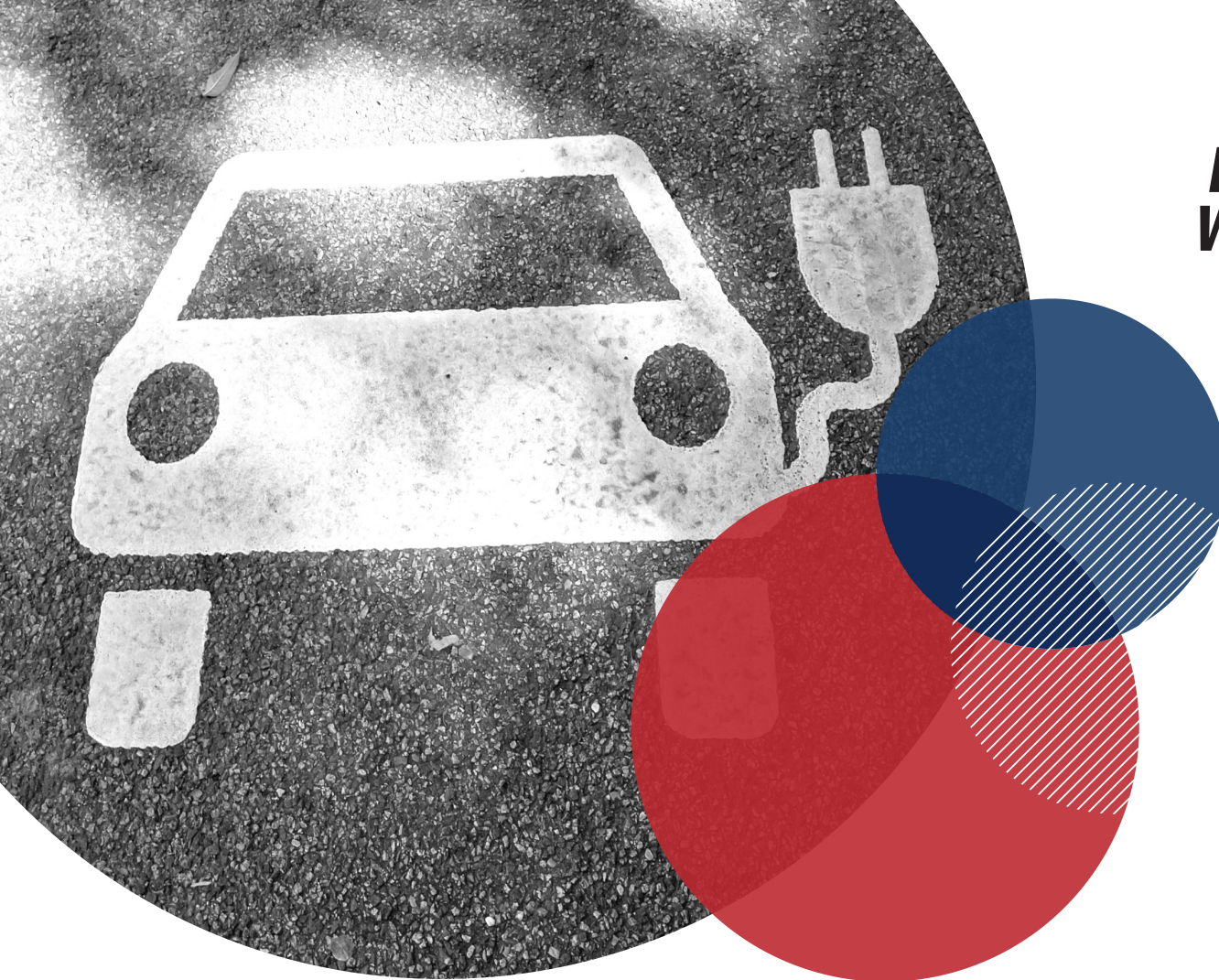


**WHO  
DOES  
WHAT**  
SERIES



# The Municipal Role In **CLIMATE POLICY**

**Contributors:**

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**Editors:**

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## About IMFG

The Institute on Municipal Finance and Governance (IMFG) is an academic research hub and non-partisan think tank based in the School of Cities at the University of Toronto.

IMFG focuses on the fiscal health and governance challenges facing large cities and city-regions. Its objective is to spark and inform public debate, and to engage the academic and policy communities around important issues of municipal finance and governance. The Institute conducts original research on issues facing cities in Canada and around the world; promotes high-level discussion among Canada's government, academic, corporate, and community leaders through conferences and roundtables; and supports graduate and post-graduate students to build Canada's cadre of municipal finance and governance experts. It is the only institute in Canada that focuses solely on municipal finance issues in large cities and city-regions.

IMFG is funded by the City of Toronto, the Regional Municipality of York, the Regional Municipality of Halton, the Neptis Foundation, Avana Capital Corporation, and Maytree.

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**Sadhu Afochs Johnston** is a consultant and thought leader on cities: how they work, how they can be improved, and how they are evolving to handle the myriad challenges they are forced to take on. He was the City Manager of Vancouver from 2016 until 2021, where he was responsible for managing the operations of the City, including oversight of a budget of more than \$1.6 billion and more than 7,000 staff. As City Manager he spearheaded initiatives to address the growing housing, homelessness, and climate change issues in Vancouver. He served as Deputy City Manager in Vancouver from 2009 to 2016, where he oversaw the Greenest City Action Plan. Previously he was the Chief Environmental Officer of Chicago and Deputy Chief of Staff to Mayor Richard M. Daley in Chicago, where he led the development of the first climate action plan in a major North American city. He is co-author of *The Guide to Greening Cities*, published by Island Press in 2013, and a co-founder of the Urban Sustainability Directors Network (USDN). He is on the board of the Canadian Urban Institute (CUI), among other organizations.

**Dr. Jennifer Winter** is an Associate Professor in the Department of Economics and the School of Public Policy, University of Calgary. Her research evaluates climate policies and examines the consequences and trade-offs of government regulation and policy on energy development. She has testified to the Senate of Canada and House of Commons on emissions pricing policies, and has advised governments in Canada in numerous capacities. Dr. Winter is actively engaged in increasing public understanding of energy and environmental policy issues, and she serves on several boards and advisory committees.

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# Executive Summary

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Climate change is a national and international issue. Nevertheless, municipalities around the world are key players in reducing emissions and adapting to extreme weather.

The three papers in this report – written by one academic and two practitioners – examine what role Canadian municipalities can play in the fight against climate change, and how that role can complement those of other orders of government.

## Municipalities

Jennifer Winter argues that municipalities can use their bylaws and zoning powers to reduce emissions within their boundaries, including by requiring electric-vehicle charging stations in new or retrofitted buildings or mandating that all new buildings have zero-emissions heating systems.

Elliott Cappell notes that Canadian municipalities can be too big and too small at the same time: too big to tackle hyperlocal issues, but too small to address the causes of climate change on their own. Nevertheless, he identifies several actions for municipalities, including instituting changes to help break silos within local government to create an “all-of-government” approach to climate change; taking advantage of resilience-linked bonds or loans as a financing tool; and improving transparency through climate-related financial disclosures.

Sadhu Johnston, like Cappell, calls for municipalities to better coordinate internally across departments to tackle climate change. He notes that municipal employees often lack climate change–related training and would benefit from a coordinated approach to train municipal government employees and elected officials on creating and implementing climate solutions. He also argues that municipalities can better work together to share best practices and propagate solutions.

## Provincial governments

Winter points out that many municipal tools to fight climate change require provincial involvement. She recommends the implementation of property-assessed clean energy programs, which allow residential and commercial property owners to take out loans for energy improvements and repay them through increased property taxes, but notes that these measures need enabling provincial legislation and oversight combined with municipal administration.

Building codes can contribute to fostering resilience at the local level, Cappell argues. These codes, however, are typically under provincial jurisdiction. Provinces can act by reforming the building code or related instruments to advance climate resilience, and also by making the codes flexible enough that municipalities can adapt them to their particular circumstances.

Provinces can also play an oversight role. Johnston argues that provincial governments should mandate that every city with a population of more than 10,000 adopt and implement a climate resilience and an emissions reduction plan, with regional approaches taken where applicable. To ensure municipalities follow through on these plans, provinces should work with municipalities to evaluate the powers and funding tools they need to address climate change.

## Federal government

The federal, provincial, and territorial governments create a broad framework for emissions reductions through policies such as carbon pricing, Winter writes. The federal government can also offer crucial funding support for public transit projects that reduce emissions.

Cappell points out that local governments do not have the capacity to pay for the full costs of building up resilience to climate change. The onus is on provinces, territories, and the federal government to fill the gap. The federal government in particular will need to re-examine the structure of disaster relief funding and whether it can be redesigned not just to encourage building back, but building back better.

Johnston emphasizes the federal funding role, noting that Ottawa should help municipalities create structures for further training and sharing best practices.

## Intergovernmental cooperation

All three authors note that addressing climate change requires coordination by all three orders of government – a fact that, Winter notes, can bring challenges if climate priorities at provincial, territorial, and/or federal levels differ from those of cities.

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Both Johnston and Cappell call for the creation of a trilateral intergovernmental table for discussing climate change issues. As Johnston writes, this table can set as its goal the creation of a national climate plan, while Cappell notes the opportunity to orchestrate solutions drawing on a coordinated set of policy levers from each of those orders of government.

## About the Who Does What Series

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Canadian municipalities play increasingly important roles in addressing the policy challenges that are at the centre of political debate, including addressing climate change, increasing housing affordability, reforming policing, and confronting public health crises. The growing prominence of municipalities, however, has also led to overlapping responsibilities with provinces and the federal government. Such “entanglement” between orders of government has the potential to result in poor coordination and opaque accountability. At the same time, combining the strengths and capabilities of different orders of government – whether in setting policy, convening, funding, or delivering services – can sometimes lead to more effective action.

The Who Does What series gathers academics and practitioners to examine the role municipalities should play in key policy areas, the reforms required to ensure municipalities can deliver on their responsibilities, and the collaboration required among governments to meet the country’s challenges. It is produced by the Institute on Municipal Finance and Governance and the Urban Policy Lab.

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# Who Does What: The Municipal Role in Climate Change

## Backgrounder: Municipalities and Climate Change

By Gabriel Eidelman, Tomas Hachard, and Ruth Rosalle

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Municipalities across Canada are increasingly working independently and with other orders of government to reduce greenhouse gas emissions and address the climate crisis. This backgrounder highlights some of the ways municipalities

in Canada are engaged in climate policy, despite funding and regulatory constraints, and how this work sometimes complements and sometime conflicts with climate initiatives led by federal and provincial governments.

### **How municipalities work independently within legal and fiscal constraints**

Local governments, especially large urban municipalities, are responsible for numerous policy areas crucial for addressing climate change, including public transit, transportation, infrastructure, land-use planning, housing, urban design, parks and forestry, and many others.<sup>1</sup> As Jennifer Winter notes, Canada's cities with more than 100,000 people accounted for about a third of Canada's 2018 emissions.

More than 500 city councils have formally declared a climate emergency both to signal the severity of the climate crisis and to direct city bureaucracies to prioritize environmental considerations in local service delivery and program coordination.<sup>2</sup> Municipalities have also adopted formal climate change strategies to reach net zero GHG emissions.<sup>3</sup>

The City of Montréal, for example, released *Climate Plan 2020–2030*, with specific commitments to invest in

public transit expansions, promote energy efficiency, decrease vulnerability to climate hazards, and allocate 10 to 15 percent of the municipal budget to climate change adaptation.<sup>4</sup> Similarly, the City of Toronto has adopted the *TransformTO Net Zero Strategy*, formulated in response to its climate emergency declaration in 2019. Some of its commitments include increasing the use of electric vehicles to represent 30 percent of registered vehicles, and ensuring all new buildings are carbon neutral, in both cases by 2030.<sup>5</sup>

Vancouver’s climate action plan focuses on three key areas: greater use of transit and active transportation options, low-carbon construction and retrofits, and the use of carbon capture.<sup>6</sup> Halifax’s plan has three planks: decarbonized and resilient infrastructure, which includes reaching net-zero emissions on new construction by 2030; prepared and connected communities, which includes developing emergency management plans and improving food security; and coordinated governance and leadership, which includes regular monitoring and reporting and integrating climate change into all facets of municipal operations.<sup>7</sup>

These plans are just a few examples of municipal action in Canada on climate change (See Table 1). More than 490 Canadian municipalities participate in the Partners for Climate Protection (PCP) program, a network of Canadian municipalities facilitated by the Federation of Canadian Municipalities, sharing data on environmental projects and reducing GHG emissions by setting milestones.<sup>12</sup> Numerous Canadian cities have also joined the Global Covenant of Mayors for Climate and Energy, which fosters partnerships between cities and national and international partners to build better climate resiliency and lower emissions.<sup>13</sup>

Still, as both Elliott Cappell and Sadhu Johnston note, funding is a major hurdle for municipal leadership. While provincial and federal governments can rely on sales and

income taxes to fund climate policies, municipalities can rely only on a narrow set of revenue sources, largely property taxes and user fees.<sup>14</sup> These revenue sources do not provide enough funding for action on climate change, placing municipalities in a precarious position as they navigate their responsibilities to their community and the threats on the environmental horizon. A recent report found that only 20 percent of Halifax’s climate targets are on track to be met, and only 14 percent are funded.<sup>15</sup> A report from Vancouver found the city had a low likelihood of meeting even half of its plan’s targets.<sup>16</sup>

Smaller municipalities face particular challenges.<sup>17</sup> They have less capacity to promote community resilience, reduce GHG emissions, support the transition to clean energy production, and allow their local economies to adapt.<sup>18</sup> The *National Issues Report* recently released by the federal government notes that smaller municipalities disproportionately experience the impacts of climate change because they are highly dependent on “climate-sensitive natural resources,” they have limited staff and funds, and they are highly sensitive to disruptions in infrastructure due to their size and locations.<sup>19</sup> As a result, all municipalities, both small and large, look to the provincial and federal governments for support.<sup>20</sup>

### Municipal coordination with other orders of government

Despite their efforts, local governments are limited in their ability to shift energy production methods and emission levels to tackle climate change without support from other orders of government.

For example, to achieve its 2030 climate targets, the City of Toronto plans to reduce natural gas usage, contribute to an energy grid with a reduced carbon footprint, and

Table 1: Select Municipal Greenhouse Gas Emission and Net Zero Targets

City	Emissions target	Base year	Net zero target
Vancouver	50% reduction by 2030	2007	2050
Edmonton <sup>8</sup>	50% reduction by 2030	2005	2050
Calgary <sup>9</sup>	60% reduction by 2030 (proposed)	2005	2050
Saskatoon <sup>10</sup>	15% reduction by 2023 and 80% reduction by 2050	2014	
Winnipeg <sup>11</sup>	20% reduction by 2030 and 80% reduction by 2050	2011	
Toronto	65% reduction by 2030	1990	2040
Montréal	55% reduction by 2030	1990	2050
Halifax	75% reduction by 2030	2016	2050

increase the local availability of renewable energy.<sup>21</sup> Yet energy production and electricity are regulated by the province, and the provincial government has no plans to meet the city's objectives.<sup>22</sup> The "Short-term Implementation Plan" for 2022–25 included in *Transform TO* details specific actions to advocate for a partnership between the City, Toronto Hydro, and the provincial and federal governments to encourage the conversion of the provincial electricity grid to renewable energy – at the moment, though, these goals are only aspirational.<sup>23</sup> (Winter's essay identifies other areas in which municipal actions require provincial cooperation.)

In other cases, provincial policies in urban areas conflict with the environmental goals of cities. For example, the Ontario government's planned expansion of the 400-series highways in the western corridor of the Greater Toronto Area has been met with opposition from municipalities. Not only would certain municipalities have to accept construction within their boundaries, but many are also concerned about the protection of sensitive portions of the Ontario Greenbelt and maintaining their own climate goals.<sup>24</sup>

While municipalities are working to mitigate future threats posed by climate change, they are also grappling with the reality of environmental change and the need for adaptation. The impacts of heatwaves caused by climate change, for instance, are magnified in urban areas due to a loss of natural landscapes in favour of surfaces that attract heat, such as pavement and parking lots.<sup>25</sup> Research also suggests that Canadian municipalities are vulnerable as well to the effects of extreme weather and localized climate hazards owing to factors such as interconnected infrastructure and their tendency to rely on historical data that does not account for change climate conditions.<sup>26</sup>

When disaster strikes, provinces have programs to reimburse municipalities for damages to infrastructure and assets. British Columbia municipalities, for instance, can claim 80 percent of eligible expenses subject to a deductible of \$1,000 per claim. In Québec, financial assistance is calculated based on a required municipal contribution, the proportion of which decreases as the costs of the disaster increase.<sup>27</sup> Provinces in turn receive federal funding for emergencies through the Disaster Financial Assistance Arrangements.<sup>28</sup>

The recent flooding in the Lower Mainland of British Columbia exemplifies the direct threat that climate change poses to insufficiently prepared municipalities, and how questions of "who does what" come into play. In the

early 2000s, the B.C. government made municipalities responsible for floodplain designation and management. Since then, some argue, local governments have been left competing for funding to improve and build dikes, with no interregional coordination, despite a higher likelihood of dike failure due to climate change-related flooding.<sup>29</sup> At the same time, as Elliott Cappell points out, requirements and standards for infrastructure are set at the provincial and federal level through building codes and the National Master Specification.

At the federal level, the Government of Canada has invested more than \$1 billion in the Green Municipalities Fund (GMF) managed by the Federation of Canadian Municipalities.<sup>30</sup> In the funding agreement, the federal government requires the GMF to assist municipal governments in their efforts to address climate change through fostering sustainable projects and providing grants and loans.<sup>31</sup>

The federal government also offers funding that municipalities can use to address climate change. The \$2-billion Low Carbon Economy Fund supports projects across the country, including ones undertaken by municipalities, to help reduce emissions.<sup>32</sup> In 2021, the federal government launched a \$2.75-billion Zero Emission Transit Fund with the Canadian Infrastructure Bank to help municipalities, transit authorities, and school boards electrify their bus fleets.<sup>33</sup> The most recent federal budget included more than \$550 million in proposed spending to increase the pace of retrofitting and low-carbon construction.<sup>34</sup>

## Conclusion

Municipalities across Canada have set emissions targets, outlined climate strategies, and declared climate emergencies to signal their intent to address climate change in Canada. From land-use planning to transportation, the role of municipalities in helping to create a low-carbon future is clear. Yet related policies, such as energy regulation and building codes, are outside municipal jurisdiction. Climate change is provincial, national, and global in scope – both its causes and the actions needed to address it. Coordinating policies and sharing the costs of funding for adaptation, mitigation, and disaster recovery is essential to the success of Canada's efforts.

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## The recent flooding in the Lower Mainland of British Columbia exemplifies the direct threat that climate change poses to insufficiently prepared municipalities, and how questions of "who does what" come into play.

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## Cities, Emissions, and Mitigating Climate Change

By Jennifer Winter

*Jennifer Winter is an Associate Professor of Economics and Public Policy, University of Calgary*

### Introduction

Canada has an ambitious net zero target – reducing greenhouse gas emissions by 280 million tonnes relative to 2019. Cities have an integral role in mitigating emissions, but are often overlooked, particularly during federal-provincial jurisdictional fights over environmental policy. Broad-based emissions pricing underpins Canada's expected emissions reductions, but behavioural changes in response to carbon taxes will depend on local choices.

Cities have limited direct control over emissions within their boundaries, but can have large indirect effects due to their substantial populations. In 2021, almost 72 percent of Canada's population lived in one of 35 census metropolitan areas,<sup>35</sup> and 83 percent lived in a municipality with a population over 10,000.<sup>36</sup> Cities, and their policy and design choices, have an important role in effectively meeting Canada's emissions-reduction ambitions.

Importantly, 2030 is less than eight years away. In government terms, this is two mandates at federal, provincial, and territorial levels, and three mandates for many municipalities. Policies that affect how individuals live and work have crucial importance in reducing emissions in the near and longer term. Canada's municipalities have multiple, interrelated tools at their disposal to support emissions reductions within their borders and improve residents' quality of life. This essay discusses the challenges and tools for municipalities.

### The big picture: Current emissions and Canada's 2030 target

Building on a series of climate plans starting in 2016,<sup>37</sup> the Government of Canada released its 2030 emissions-reduction plan in late March 2022. Canada's original commitment under the Paris Agreement was a reduction of 30 percent below 2005 levels, from 739 million tonnes of CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) to 517 million tonnes CO<sub>2</sub>e. The ambition of the target increased in late 2020, with a new target of 32 to 40 percent below 2005 levels,<sup>38</sup> and again in Budget 2021 with a target of 36 percent below 2005 levels.<sup>39</sup>

In 2021, Canada formally announced its intention to exceed Paris Agreement commitments with reductions of 40 to 45 percent below 2005 levels by 2030.<sup>40</sup> The 2022 Emissions Reduction Plan is first of its kind, required under

the *Canadian Net Zero Emissions Accountability Act*.<sup>41</sup> The plan outlines Canada's planned actions to meet Canada's 2030 emissions target, 443 million tonnes CO<sub>2</sub>e or 296 million tonnes below 2005 levels (Figure 1).

While all sectors of the economy are expected to reduce emissions by 2030, the level of emissions reductions and distribution differ substantially across sectors (see The Municipal Role in Climate Change and Table 2). The electricity sector has already substantially reduced emissions between 2005 and 2019, and will need to reduce emissions by another 47 million tonnes CO<sub>2</sub>e by 2030. This sector is particularly important, as its decarbonization will underpin emissions reductions in other sectors, such as buildings and transportation, through increased electrification.

In contrast with electricity, emissions from oil and gas, buildings, and transportation *rose* between 2005 and 2019, increasing the emissions-reduction challenge for those sectors. Municipalities' decisions will directly affect these emissions reductions and others along Canada's path to net zero, particularly in buildings, transportation, waste, and land use. I use these to frame my discussion.

### Cities and emissions

Canada's capitals and large cities (those with populations over 500,000) accounted for 20.8 percent of Canada's 2018 emissions, and mid-sized cities (population between 100,000 and 500,000) accounted for 12 percent.<sup>42</sup> The largest source of emissions was stationary combustion (including residential, commercial, and industrial), followed by transportation (see Figure 3). Even within Canada's major cities, there is substantial variation in the importance of different sources of emissions. This pattern is repeated in mid-sized cities (see Figure 4).

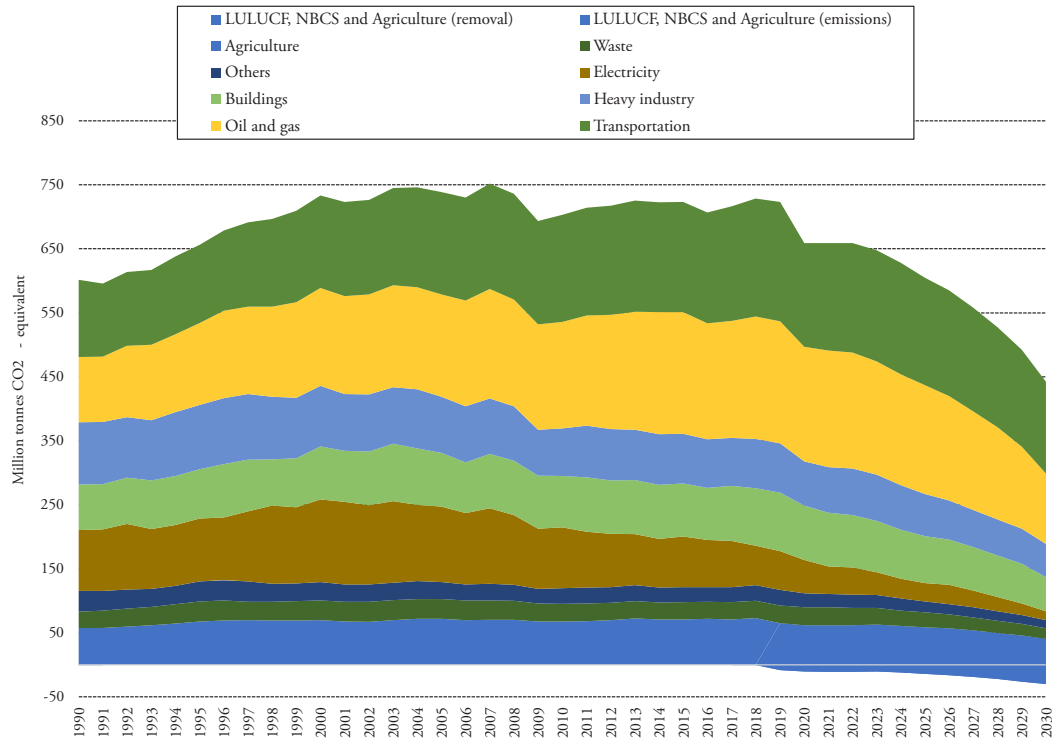
These disparate patterns speak to the importance of tailoring policy and actions to cities' specific circumstances and industrial structures. Importantly, some cities are heavily industrialized – such as Hamilton or Regina – and federal or provincial large-emitter policies will affect them more than cities with emissions from commercial rather than industrial activity. Nevertheless, there are broad strokes of policy relevant for all cities; we turn to those in the next section.

### Policy options for municipal emissions mitigation

#### *Transportation*

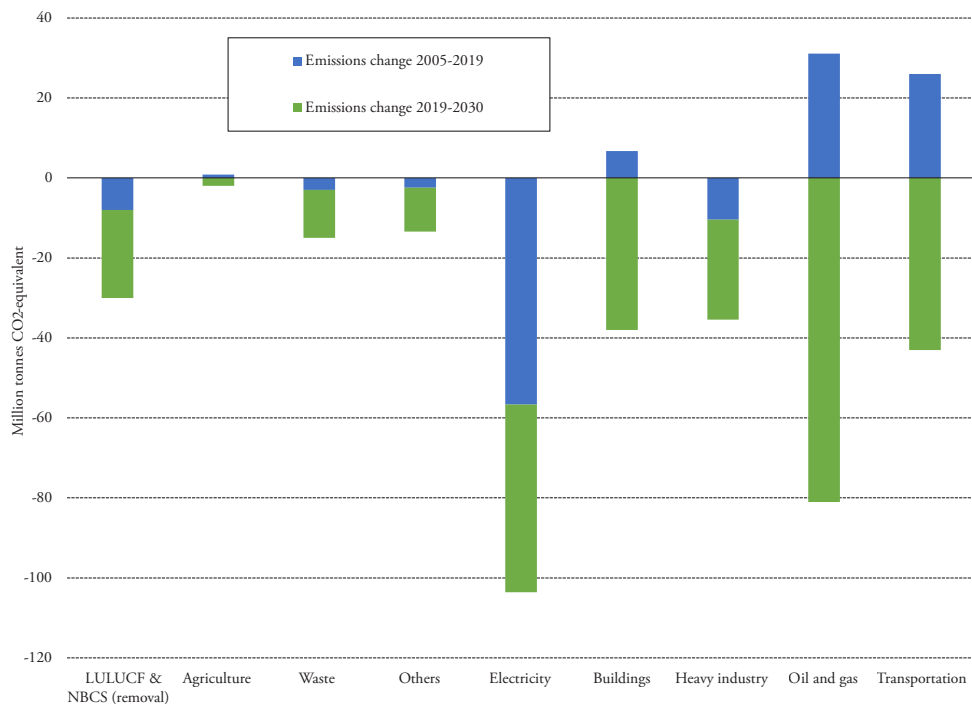
For most Canadian cities, the largest source of emissions is transportation, including personal travel, public transit, and freight transportation. Cities can support emissions reductions in personal transportation (and potentially freight transportation) by installing more electric-vehicle (EV) charging stations. This makes the switch from combustion engine to electric vehicles more convenient for residents,

Figure 1: Historical (1990–2019) and projected (2020–30) Canadian emissions<sup>43</sup>



**Notes:** The 2022 Emissions Reduction Plan relies on emissions data from the 2021 National Inventory Report (NIR). LULUCF is land use, land use change, and forests. NBCS is nature-based climate solutions. LULUCF emissions are not included in Canada’s national inventory report total; that is, LULUCF emissions are not counted in Canada’s official total. “Others” includes coal production, light manufacturing, construction, and forest resources. Emissions removal due to LULUCF, NBCS, and agriculture are not available prior to 2019.

Figure 2: Emissions Changes by Sector, 2005 to 2030 (million tonnes CO<sub>2</sub>e)<sup>44</sup>



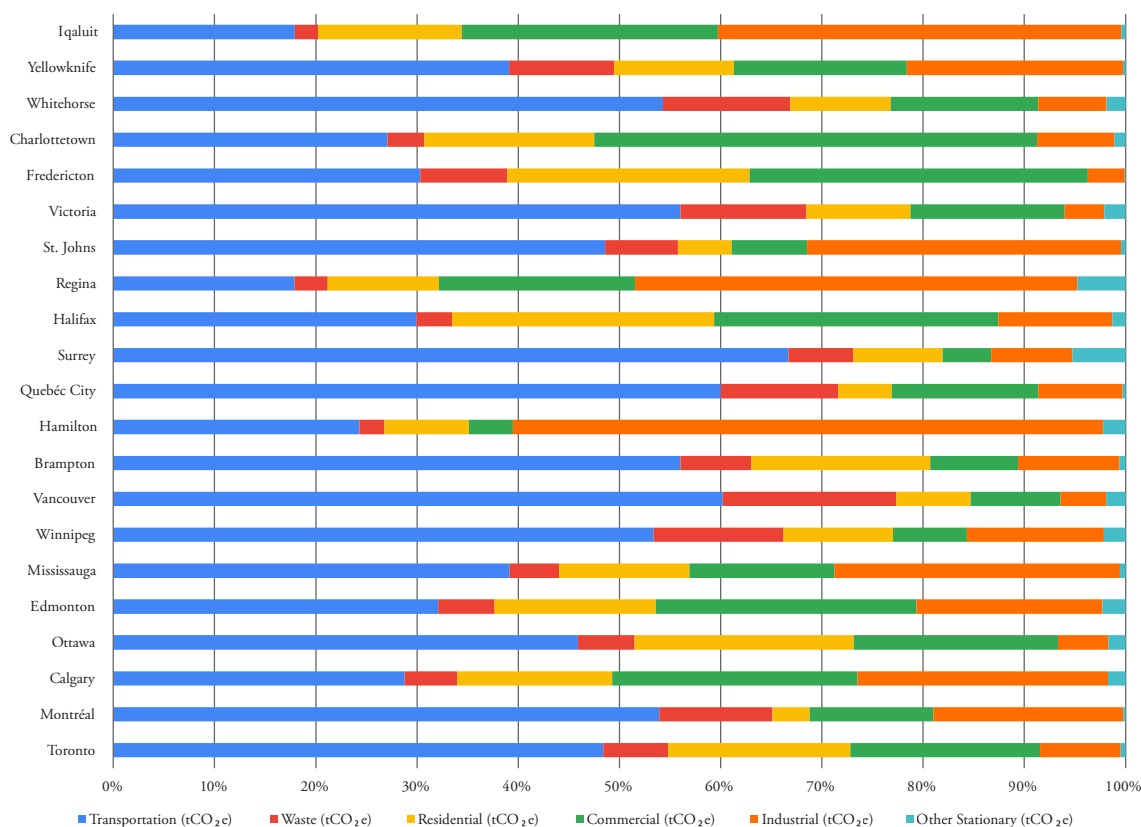
## The Municipal Role in Climate Change

*Table 2: Expected Emissions Changes by Sector, 2005 to 2030<sup>45</sup>*

	Emissions change, 2005–2019 (million tonnes CO <sub>2</sub> e)	Emissions change, 2019–2030 (million tonnes CO <sub>2</sub> e)	Percentage change in emissions, 2019–2030	Sectoral share of expected emissions reductions, 2019–2030
LULUCF & NBCS (removal)	-8	-22	-275%	8%
Agriculture	1	-2	-3%	1%
Waste	-3	-12	-43%	4%
Others	-2	-11	-46%	4%
Electricity	-57	-47	-77%	17%
Buildings	7	-38	-42%	14%
Heavy industry	-10	-25	-32%	9%
Oil and gas	31	-81	-42%	29%
Transportation	26	-43	-23%	15%

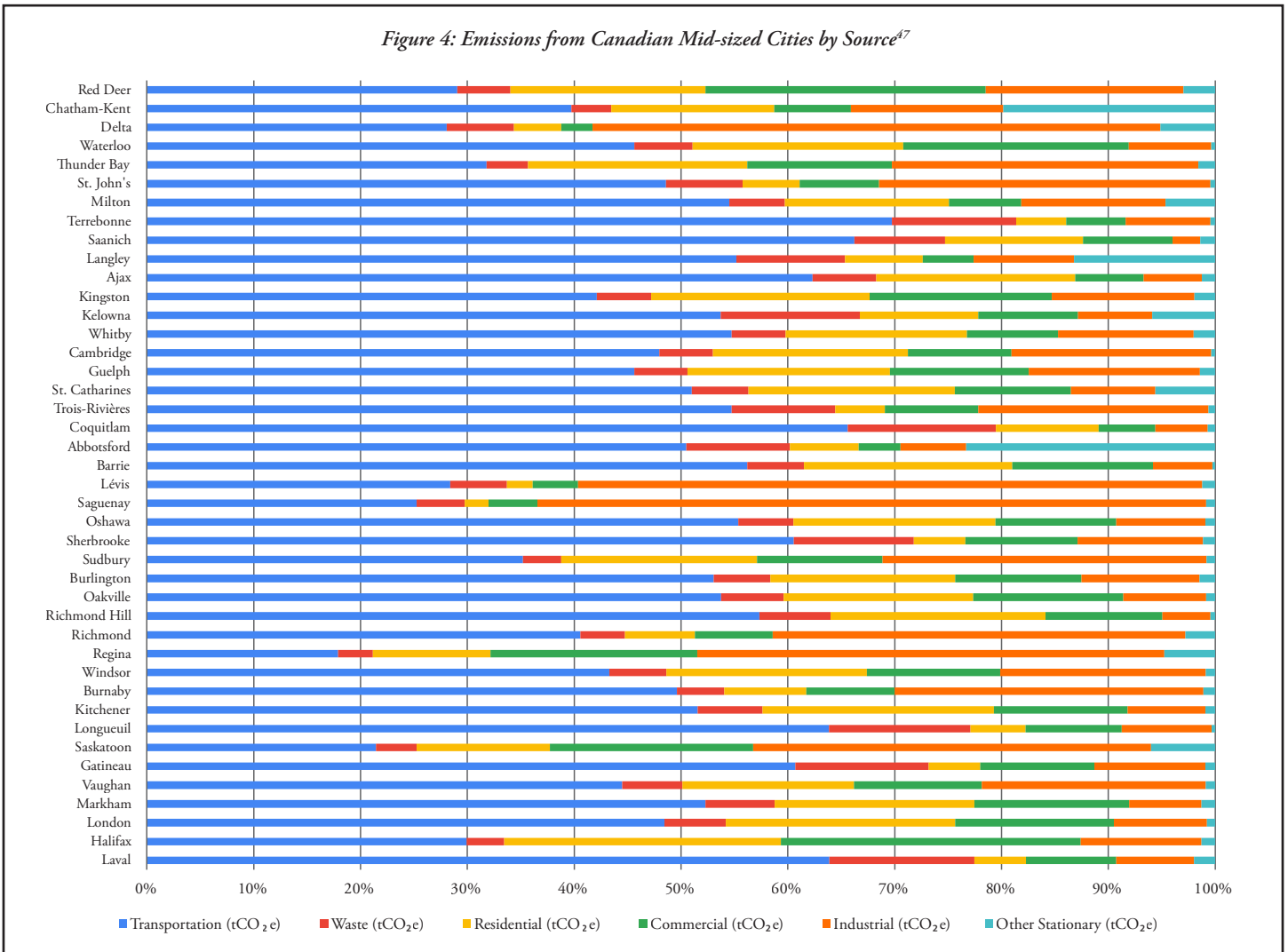
**Note:** The 2022 Emissions Reduction Plan relies on emissions data from the 2021 National Inventory Report (NIR). LULUCF is land use, land use change, and forests. NBCS is nature-based climate solutions. LULUCF emissions are not included in Canada’s national inventory report total; that is, LULUCF emissions are not counted in Canada’s official total. Others includes coal production, light manufacturing, construction, and forest resources.

*Figure 3: Emissions from Canadian Capitals and Large Cities by Source<sup>46</sup>*



**Note:** Cities ordered by 2016 population. Emissions are within municipality boundaries, not emissions under direct municipal control. tCO<sub>2</sub>e stands for tonnes (t) of carbon dioxide (CO<sub>2</sub>) equivalent (e).

Figure 4: Emissions from Canadian Mid-sized Cities by Source<sup>47</sup>



complementing federal budget initiatives to encourage households to switch to zero-emission vehicles.<sup>48</sup>

Cities have several levers to increase the number of EV stations.<sup>49</sup> In issuing permits for new developments or retrofits of older properties, cities could require commercial and residential builders to include EV charging stations. Another option is partnering with other cities to build out a charging station network, such as the Peaks to Prairies network in Alberta.<sup>50</sup> A third option is taking advantage of federal and provincial funding initiatives supporting EV adoption. For example, the 2022 federal budget allocated \$500 million for urban zero-emission vehicle (ZEV) charging infrastructure.<sup>51</sup> Importantly, however, cities should avoid subsidized or free EV charging. The carbon tax is the incentive to change vehicle engine type, and the presence of EV charging stations simply increases the convenience of the switch. Subsidized electricity for EVs would distort driving decisions, leading to more congestion.

Cities can also discourage personal vehicle use and encourage public transit ridership directly through congestion

charges, higher fuel taxes (as in Metro Vancouver), and establishing a low-emissions zone (as in London, UK). An indirect method of discouraging personal vehicle use is high parking fees for fossil-fuel-powered vehicles, which requires differentiating between types of vehicles. Municipalities' ability and authority to use direct methods depends on what is included in cities' enabling legislation, which requires detailed legal analysis of jurisdiction. For example, the Halifax Regional Municipality's charter allows it to establish user levies and bylaws for transport and transport systems, suggesting that Halifax could implement congestion charges.<sup>52</sup> In contrast, with the exception of Vancouver, municipalities in British Columbia cannot levy fees on roads without provincial permitting legislation. Implementation design also matters; congestion charges could be designed as a user fee (pay per use) or a regulatory charge (license to drive), or both. Similarly, a low-emission zone would rely on cities' ability to license vehicles by emissions-intensity.

Discouraging personal vehicle use as a method of emissions reduction also requires the availability of substitutes

for personal transportation. While improving walkability and installing bike lanes both have a role, an important consideration is the availability, quality, and accessibility of different forms of public transit. For example, if traditional public transit service is infrequent and parking is expensive, individuals may choose to travel by taxi or transportation network company (TNC) – such as Uber – instead of public transit. In this instance, emissions reduction depends on the type of vehicle used by the taxi service. As regulators of taxis and TNCs, cities may have a role in nudging those companies to choose low- or zero-emission vehicles through differential licensing fees based on vehicle type, or by requiring that all new vehicles purchases be low- or zero-emissions. The idea is that if people are going to use taxis, it would be preferable if the taxis do not emit greenhouse gases. However, a more direct and broader-based way to address vehicle emissions in a given region is a low-emissions zone with an accompanying vehicle emissions standard, applicable to all vehicles.

An important consideration for all levels of government is to maintain quality, accessibility, and affordability while focusing on reducing emissions from public transportation. This does not mean public transit should be free; crowded public transit would likely push higher-income users who value speed, frequency of service, and trip quality back to personal vehicles, a move that could exacerbate emissions in the short term.<sup>53</sup>

Federal support for transitioning public transit buses to electric power is available from the Canada Infrastructure Bank.<sup>54</sup> Cities can take advantage of this support to upgrade their bus fleet, but ensuring quality and accessibility will take additional investments (particularly with potential increases in ridership), which will likely rely on further provincial/territorial and federal support. Moreover, with expected reductions in gasoline tax revenue from vehicle switching, new sources of revenue will be needed.

### *Buildings*

Residential and commercial stationary combustion emissions are another major source of municipal emissions. Cities have several levers to encourage electrification and emissions reductions. (Elliott Cappell also addresses this issue in his essay.) The federal 2022 budget promised funds to develop a greener buildings strategy; municipalities have the ability to take action now.

One of cities' major levers is in zoning and permitting for both new buildings and retrofits of old buildings. For example, Vancouver requires all new low-rise residential buildings to have zero-emissions heating systems.<sup>55</sup> This may not be feasible for all municipalities in Canada, depending on their available energy sources and climate. In these circumstances, flexibility and cooperation with utilities is in order to accommodate potential changes in energy sources. For example, several places in the United Kingdom are piloting hydrogen as a heating fuel,<sup>56</sup> which may be preferable to heat pumps or electrification. Municipalities should not focus exclusively on residential buildings – commercial stationary combustion emissions exceed residential emissions in Canada's large cities, and are roughly equal in mid-sized cities.

Amending bylaws to prevent “undesirable” energy uses is only part of the answer, however; this approach avoids future emissions from new buildings without addressing emissions from the current building stock. Retrofits of existing buildings will be an important source of emissions reductions, and one easily facilitated by municipalities.

Clear and transparent permitting processes and regulations for renovations to install technologies such as heat pumps or solar panels or to add EV charging will encourage uptake.

Preferential regulatory treatment in permitting may not be palatable, but

municipalities do have an additional lever in property-assessed clean energy (PACE) programs. These programs allow residential and commercial property owners to finance energy efficiency improvements (such as insulation or appliance improvements) and energy source changes (such as heat pumps or solar panels) through property taxes.<sup>57</sup> Financing is tied to the property rather than the property owner, and the loan is repaid through increased property taxes. This type of program can mitigate access-to-financing challenges for property owners, offer more flexible financing terms than traditional bank loans, and tie the cost and benefit of improvements to the property.<sup>58</sup> These programs also avoid a problem associated with direct subsidies, whereby subsidies partially offset the cost of investments that would happen anyway and the changes are not truly additional (that is, brought about solely by the policy).

Municipalities can also pilot and then expand district energy systems, which supply renewable-based energy to small community groups, such as microgrids or geothermal

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**If traditional public transit service is infrequent and parking is expensive, individuals may choose to travel by taxi or transportation network company – such as Uber – instead of public transit.**

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systems for heating and cooling. For example, Edmonton has piloted a district energy system with geothermal and solar energy,<sup>59</sup> and Banff has a small waste-biomass district heating system.<sup>60</sup> These pilots provide information and lessons to other municipalities, and are a small-scale but expandable way to reduce emissions from buildings.

*Waste*

Municipally run solid waste landfills are a major source of waste emissions in Canada, but represent an emissions-reduction opportunity for municipalities because they are one of the few areas under full municipal control. Improved waste management will also become imperative with the federal commitments to zero plastic waste<sup>61</sup> and developing methane regulations for landfills.<sup>62</sup> Mitigating emissions from waste relies primarily on avoidance (diverting waste from landfills), adjusting landfill management practices to reduce methane off-gassing, and capturing off-gasses for other use.<sup>63</sup>

Waste diversion opportunities primarily rely on offering substitutes – such as expanded recycling and composting – and penalizing undesirable behaviour.<sup>64</sup> Options include

pay-as-you-throw, which uses RFID chips embedded in waste, recycling, and composting receptacles to charge households and businesses for their use of collection services, including frequency and volume of waste produced.<sup>65</sup>

Municipalities can also revisit the size of bins used for waste collection and recycling and composting, using smaller bins for waste to encourage diversion. However, variable bin size may create logistical and administrative challenges, alongside higher capital expenses for specialized equipment to accommodate multiple sizes. An alternative approach is variable pickups depending on season.

Improved diversion and recycling and composting will take substantial investments; at the municipal level, realigning waste disposal charges to match system costs can help support these investments.<sup>66</sup> Currently limited federal dollars are devoted to this challenge, aside from a general Low Carbon Economy Fund and the Food Waste Reduction Challenge.<sup>67</sup> This is not surprising, given the federal focus on reducing methane emissions from oil and gas, a much larger source of methane emissions than waste.<sup>68</sup>

Landfill gas recovery is an important option for mitigating emissions from waste, estimated to account for 12 million tonnes CO<sub>2</sub>e by 2030,<sup>69</sup> or the entire waste sector's emissions reductions (see Table 1). For example, Edmonton

recovers landfill gas and uses the methane to generate electricity.<sup>70</sup> Expansion of these types of activities could have an important role in supporting district energy systems or displacing fossil-fuel-based natural gas use.

*Other options: Land use and zoning*

The final tools cities have at their disposal are choices on land use and zoning, particularly related to green spaces and expanding tree canopy, air quality standards, and densification. Green spaces improve quality of life for residents, act as emissions sinks, and have an important role in preventing overland flooding,<sup>71</sup> making them a useful tool for cities in mitigating and adapting to climate change. Tree canopy serves a similar purpose while also providing protection from heat events.

Air quality standards (AQSs) can take many forms, such as low-emissions zones or responses to smog problems (including restrictions on the use of private vehicles at certain times). AQSs are likely to be of particular importance for cities with heavy industrial bases, where provincial and federal emissions-reduction policies have more direct economic

effects on industrial facilities. Nevertheless, cooperation between municipalities and leadership from higher orders of government to design, enforce, and subsequently increase the stringency of air quality standards can also address industrial emissions and improve residents' quality of life.

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Finally, the benefits to increasing urban densification take two major forms. The first (and likely most familiar) is slowing geographic expansion by increasing housing density, moving away from single-family homes on large lots. Energy use and emissions per residential unit will be lower, and with appropriate zoning, commercial amenities can be located nearby, reducing residents' need to travel to access services. Second, moving from a single downtown to several urban hubs can reduce residents' commute times and reduce overall traffic congestion, lowering emissions.

**Conclusion**

Municipalities in Canada have numerous policy levers to support wide-scale emissions reductions within their boundaries. While big-ticket federal, provincial, and territorial policies such as carbon pricing create the broad framework for emissions reductions, municipal policy affects how people live and work and has crucial importance in reducing emissions in the near and longer term. By nudging residents and businesses through zoning, land

use regulation, and bylaws, municipalities can bring about emissions reductions in transportation, stationary combustion (residential, commercial, and industrial), and waste management. However, in many cases these tools rely on some degree of intergovernmental cooperation or funding.

In some areas, municipal leadership is straightforward. Bylaws and zoning are within municipal control and emissions reductions using these tools rely only on councils' willingness to make changes. The changes can include such things as requiring EV charging stations in new or retrofitted buildings. These municipal tools support emissions reductions in transportation, buildings, and waste, and are relatively straightforward to implement.

Other policy options are more complex, as they require municipal leadership with intergovernmental cooperation

or intergovernmental funding. For example, property-assessed clean energy programs require enabling provincial legislation and oversight combined with municipal administration. Similarly, expanding public transit relies on municipal leadership and funding from higher orders of government. These complexities and the required intergovernmental cooperation make emissions reductions more challenging, as the policy options falling under these categories rely on longer-term negotiation and cooperation. (See Sadhu Johnston's essay.) Moreover, they rely on provincial, territorial, and federal climate ambitions, which may differ from those of cities. As a result, these policy options are less flexible and are likely medium- to long-term actions for cities rather than policy actions with immediate payoffs.

## Reform Municipal Governance and Increase Collaboration to Foster Climate Resilience

By Elliott Cappell

*Elliott Cappell is formerly the Chief Resilience Officer of Toronto*

### What is the role for Canadian municipalities in climate resilience?

Globally, a narrative has emerged that cities are on the front lines of climate change impacts, and need to cultivate resilience. From positive stories such as the use of natural capital to fight flooding in cities in the Netherlands, to critical ones such as how poor land-use planning may have exacerbated vulnerabilities to floods in Houston or New Orleans, there is growing recognition that local government decisions have a direct impact on climate resilience.

Yet climate change is a global phenomenon, with continental factors driving the intensity, duration, and frequency of hazards such as severe storms, floods, or heatwaves. The major policies, infrastructure, and social structures that determine how people fare in climate shocks are often internationally, federally, or provincially determined.

Climate resilience can be understood as a function of two factors: exposure and vulnerability. Exposure determines whether someone or something is in harm's way, whereas vulnerability determines the severity of the impact a given hazard will have on a person or thing.

The different challenges that Canadian cities face in building climate resilience reflects this interplay between exposure and vulnerability. As is the case with a number of other related policy topics, such as land-use planning, infrastructure development, or building codes, Canadian cities are often "too big and too small" to address climate resilience adequately. They are too small to address the drivers or exposures, but too large to address the hyper-local or social determinants of vulnerability.

This essay will highlight the challenging context of "who does what," not only between governments but also within municipal governments. It will conclude with a few concepts and emerging ideas to help address the central challenges Canadian cities face in building climate resilience.

### Regulating the built environment: Who does what?

In practice, the built environment provides a useful lens through which to understand "who does what." Our homes and critical infrastructure (such as water or energy) determine both exposure to and vulnerability during climate shocks and the effects of chronic climate change.

First, the location and quality of housing affects how people fare in climate shocks. The location of homes

determines exposure to risks such as extreme heat or flooding, while within cities, homes in different areas are exposed to different hazards. The quality of housing is also a major factor in vulnerability, especially for those who are underhoused or unable to "shelter in place" during a climate shock. For example, during heavy rainfall, all houses on a city block are exposed to the same hazards by nature of their geographic co-location, but the construction of the different houses on the street may determine which ones are flooded: those with downslope driveways are more likely to flood; houses with a basement pump are less likely; a house in good condition is, all other things being equal, less likely to flood than one in poor condition.

Unfortunately for cities trying to address vulnerability, the building code is typically a matter of provincial jurisdiction. Only in a few cases have provinces taken action through the building code or related instruments specifically to advance climate resilience. At the municipal level, there are some home flood protection initiatives, such as those supported by the Intact Centre on Climate Change. However, home flood protection initiatives are dwarfed in number and size compared with green building standards to reduce emissions. (For more on strategies for emissions reduction, see Jennifer Winter's essay.)

With regards to exposure in the built environment, Canadian cities play a central role through land-use planning. Cities have powers to keep buildings and people in or out of harm's way using local planning permissions. This is most commonly understood in how (or whether) cities limit building in floodplains and river valleys.

Exposure to natural hazards rarely if ever aligns perfectly with city boundaries. The simplest example is that of fluvial (or riverine) flooding. For example, Toronto's main rivers (Don, Humber, Etobicoke, Rouge, Mimico, Highland) originate outside the city and empty into Lake Ontario. Fluvial flooding in Toronto is considered to be a regional issue, and is the purview of the Toronto and Region Conservation Authority (TRCA), not the City of Toronto.

The 2017 "high lake effect" flooding in Lake Ontario is another example of the limitations of a city's (in this case Toronto's) role in exposure. Lake Ontario and its inflows and outflows are governed by the International Joint Commission (IJC). When Lake Ontario reached levels causing a "high lake effect" flood in 2017, Toronto had no powers to control the management of lake levels, which affected homes on the Toronto Islands. Fortunately, Toronto had used its local planning authority to clear all other floodplains in the 1950s, following the devastation of Hurricane Hazel. Had Toronto applied its same authority to the Islands, no homes would have been flooded in 2017.

Infrastructure is another example. The infrastructure we rely on day to day, such as water, electricity, heating/cooling,



and so on, is typically delivered by municipalities. Provision of those infrastructure services is essential to our ability to cope in a climate shock. We also know from studies such as *Canada's Top Climate Change Risks*,<sup>72</sup> by the 2019 Canadian Council of Academies, that infrastructure is the sector at greatest risk from climate change. However, infrastructure is designed, procured, delivered, and operated according to codes and standards determined mainly by provinces and the National Master Specification. Canada's existing codes and standards do not give adequate consideration to a changing climate – indeed, many of the leading Canadian bodies, such as the Canadian Standards Association, are working to address this issue.<sup>73</sup>

Moreover, climate change and extreme weather demand different responses in different places. The risks and effects of hazards such as rainfall, extreme heat, wind, or freeze-thaw cycles can vary widely within the same province, region, municipality, or even ward. Municipalities need the flexibility to adapt their critical infrastructure to the specifics of their location and exposure, but the standards and codes governing that infrastructure are provincial or federal. It is possible for those codes and standards to be flexible enough for municipalities to adapt them, but that is not the practice.

These examples illustrate that the impacts of climate change are local, but in Canada the key tools to address exposure and vulnerability are spread across several orders of government.

### **Who does what within municipalities**

Effective climate resilience requires policy coherence, because the issues cut across municipal government departments and involve intergovernmental affairs.

For example, flooding is a policy issue for the roads, housing, public works, land use planning, and emergency management divisions in any city, as well as regional conservation or water management groups (such as conservation authorities), the provincial natural resources ministry, and private interests such as insurance companies.

Many (if not all) mid-sized and large Canadian cities have climate adaptation plans that touch on flooding. Yet action from Canadian cities on the issue is mixed. A 2020 study from the Intact Centre on Climate Adaptation<sup>74</sup> gave

Canadian cities a “C+” average for flood preparedness, even though flooding is a top climate hazard in Canadian cities (as measured by insured losses to date).

These mediocre results reflect a wider challenge for municipalities in addressing cross-cutting policy issues. Most Canadian municipalities are structured along the lines of their regulated responsibilities, such as delivery of water, parks, roads, or land use management. Cities that lead on climate resilience tend to have different governance structures: some, like New York City, are strong mayor systems; others, as in the Netherlands, have resilience ingrained in their structures (not only through Water Boards that govern local water issues, but also through ties to emergency management, infrastructure planning, and related fields). Some municipalities have attempted to overcome that structural limitation through the addition of “climate change” responsibilities to their environment teams.

Globally, many cities have appointed Chief Resilience Officers (CROs) to address this challenge. Four Canadian cities (Toronto, Montréal, Vancouver, and Calgary) have created CROs through the 100RC (100 Resilient

Cities) initiative, but the results were mixed at best. However, CROs may have been “ahead of their time” in Canada, as the role of CROs has grown significantly in other cities internationally, and CROs are now being created by states (in the United States) and other regional bodies.

### **Who holds the data?**

A challenge in planning for climate change is limited knowledge about (a) how much the planet will warm, and (b) how warming brings about extreme weather. Global institutions are racing to address this data challenge, and developing downscaled climate projections in different warming scenarios. A related challenge is understanding how vulnerable any particular person or thing is to a change in the climate.

Municipalities need access to locally relevant exposure data as well as the skills to forecast how climate change may affect municipal finances, infrastructure reliability, human health, natural capital, and other areas.

There are economies of scale to be captured in processing and downscaling global climate data to determine local exposure. Intergovernmental collaboration is needed,

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**Municipalities need the flexibility to adapt their critical infrastructure to the specifics of their location and exposure, but the standards and codes governing that infrastructure are provincial or federal.**

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whereby provinces or the federal government provide data to municipalities. Ouranos<sup>75</sup> in Québec, is a good example of collaboration on data and knowledge.

However, the skills needed to apply those data to local decisions are in short supply. Even the largest Canadian municipalities have limited staff or partners who can translate climate science data into an understanding of the impacts of climate change on the community.

### Who pays, for what, and how much?

A 2021 study from the Financial Accountability Office in Ontario<sup>76</sup> showed that the impact of climate change on public buildings alone would cost an addition \$6 billion by 2030, and will increase the costs of maintaining public buildings in the province between 8 percent (in a Paris-aligned warming scenario) to 14 percent a year (in a high warming scenario).

A 2020 study from the Canadian Climate Institute (formerly the Canadian Institute on Climate Choices)<sup>77</sup> showed that “flood damage to homes and buildings could increase fivefold in the next few decades and by a factor of ten by the end of the century, with costs as high as \$13.6 billion annually.”

A 2019 study from the Intact Centre on Climate Adaptation<sup>78</sup> showed that the federal government’s flagship Disaster Financial

Assistance Arrangements fund paid out more for disaster resilience in the six years between 2009 and 2015 than in the previous 39 fiscal years *combined*.

So – who pays? Fundamentally, cities are “on the hook” for most of these costs, as the owners and operators of infrastructure and buildings. They also bear the costs of increased use of social resources, such as emergency services, in the case of climate shocks. (Sadhu Johnston also addresses this issue in his essay.)

Because the costs far outstrip the capacity of local governments, they will inevitably fall on provinces, territories, and the federal government.

Another challenging question comes in the areas of *what* is paid for and *how*. At present, most financial resources for climate impacts such as insurance and disaster relief are paid to “build back,” or to the replacement value of an asset. A fraction of the resources is directed at helping municipalities build resilience to climate change. This inadequacy is likely to be a growing area of friction between orders of government in the coming years, as municipalities and provinces ask

the federal government for the resources to “build back better” – something not currently covered in our national disaster finance arrangements.

A promising development for cities in paying the costs of climate change has been the emergence of sustainable finance. The use of green bonds, sustainability-linked loans, and other instruments has opened up new opportunities for cities to access finance.

### Opportunities and emerging ideas

The issues highlighted here are but a sample of the challenges facing cities in developing climate resilience. The central problem Canadian cities face is that they are at once too small to pull the main policy levers required to combat the physical impacts of climate change, but too big to address local issues affecting vulnerability. Cities lack the resources to address the root problems or to build back better after impacts.

New sources of capital, such as resilience-linked

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**Even the largest Canadian municipalities have limited staff or partners who can translate climate science data into an understanding of the impacts of climate change on the community.**

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bonds or loans, can help address the financial challenges. But some of the best opportunities in climate resilience are those that address governance challenges, such as improved collaboration

through Chief Resilience Officers or other “silo-busting” roles and functions. Even better are the opportunities to improve access to climate data and improved transparency through climate-related financial disclosures, as these measures can support better governance through improved decision making, and better financial outcomes through more effective allocation of capital.

Perhaps best of all is an idea we have not yet tried in Canada: intergovernmental collaboration. The federal and provincial/territorial governments face the same fundamental challenge as municipalities: our institutions are not scaled effectively to address climate change. Solutions need to draw on a coordinated set of policy levers from each order of government. Municipalities could start that process – first by making climate resilience a whole-of-municipal-government focus, and then through dialogue and collaboration to make resilience a whole-of-governments priority.

## Increase Capacity Building, Collaboration, and Resources to Ensure Canadian Cities Can Address Climate Change

By Sadhu Johnston

*Sadhu Johnston is the former City Manager of the City of Vancouver*

More than a century ago, when cities were formally established in Canadian provinces, their roles were much simpler than they are today. Their primary responsibilities, as outlined in provincial legislation, generally included roads, bridges, firefighting, police services, waste management, water and sewage systems, and other local services.

Today, we expect much more from our cities, including an expanded role encompassing physical infrastructure such as public transportation, as well as affordable housing and complex social interventions, such as fostering mental health, reducing poverty, contributing to community cohesion, and coping with the worst drug overdose epidemic in the country's history.

Large cities in Canada are tackling these issues, not because they have been mandated, but because the quality of life in their communities depends upon their doing so. And cities are doing this new work without increased financial tools, thereby creating a more vulnerable and unsustainable urban fiscal environment.

Of the new duties cities face, climate change is likely the most daunting and expensive, and has the highest consequences of inaction. There are two primary reasons that cities must act. First, cities are on the front lines in experiencing the impacts of climate change, including rising sea levels, floods, fires, extreme storms, noxious air quality, heatwaves, unreliable energy sources, and threats to food supplies.

Second, Canada and other countries cannot meet their climate reduction objectives without leadership from cities. Globally, more than 70 percent of carbon pollution comes from urban areas.

Cities have a dual task in handling climate issues in their communities: they must adapt to and become more resilient to the impacts of climate change, and they must reduce their emissions. Neither task is simple or cheap. For example, a recent report by the Canadian Climate Institute asserts that

in Canada, the annual cost for dealing with flooding alone will be more than \$13 billion by the end of the century.<sup>79</sup> The majority of these costs will be in urban areas, where 80 percent of Canadians live and where most infrastructure is located.

Cities do have many of the tools necessary to take on these challenges. For example, coastal cities already have sea walls that can be raised to handle sea level rise. They can plant and manage urban trees to cool their communities. They can upgrade storm systems to catch more rain during extreme storm events. They can build green stormwater infrastructure to keep rain out of sanitary sewers.

Cities can use zoning to ensure that new developments are close to transit and are protected from floods. Cities like Vancouver have the power to exceed national building codes to ensure new buildings are energy-efficient and resilient. They can adjust how they build and maintain roads, bridges, sidewalks, and bike paths to make it safer and more convenient to get around on foot and by bike. They can

build district energy systems to provide renewable energy to heat neighbourhoods from waste heat in the sewers.

Cities can also transform their own operations to drastically reduce carbon emissions. They can capture energy from their waste processing facilities as

in Surrey, B.C., where that energy is used to power garbage trucks. They can buy electric vehicles for their fleets. They can make libraries, community centres, and other public buildings energy-efficient and even power them from renewable sources of energy.

Many cities are doing one or two of these actions, but few Canadian cities have the resources to do more than a few piecemeal projects. To ensure the widespread adoption of these proven approaches so that our cities remain healthy and our country achieves its climate targets, significant changes are needed. I offer six recommendations to municipalities, provinces, and the federal government to ensure that cities succeed in tackling climate change.

These recommendations focus on the needs and experiences of large cities, but rural communities in Canada also need support. While rural communities represent a minority of Canada's people, they represent a majority of Canada's lands and an important cultural and ecological contribution to Canadian life. Rural Canadian communities would benefit from better representation within regional governments and their own unique models, policies, and

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**Cities have a dual task in handling climate issues in their communities: they must adapt to and become more resilient to the impacts of climate change, and they must reduce their emissions.**

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funding streams to tackle the climate challenges they are facing.

### Address the skills gap

From my experience, I know that most municipal employees and elected officials have not received any formal education about climate change. If we want our city engineering staff to design streets that use green infrastructure to handle stormwater instead of expensive systems of large pipes underground, or facility managers to make buildings more energy-efficient, or purchasing staff to buy electric vehicles, or zoning staff to negotiate with developers for district energy systems, they need support and training to succeed.

From my work in Chicago and in Vancouver, I have found that municipal employees are passionate about these issues and want to be a part of the solution, but many of them have no training in dealing with climate change, understanding how climate change will impact their work, or identifying the best solutions to reduce emissions.

We need a major education initiative to train municipal government employees and elected officials on climate solutions and how to implement them. Enough cities have implemented climate actions that best practices can be identified and shared across Canadian cities.

**Recommendation 1:** The federal government, along with municipal associations, should partner with Apolitical,<sup>80</sup> a group in the United Kingdom that offers a cutting-edge online educational platform for government employees, to provide cities with access to education on climate change impacts and actions. Such an approach would save each city having to create unique education programs for its staff.

### Achieve co-benefits

Given constrained resources and the growing needs in our communities, cities need to pursue innovative, cross-departmental solutions and achieve co-benefits in everything they do. Every dollar that cities spend should contribute to addressing climate change while supporting the community in multiple ways. (Elliott Cappell also addresses this issue in his essay.)

For instance, cities cannot just build a park. Parks must be designed in partnership with First Nations, who have been on the land for thousands of years. And new parks must serve more than just recreational needs. They can provide

ecosystem benefits such as absorbing stormwater with green infrastructure or have edible landscaping so people can connect with the land and feed themselves. They can include specific trees that can survive changing conditions in the decades ahead, provide important habitat for wildlife and pollinators, and offer shade for visitors.

Achieving multiple benefits with each action is hard to do if a city's administrative systems and departments work in their own silos in their traditional ways. However, if funding from the sewers department can be used in the park to address stormwater problems, the park dollars and the sewer utility funds are each leveraged to produce a better park that helps to address climate change.

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**If one community on a river builds a wall to protect the community from rising waters, but the neighbouring jurisdiction does not, the waters will just flood both communities from the weak point.**

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This new way of working can also be made easier through partnerships. To support this approach, the City of Vancouver has partnered with local universities to create a CityStudio.<sup>81</sup> Located within a city facility, CityStudio

brings together students, faculty, and city staff to explore and implement solutions to challenges within the community.

**Recommendation 2:** Municipalities, along with municipal associations, should pursue co-benefits and innovative strategies to foster climate change resilience and work with the federal government to propagate examples of this approach.

### Ensure all municipalities participate in and promote regional collaboration

Urban areas in Canada are often made up of many municipalities, as well as First Nations. Regional collaboration is critical to achieving resilient, low-carbon communities. From my experience working in Vancouver and Chicago, I know that regional collaboration on climate issues is a critical opportunity. There are areas of successful partnership, such as regional transportation planning, but for new areas of focus, such as addressing rising water levels, reducing carbon emissions, or taking new approaches to energy planning, there are gaps. If one community on a river builds a wall to protect the community from rising waters, but the neighbouring jurisdiction does not, the waters will just flood both communities from the weak point. The entire shoreline or river valley, whether within a First Nation area or covering multiple municipalities, must be protected for any area to benefit from the protection. Regional, multi-jurisdictional planning and coordination is critical.

Regional collaboration is important for lowering carbon emissions as well. In Vancouver, a major development to house thousands of residents and many jobs was proposed. To provide low-emission heating and hot water, the developer built a low-carbon district energy system. This needed a renewable source of heat. Just 4 km away was an incinerator with a massive amount of heat being pumped into the atmosphere, but due to the lack of regional collaboration, it has so far proved impossible to get that heat from the plant across municipal boundaries to the neighbourhood that needs it.

In general, I believe that municipalities should be empowered, so it may seem somewhat contradictory to advocate for provincial mandates, but in this case, I think mandates are worth considering. Too many cities are not acting. One community that does not invest in flood mitigation could be the weak link that floods other communities. One municipality that does not allow waste heat from one of its facilities to be used in another municipality stands in the way of reducing carbon emissions for the whole region. This issue is too important to let a few reluctant communities offset the actions and investments of their neighbouring communities.

**Recommendation 3:** Provincial governments should issue mandates and/or incentives so that every city with a population of more than 10,000 adopts and implements a climate resilience and emissions reduction plan. Where possible and appropriate, provinces should mandate that municipalities within a region co-create these plans. California has incentivized its cities to adopt Climate Action Plans (CAP) and more than 64 percent of the state's population now live in communities that have a plan.<sup>82</sup>

### **Clarify municipal roles in the national climate road map**

Canada needs a clear national road map for how the country is going to address climate change that lays out the roles that cities, First Nations, provinces, and the federal government are expected to pursue. While each order of government is working to address climate change, it sometimes seems that each is working in a vacuum with no clear approach or communication of how its actions are aligned with those of others.

Canada has recently announced an ambitious climate plan<sup>83</sup> with national climate targets. Throughout the plan the importance of cities is referenced, but the specific role and expectations of cities needs to be clearly established.

**Recommendation 4:** Federal, First Nation, provincial, and municipal governments should establish an intergovernmental table to co-create a climate implementation plan for the country. It would serve as a clear road map for how Canada will be a climate leader and what reductions are needed from cities and provinces to achieve

national commitments. The road map should also outline what resources, powers, and support cities need to reach their climate objectives.

### **Provide cities with new powers**

Canadian cities need additional powers to successfully tackle climate change. Some basic actions are necessary for achieving climate reductions, but most Canadian cities do not have the powers to take those actions.

For instance, powering buildings is the largest source of carbon emissions in most cities. Much of that power is used by the largest buildings in the community. Cities like New York and Philadelphia require that large buildings in their city report their energy consumption. Their energy usage is benchmarked against other buildings of their size and the results are made public, generally through a simple map.<sup>84</sup> This level of transparency allows potential tenants or buyers in the building to know how the building performs compared with others. This system, known as energy benchmarking, has been a popular tool for many cities in the United States to get existing buildings to reduce their energy usage without mandating energy upgrades across the board.

For the most part, Canadian cities do not have the power to require building owners to report their energy usage. This power was just given to Vancouver after almost a decade of requesting it. Soon to replace energy benchmarking, climate efficiency will measure how much climate pollution a building is emitting. The ability to mandate that larger buildings report carbon efficiency should be made available to all cities in the country. There are other powers that cities need to achieve carbon reductions, such as being allowed to create congestion charging zones (as London, UK has successfully done).

**Recommendation 5:** Provinces should work with their municipalities to evaluate the powers needed by municipalities to adequately address climate change and update their legislation accordingly. Together municipalities and provinces should find ways to speed up the time it takes to update powers provided to cities in order to make the changes required by cities. Approaches to addressing climate change are evolving quickly and somehow, legislative powers necessary to fight it must evolve more quickly too.

### **Expand municipal tools to raise funds to tackle climate change**

Adapting to climate change and implementing climate pollution reduction measures is not cheap and municipalities lack tools to raise the money they need. Currently city services are funded largely by property taxes and user fees. Of every tax dollar collected in Canada, about 10 cents goes to our cities.<sup>85</sup>

Property taxes are already maxed out paying for roads, bridges, libraries, police and fire services, and the other

basics to keep our cities going. It is not a viable or publicly acceptable source of funding for the billions needed for essential climate mitigation and adaptation work. User fees, such as charges for water, building permits, or garbage pick-up, are generally mandated by provinces to be revenue-neutral. In other words, they cannot be used to fund other services or infrastructure.

Transfers from the provincial or federal governments are not a viable way to fund climate change resilience work either. They are unreliable, inconsistent, and sometimes distributed with political motivations. If a city creates a plan that spans a decade or two, it will need a reliable and stable funding strategy to implement the plan.

In the Vancouver region, one of the key solutions to reducing climate pollution is to expand public transit. The regional mayors proposed ways to raise the money, but the province turned most of them down and eventually required a plebiscite for the funding, which failed. People love having access to transit, but voting to increase taxes to pay for it is a hard pill to swallow. So, one of the region's primary climate actions has taken more than a decade to secure funding. With more tools to raise funds locally, transit projects across the country would be built instead of still being debated.

Agreeing on new funding tools will not be an easy negotiation with the provinces or the federal government, but it will be a worthwhile one to have. One successful example of that process is the empty homes tax in Vancouver. Canada is facing a major housing crisis, but as housing in our largest cities has become an investment commodity,

many homes were sitting empty. Buckling under public pressure to do more, the province finally agreed to grant the city powers to establish an empty homes tax. Any home left empty for a certain period would be levied a tax, the money from which must be used to support the creation of affordable housing in Vancouver. Many homes were rented out or sold to avoid the tax and almost \$40 million per year was raised to support affordable housing in Vancouver. We need a similar set of tools to address climate change. It might take the form of a sales tax that cities can implement. The only way to successfully create these new funding sources is through collaboration among cities, provinces, and the federal government.

**Recommendation 6:** Provinces should work with municipalities to collaboratively develop funding tools to support cities in taking climate action. Likely the best source of funding to support this work is to increase taxes on fossil

fuel sales, eliminate subsidies for fossil fuel production, and use the funds generated to support municipal climate action.

These six recommendations will cost virtually nothing for provincial and federal governments but will, in my opinion, be the

difference between success and failure in addressing climate change.

Canada could be a leader in tackling climate pollution, but achieving this position requires supporting what works and enabling cities to succeed. Without strong and resilient cities, the Canadian economy and our people are more vulnerable to climate change. If we do not collectively ensure cities are actively involved and appropriately resourced, we will not achieve our national targets.

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## Endnotes

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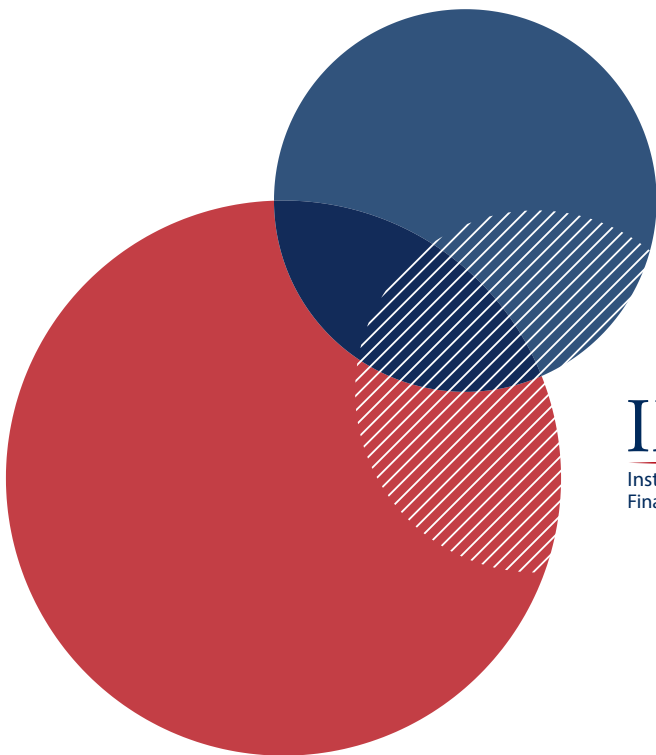
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