

# Accelerating Climate Action in Kingston

A briefing on existing, approved GHG reduction actions

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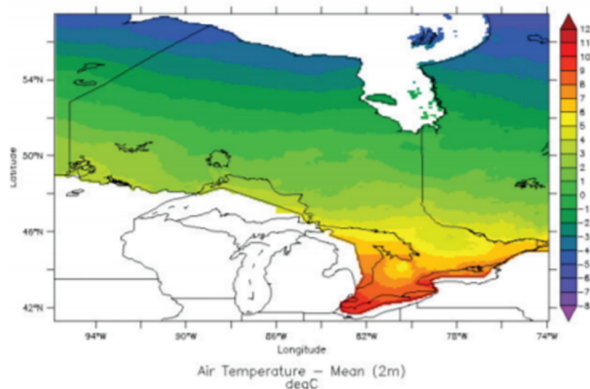


**KINGSTON**  
CLIMATE HUB

## The climate challenge

In 2015, world leaders came together to address the climate crisis and reached a landmark agreement. They reaffirmed the need to limit global temperature increase to within 2 degrees.

Then, last year, the UN Intergovernmental Panel on Climate Change published a report that, for the very first time, described the perils of 2C of warming. They urged governments to immediately pursue efforts to limit the increase to 1.5C. This means cutting global greenhouse gas emissions by 45% no later than 2030 and reaching zero emissions by 2050 (at the latest).



According to the Climate Action Tracker, Canada's climate commitments are "highly insufficient." If everyone had targets as weak as ours, warming will reach 3 to 4 degrees.

To put that in perspective ...

- At 2 degrees, the coral reefs are dead.
- At 3 degrees, the Amazon rainforest no longer functions.

- And at 4 degrees, the majority of people in southern Europe are forced to migrate north to avoid the deadly heat.

## The Scenario in Kingston Today

According to the Kingston Climate Action Plan, our city produced 1.5 million tonnes of CO<sub>2</sub>e in 2011.

Kingston is feeling the heat. Our city is now 8°C warmer due to our inaction.

## What does this mean?

Rising temperatures. Extreme rain and flooding. Sewage overflows. West Nile and Lyme disease. Potholes. More ice and wind. Increasing costs. Insurance claim payouts from severe weather have doubled every five to ten years since the 1980s.<sup>1</sup>



<sup>1</sup> Kingston Climate Action Plan, p. 21

## Sources of emissions<sup>2</sup>

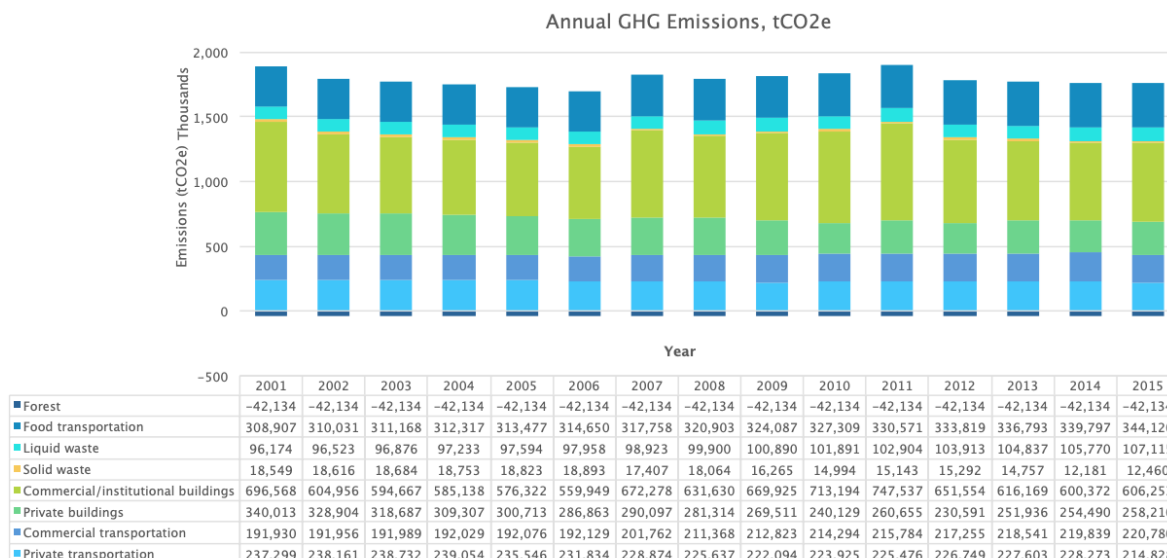


Figure 19. GHG emissions from GHGProof

Figure 1<sup>3</sup>

The biggest emitters of GHG emissions for Kingston are:

1. Commercial and institutional buildings (606,253 tonnes/year)
2. Food transportation (344,126 tonnes/year)\*
3. Private buildings (258,216 tonnes/year)
4. Commercial transportation (220,780 tonnes/year)\*
5. Private transportation (214,828 tonnes/year)\*

\*Total transportation creates 779,734 tonnes of CO<sub>2</sub>e per year.

### Mode of transportation to work



Modes of transportation to work: Active Transportation Master Plan, p. 21

## Cost of energy

In 2015, the residents, businesses and institutions of the City of Kingston spent approximately \$600 million on energy. More than 70% of this spending likely leaves our local economy every year. For every 1% of energy spending that stays in Kingston through conservation, local energy generation or provision of energy services, the local economy benefits up to \$6 million per year.<sup>4</sup>

Energy costs Household energy costs, including expenditures on transportation, heating and electricity, climb from just over \$9,000 per household in 2015 to \$14,978 in 2041 if we do not make changes. Total energy expenditures in Kingston will climb from \$650 million to approximately \$1.16 billion by 2041, using conservative cost projections for energy prices and including a price on carbon resulting from the cap and trade. In this analysis, the cost per tonne of carbon dioxide is assumed to start at \$18.09

<sup>2</sup> City of Kingston Municipal Energy Study, p. 1

<sup>3</sup> Ibid p. 21

<sup>4</sup> City of Kingston Municipal Energy Study, p. 1

in 2017 and climb to \$19.86 by 2021 and \$117.02 by 2041.

## Solutions

Energy modelling shows that “emissions from buildings and transportation need to be significantly reduced to achieve the -30% target.”<sup>5</sup> (Note that the 30% target is no longer adequate according to the 2018 UN Intergovernmental Panel on Climate Change report.)

However, based on modeling in the plan, Kingston can achieve its original target by: introducing “district energy, improvements in building efficiency, retrofits and mode shifting in cars. The major strategy that drives the emissions reductions, however, is switching from natural gas and gasoline to electricity, which is increasingly derived from renewables.”<sup>6</sup>

## Opportunities

- Reduce the energy and carbon footprint of new and existing buildings
- Ever decreasing costs of renewable energy and electrical storage
- Using organic materials to create bio-gas; a renewable form of natural gas that can be used to fuel transportation or heat buildings. (Reduce footprint; enhance economy.)<sup>7</sup>
- Electrifying transit
- Growing green tech sector
- integrate desired energy outcomes into local urban planning
- Establish microgrids and district energy (Microgrids are subsets of the greater electrical grid which include generation such as photovoltaic, wind, and fuel cells, demand and potentially storage in the form of batteries or even storage within electric vehicles.)

## How do we get there?

Kingston has a number of approved plans that set out actions to reduce our carbon footprint. These actions are in alignment with the opportunities set out in the Municipal Energy Plan, prepared in 2018.

The Kingston Climate Hub has examined, the *Municipal Energy Plan*, the *Sustainable Kingston Plan*, the *Kingston Climate Action Plan*, the *Active Transportation Master Plan* and a draft of CMT options for corporate action.

From these, we have pulled those actions that deal with greenhouse gas emissions and have grouped them under categories to highlight those that will have greatest impact.

An executive summary and a detailed spreadsheet are attached.

## Recommendation

An assessment of costs vs reductions (ROI) should be undertaken to ensure that finite municipal budgets achieve the highest reductions possible.

For example, implementation of the *Active Transportation Master Plan* is estimated to cost \$127 million over 10 years to achieve a 20% active mode share. The plan does not include the resulting reductions in GHGs. If we look at the targets set out in the MEP to meet the City emissions reduction target of 30%, we see that vehicular traffic must drop to below 50% of today's usage. How do these numbers align? Does the ATMP result in substantive GHG reductions when weighed against its cost?

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<sup>5</sup> ibid

<sup>6</sup> Ibid p. 2

<sup>7</sup> Ibid, p. 2