Newton GHG Emission Trends 2013-2019

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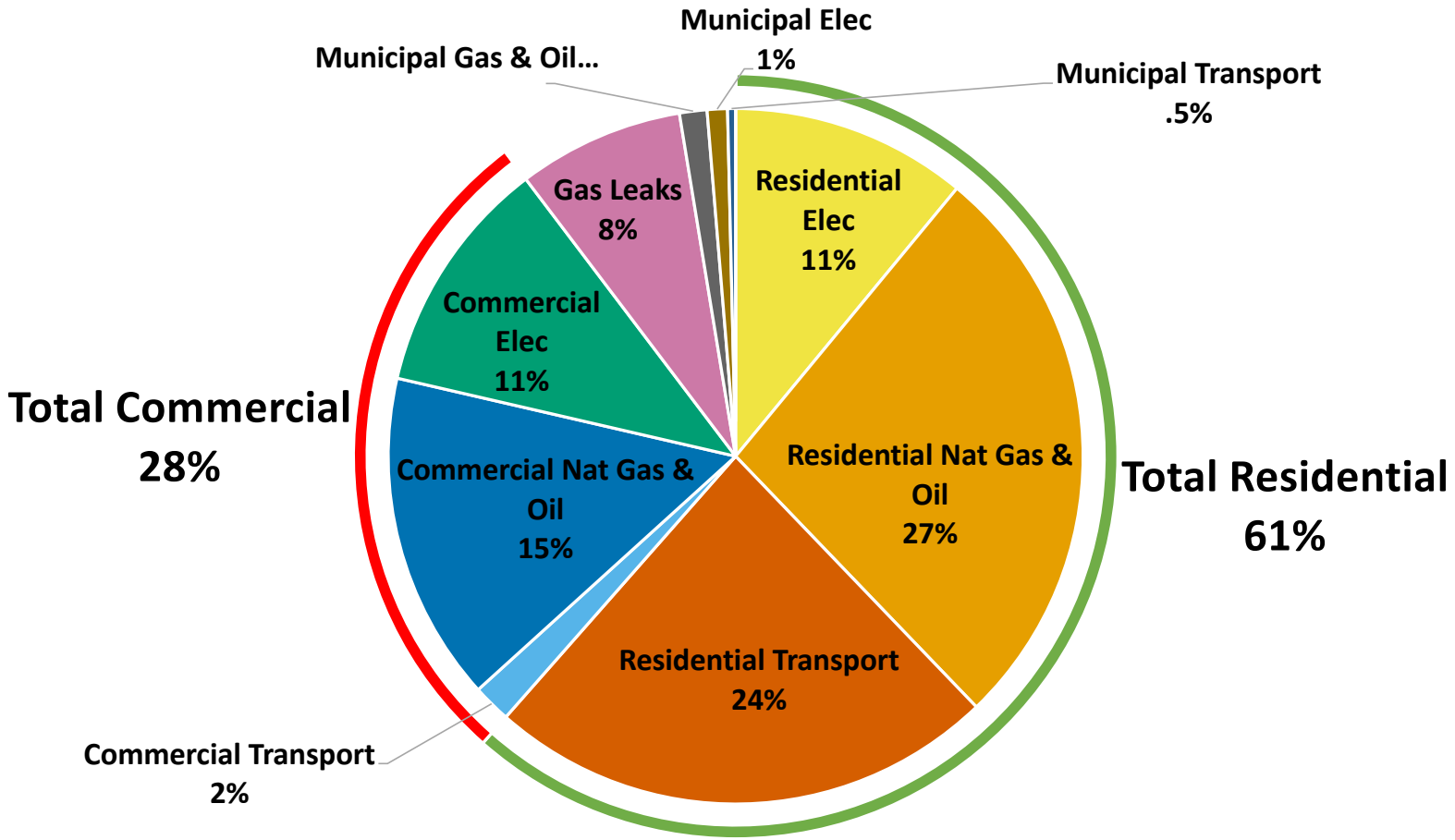
Overview

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**	***(Within method error)***
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**

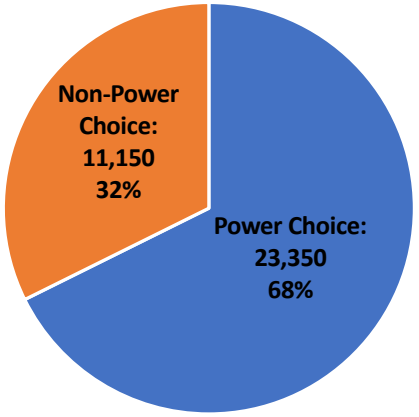
More detail

Participation in Newton Power Choice

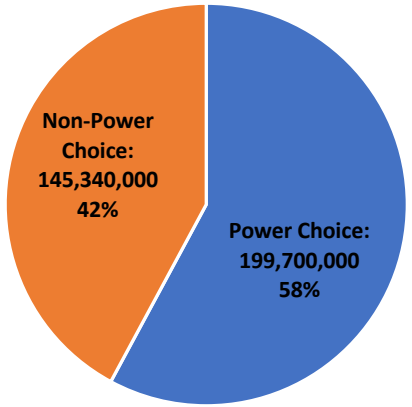
The most effective way to increase RECs from NPC is to increase participation, especially among large electricity consumers

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

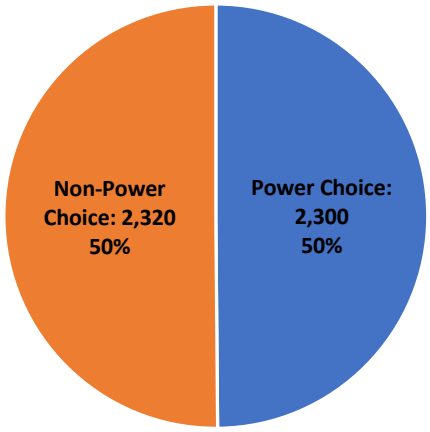
Residential: by # Households



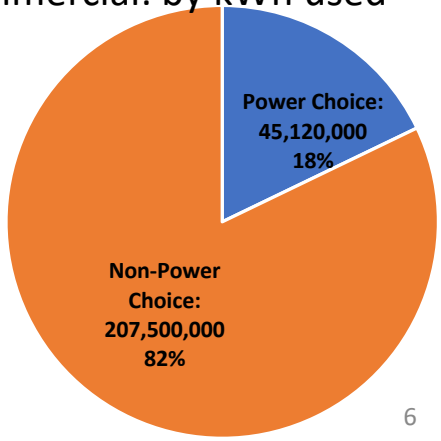
Residential: by kWh used



Commercial: by # participants

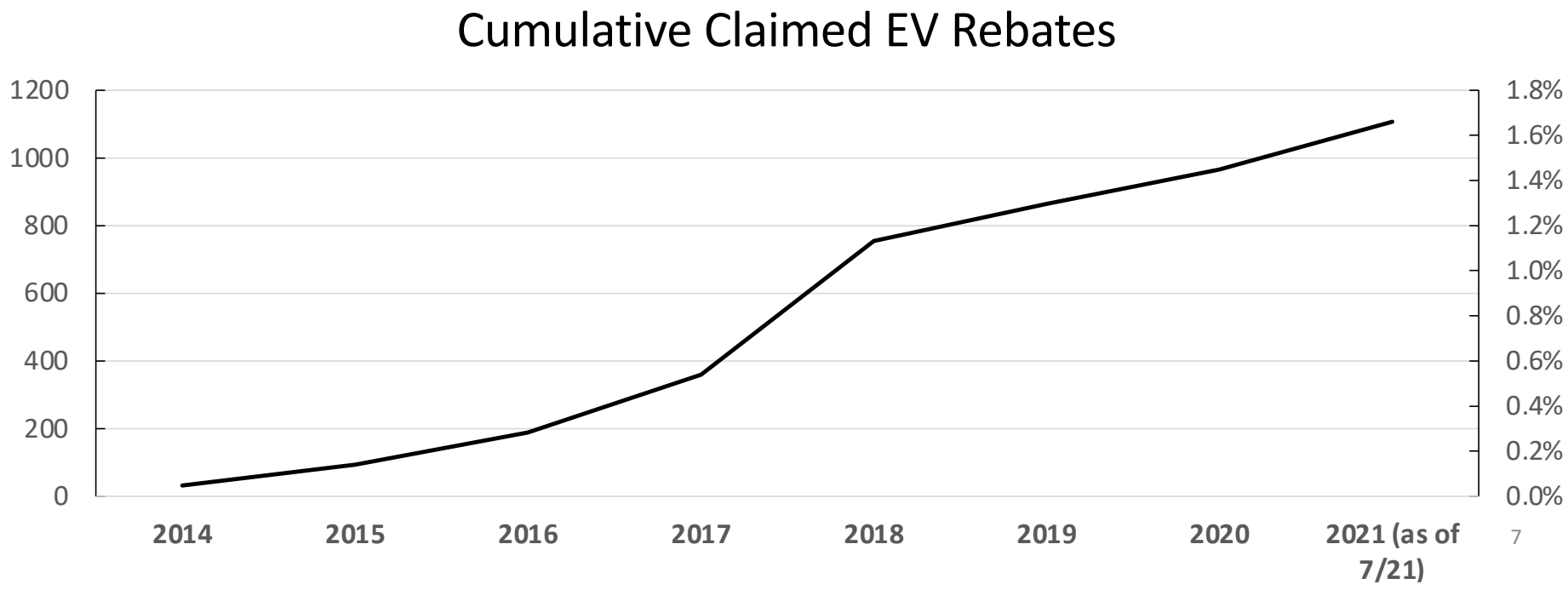


Commercial: by kWh used

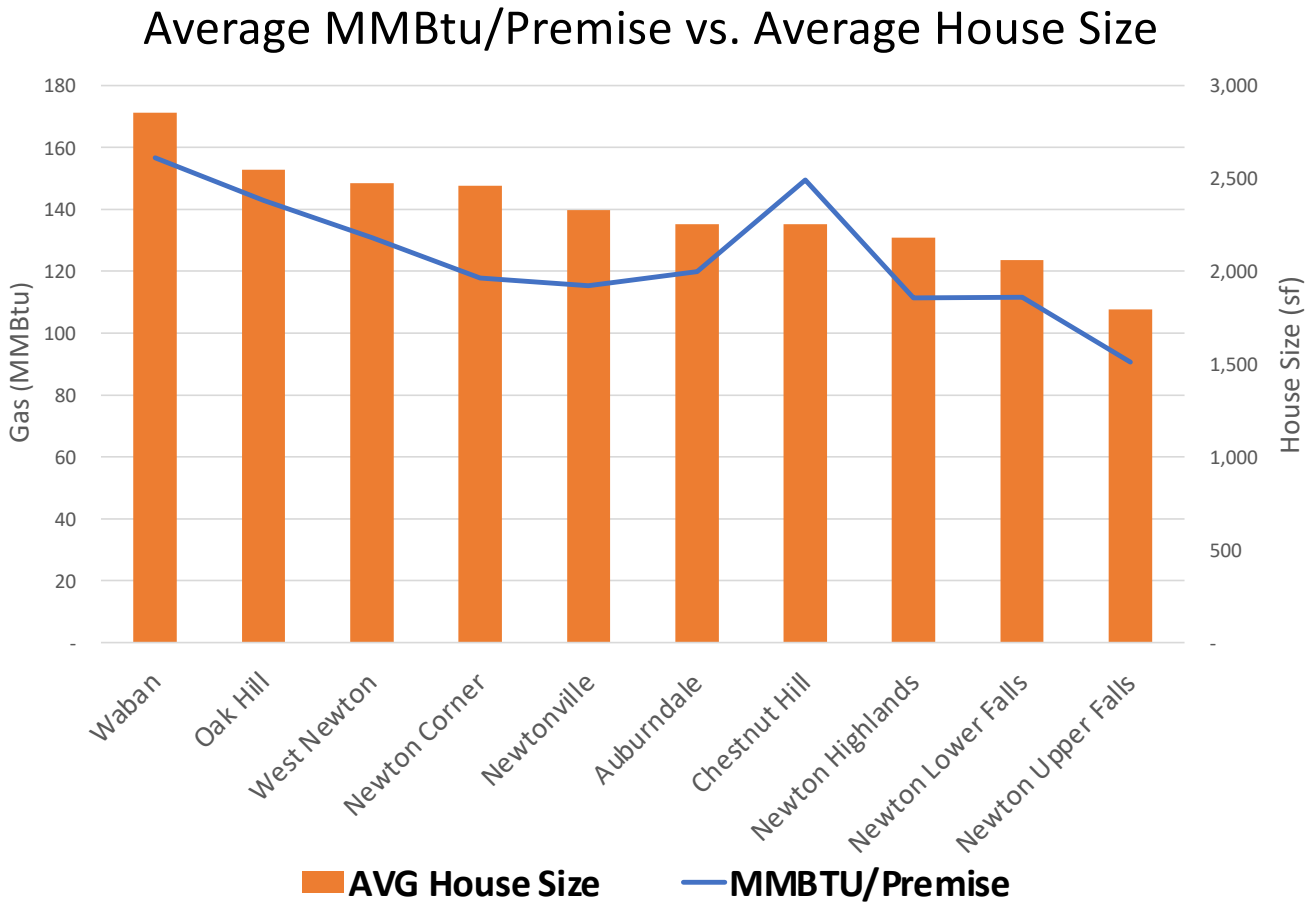


Electric Vehicles Represent only 1.67% of Total Registered Vehicles (as of July 2021)

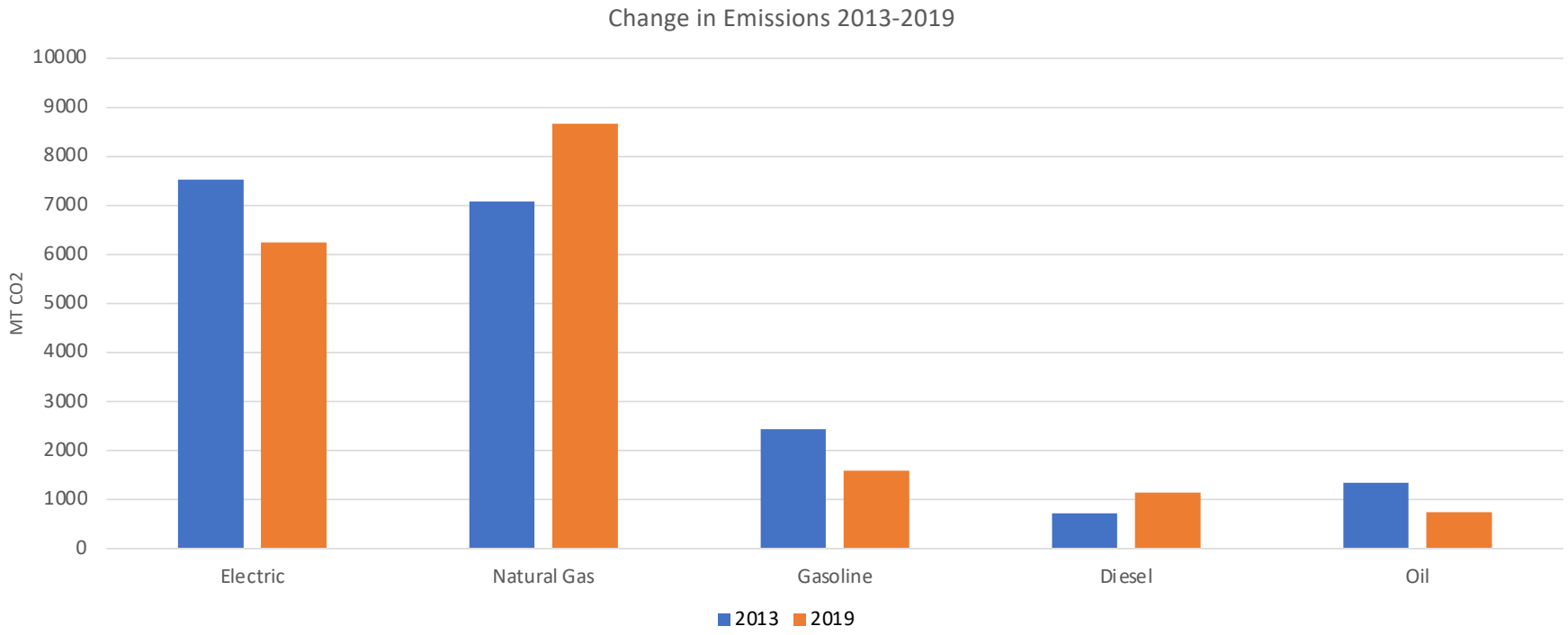
- In 2019 rebates decreased and eligibility criteria became stricter. In 2020 rebates were reinstated.



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

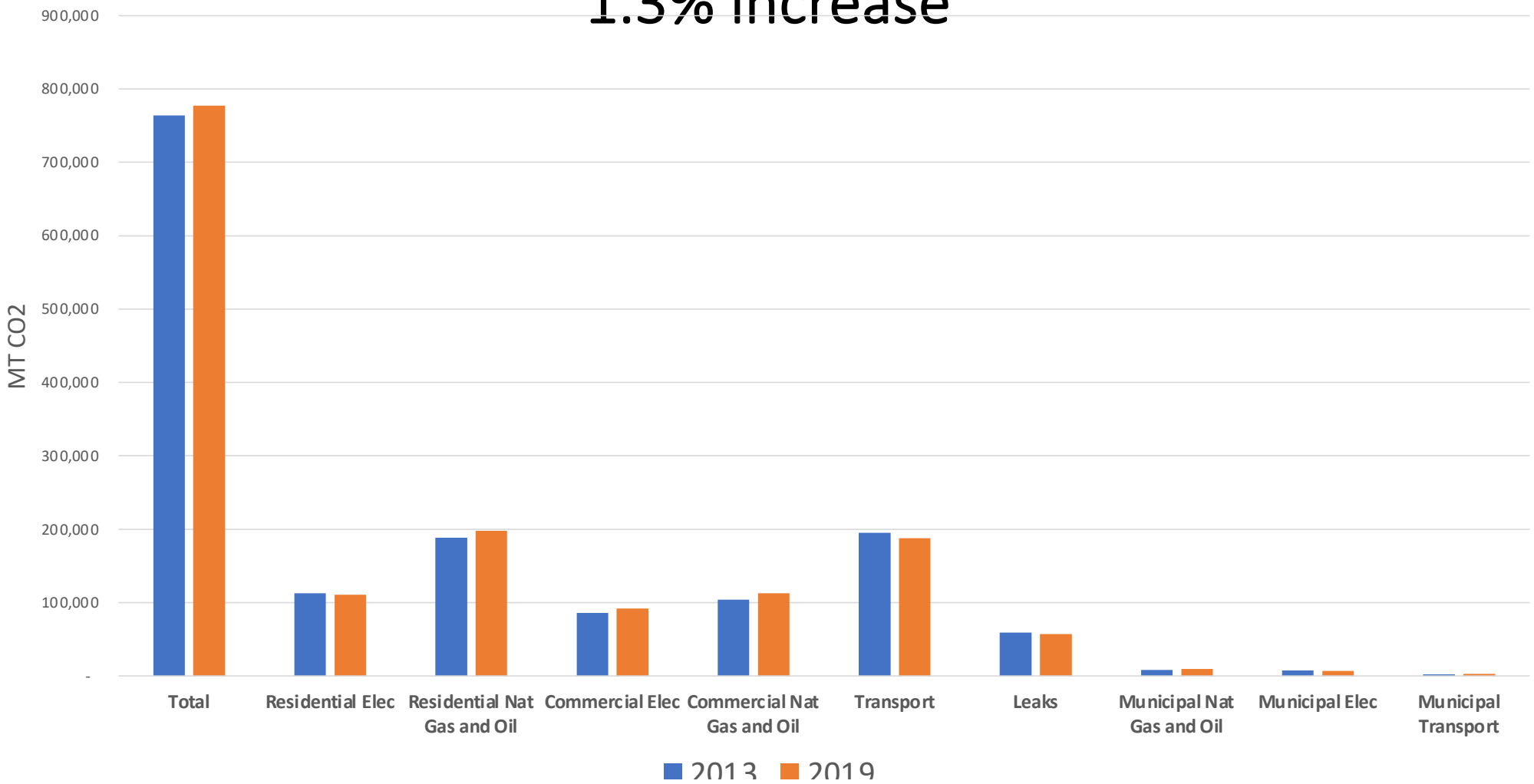


Changes in Municipal Emissions by source 2013 – 2019

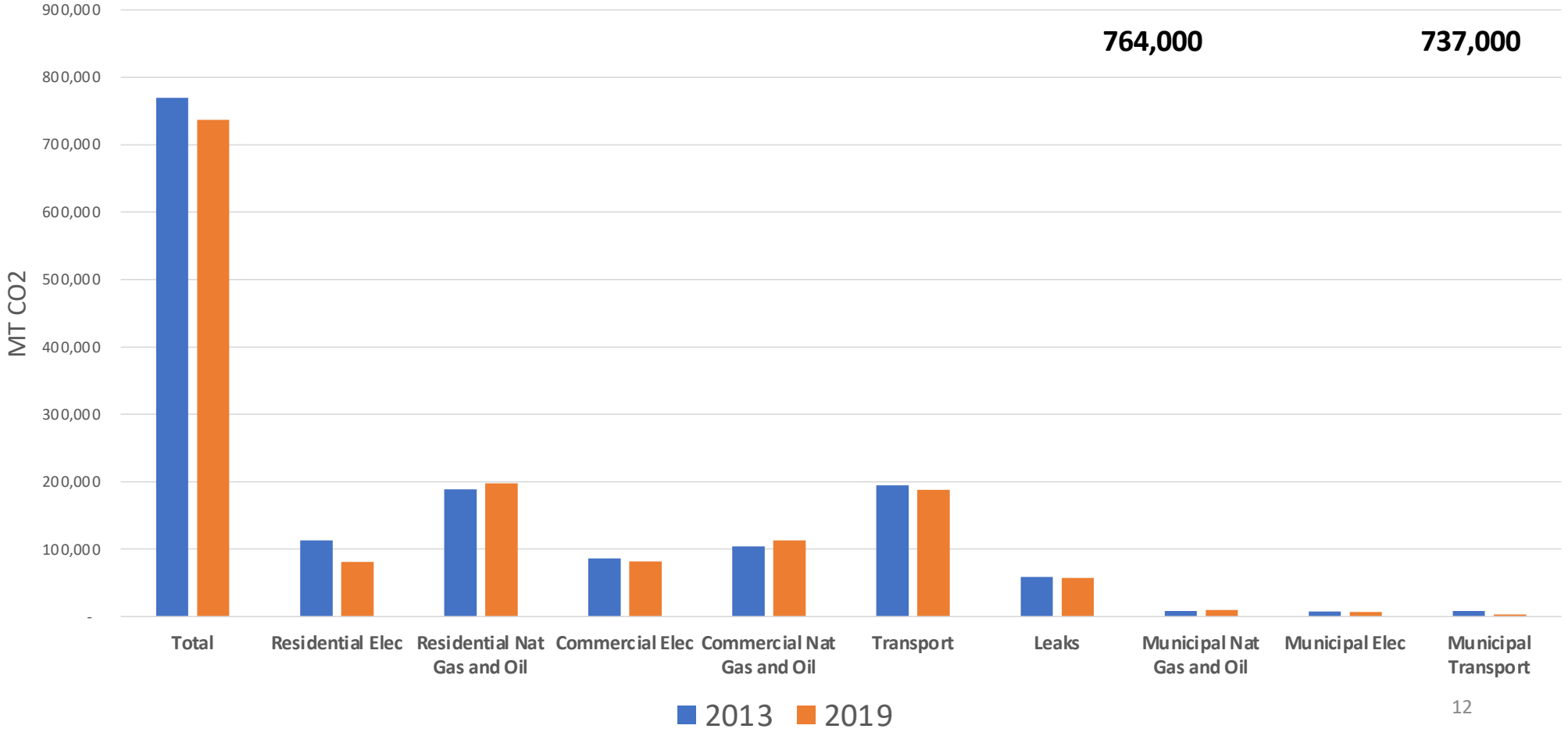


Summary

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