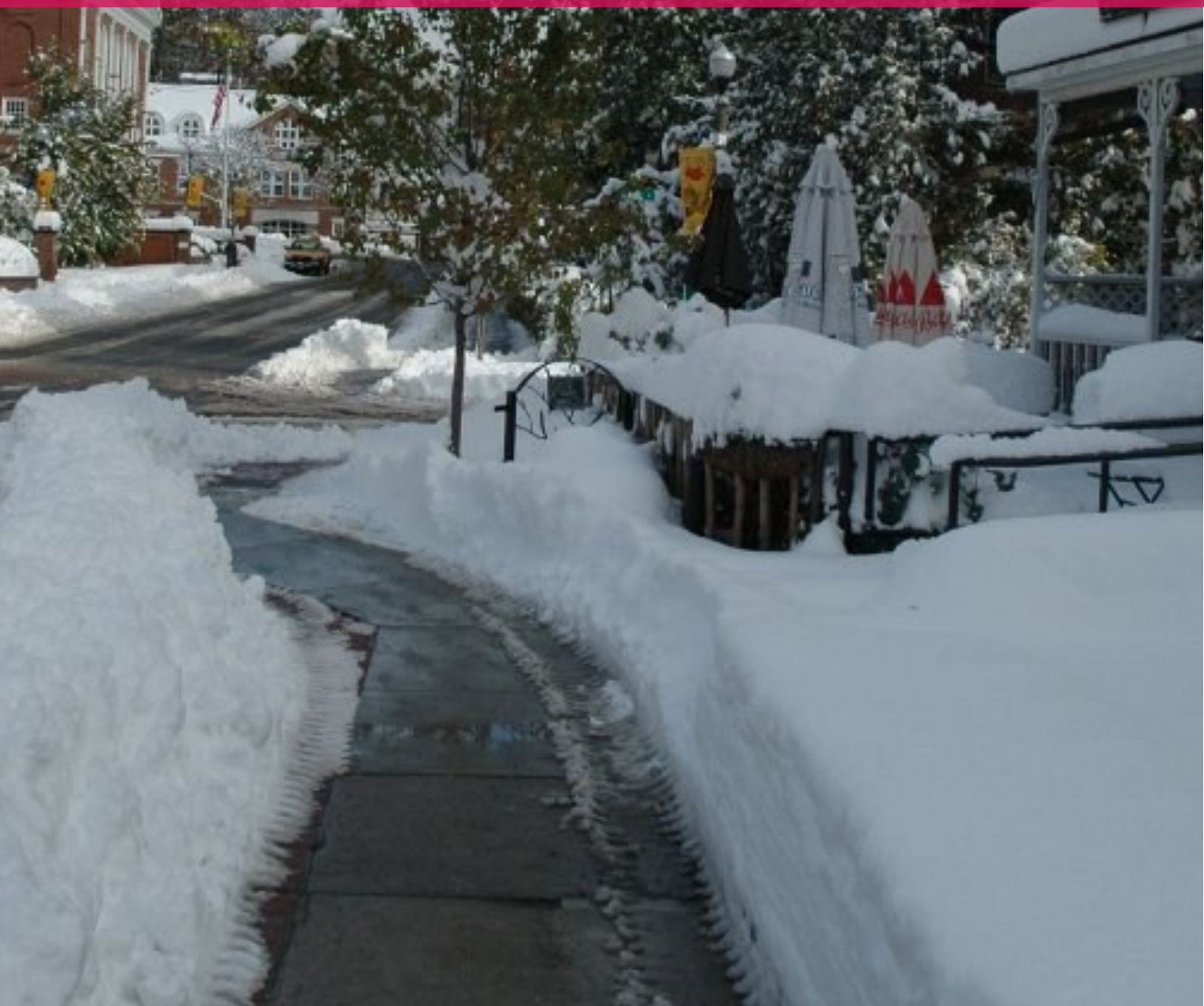
SECTION 04

Heating



CURRENTLY IN PETERBOROUGH

35%
of townwide GHG emissions in 2021 are from this sector

360,678
MMBTU of heating fuel consumption in 2021

1,928
Households using fossil fuels for heating systems in 2021.

Sources: see Peterborough GHG Inventory

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The heating energy sector is a major contributor to greenhouse gas (GHG) emissions. This sector includes all residential, commercial, and industrial buildings. Greenhouse gas emissions from this sector come from **direct emissions** – from fossil fuels burned *on-site* for heating or cooking needs. As with the Electricity Sector, building design plays a large role in determining the future efficiency and comfort of facilities. Increasing energy efficiency can help reduce GHG emissions and result in significant cost savings for both homes and businesses. The Peterborough community can also achieve climate resilience, and environmental, social, and economic benefits through enhancements to the heating sector.

Peterborough Energy Use Profile—Community Wide

Residential:
According to 2021 community wide data, the residential sector in Peterborough consumes over 248.4 Billion BTU's of heating fuel annually. This is equal to 91.6 Million BTU's per household.

Commercial and Industrial:
The Peterborough commercial and industrial sector in 2021 consumed nearly 103 Billion BTU's of heating fuel annually. This is equal to 41.3 Million BTU's per job, approximately 85% of the Hillsborough County average.

Potential for Change in Peterborough

According to Town of Peterborough data, less than 3% of the Town's commercial building stock and less than 4.5% of the Town's housing stock was built in the last ten years. Meanwhile while nearly 57% of the commercial building stock and over 67% of the Town's housing stock is more than forty years old. Based on the age of the Town's building stock, significant renovations and new construction replacement projects may increase in the coming years. This means that a significant portion of the town's building infrastructure could be positively impacted and influenced through strategies that guide increased energy efficiency and increased renewable energy adoption.

	GHG emissions from heating fuels (metric tons)	Homes using fossil fuels for heating systems	Businesses using fossil fuels for heating systems
Today	25,068	89%	96%
2030 Targets	13,787	62%	67%

Sources: see Peterborough GHG Inventory

STRATEGIES

The strategies on the following pages guide our path in meeting our climate goals for the Heating sector. Each strategy is supported by a series of detailed actions to be explored and undertaken in order to carry out the vision and goals.

Action Implementation

The following are the proposed strategies and detailed actions in support of this section. Actions are anticipated to be implemented in three phases:*

- Phase 1: action initiation anticipated within 0-3 years of REP approval
- Phase 2 action initiation anticipated within 2-5 years of REP approval
- Phase 3 within 3-7 years of REP approval

*Phasing will be established by the PREP Team in collaboration with Town staff at initiation of plan implementation (see strategy CC1).

H1:

Achieve 30% residential, commercial, educational, and industrial building "fuel switching" from on-site fossil fuel combustion to no/very low emission heating systems by 2030 and 100% by 2040.

H2:

Explore feasibility of district heating systems for the community and implement options identified as effective and

H3:

Achieve 30% municipal building "fuel switching" from on-site fossil fuel combustion to electric and zero-emission heating systems by 2030 and 100% by 2040.

Strategy Action

ACTIONS

H1:

Achieve 30% residential, commercial, educational, and industrial building "fuel switching" from on-site fossil fuel combustion to no/very low emission heating systems by 2030 and 100% by 2040.

H 1-1	Educate and encourage replacement of gas appliances, water heaters, and heating and cooling systems to solar thermal, electric and induction appliances and systems. Compile and make available resources for appliance information and relevant rebates and funding. Help target replacement opportunities by educating homeowners and businesses on the average lifespan of their traditional boilers and furnaces, and the warning signs for when such units should be replaced.
H 1-2	Highlight NHSaves incentives for wood pellet boilers for residential and commercial buildings' heating with wood to upgrade to a high-efficiency EPA-rated wood pellet furnace or heater.
H 1-3	Coordinate and promote a residential and small business "Fuel Switching and Energy Efficiency/ Weatherization" group purchase campaign regularly to help reduce the costs of energy efficient electric heating systems and electric appliances such as air source heat pumps and ground source heat pumps and induction stoves as well as solar thermal and wood pellet heating systems through volume purchasing power (goal, 50 households and 10 businesses annually). Program design to focus on improved equity (residential and commercial) in its implementation and explore strategies to support local small business contractors such as being set up to enable small contractors to collaborate or having a competitive "marketplace" approach with more than one contractor to choose from. NOTE: Action may be implemented in combination with the renewable energy group purchase program action.
H 1-4	Collaborate with other communities and lobby the State to overturn SB 86 to enable communities to establish fossil fuel bans or policies as desired by the community.
H 1-5	Collaborate with NHSaves and other regional partnerships to create financial incentives for "fuel switching" of new and existing buildings including electrification, solar thermal, and high efficiency wood pellet systems. For example, rebates for heat pumps, panel upgrades, and electric appliances can promote the transition to electric energy use in homes and businesses. Facilitate access to funds to help individuals and businesses with transitioning to renewable thermal.
H 1-6	Organize public demonstrations of energy efficient electric thermal systems, solar thermal systems, and other renewable thermal systems. Demonstrations might include open houses of Peterborough residents or Peterborough businesses with example systems in place, a "Peterborough Renewable Energy Building tour," or a renewable energy fair.
H 1-7	Provide financial and promotional incentives for business owners to assess the potential for converting all or part of their space heating and cooling to efficient electric, solar thermal, or wood pellet systems. Explore partnering with State and local resources to establish a program offering free consultations.

ACTIONS

Strategy Action

H2:

Explore feasibility of district heating systems for the community and implement options identified as effective and appropriate.

H 2-1	Conduct a District Heating and Co-Generation Feasibility Assessment to explore opportunities for district heating and co-generation meeting the goals of this plan in the downtown area and to identify areas within the Town with the potential for the installation of identified systems. District heating is a system for distributing heat generated in a centralized location through a system of pipes for residential and/and commercial heating.
H 2-2	Implement district heating projects based on the District Heating and Co-Generation Feasibility Assessment.

H3:

Achieve 30% municipal building "fuel switching" from on-site fossil fuel combustion to electric and zero-emission heating systems by 2030 and 100% by 2040.

H 3-1	Establish a policy requiring all municipally-owned buildings to be 100% electric (or zero on-site fossil fuel combustion).
H 3-2	Establish a policy requiring all existing municipally-owned buildings to replace heating systems with 100% electric solar thermal or high efficiency wood pellet systems when required by end-of-life equipment replacement schedules.
H 3-3	Work with regional energy partnerships to develop and implement a Fuel Switch Action Plan outlining a transition to electric, solar thermal, or high efficiency wood pellet systems with locally and sustainably sourced wood pellets for all Town facilities. Plan to include new and existing buildings, incorporate strategies to address electricity storage, and focus on highlighting any hurdles or solutions that would be applicable to the broader community. Goal: achieve 50% fuel switch by 2030 and 100% by 2040.