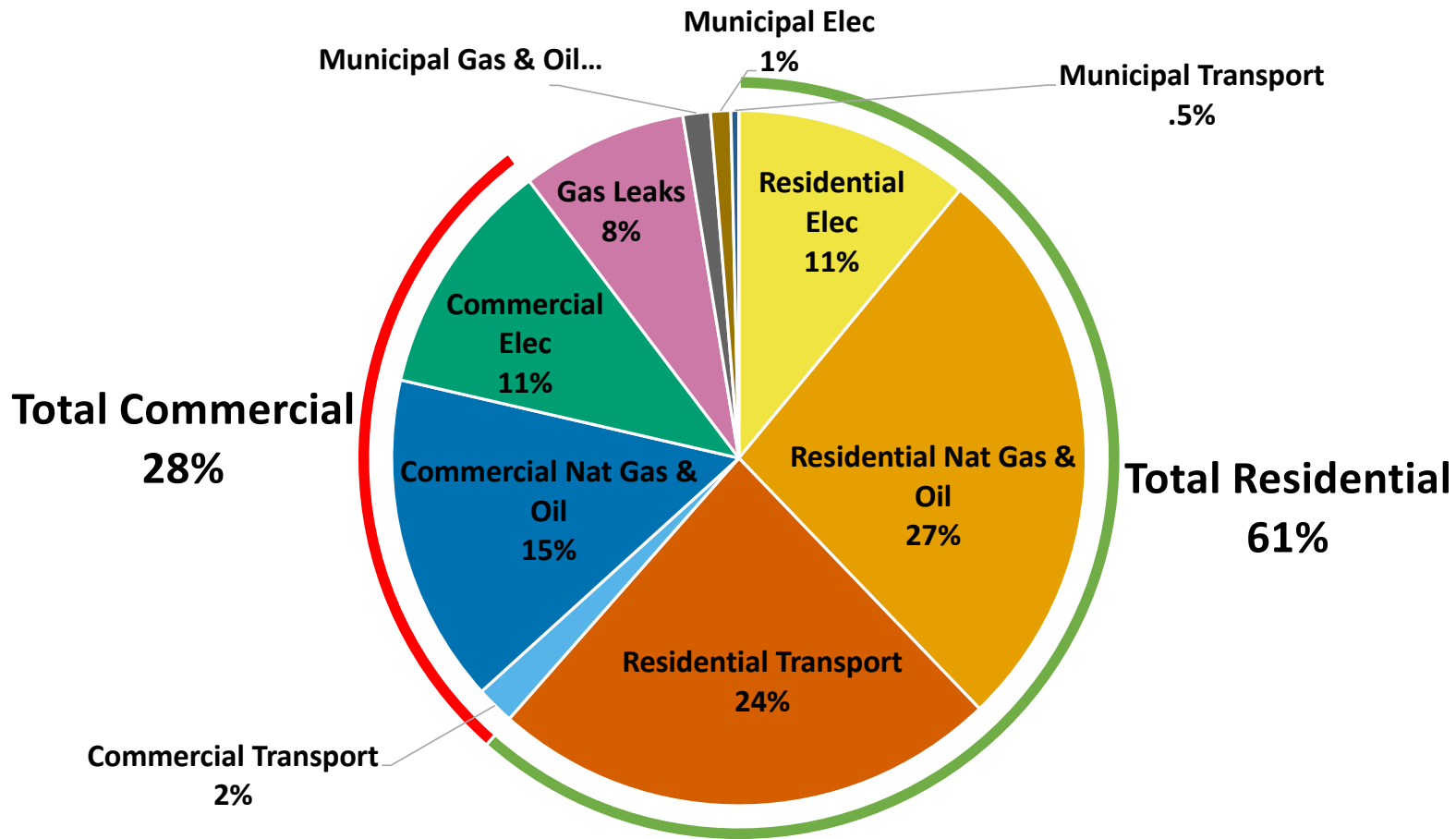
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Newton Citizens Commission on Energy

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# Overview

# Newton Greenhouse Gas Inventory 2019

2019 was used as benchmark to prevent distortions due to Covid pandemic



## Changes in Newton GHG Emissions by Source. 2013-2019

Source	Change	Main Driver
Residential Electricity	No change	
Residential Electricity with NPC	-28%	Newton Power Choice
Commercial Electricity	No change	
Commercial Electricity with NPC	-5%	Newton Power Choice
Transportation	No change	<i>(Within method error)</i>
Natural Gas Leaks	No change	
Residential Gas and Oil	+5%	Increased Use
Commercial Gas and Oil	+8%	Increased Use
Municipal Electricity	-18%	Decreased Use & Class 1 RECs
Municipal Gas and Oil	+17%	Larger space for heating
Municipal Transportation	+12%	Increased use of diesel fuel

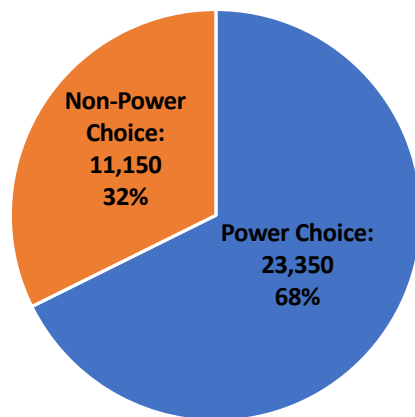
More detail

# Participation in Newton Power Choice

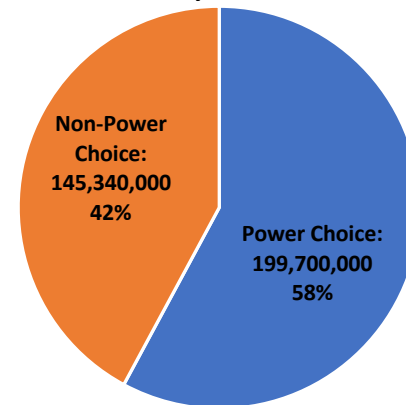
**The most effective way to increase RECs from NPC is to increase participation, especially among large electricity consumers**

'Non-Power Choice' includes accounts with individual private plans and opt-outs from NPC. We do not know their electricity providers.

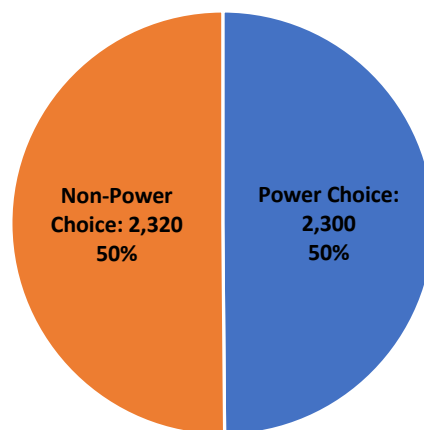
Residential: by # Households



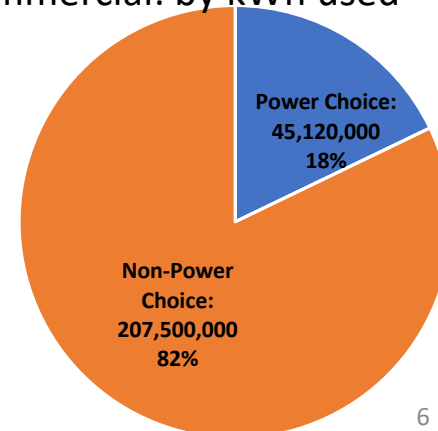
Residential: by kWh used



Commercial: by # participants



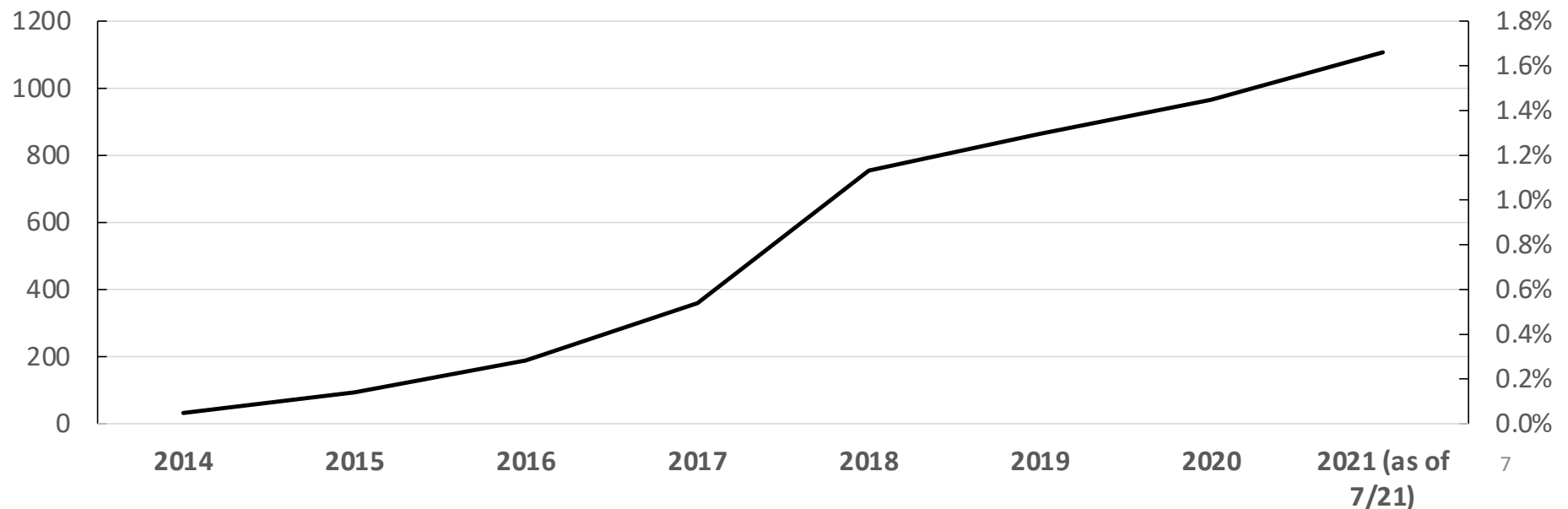
Commercial: by kWh used



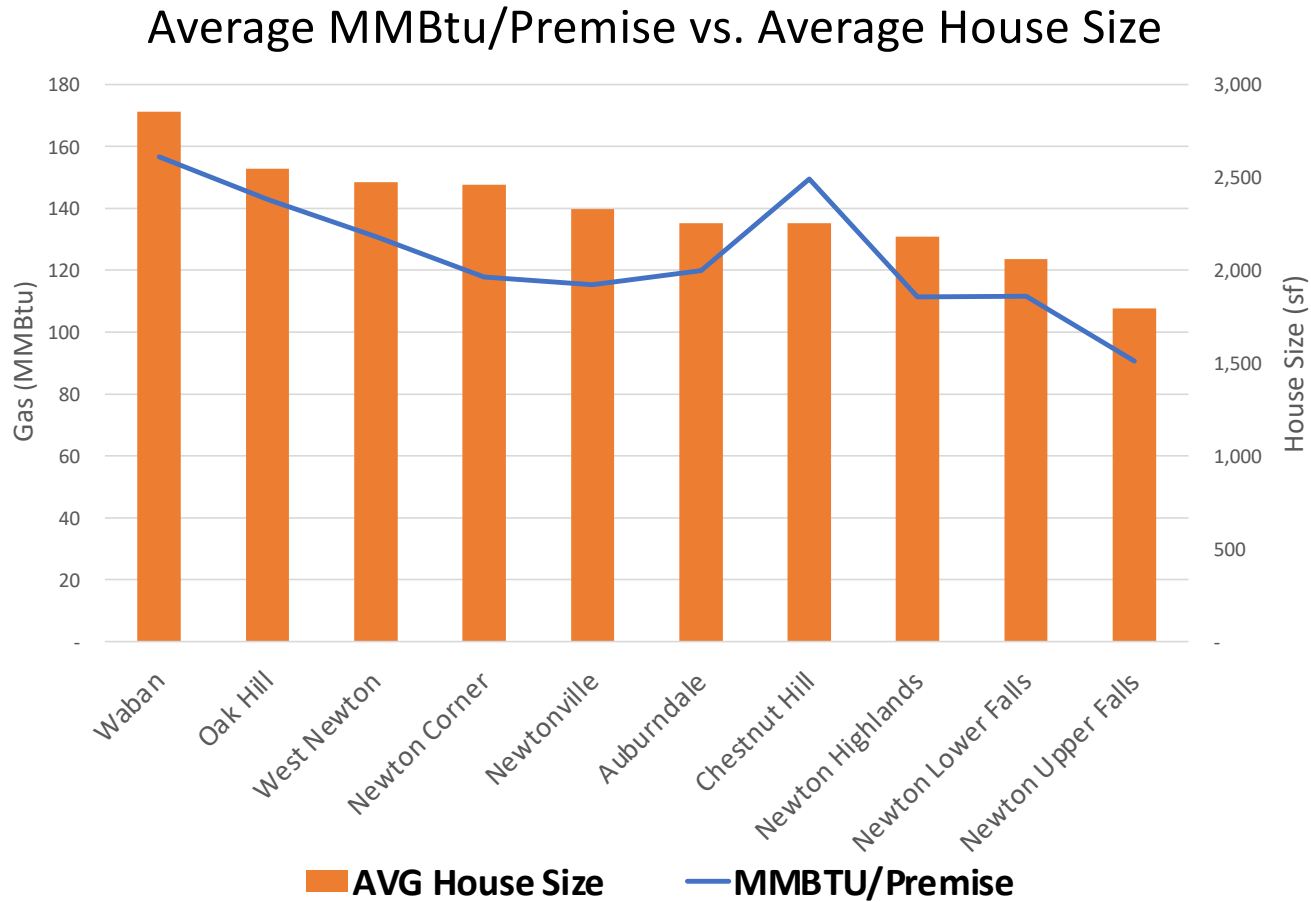
# Electric Vehicles Represent only 1.67% of Total Registered Vehicles (as of July 2021)

- In 2019 rebates decreased and eligibility criteria became stricter. In 2020 rebates were reinstated.

## Cumulative Claimed EV Rebates

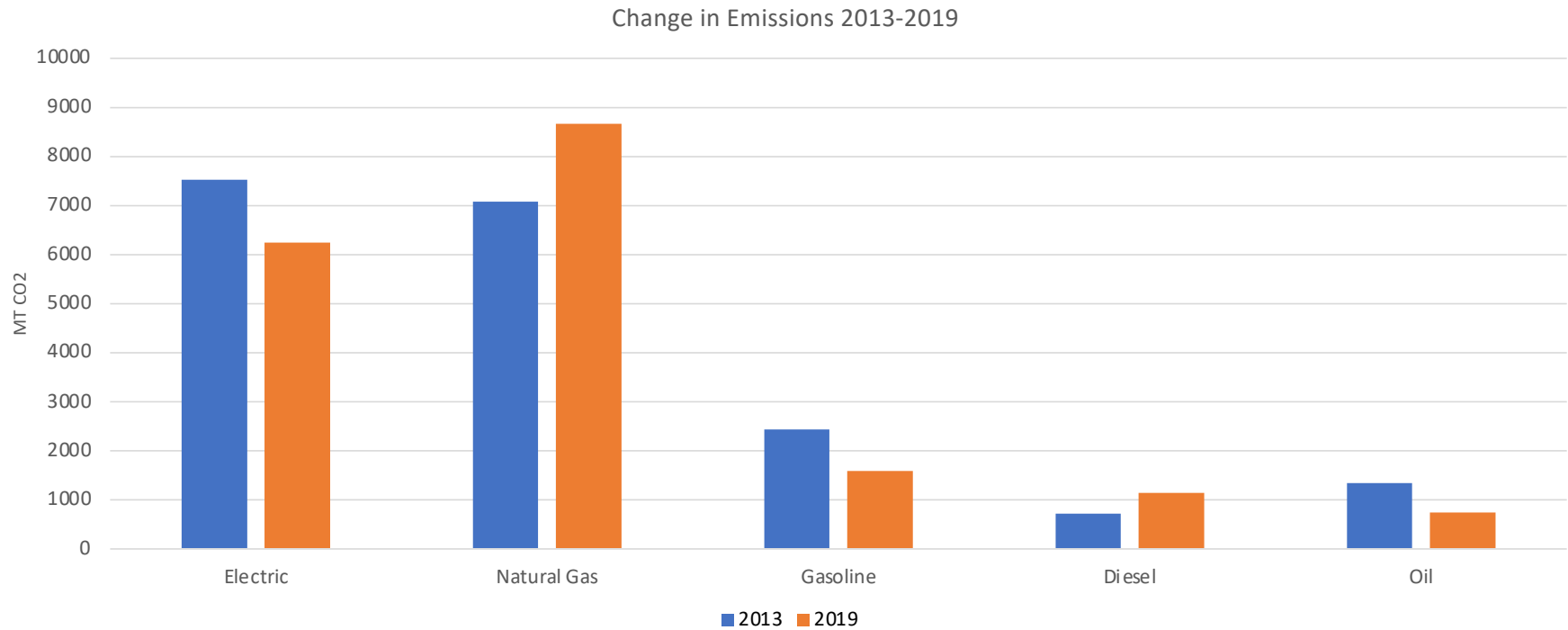


Residential energy use increases with house sizes. The growing size of new homes undermines progress in efficiency





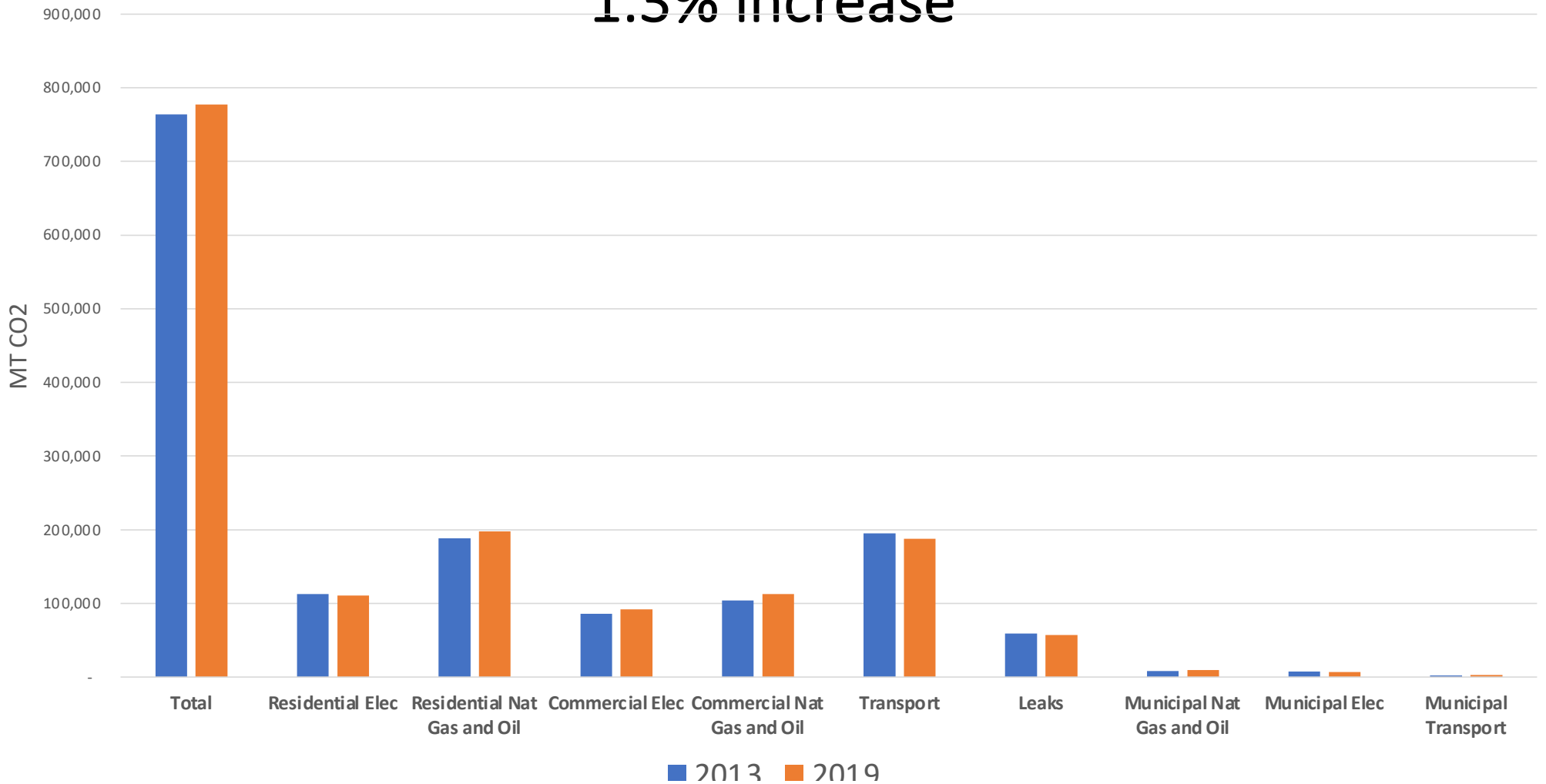
# Changes in Municipal Emissions by source 2013 – 2019



# Summary

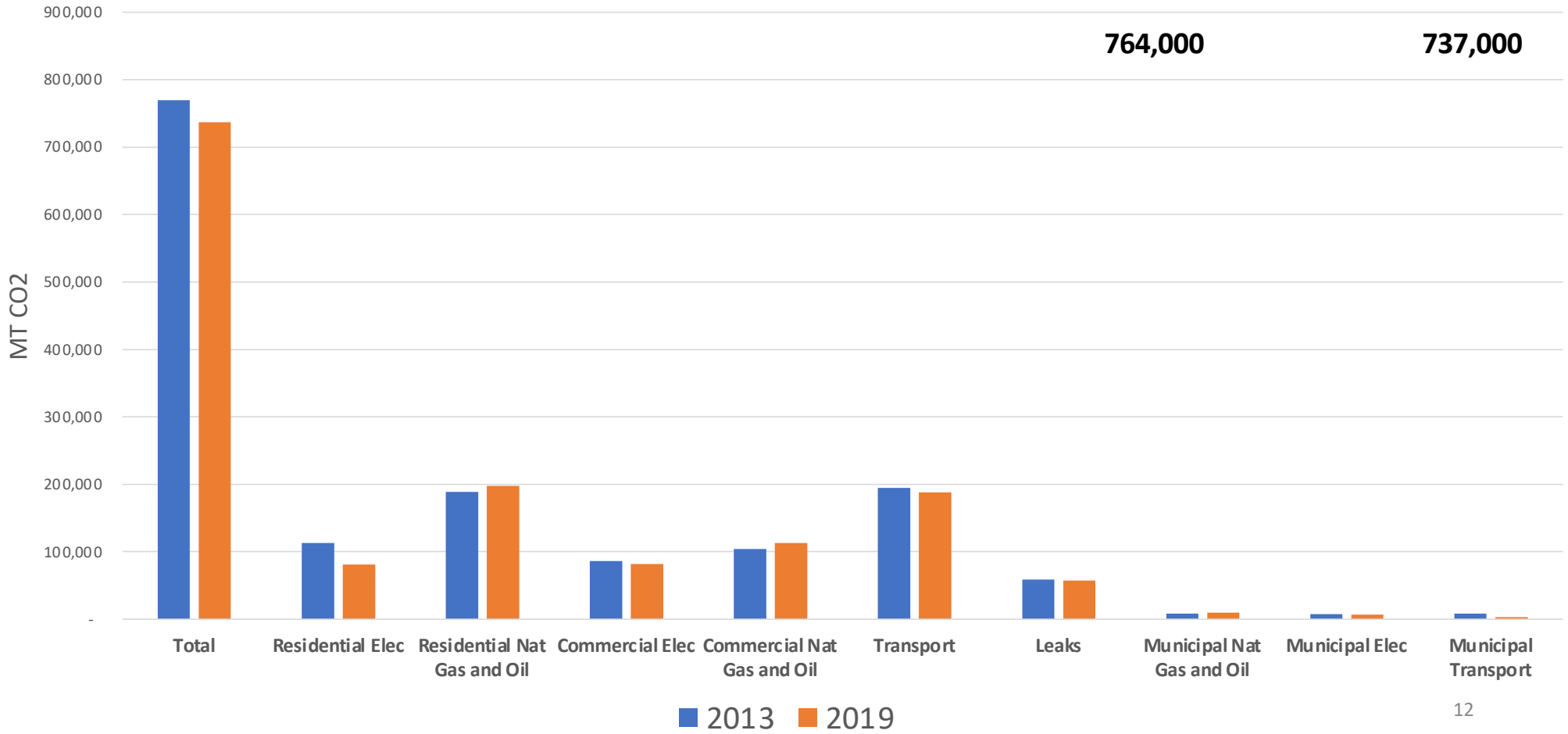
# Changes in Emissions by source based on energy use.

## 1.3% increase



# Changes in Newton Emissions by source

Includes offsets from NPC. 3.5% decline



# Key Findings -- Part Three

## Little progress toward 2025 Goals of Climate Action Plan

Progress	2025 Goal
EVs make up <b>1.67%</b> of Newton's vehicle fleet	10% of total
Emissions from residential heating <b>increased</b> by 5%	7% reduction (3% from efficiency improvements and 4% from electrification)
Emissions from commercial heating <b>increased</b> by 8%	<b>2030</b> Goal: 50% reduction (efficiency improvements and electrification combined)
Approx. <b>90 heat pumps</b> installed/year (individual rooms, partial and full house combined)	400/year homes fully electrified
Approx. <b>250 home retrofits/year</b> to improve energy efficiency	800/year

# Conclusions and Recommendations

- **New construction.** On the right track: -- MA Stretch Code -- Boston Zero Net Carbon Building zoning amendments (BP&DA) – Boston: Innovations hub for net zero construction -- Green Newton BSC work with developers. *We must find a way to address increasing size of houses and teardowns.*
- **EV.** Transition to **EVs will likely accelerate** due to market forces, federal efforts, and local grassroots campaigns.
- **Existing Buildings are a priority.** Next year Newton must put in place a program for assuring continuous reductions of energy use and GHG emissions. We need to innovate and be creative.
- **Lesson from NPC.** **Bold leadership** through municipal policy produces measurable progress. We must apply it to reducing energy demand and GHG emissions from buildings.

# New buildings vs. Existing buildings

Progress with new buildings:

Change technology

Progress with existing buildings:

Change technology and behavior



# Commercial Buildings: Voluntary vs. Mandated

- **Voluntary**

- BERDO 1.0 depended on voluntary action. High compliance in reporting- *no reductions in GHG emissions*
- Building Standards Committee of GN: Voluntary approaches are effective, *one project at a time*
- 1980s in pollution control: Industry-EPA voluntary agreements were *abandoned*

- **Mandated**

- BERDO 2.0 Mandated GHG emission standards, declining over time

## Homeowners: Why so hard to mobilize?

- Very technical. Requires learning
- Mundane -- boring
- Perceived inconvenience and mess
- Cost of heating-cooling a home is relatively low for *most* people.
- But electrification of heat is expensive
- Invisible improvement, not like interior renovations
- Hard to find trustworthy-competent contractors. Contradictory advice
- “Tragedy of the commons”: 100% of the *cost* of individual action falls on an individual and immediately, but the *benefits* of individual action are shared by the entire community and stretch into a distant future.

# Significant progress requires combination of approaches

- Voluntary
  - Outreach --- Community-oriented activities
  - Technical Assistance --- Energy Coach
  - Subsidies from MassSave
- Mandated (New Ordinance)
  - Analogous to BERDO 1.0 requirement for energy assessment-analysis-reporting-public disclosure
    - Requirement for conducting energy assessment
    - Results posted on Assessor's database
  - Condition: it must be easy and widely publicized