CANADA

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In collaboration with • **Jimena Eyzaguirre** • **Andrew Thompson** • **Caitlin Semmes** • *ESSA*

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Introduction

Canada is one of the world's most decentralized nations. As such, the responsibility for mandating and tracking local government climate actions falls to the provinces/territories. In the absence of provincial/territorial requirements, many local governments developed climate plans in the 1990s and 2000s with the support of non-governmental organizations. The 2016 Pan-Canadian Framework on Clean Growth and Climate Change established a baseline carbon price and greenhouse gas emissions reduction targets, outlining shared actions to advance across federal, provincial and territorial governments. Local governments must abide by provincial / territorial regulations which differ in scope, approach, and reporting requirements.

1.Distribution of climate change competencies

TABLE1

SUMMARY OF CLIMATE RESPONSIBILITIES ACROSS LOCAL (MUNICIPALITIES AND INTER-MUNICIPALITIES), PROVINCIAL AND TERRITORIAL, AND FEDERAL GOVERNMENT IN CANADA.

	5,236 LOCAL GOVERNMENTS	10 PROVINCES & 3 TERRITORIES	FEDERAL GOVERNMENT [a]
ENERGY – CLIMATE	- Energy efficiency incentives - District heating - Management of electrical utilities - Funding for alternative energy development - *Integrated Community Sustainability Plan f*	- Energy efficiency incentives - Natural resource management - Electricity generation and distribution, and regulation	- Nation-wide energy planning - Regulation & operation of pipelines, nuclear power and offshore energy - Energy research and development - International energy agreements
TRANSPORT	- Municipal road network - Public transportation systems - Municipal vehicle fleets - *Official Community Plan d*	- Highway network - Regional public transit systems - School board transit fleet	- Railways, Airports, Shipping, and Ports - Transport regulation and policy - Funding of provincial and municipal projects
HOUSING	- Housing Policy [g] - *Official Community Plan d*	- Social housing and community amenities [b] - Funding for housing	- Mortgage assurance - Funding for housing
WASTE, WATER, AND SANITATION	- Waste collection and treatment - Water supply and sanitation - *Official Community Plan d*	- Management of interior rivers, lakes, canals - Drinking water protection - Regulation of dams and water withdrawals - Regulation of development	- Management of inter-jurisdictional and offshore waterbodies
ECONOMIC AND INDUSTRIAL POLICY	- Financial incentives and capacity building for businesses	- Financial incentives and capacity building for businesses - Support for research and development - Regulation of energy use and GHG emissions - Building and retrofit codes	*Pan-Canadian Framework on Clean Growth and Climate Change (PFCCC)* - Financial incentives for development - Regulation of GHG emissions
LAND USE PLANNING	- Municipal land use planning and zoning - *Official Community Plan d*	- Agriculture and rural development - Management of crown land, including forests - Impact Assessments - Regional land use planning and governance of planning	- Management of federal lands - Regional and Strategic Impact Assessments
ENVIRONMENTAL PROTECTION	- Municipal parks and green spaces - Building and land use permits - *Asset Management e*	- Provincial Parks - Enforcement of environmental regulation	- National Parks - Management of pollutants, hazardous waste, greenhouse gas emissions
BUDGET (CAD BILLIONS)	103.3 (2018) [c]	444.6 (2018)	CAD 338.8 (2019)

a Indigenous communities in Canada fall under federal jurisdiction. Governance responsibilities among Indigenous (First Nations, Inuit, and Métis) communities in Canada differs by community, depending on their relationship with the federal government (i.e., whether they have negotiated treaties, land-claims, or self-governance agreements). Under these agreements, certain responsibilities are co-governed with some Indigenous communities, including land use planning, impact assessment, housing, and wildlife management.
b Responsibilities vary among provinces and territories. LGs are responsible for social housing and public health only in Ontario (Johal 2019)
c This figure excludes inter-municipalities
d "Official Community Plans" are a requirement of municipalities in British Columbia
e Local governments may receive funding and technical assistance from the Federation of Canadian Municipalities to increase the sustainability of their asset management program through the development of plans, policies, strategies, and governance frameworks.
f Integrated Community Sustainability Plans address environmental, economic, and social sustainability. They are implemented by LGs, with financial support from Provinces / Territories (originating from Federal Gas Tax revenue).
g While housing policy differs by jurisdiction, it typically includes permitting housing developments, regulating renovations, modifying building codes, levying property taxes and other fees, and a number of other mechanisms to regulate the housing market.
Sources: MLA Day. 2012. "Federal, Provincial and Municipal Responsibilities."; OECD/UCLG. 2019. "World Observatory on Subnational Government Finance and investment - Country Profiles"; City Solicitor. 2001. "Powers of Canadian Cities – The Legal Framework"; Hulchanski, JD. 2007. "Canada's Dual Housing Policy" Centre for Urban and Community Studies, Research Bulletin #38; Di Matteo, L. 2020. "Local Leviathans: The Rise of Municipal Government Spending in Canada, 1990-2018" Fraser Institute; Federation of Canadian Municipalities. 2018. "How to develop an asset management policy, strategy and governance framework"; Canada Mortgage and Housing Corporation. 2018. "A Guide for Canadian Municipalities for the Development of a Housing.

In Canada, the *Constitution Act, 1867 assigns various legislative powers to federal, provincial, and territorial governments. Territorial governments have a limited set of powers and are under federal control, although in recent decades, province-like powers (e.g., control of lands and resources, education, health care, justice, and municipal governance) have been devolved to territories.*

Local governments are not addressed by the Constitution Act, 1867. Instead, local governments' powers are established in provincial legislation. For the most part, the provinces have granted local governments a suite of broadly equivalent powers, although there are some differences among jurisdictions. Inter-municipalities exist in Canada, although their purpose and powers differ within each province. In British Columbia, "Regional Districts" administer land use planning, waste management, housing policy, and even regional parks, which are the domain of municipalities among other provinces. Other provinces including Ontario and Quebec also have inter-municipal government systems, although they have fewer responsibilities (OECD/UCLG 2019a).

Of all three levels of government, provinces and territories have the highest budgets (approximately equal to the combined budgets of local governments and the federal government), due to their responsibility for the delivery of expensive programs like healthcare, education, and social welfare (these three alone make up more than 75% of provincial budgets) (FAO, 2019).

Climate commitments as a proportion of local government budgets have not been quantified. Many local governments have opted to implement climate action plans in recent decades, even in the absence of federal, provincial, or territorial mandates (Federation of Canadian Municipalities and ICLEI 2019). Most were developed with the support of the voluntary "Partners for Climate Protection (PCP)" program, an independent network of local governments that make commitments towards addressing climate change (including inventorying GHGs, making targets, developing an action plan, and addressing progress and reporting). Membership has doubled over the last decade to nearly 500 local governments, covering 70% of the Canadian population, with 85 local governments having reached the final milestone (quantifying and reporting on GHG emissions reductions from action plan measures). Among PCP members, programs primarily target emissions reductions rather than adaptation, although adaptation actions are becoming more prevalent (Guyadeen et al. 2019).

2. Legislative and regulatory drivers of Local Government Climate Action (Planning, Implementation and Monitoring)

2.1 Historical Perspective [2000-2015]

• **FEDERAL LEGISLATION** • Obligations made to address and mitigate the impacts of climate change in Canada are made at federal, provincial, and municipal or regional levels. At the federal level, one of the most prominent early examples of enacted legislature is Canada's signing of the **United Nations Framework Convention on Climate Change (UNFCCC)** in 1992 (Environment and Climate Change Canada 2020a). This framework sought to "stabilize GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (however, it did not mandate GHG reduction requirements for provincial, territorial or local governments; Environment and Climate Change Canada 2020a). Extending from the UNFCCC, Canada committed to reduce its greenhouse gas emissions by 6% from 1990 levels between 2008 to 2012 under the 2005 Kyoto Protocol (Canadian Geographic 2016). Contrary to its goal, Canada's

emissions increased by over 30%, and in 2011 Canada officially withdrew from the agreement under the direction of the Steven Harper led Conservative government (Canadian Geographic 2016).

In 2006, Canada implemented the **Clean Air Act** which established short, medium, and long-term air pollution targets (Government of Canada 2006). Canada amended its Environmental Protection Act (1999) with **Bill-C468** in 2007 to add language and obligations about carbon pricing, GHG emission trading, ambient air quality, green investment banking, and energy efficiency, among other changes meant to reduce its contribution to climate change (Parliament of Canada 2007). 2010 saw the signing of the **Copenhagen Accord** by the Canadian government, with the goal of reducing GHG emissions to that of 17% below 2005 levels by 2020 (Government of Canada 2006, Office of the Auditor General of Canada n.d). In 2014, with emissions still increasing, Canada released a statement indicating that the country would not meet its target (Government of Canada 2016c). And in 2015, Canada committed to the **2030 Agenda for Sustainable Development** and its 17 goals by 2030 (Office of the Auditor General of Canada n.d, United Nations 2017).

2.2 Provincial / Territorial Legislation

While the federal government does legislate some of its climate change actions at the provincial and territorial level (see Table 3.1), for the most part Canada's provincial and territorial governments are each responsible for developing their own policies to address climate change. Each province and territory implement its climate change legislation in a unique way. For example, Ontario's Environmental Protection Act bundles 10 GHG regulations into one document, Saskatchewan's Ethanol Fuel Act and Ethanol Fuel Regulations, Renewable Diesel Act and Renewable Diesel Regulations, and Oil and Gas Conservation Amendment Act and Oil and Gas Emissions Management Regulations all pair Acts with a single regulation (Canada West Foundation 2020). Some provinces embed GHG targets into non-legislative programs and agreements, while others embed them into legislation (Canada West Foundation 2020). Because of the numerous ways in which provinces and territories address climate change legislation, it is difficult to synthesize and compare approaches.

The provinces of British Columbia, Alberta, Saskatchewan, Ontario, and Quebec together account for over 90% of Canada's GHG emissions (Environment and Climate Change Canada 2020b). As such, these provinces in particular have developed several policies and legislation to address GHG emissions and climate change over the past few decades. The following section describes climate policies among four provinces in Canada (and their treatment of local government climate policy).

• BRITISH COLUMBIA • For British Columbia (BC), 2007 saw the development of many policies and legislation meant to address climate change and GHG emissions. Notably, 2007 saw the enactment of the **Climate Change Accountability Act (CCAA)** which set a provincial GHG emission reduction target of at least 40% below 2007 levels by 2030, 60% by 2040, and 80% by 2050, and established a climate change accountability framework (requiring annual reporting of provincial GHG emissions and analysis of climate change risks every five years). GHG reporting under the CCAA is enabled by a provincial GHG inventory methodology **(**Ministry of Environment and Climate Change Strategy 2019). The Act was subsequently amended in 2019 to include sectoral and interim emissions targets to achieve the 2030 emissions goal (*Climate Change Accountability Act (2007), Climate Change Accountability Amendment Act (2019)). Also in 2007, 187 of the 190 local governments in BC signed the* **BC Climate Action Charter,** a voluntary agreement between the provincial government, the Union of BC Municipalities, and local governments to take steps to address climate change. The Charter includes obligations to commit to a shift toward carbon neutrality, more energy efficient and compact communities (i.e., reducing sprawl and increasing density), and to measure local

GHG emissions (although it does not specify the frequency or modality of reporting) (Province of British Columbia 2007).

In 2008, BC enacted **Bill 27**, which requires local governments to include targets, policies and actions regarding their GHG reductions in their Official Community Plans (West Coast Environmental Law 2008). This bill augments the Climate Action Charter by providing some more flexibility in how different communities adapt to the Charter, and makes certain voluntary commitments from the Charter mandatory1. Although Bill 27 does not mandate LG GHG emissions reporting, the provincial government works with all LGs to document GHG emissions through the Community Energy and Emissions Inventory (CEEI) Initiative[2].

The **Carbon Tax Act** was passed in 2008, placing a price on carbon emissions from the use and purchase of fuels, to incentivize sustainable and low emissions choices (Carbon Tax Act (2008)). Further, BC developed its own **Climate Action Plan** in 2008, hoping to curb emissions by establishing more stringent targets; the Action Plan was built upon in the 2016 **Climate Leadership Plan** which specifies actions needed to take in order to achieve the new emissions reduction target of 80% below 2007 levels by 2050 (Province of British Columbia 2016).

In 2014, BC implemented the **Greenhouse Gas Industrial Reporting and Control Act (GGIRCA)** which integrated the province's existing GHG legislation (including the Carbon Tax Act, the Climate Change Accountability Act, and many smaller pieces of legislation) into a single regulatory system that includes the 2008 Greenhouse Gas Reduction (Cap and Trade) Act's emissions reporting framework (Greenhouse Gas Industrial Reporting And Control Act (2014)).

• ALBERTA • Alberta was the first province in Canada to develop a comprehensive climate change plan, the "**Taking Action"** plan, in 2002 which established the emissions reduction target of 50% below that of 1990 levels by 2020 (Province of Alberta 2007). This was closely followed by the enactment of the Climate Change and Emissions Management Act in 2003 aimed at enforcing the emissions targets (Climate Change and Emissions Management Act 2003 (Alberta)). The Act was subsequently amended in 2007 to separately distinguish industrial emissions targets (Climate Change and Emissions Management Amendment *Act 2007 (Alberta)).*

In 2004, the **Specified Gas Reporting Regulation (SGRR)** was established, which requires facilities that emit 10,000 tonnes or more of specified gases to submit annual emissions reports (Province of Alberta 2004). 2010 saw the enactment of the **Renewable Fuels Standard Regulation**, requiring fuel suppliers to meet minimum renewable fuel content and incorporates the Renewable Fuels Greenhouse Gas Eligibility Standard (Renewable Fuels Standard Regulation Act 2010 (Alberta)). In 2015, Alberta introduced the **Climate Leadership Plan (CLP)** which includes four key policy areas: carbon pricing, phasing out of coal and increasing renewable energy sources by 2030, capping oil sands emissions at 100 Mt per year, and reducing methane emissions from oil and gas production by 45% of 2014 levels by 2025 (Government of Alberta 2018).

While there are no policies that mandate local government action on climate change mitigation in Alberta, the Municipal Climate Change Action Centre (MCCAA; a collaborative initiative between the provincial government and two independent organizations that advocate for Alberta municipalities) provides funding, technical capacity, and education to local governments to assist them in reducing GHG emissions.

1 Bill 27 makes provisions to establish GHG emission reduction targets, and to develop actions and policies to achieve those targets mandatory for local governments.

2 Under the CEEI, the province works with LGs to infer GHG emissions from available data. For many municipalities, this

• ONTARIO • Ontario developed a 2007 climate change action plan (**Go Green: Ontario's Action Plan on Climate Change)** which established GHG emissions targets (15% below 1990 levels by 2020; 80% below 1990 levels by 2050) and encouraged more compact and transit friendly communities, and mandated GHG emissions inventories. In 2009, Ontario's **Environmental Bill of Rights** was amended, requiring Ontario's Environmental Commissioner to report annually on GHG emissions reductions (Office of the Auditor General of Canada 2018).

The 2007 action plan was replaced by the 2015 **Climate Change Strategy** which added a 2030 emissions reduction target (37% below 1990 levels) and instituted an emissions cap and trade system. Through the strategy, Ontario will reinvest the profits of the cap and trade system into emission reduction initiatives, including financial support for community energy planning and emissions reductions (Ontario Ministry of the Environment and Climate Change 2015; Office of the Auditor General of Canada 2018). An accompanying action plan introduced a mandate requiring climate change mitigation and adaptation policies in municipal official plans but did not specify reporting requirements (enacted in the **Building Better Communities and Conserving Watershed Act, 2017)**. The 2019 **Growth Plan for the Greater Golden Horseshoe** introduced requirements for municipalities in the Toronto region inventory GHG emissions and develop GHG emissions reductions plans and targets in support of the provincial target (Ontario Ministry of Environment and Climate Change 2017). Accompanying these two plans is the **Community Emissions Reductions Plan** which establishes common methods for municipal climate planning (Ontario Ministry of Environment and Climate Change 2017)

Ontario's strategy was replaced again in 2018 with the **Made in Ontario Environment Plan** which instituted new strategies to reach Ontario's GHG emissions targets. The plan does not substantively address the role of local governments, despite a 2016 audit of Ontario's Climate Change Strategy, which concluded that local governments should be given additional resources to enable local climate change mitigation and adaptation strategies (Office of the Auditor General of Ontario 2016)

• QUEBEC • Quebec's grant-based **Climate Municipalities Program** was initiated under Quebec's **2006-2012 Climate Change Action Plan** and provided funding and support for 235 local governments to inventory GHG emissions and develop climate change mitigation and adaptation plans. The second phase of the Climate Municipalities Program was initiated under the **2013–2020 Climate Change Action Plan** with the goal of supporting research, development, and testing of technical solutions to reduce emissions and increasing climate change resilience among local governments (Gouvernement du Québec 2012, 2019).

The **2013–2020 Climate Change Action Plan**, also introduced a cap and trade system to limit GHG emissions (to 80-95% below 1990 levels by 2050), and established a number of programs to support climate mitigation and adaptation actions across multiple economic sectors, including transportation, infrastructure, agriculture, and waste management (Gouvernement du Québec 2012). Proceeds from the cap and trade system will be invested in the province's Green Fund, which will fund including municipal climate change planning (among other climate change initiatives) (Coderre et al. 2019).

Quebec was an early proponent of climate change action in Canada. Since 1990, it has produced annual GHG emissions inventories, following a provincially developed methodology **(Guide de Quantification des Émissions de Gaz à Effet de Serre).**

Following the Pan-Canadian Framework, Quebec introduced its **Energy Policy** in 2016, which set additional sector-specific provincial mitigation targets (e.g., reducing oil consumption by 40%,

increasing bioenergy production by 50%, etc.) (Government of Canada 2017). Quebec recently released their new climate change strategy, the **2030 Plan for a Green Economy**, which establishes new initiatives and policies to meet its climate change targets. The implementation plan asks all municipalities to voluntarily develop climate change plans (Government of Quebec 2020).

While Quebec does not mandate climate action planning or climate accounting among local governments, many have undertaken voluntary commitments to account for climate change in their planning. For example, climate action planning among its local governments. However, several local governments have undertaken voluntary climate change initiatives and implemented policies to reduce GHG emissions. For example, Montreal has committed to reducing its emissions by 30% below 1990 levels by 2020 (Coderre et al 2019).

2.3 Historical Perspective [2016-Present]

Table 2 below provides a high-level overview of Canada's obligations to provincial and territorial authorities. The focus is given to the provincial / territorial jurisdiction, as cities in Canada are generally not obligated under any legislation to implement the use of planning tools to address climate change, but most major cities have developed action plans or strategies in an effort to support provincial/territorial and federal obligations and targets (Guyadeen et al. 2019). While provinces and territories can delegate climate change action responsibilities down to the municipal level through statutes, Nova Scotia is the only province that requires its cities to develop climate action plans (Bednar et al. 2018, Guyadeen et al. 2019). Because the Canadian federal and provincial governments generally do not mandate municipal-level climate change-related obligations (and as a result, they vary by province and territory), the following summary table provides a snapshot of the obligations of provincial and territorial authorities only.

In 2015, Canada signed the **Paris Agreement**'s goal of limiting the global average temperature to below that of 2oC, and ideally below that of 1.5oC, as well as phasing out fossil fuels over the medium-term, helping developing countries reach their emissions targets, and incentivizing the movement toward the use of clean energy (Canada 2017).

As Canada's actions to address climate change take place predominantly at discrete national, provincial, and municipal levels, efforts to implement an overarching and coordinated strategy has culminated in the 2016 establishment of the **Pan-Canadian Framework on Clean Growth and Climate Change** (the Pan-Canadian Framework, PFCCC). This framework provides a comprehensive plan to build resilience against the impacts of climate change, implement carbon pricing, adopt strategies to promote "clean" economic growth, and reduce GHG emissions across all sectors of the Canadian economy (Canada 2017). The framework aims to streamline efforts to achieve Canada's emissions reduction target of 30% below 2005 levels by 2030, aligns with the obligations set out in the Paris Agreement, and allows provinces and territories flexibility in implementing their own carbon pricing systems, as long as they meet the federal target (Environment and Climate Change Canada 2016). It is also intended to be the primary driver of both near and long-term emissions reduction efforts (Canada 2017). All provinces but Saskatchewan have signed on to the Pan-Canadian Framework. All provinces and territories (including Saskatchewan) except Alberta have released (or are preparing) climate change and GHG emissions reductions strategies. Canada has signaled its intent to achieve net-zero emissions by 2050, although this has not yet become law (House of Commons of Canada 2020).

TABLE 2

SUMMARY OF OBLIGATIONS OF CANADIAN PROVINCIAL AND TERRITORIAL AUTHORITIES

PROVINCES AND TERRITORIES	
What	Pan-Canadian Framework on Clean Growth and Climate Change, and National Reports to the United Nations (UNFCCC)
Who	The Pan-Canadian Framework is an endeavor launched by the federal government but outlines the responsibilities and obligations of the provinces and territories that have agreed to work within the framework.[a] Therefore, commitments to satisfy the targets in this framework exist at both the federal and provincial/territorial levels.
When	National reports to the United Nations on the federal and provincial/territorial emissions inventories are required every four years (Canada 2020).
Reporting modalities	Provinces and territories are expected to develop plans ensure carbon emissions targets at the national level are met, with some flexibility permitted in terms of how each province/territory achieves their goals (Environment and Climate Change Canada 2016). A collaborative audit of federal, provincial and territorial climate plans evaluated their content, and progress towards their goals. The audit determined that many provinces and territories were not meeting their climate goals, and had little guidance on implementation. Furthermore, the audit reported that most provinces and territories were not reporting on climate progress in a regular or timely manner.
Carbon accounting	Annual carbon accounting is mandatory at the federal level. Federal, provincial, and territorial governments work with the Canadian Council of Ministers of the Environment (CCME) to ensure consistent reporting of progress and emissions. Canada maintains an official GHG inventory that all provinces are required to submit to, so that Canada can track emissions and report to the UNFCCC [b]. This inventory follows a standard methodology, and is reported annually in the **National Inventory Report** (NIR) which is submitted by ECCC to the UNFCCC (Environment and Climate Change Canada 2020b).
Monitoring evaluation	The Pan-Canadian Framework describes reporting and oversight needs in order to monitor progress and transparency (Canada 2017). The UNFCCC requires specific indicators to be reported on in the NDC reports Canada must submit every 4/5 years. While the federal government maintains an official GHG inventory (the NIR, which includes provincial and territorial emissions), provinces and territories may develop their own GHG accounting methods.

[a] All provincial and territorial governments with the exception of Saskatchewan have adopted the Pan-Canadian Framework
[b] Provinces and territories may voluntarily develop their own emissions tracking methodologies to inform their own climate planning. For example, British Columbia has developed a "Methodology Book" to inventory provincial GHGs sinks and sources (MOECCS, 2019).

Canada has taken steps to incorporate Indigenous perspectives and concerns in the Pan-Canadian Framework. Meetings and workshops with Indigenous communities were convened, with feedback shaping the approach and vision of the framework (Canada 2017). To encourage the uptake of climate-resilient and adaptive behaviors in Indigenous communities, Canada has developed several Indigenous-focused climate change programs. **The Climate Change and Health Adaptation Program (CCHAP)**, developed in 2008, supports the efforts of Inuit and First Nation communities in mitigating and addressing the health impacts associated with climate change (Richards et al. 2019). The program funds Indigenous communities and organizations conducting research into climate change and its health implications (Richards et al. 2019). In 2016, the Canadian government introduced the **Northern Responsible Energy Approach for Community Heat and Electricity program (REACHE)**, which aims to incentivize the shift of Indigenous communities to renewable energy sources and energy efficient projects via direct funding (Government of Canada 2016a). Other programs include the **Climate Change Preparedness in the North Program**, the **First Nations Adapt Program**, and the **Indigenous Community-Based Climate Monitoring Program** (Government of Canada 2016b, 2018a, and 2018b).

A comprehensive account of how the different provinces and territories have worked to address climate change outside of the Pan-Canadian Framework obligations is available in Canada's 3rd and 4th Biennial Reports to the United Nations Framework Convention on Climate Change (UNFCCC) (Canada 2017, Canada 2020).

2.3 Monitoring of Climate-Energy Planning

Regionally, there are several groups, initiatives, and guidance resources that encourage the development of action plans across Canadian cities. The **Global Covenant of Mayors Canada** is a group consisting of mayors from 47 municipalities[3] across Canada that work together to propel and support domestic climate programs by linking them with global programs (Global Covenant of Mayors in Canada, n.d.).

The **C40** is a group of climate leaders from major cities around the world, including Toronto and Vancouver. Members of this network are committed to addressing climate change and meeting the goals of the Paris Agreement. C40 releases an annual progress report that helps keep cities on track with their goals (C40, n.d.).

The **Carbonn Climate Registry** is a unified reporting system developed by ICLEI and CDP in 2019 to support cities, towns, and regions in developing transparent, accountable, credible, measurable, and verifiable climate action reporting practices (Wong 2017, The Carbonn Center, n.d.).

Managed by ICLEI and the Federation of Canadian Municipalities (FCM) and supported through federal funding, the **Partners of Climate Protection (PCP)** is a group of over 500 Canadian municipalities that make use of the program's five-step Milestone Framework in order to take direct action against climate change (Partners of Climate Protection, n.d.). The PCP program helps provide funding resources, which it received from the Government of Canada and ICLEI Canada, to member municipalities that are developing climate change actions plans, and therefore has driven a significant amount of climate change planning at the municipal level throughout Canadian cities (Guyadeen et al. 2019).

Climate action planning at the municipal level plays an important role in supporting higher jurisdictional level targets as municipal governments are uniquely positioned to better understand the concerns and vulnerabilities of the local public and other stakeholder groups (Guyadeen et al. 2019). Municipal-level interest in climate change action planning can motivate the development of programs that target local-level vulnerabilities, however disparate funding availability between large and small cities could result in varying levels of climate action (Bednar et al. 2018). Most major cities throughout Canada have developed local climate action plans, however, unlike in parts of Europe where municipalities are legislatively obligated to develop plans to tackle climate change, Canadian cities mostly do not have the same obligations, making how and to what extent they address climate change uneven (Guyadeen et al. 2019). Exceptions to this include the province of Nova Scotia, in which the provincial government has mandated municipalities to develop climate actions plans, and the provinces of British Columbia and Ontario where municipal official plans are required to include climate change considerations and GHG emissions targets (Guyadeen et al. 2019). No Canada-wide database or summary of local climate plans has been developed (academic studies of climate plans in Canada typically consist of case studies (e.g., Guyadeen et al. 2019; Hill and Perun 2018; Robinson and Gore 2015; etc.)

Generally, local government action plans lay out the path toward reducing local emissions such that provincial or federal GHG reduction targets are more likely to be met. Guyadeen et al. (2019) nicely lays out a sample of 78 municipalities throughout Canada that have developed climate action plans, and summarizes the key aspects of those plans. Guyadeen et al. (2019) notes that most municipal plans included emissions information like a baseline year for GHG emissions, inventories,

3 The Convent includes the largest municipalities in Canada (Toronto, Vancouver, Ottawa, Montreal), as well as a mix of small, medium, and large municipalities.

and emissions forecasting. Most of the study's climate actions plans contained policies related to increasing climate change awareness, reducing sector-specific emissions, promoting renewable energy, changes to transportation infrastructure, and water, waste, and natural resources management (Guyadeen et al. 2019). Overall, climate action plans tend to focus more on mitigation rather than adaptation, and lack sufficient detail on how GHG emissions targets will be monitored and evaluated (Guyadeen et al. 2019).

3. Cross-Scale Governance of Climate Policy

3.1 Linkages between local governments and provinces / territories

Climate change policies differ among the provinces and territories. As a result, local governments' emissions targets, adaptation actions, and monitoring and reporting progress is different within every province and territory. Local government climate action plans are voluntary in many jurisdictions. Municipal climate action plans are mandated in Nova Scotia, while incorporating climate change into various local government planning initiatives is required in other jurisdictions, including Ontario (sections of local government plans must consider climate change) and British Columbia (municipalities must set GHG emissions targets) (Guyadeen et al. 2019).

Even when climate action planning is voluntary, local governments frequently look to provincial climate frameworks to establish their own targets (Bednar et al. 2018; Zukowski 2016). In fact, increased support for climate planning at the provincial level was found to be associated with more ambitious local climate planning – Zukowski (2016) found that the presence of provincial GHG emissions targets and other local government climate planning tools was associated with higher local government GHG emissions targets.

In Canada, provinces and territories play a key role in coordinating actions among neighboring municipalities to help avoid maladaptation (e.g., helping to develop a watershed scale stormwater management plan involving multiple local governments). They also help form connections between municipalities and experts in academia, industry, and non-governmental organizations that can help support local scale climate planning (Bednar et al. 2018).

3.2 Linkages between local governments, provinces / territories, and federal government

Canada's commitment to the United Nations under the 1992 United Nations Framework Convention on Climate Change (UNFCCC) requires that the country submits a progress report every four years; this report outlines the national emissions targets, and emissions inventories of individual provinces and territories. As such, these reports *require alignment of federal and provincial/territorial efforts to achieve emissions targets* (Government of Canada 2019). The Pan-Canadian Framework describes the steps each province and territory (except Saskatchewan) is taking in order to achieve the emissions target of the Paris Agreement. While the actions of each province are different, they all must meet or exceed the targets established by the federal government, and align with the four pillars of the framework: carbon pricing, complementary climate actions, climate resilience, and clear technology and innovation (Government of Canada 2016c).

Core to the Pan-Canadian Framework is the carbon pricing strategy. Under the Pan-Canadian Framework , each province or territory may establish its own carbon price, although there is a "federal backstop" in place for jurisdictions that do not meet the federal benchmark ($30 per tonne in 2020, rising by $10 per year to $50 per tonne in 2022). Federal, provincial, and territorial governments in Canada are set to review the approach to carbon pricing by 2022 (Government of Canada 2016c).

The Pan-Canadian Framework mandates that federal, provincial, and territorial governments track and report on emissions and implementation targets, which are published annually. In addition to reporting to the federal governments, provinces and territories also adhere to their own climate plans, which establish monitoring and evaluation frameworks.

Infrastructure funding is an important mechanism that influences local climate action, and ensures that infrastructure investments are low carbon and / or climate resilient. The "Climate Lens" is a requirement for projects funded under Canada's Investing in Canada Infrastructure Program, Disaster Mitigation and Adaptation Fund and Smart Cities Challenge (which account for over $180 Billion in funding). The Climate Lens consists of two assessment types: (1) a GHG mitigation assessment (which evaluates anticipated GHG emissions impact of a project), and (2) a climate change resilience assessment (which looks at strategies to anticipate, respond to, and recover from climate change impacts). Depending on the size and type of project, one or both lenses may apply. (Infrastructure Canada 2019).

Canadian federalism helps to clarify the differences among provincial / territorial climate change plans and what they require of local governments. Canada has devolved many key responsibilities to the provinces / territories, many of which pertain to climate change (see Table 2.1). Most importantly, local governments are under the jurisdiction of the provinces and territories. As a result, each province and territory is responsible for developing its own climate change mitigation and adaptation strategy, including rules and regulations for local governments (Belanger 2011). The federal government's role has been to provide guidance, funding, and other support for local government initiatives.

4. Finance for Local Governments to Pursue Climate Action

4.1 Own Funding

Local governments in Canada are restricted in their ability to collect revenues; they may only collect property taxes and user fees, and are unable to run a deficit (OECD/UCLG 2019b; Thompson et al. 2014). Despite this restriction, local governments are responsible for an increasingly large portfolio of important programs (e.g., public transportation, roads, local infrastructure and utilities, and water and sanitation, and policing), many of which have high capital costs (Federation of Canadian Municipalities 2013; Johal 2019; Thompson et al. 2014). Despite their increased responsibilities, local government budgets have largely kept in line with inflation, prompting the Senate of Canada (2007) to conclude that there is "widespread agreement that municipalities do not have sufficient revenue sources to meet their growing expenditure responsibilities"(Johal 2019)(Johal 2019)(Johal 2019)(Johal 2019). These factors are significant barriers to planning and implementing climate actions (Hughes 2015; Tang et al. 2010). Indeed, local governments rely heavily on grants from higher levels of government to fund climate actions (Federation of Canadian Municipalities 2020a).

For small-budget projects, Canadian local governments may allocate a portion of their operating budget to climate actions (Johal 2019). For larger projects requiring significant capital investments, local governments have a few options to overcome their inability to run deficits:

• **Public Private Partnerships.** To fund capital-intensive projects (e.g., commuter rail, etc.) local governments may seek funding from other levels of government, or seek investment from private industry through public-private partnerships (Thompson et al. 2014).

• **Saving. While rarely used,** sometimes cities will put aside money over the course of a few years in order to afford certain projects (Johal 2019). This option is being used by Saanich, British Columbia, which is banking $25 per tonne of CO2 emitted by the municipality, and will be used to fund emissions incentives (Zukowski 2016).

• **Debt**. While local governments cannot operate deficits, they are able to borrow funds to cover the capital costs of large projects, and have a wide range of different methods at their disposal to do so (Thompson et al. 2014).

While not precisely "Own Funding," local utilities (some of which may be owned by the local government) commonly fund local energy efficiency and renewable energy initiatives (ICLEI and Federation of Canadian Municipalities 2018).

4.2 Provincial / Territorial Funding

Provinces and Territories are significant players in funding local climate actions, especially in comparison to Canada's international peers (Bednar et al. 2018; OECD 2013). Provincial and territorial governments either fund projects directly, or through provincial agencies (e.g., Alberta's Climate Change and Emissions Management Corporation) (ICLEI and Federation of Canadian Municipalities 2018).

While the Pan Canadian Framework and Canada's obligations to the UNFCCC establish mandatory climate change actions among the provinces and territories, each one has adopted individual approaches to incentivizing local government climate action. Funding varies among jurisdictions, determined by the government's priorities. For example, funding in British Columbia is centralized

through the CleanBC Communities Fund (which is co-financed by the federal government), which provides funding for a broad profile of mitigation oriented projects (British Columbia 2019). On the other hand, Alberta oversees multiple programs for municipalities, but with a limited scope – most are targeted towards renewable energy and retrofits (Municipal Climate Change Action Centre 2020). Even within provinces and territories, funding availability is inconsistent. For example, Ontario's Atmospheric Fund, for "carbon reduction and air quality," is only available to local governments in the greater Toronto and Hamilton area (Ontario municipalities are also eligible for funding through the Ontario Climate Change Action Plan, although they are limited in how the funds may be spent) (Hill and Perun 2018).

4.3 Federal Government Funding

The federal government primarily provides funding through a series of cost-sharing programs that support local governments in covering capital costs of large projects (Bednar et al. 2018). Available funds are profiled below.

The **Green Municipal Fund (GMF)** is a key funding source for the PCP program. The GMF funds climate mitigation initiatives including GHG emission reductions, reducing energy consumption, brownfield reclamation, and water use reductions. The program has a $950 million endowment which is used to provide loans and grants for capital projects, action and management plans, and research activities (Federation of Canadian Municipalities 2020b).

The **Municipalities for Climate Innovation Program** is a five year, $75 million program funded by Infrastructure Canada, and implemented by the FCM, targeting both adaptation and mitigation actions for local governments (Federation of Canadian Municipalities 2020a).

The **Gas Tax Fund** (GTF), established in 2005, is a permanent funding source provided to provinces and territories (who in turn may provide funds to local governments) to support local infrastructure priorities (Government of Canada 2020a). The fund provides over $2 billion per year, among 18 different project categories, many of which address climate change mitigation and adaptation actions (e.g., public transportation, community energy systems, etc.).

The **Investing in Canada Plan**, announced in 2016, will allocate a portion of its $180 billion endowment towards local government climate actions through two of its streams: Public Transit Infrastructure, and Green Infrastructure. The Public Transit Infrastructure stream will provide $25.3 billion towards local public transit projects, including new infrastructure (e.g., light rail, subways) and maintenance for existing infrastructure. The Green Infrastructure stream will provide $21.9 billion towards supporting implementation of the Pan-Canadian Framework on Clean Growth and Climate Change, a portion of which will flow towards local governments. (Johal 2019; Government of Canada 2020b)

The **Municipal Asset Management Program**, implemented by the Federation of Canadian Municipalities, and supported by a $60 million investment from the federal government, provides funding and capacity building for Canadian local governments to repair or replace infrastructure. While program is not explicitly climate oriented, it supports local governments investing in infrastructure that will assist them in meeting their climate goals (e.g., constructing active transportation networks, retrofitting buildings, etc.) (Federation of Canadian Municipalities 2019)

A key issue with funding in Canada is that most programs are merit-based (i.e., they have defined monetary limits). This makes funding a zero-sum game – money for one municipality means less

for another, and local governments need to compete for limited funds. For example, the GMF turns away one third of applicants, requiring them to seek funding elsewhere, delay their plans, or abandon them (Hill and Perun 2018).

4.4 International Funding

In Canada, international organizations do not play a significant role in funding local climate actions. Still, international organizations play a key role in informing local government climate action planning. Most importantly, they provide leadership and guidance through developing frameworks for climate action. In addition, they can play a key role in both the conduct of climate science, and by communicating climate science in order to inform local decision makers (Bednar et al. 2018).

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