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I.C.L.E.I
Local
Governments
for Sustainability

Partners for Climate Protection

National Measures Report 2015



Local climate action across Canada

Front cover photo sources:

Top - Region of Waterloo

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About this document

Since 2008, the PCP program has published the National Measures Report to raise the profile of municipal government action on climate change in Canada, and to encourage further action. The 2015 report captures a broad snapshot of trends, projects, and programs that are driving local climate action, with a particular emphasis on community-wide initiatives.

Contact PCP

Find out more about PCP by visiting www.fcm.ca/pcp or by contacting the PCP secretariat at 613-907-6392 or email at pcp@fcm.ca.



PCP National Measures Report 2015

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Partners for Climate Protection

Year in reflection 2015

What a year! In 2015, the Partners for Climate Protection saw a sea of change in ambitious climate action — from local to global. Looking ahead, we see a Team Canada approach taking shape at all levels.

Internationally, there is a new sense of urgency around climate change, which is reflected in the rapid growth of climate-action networks and initiatives. The most recent meeting of national governments at the UN climate change conference (COP21) in Paris produced a framework for coordinated action to limit global warming to 1.5°C if possible and to halt it at 2°C by 2050.

While these targets appear in the published agreement, there is still a gap between the targets and the carbon reduction commitments made by each signatory country. Fortunately the conference laid out a pathway to more ambitious action. Once the agreement is ratified, signatory countries will provide transparent reporting of their emissions. After the agreement takes force in 2020, signatories will ratchet up their commitments every five years.

The Paris agreement recognized local and subnational governments as essential actors in fast tracking transformative action. In 2015, the movement of local governments continued to grow around the world. More local governments contributed their solutions to the carbonn Cities Climate Registry and Carbon Disclosure Project, and profiled their innovative emission reduction projects through ICLEI's Transformative Actions Program (TAP). The global Compact of Mayors engaged

more local councils and contributed to the Climate Summit for Local Leaders, which was held during the COP21 meetings in Paris. The event reaffirmed the commitment of local leaders from all five continents.

In Canada, a new federal government is engaging the provinces to create a coordinated national climate action plan. We look forward to seeing the plan build on ambitious policy directions that already exist in Ontario, Nova Scotia, British Columbia and Quebec. Over the coming year we hope to see the national plan enable PCP members' activities and support new local government approaches to developing resilient low-carbon communities.

This year's National Measures Report (NMR) highlights some inspiring new directions that we will be watching with interest throughout 2016:

- Oxford County, ON, and Vancouver, BC, have made 100% renewable energy commitments
- Guelph, ON, Yellowknife, YT, and Edmonton, AB, are taking new approaches to community energy planning
- Toronto, ON, is working to achieve a target of 80% reduction in GHG emissions by 2050



FCM leads a delegation to United Nations climate change conference (COP21) in Paris, France to showcase the efforts of local government in Canada.

We hope you enjoy the stories about these municipalities and others across Canada!

The PCP Secretariat team

Partners for Climate Protection program overview

Advancing local climate action across Canada

Launched in 1994 with the support of six Canadian municipalities, the Partners for Climate Protection (PCP) program is now a network of more than 280 local governments that are committed to acting on climate change. The PCP program is a partnership between the Federation of Canadian Municipalities (FCM) and ICLEI – Local Governments for Sustainability. PCP is the Canadian component of ICLEI’s Cities for Climate Protection (CCP) network, which involves more than 1,000 communities worldwide.

Municipalities have a key role to play in both mitigating and adapting to climate change. Local governments influence up to half of Canada’s greenhouse gas emissions through land use management and planning. They also invest in infrastructure that can increase communities’ resilience to climate change. The PCP program empowers municipalities to integrate climate change issues into their decisions and to identify strategic opportunities to reduce emissions, improve quality of life and grow local economies.

PCP makes use of a framework consisting of 5 performance-focused milestones to help members create GHG inventories, set realistic and achievable reduction targets, develop and deliver local action plans, and measure their progress.

20+ years of success

In 2014 the PCP program celebrated its 20th anniversary, making it the longest-running municipal climate change program in Canada. Over the last two decades, PCP members have undertaken more than 800 GHG-reduction projects that represent more than \$2.3 billion in investment and 1.8 million tonnes in annual GHG reductions. Members have also completed 870 program milestones for corporate (municipal) or community-wide GHG emissions. These milestones include:

- 300 baseline GHG inventories
- 241 emissions reduction targets
- 212 climate change action plans

In addition to reducing GHGs, municipalities have successfully promoted energy efficiency, fostered local economic development, engaged residents and community members and improved the environment for generations to come. Many PCP members are also beginning to assess the risks associated with a changing climate in an effort to adapt appropriately.



Milestone 1

Create a baseline emissions inventory and forecast



Milestone 2

Set emissions reduction targets



Milestone 3

Develop a local action plan



Milestone 4

Implement the local action plan



Milestone 5

Monitor progress and report results

A growing membership

PCP membership is drawn from every province and territory and accounts for approximately 65 per cent of the Canadian population. The program is continuing to grow, adding 15 to 20 new members every year. Historically, British Columbia has the strongest uptake: a quarter of PCP members are from the province. Ontario municipalities form the second-largest group membership, followed by municipalities in Manitoba and New Brunswick.

During the past 10 years, PCP membership has shifted toward small communities; municipalities with less than 10,000 residents now make up 45 per cent of the program's members. PCP has also recently welcomed a number of bilingual members, primarily from Manitoba, and francophone municipalities, mostly from New Brunswick. To facilitate climate action, several of these new members have undertaken collaborative local action planning in partnership with provincial municipal associations. (Go to Eco-West's article, "Reducing rural GHG emissions across the West", p. 37).

The importance of measures reporting

As the PCP membership grows it is more important than ever to understand the positive impacts of the program and the local action planning it supports across Canada. Developed in early 2008, PCP's National Measures Reporting initiative has three main objectives:

- to take stock of municipal government action on climate change
- to build capacity for municipalities to better track their results
- to encourage continued action aimed at deep reductions in GHG emissions

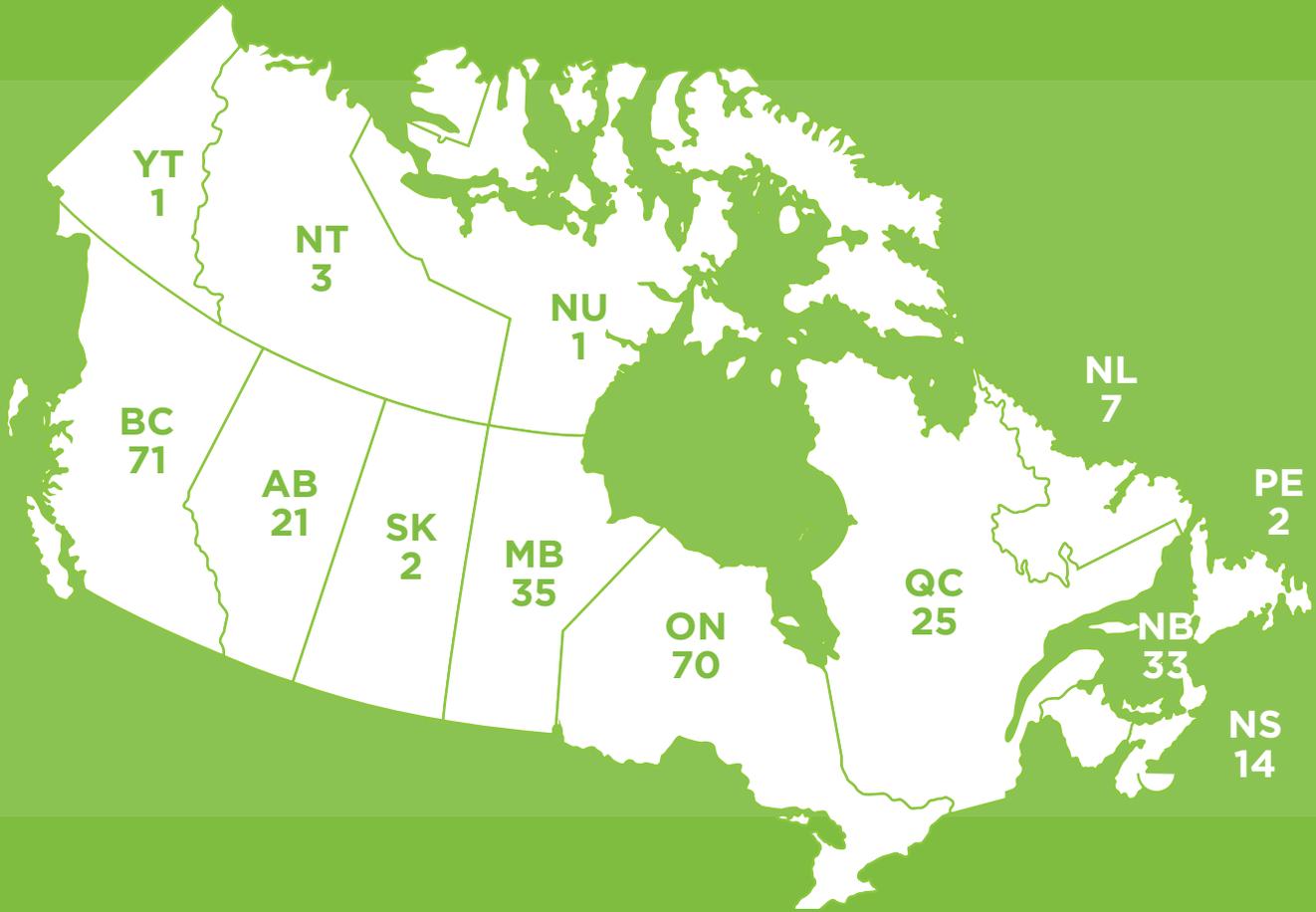
The National Measures Report 2015 builds upon the success of the previous six National Measures Reports to document and recognize the results of members' climate actions. While earlier reports (2008-2013) focused on quantifying emission reductions from individual member projects, the 2015 report captures a broader snapshot of trends, projects, and programs that are driving local climate action, with a particular emphasis on community-wide initiatives.

While local governments play a critical role in implementing climate action, they are not alone. The 2015 NMR reflects the many players in the local climate movement across Canada, including local governments and expert organizations in the energy, climate change and planning fields who support them.

Source: City of Ottawa



PCP members by province/territory



PCP members by population

Size of municipal population	No. of PCP members	% of PCP membership
0 - 9,999	129	45%
10,000 - 49,999	70	25%
50,000 - 99,999	32	11%
100,000 - 299,999	32	11%
300,000 +	22	8%
Total	285	100%

Local climate action across Canada: Insights from our members

This year's National Measures Report aims to identify trends in local action planning as well as the current status and future directions of municipal action on climate change. This section of the report is based on data from two sources: a municipal survey conducted in mid-2015 and a review of climate change action plans and community energy plans completed by PCP members in the past five years. Eighty-two municipalities submitted responses to the survey and members submitted 53 community-wide plans as part of Milestone 3 of the PCP program. (For more information about the data go to pp. 28-29.)

Measuring energy emissions and expenditures

Municipalities directly control and indirectly influence up to half of Canada's GHG emissions, the majority of which are related to energy use. Energy costs — both municipal (corporate) and community-wide — are high (Table 1) and money spent on energy typically leaves the municipality. By measuring and understanding their energy costs, municipalities can build a strong business case for energy efficiency and clean energy generation, initiatives that can reduce emissions, save money and attract

Table 1. Average annual local government energy expenditures

Population	Municipal Corporate Energy Expenditures (\$)	Community-Wide Energy Expenditures (\$)
0 - 9,999	700,000	12 million
10,000 - 49,999	1.6 million	71 million
50,000 - 99,999	2.3 million	243 million
100,000 - 299,999	12 million	780 million
300,000+	24.5 million	2.7 billion

new business opportunities. Energy and emissions management therefore presents an economic development opportunity for municipalities across the country.

Survey responses showed that 70 per cent of municipalities understand their corporate energy costs, but only 38 per cent understand community-wide energy costs. Municipalities have a better understanding of corporate costs, which are revealed by their own billing data, than of community expenditures, for which they must

rely heavily on building collaborative relationships with utilities and other community partners.

The more staff understands the cost of carbon, and links it to operations, the better they will be at reducing the cost.

- Ted Battiston, Manager of Special Projects, Resort Municipality of Whistler

Approaches to climate action plan development

Many municipalities in Canada are responding to the economic development opportunities of climate action by measuring and managing their energy and greenhouse gas emissions.

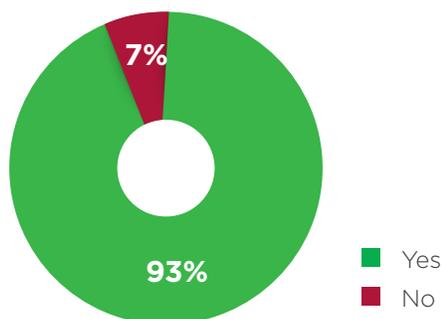


Figure 1: Response to “Has your municipality adopted, or is it in the process of drafting, policies or plans to mitigate climate change and reduce GHG emissions at the corporate level?”

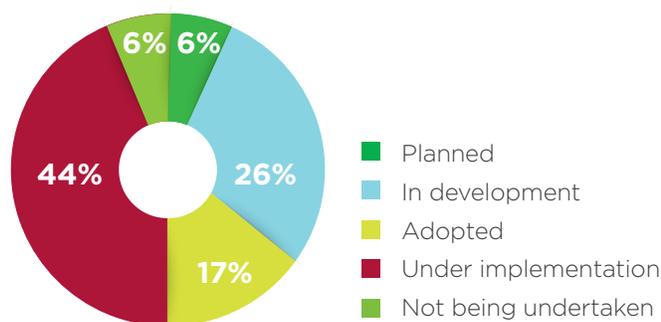


Figure 2: Status of corporate plans and policies

Corporate climate action planning

More than 90 per cent of the surveyed municipalities are developing policies or plans to reduce their corporate GHG emissions (Figure 1). This statistic demonstrates a strong commitment by municipalities to lead by example in their communities. This commitment is supported by provincial government action; several provinces have developed policies to stimulate the development of municipal corporate plans.

Respondents indicated that 87 per cent of their policies and plans are in development, have been adopted, or are being implemented (Figure 2).

These results suggest that corporate plans and policies are not being left in dark desk drawers; they are being actively developed and implemented across the PCP network.

Municipalities are pursuing a range of plans. The most popular are greenhouse gas reduction plans (76%), followed by corporate energy efficiency plans (45%) (Table 2).

Municipalities also indicated that they are pursuing a range of complementary policies, such as building codes (33%) and financial policies (20%).

Table 2. Frequency of corporate plans indicated by survey respondents

Type	%
GHG reduction plan	76%
Corporate energy efficiency plan	45%
Capital plan	18%
Procurement plans	18%
Asset management plan	17%
Corporate energy supply-side management plan	13%

The lifespan of these plans and policies ranges from four to 43 years. Five respondents reported developing plans with built-in review cycles of two years, five years, or 'as needed'. Built-in review cycles can help to ensure that plans and policies are successfully implemented and remain ambitious and relevant to the local context over time.

Community climate action planning

Over 80 per cent of municipalities surveyed have adopted or are in the process of drafting plans and policies to reduce community-wide GHG emissions (Figure 3). This is slightly lower than the level of action on corporate emissions (Figure 1).

Compared to corporate action, more community plans and policies are still in development and fewer are in implementation (Figure 4). This parallels the trend observed among PCP member municipalities, who have achieved corporate milestones more quickly than community milestones. Community action generally takes more time because emissions are not under direct municipal control; municipalities must engage with community stakeholders to build effective plans and policies. Community-wide action is also more dependent on the existence of a supportive provincial policy environment and the engagement of local utilities.

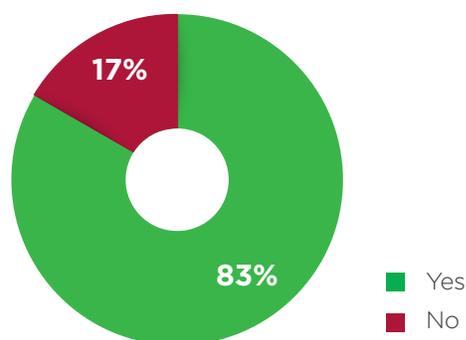


Figure 3: Response to “Has your municipality adopted or is it in the process of drafting, policies or plans to mitigate climate change and reduce GHG emissions at the community-wide level?”

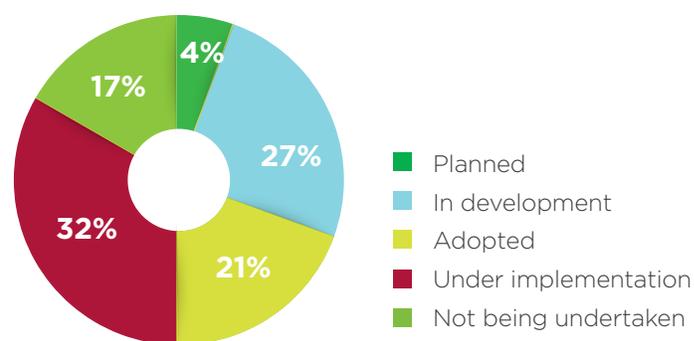


Figure 4: Status of community-wide plans and policies

Table 3. Frequency of community-wide plans indicated by respondents

Type	%
GHG reduction plan*	54%
Official community plan	52%
Sustainable community plan/ICSP	37%
Community energy plan*	30%
Land use or sector-specific plans	20%
Neighbourhood renewal strategy	4%

*A GHG reduction plan or community energy plan is generally equivalent to a local action plan (LAP) under the PCP program.

Survey respondents indicated they are pursuing a variety of plans to reduce community-wide emissions, most notably GHG reduction plans (54%), official community plans (52%), and sustainable community plans (37%) (Table 3).

What is a Local Action Plan?

A LAP commits a municipality to reducing emissions and developing an implementation plan for achieving those commitments. As a result, the plan is generally based on a GHG inventory and reduction targets (Milestones 1 and 2). PCP requires that a LAP contain the following:

- description of planned activities to achieve reduction targets, including costs and funding sources
- description of how the public or internal stakeholders participated in the development of the plan
- identification of the municipal departments or organization responsible for implementing the plan

For more information, go to:

www.fcm.ca/pcpmilestone3guide

Municipalities also indicated they are pursuing a range of complementary policies, such as bylaws and ordinances (39%), and building codes (26%). The lifespan of these policies and plans ranges from six to 40 years. Four respondents indicated built-in review cycles of two or five years.

Some PCP municipalities choose to develop dedicated local action plans (LAPs), while others incorporate the essential elements into other types of plans. Of the community plans submitted to PCP over the past five years (Table 4), approximately half were dedicated LAPs. Over a quarter of the plans (28%) were community energy and emissions plans, reflecting a planning approach that is encouraged in British Columbia.

Table 4. Types of plans assessed in the local action plan analysis

Type	%
Local action plan	51%
Community energy and emissions plan	28%
Community energy plan	9%
Sustainable community plan	8%
Official community plan	2%
Environmental strategic plan	2%

Survey respondents indicated that they are primarily taking action in the community sectors recommended by the PCP program, including energy consumption in residential and industrial, commercial and institutional (ICI) buildings, transportation (on-road transportation and local public transit systems), and solid waste (Figure 5).

Local action plans submitted to the PCP program reveal additional information about the types of policies, programs and projects that PCP member municipalities are considering to reduce community-wide GHG emissions.

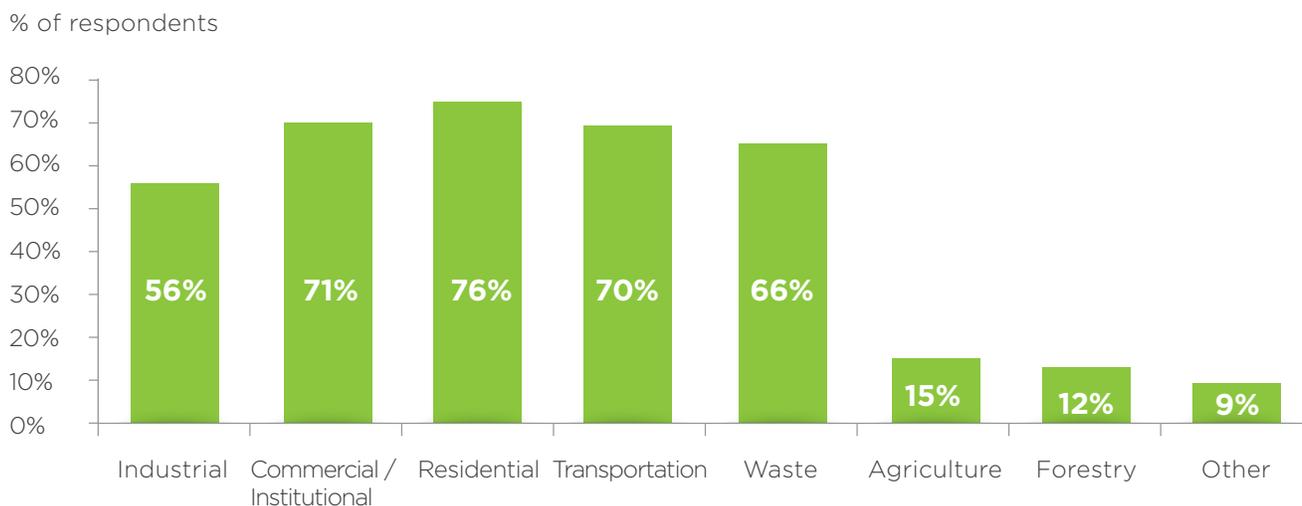


Figure 5: Sectors targeted for emissions reductions in community-wide policies and plans

Residential, industrial, commercial, and institutional buildings

Over 90 per cent of the community plans aim to increase energy efficiency in existing residential and ICI building stock through a combination of conservation and energy efficiency measures. The most common types of action are:

- **Promote existing incentives for building retrofits:** Increase the uptake of existing conservation and demand-management programs offered by utilities, and financial incentives offered by provincial and federal programs. The plans cited ongoing utility programs including SaveONenergy¹ in Ontario and Power Smart² in British Columbia.
- **Create municipal incentives for building retrofits:** Offer homeowners and commercial building owners upfront

loans with convenient repayment schemes. Two common mechanisms are on-bill financing, in which monthly payments are collected through utility bills (with retrofit costs offset by energy savings), and local improvement charges, in which the cost of retrofits are tied to the property and repaid through property taxes. Programs can also include permit-based incentives, such as expedited processing and fee-bates, or tax exemptions.

Nearly 80 per cent of plans include measures to improve the energy performance of new developments through a combination of regulatory standards and incentives. The most common types of action are:

- **Adopt green building standards or bylaws** that require new developments to exceed the construction and performance standards under existing building codes.

¹ Go to: www.saveonenergy.ca

² Go to: www.bchydro.com/powersmart.html

- **Develop toolkits or guides** to encourage the development sector to adopt more sustainable building practices.
- **Create financial and administrative incentives**, such as development permit fast-tracking and reduced fees.

A **Sustainability Checklist** is a tool that municipalities can use to evaluate rezoning and development applications. It can include energy performance objectives and other sustainability criteria such as building materials, land use, alternative transportation, and stormwater management. These checklists can also be used to structure municipal incentive programs. Over 30 per cent of plans propose creating or enhancing existing sustainability checklists to improve the energy efficiency of residential and ICI buildings.

Over 70 per cent of plans include measures to increase the uptake of district energy systems or alternative energy use in buildings. Examples of municipal policies that can tip the balance towards more systematic implementation of these systems include:

- Develop a solar-ready bylaw that would allow developers to opt out if a site does not have sufficient solar access.
- Require alternative energy or district energy feasibility studies for rezoning approvals of all large new developments.
- Integrate district energy into land use planning, such as concentrating new developments near available supplies of heat.

In British Columbia, the Community Charter allows municipalities to adopt Revitalization Tax Exemption bylaws that reduce property taxes for homeowners who successfully undertake energy efficiency retrofits to a defined level, or install alternative energy systems.

This creates financial value for energy improvements that stay with the property. For more information, go to: www.cscd.gov.bc.ca/lgd/gov_structure/library/community_charter_revital_tax_exemptions.pdf

Transportation

All of the plans propose one or more measures to reduce community-wide emissions in the transportation sector. The majority of actions target increases in active transportation such as walking and cycling, which is cited in 77 per cent of plans. The most common areas for action are:

- **Improve cycling and pedestrian infrastructure and facilities:** Key improvements include connecting routes within the active transportation network, improving safety through dedicated lanes, priority crossings, wayfinding signage, street lighting and traffic calming measures, and providing end-of-trip amenities for cyclists. Safe and convenient walking and cycling routes are more likely to be used by residents for commuting and day-to-day trips in the community. Municipalities are taking action by developing active transportation plans, complete street policies and community design guidelines that require or prioritize active transportation infrastructure.

Municipalities such as the City of Langley, the City of Pitt Meadows and the Town of Smithers, BC, currently encourage developers to include bicycle facilities such as lockers, showers and secure storage in new buildings, particularly in new employment centres and areas that are well served by existing bike routes.

- **Active transportation programs in schools:** Work with schools and school boards to promote active trips to and from school. Measures include formal “walking school bus” programs and improvements to designated routes,

such as maps, signage and vehicle-free drop off areas in front of schools.

The majority of municipalities also propose actions targeting local public transit systems. Forty three per cent of plans contain measures to create or expand local transit networks, either within a municipality or between municipalities in a region. Forty per cent of plans propose improvements to existing transit services:

- improving transit amenities such as bus shelters, benches, lighting and signage
- implementing priority measures, such as separate bus lanes, signal systems and queue jumpers, for transit, and adopting real-time transit technologies that make transit more competitive with private automobiles by reducing travel times and increasing reliability
- improving bus route coverage and frequency
- improving local connections with other transit systems

Local or regional transit authorities often manage transit systems, and municipalities must work with these partners to implement improvements to transit services. Many network expansion projects require infrastructure investments that are beyond the scope of municipal budgets. Municipalities therefore require financial support from other orders of government to improve local mobility.³

In rural communities, low population densities may not support traditional transit systems, but there may still be a high demand for transit services. Municipalities such as the City of Edmundston, NB, the Rural Municipality of De Salaberry, MB, and the Town of Conception Bay South, NL, plan to assess options for a rural transit service, such as a community shuttle, a taxibus or a park-and-ride system.

A third area of action in the transportation sector is Transportation Demand Management (TDM). TDM initiatives aim to reduce car use by educating residents about sustainable transportation choices and providing incentives or disincentives for one or more modes of travel.⁴ Municipalities propose working with major employers and schools to promote active transportation, public transit, carpooling, and tele-working, and to provide incentives such as universal transit passes. They also plan to prioritize low-carbon modes of travel by using municipal parking policies to:

- provide priority parking for green vehicles and carpoolers
- create parking maximums or payments in lieu of parking for new developments
- un-hide parking costs by selling residential units separately from parking spaces

Solid waste

Although management of solid waste is generally considered a corporate action in the PCP framework, approximately 85 per cent of community plans include measures to divert more waste from landfills through increased reuse, recycling and composting, or by producing energy from waste. Many of these actions involve educating residents and businesses on existing waste diversion programs or implementing new waste management programs, often in collaboration with regional governments.

Nearly one quarter of plans target policies and programs to prevent the generation of waste in the first place. The most common measures include educating the public about waste reduction, and lobbying other orders of government to establish stronger policies on packaging and extend producer responsibility for consumer products.

³ Go to FCM's website for more information on how investment in public transit is key to strengthening Canada's cities and communities: www.fcm.ca/home/policy-and-advocacy/public-transit.htm.

⁴ Go to FCM's guide "Improving Travel Options with Transportation Demand Management" for strategies to design an effective TDM program: www.fcm.ca/Documents/tools/GMF/Improving_Travel_Options_with_Transportation_Demand_Management_EN.pdf

The National Zero Waste Council is a leadership initiative bringing together five of Canada’s largest metropolitan regions – Metro Vancouver, Toronto, Montreal, Halifax and Edmonton – along with key business and government leaders, academia and non-profit organizations to advance waste prevention and the circular economy in Canada. For more information, go to: www.nzwc.ca/

Cross-cutting

Many of the community action plans propose cross-cutting actions to improve internal and external management structures and relationships in order to increase the community’s capacity to implement the actions in the plan. One best practice mentioned by a small number of plans is the integration of life-cycle costs and GHG implications into municipal decision-making.⁵

When asked about time horizons for community-wide emission reductions, survey respondents indicated they are primarily looking at actions to be implemented within the next 20 years (Figure 6). A small number of municipalities are also considering

tangible climate action that will reach 2050 and beyond. While it is important for municipalities to implement actions in the short and medium term, they will ultimately need to align their plans with long-term reduction targets in order to achieve a transition to low-carbon communities (go to “Developing targets to inspire progressive climate action”, p. 23).

Supportive provincial policy frameworks

Provincial and territorial governments can have a significant impact on climate action at the local level. By developing regulations and financial incentives that target energy and emissions management, they can create a supportive policy framework that accelerates municipal action planning.

The regional distribution of local action plans submitted to PCP shows the impact of these policy frameworks. Over 60 per cent of plans cited a provincial policy or program that aligned with their planning process (Figure 7). All plans from Manitoba mentioned the province’s CLER program, and almost every plan from British Columbia mentioned the BC Climate Action Charter and/or the BC Green Communities Act.

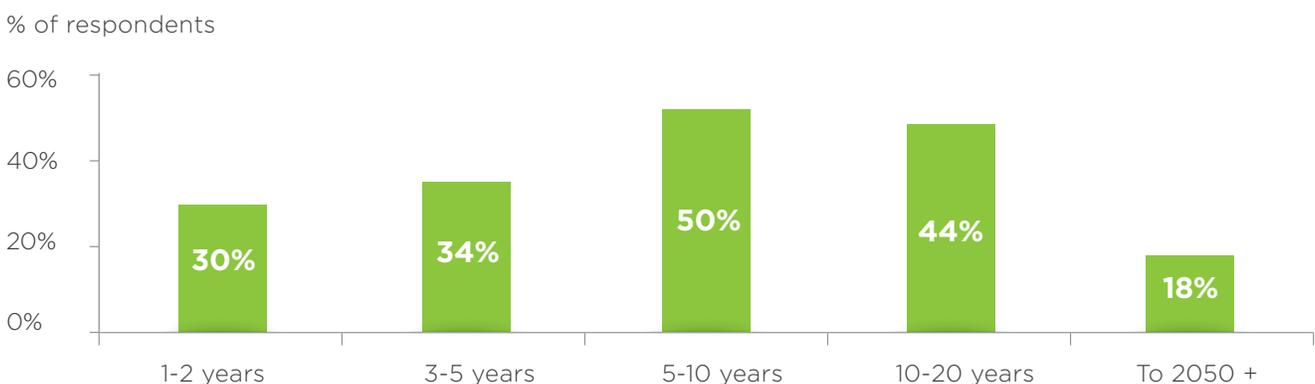


Figure 6: Time horizons considered for community-wide policies and plans

⁵ For more information, go to FCM’s resources on how asset management can help municipalities make better investment decisions: www.fcm.ca/x25308.xml

This underlines the importance of provincial regulation and incentives in spurring climate action at the municipal level. (Go to Table 5 for an overview of provincial policies.)

Only one Ontario plan referenced a supportive provincial policy, Ontario Regulation 397/11,⁶ which makes sense because it targets corporate, not community-wide, energy and emissions. However, Ontario municipalities that

developed plans were likely encouraged by other provincial policies and programs. For example, the 2009 Green Energy Act⁷ created incentives for energy conservation and renewable energy generation through a Feed-in Tariff (FIT) program. Since 2013, Ontario municipalities have also been eligible to receive funding through the province's Municipal Energy Plan program.

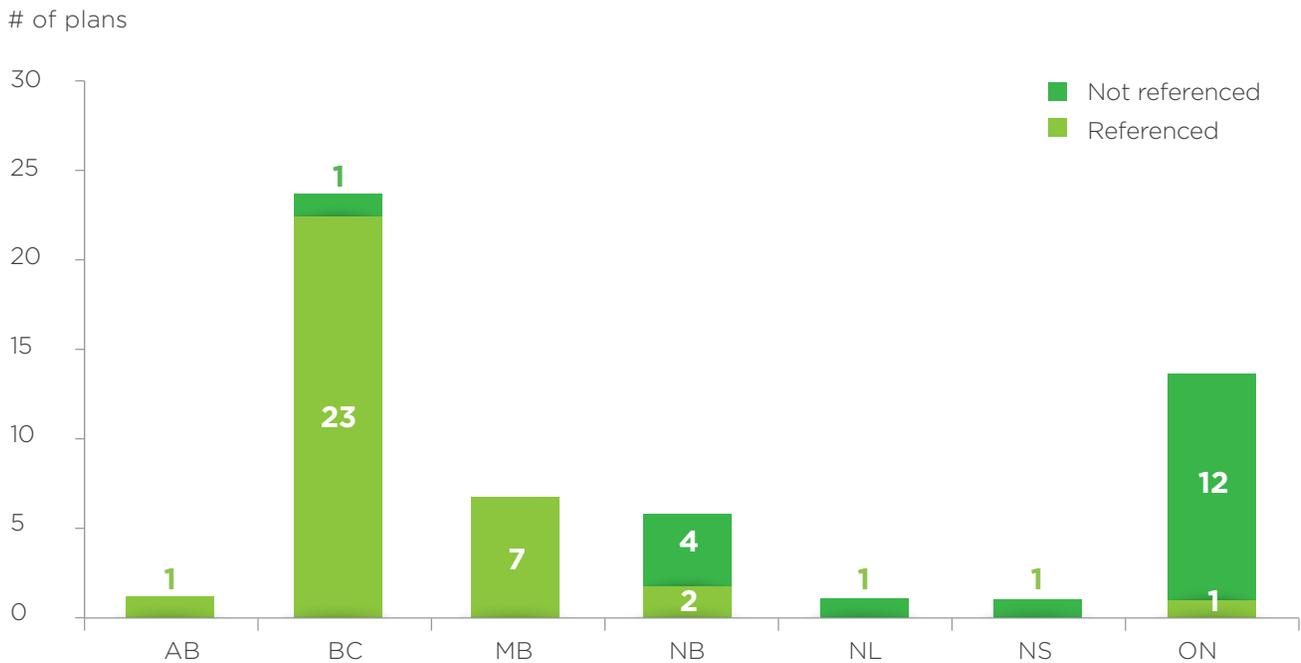


Figure 7: Number of local action plans referencing provincial policy frameworks

⁶ Go to: www.energy.gov.on.ca/en/green-energy-act/conservation-for-public-agencies/

⁷ Go to: www.energy.gov.on.ca/en/green-energy-act/

Table 5. Overview of provincial policies and programs that support local climate action planning

Province	Supportive policies & programs	Description
Alberta	Municipal Climate Change Action Centre (MCCAC)	The MCCAC provides technical assistance, expertise, and funding programs to support Alberta municipalities in reducing their GHG emissions and improving energy efficiency. Go to: www.mccac.ca
British Columbia	Green Communities Act (Bill 27)	The Green Communities Act requires municipalities to include targets, policies and actions to reduce GHG emissions in their official community and regional growth strategies. Go to: www.toolkit.bc.ca/tool/official-community-plan-ocp
	Climate Action Charter (CAC)	Municipalities that sign the CAC commit to becoming carbon-neutral in their corporate operations, to measuring and reporting on their community’s GHG emissions profiles and to creating compact, more energy-efficient communities. Participating municipalities receive a grant equivalent to their BC carbon tax costs through the Climate Action Revenue Incentive Program. Go to: www.livesmartbc.ca/community/charter.html For more information, go to: “Support for local climate action in BC”, p. 47, and “Research on policy innovation and leadership”, p. 48.
Manitoba	Community Led Emissions Reduction (CLER) program	CLER was a four-year pilot program (2008-2012) that supported community-led action to reduce GHG emissions. The program was modeled on PCP’s five-milestone framework. Go to: www.gov.mb.ca/ia/climate/ For more information on local action in Manitoba, go to “Reducing rural GHG emissions across the West”, p. 37).

Province	Supportive policies & programs	Description
New Brunswick	Environmental Trust Fund	The Environmental Trust Fund provides assistance to municipalities and other local institutions for action-oriented projects aimed at protecting, preserving and enhancing the province's natural environment. Go to: www2.gnb.ca/content/gnb/en/services/services_renderer.13136.html
Nova Scotia	Municipal Climate Change Action Plan	Municipalities are required to develop municipal climate change action plans that focus on adaptation and mitigation, as amendments to their integrated sustainable community plans. Go to: www.novascotia.ca/dma/pdf/mun-municipal-climate-change-action-plan-assistant.pdf
Ontario	Municipal Energy Plan (MEP) program	The MEP program provides funding to municipalities to develop plans that identify opportunities to conserve energy, improve energy efficiency and reduce GHG emissions. Go to: www.energy.gov.on.ca/en/municipal-energy/
Quebec	Programme Climat Municipalities	This program, which ended in 2012, supported municipalities in developing GHG inventories and action plans. Go to: www.mddelcc.gouv.qc.ca/programmes/climat-municipalites/ (content available in French only)

Climate action planning is better together

The engagement of community stakeholders is critical to the successful development and implementation of community action plans. The partners in plan development in Figure 8 include stakeholder groups that were actively consulted during the creation of the 53 community plans in the LAP analysis. The partners in plan implementation in Figure 9

are stakeholder groups that were listed as responsible for implementing or helping to implement actions. Note that some of the partners indicated in the implementation phase had not yet been engaged by the municipality.

Non-governmental organizations (NGOs) were identified as key partners in both plan development and implementation,

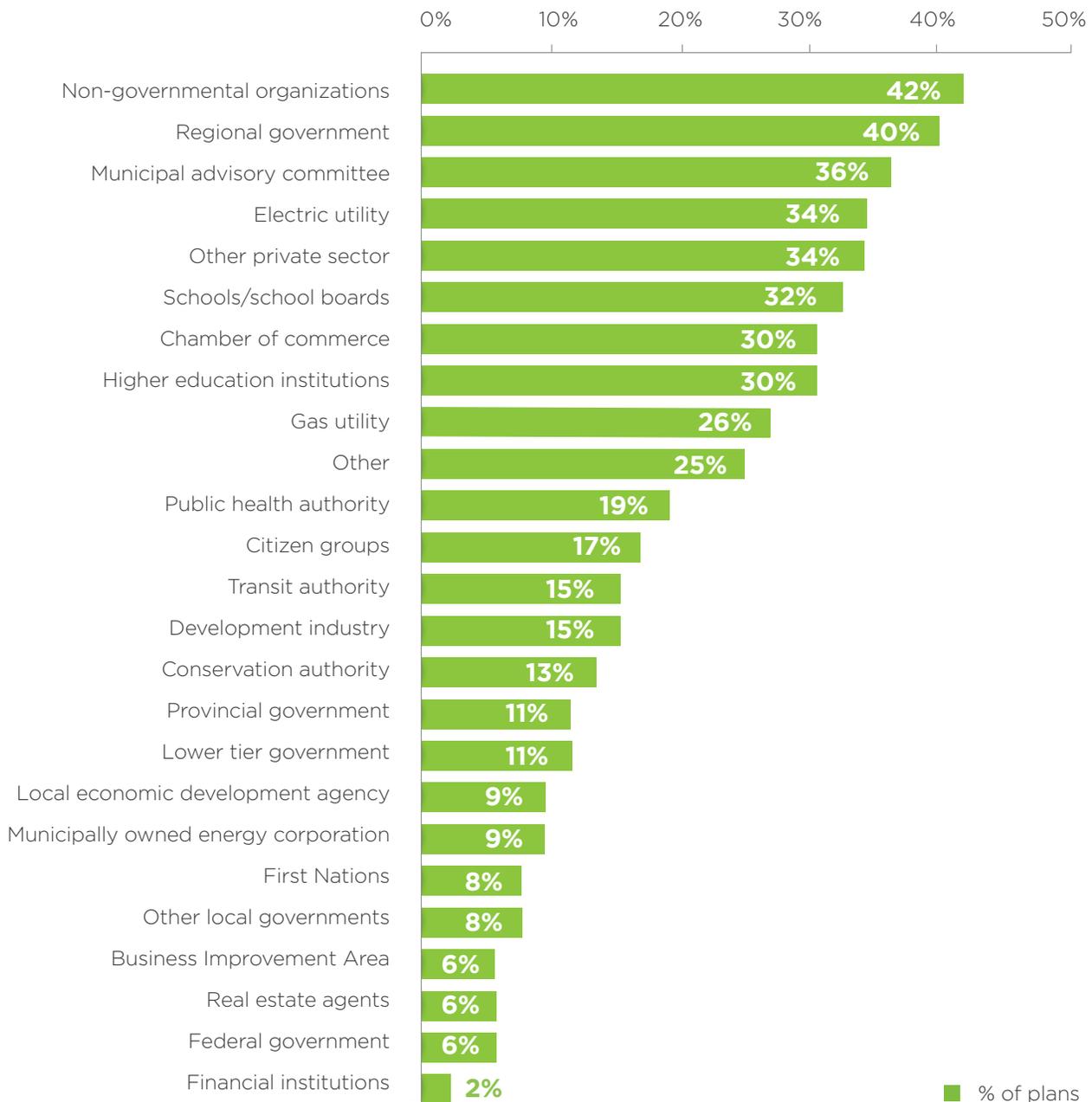


Figure 8: Partners engaged in plan development

“Our stakeholders are important partners who help develop and implement local action plans. More can be accomplished by our combined efforts than can be done by the city alone.”

- Sheri Florizone, Sustainability Outreach Coordinator, City of Regina

and were the most frequently cited of all development partners (42%). The category includes a broad range of organizations in various sectors; the most commonly cited were environmental NGOs focused on energy, transportation, or land conservation. In certain plans, NGOs acted as consultants that managed and guided the development process, bringing community expertise and the local context to the table.

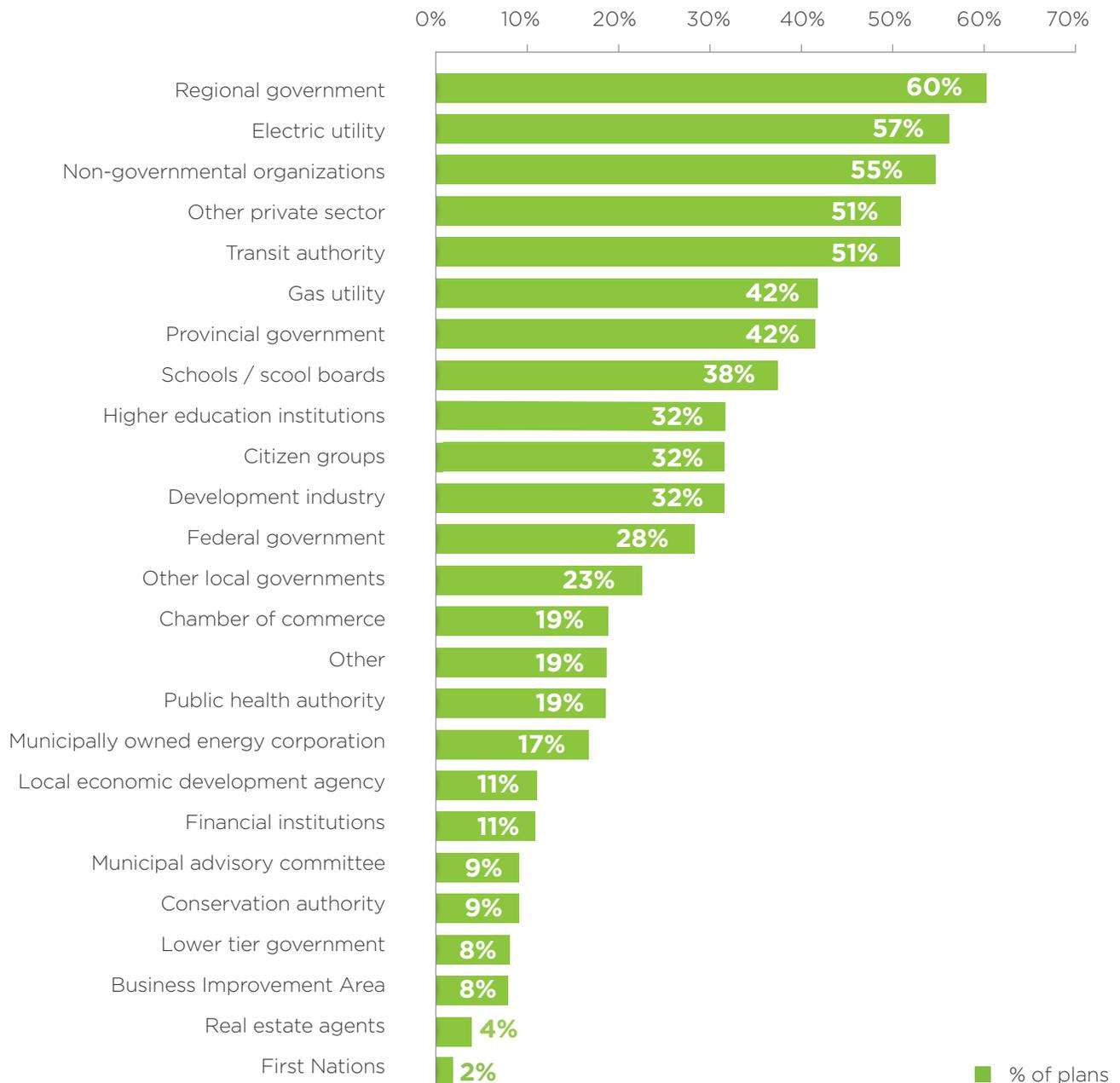


Figure 9: Partners engaged in plan implementation

Electric and gas utilities were also among the top partners listed in both development and implementation. This is likely due to robust conservation and demand management (CDM) programs run by utilities in Ontario and British Columbia, the provinces with the most LAPs in the study. CDM programs represent low-hanging fruit for energy and emissions reductions.

One key to sustaining action on climate is effective inter-governmental collaboration, which can ensure alignment of targets, actions and resources between different orders of government. The community plans in the study more often named regional, provincial and federal governments as partners in implementation than in plan development. This suggests that municipalities may want to reach out earlier to key government partners, to ensure they are prepared to take responsibility for local climate action.

First Nations groups were not engaged in the development or implementation of most LAPs in the study. This suggests an untapped opportunity for collaboration on climate action, joint service delivery and local economic development. A number of municipalities and First Nations are benefiting from this approach.

In the Greater Peterborough Area, Sustainable Peterborough — a local non-profit organization, and community leaders from ten municipalities, Curve Lake First Nation, and Hiawatha First Nation are working collaboratively to reduce local contributions to climate change and prepare the community for present and expected climate impacts. This work is being carried out through the development of a Climate Change Action Plan using PCP’s five-milestone framework. A regionally coordinated approach ensures that all parties are acting together to safeguard the health of residents and ensure stability of local economic and natural resources.

Use of assessment tools improves accuracy and relevance of plans

The most common assessment tools used to develop plans were energy mapping and GHG emissions modelling (Figure 10). Interestingly, over 60 per cent of plans did not mention the use of any tools. One factor that may have limited the wider use of planning tools is the cost of hiring external expertise. Also, some of the LAPs were integrated with broader sustainability plans, which may have limited the scope of the analysis with respect to impacts on GHG emissions.

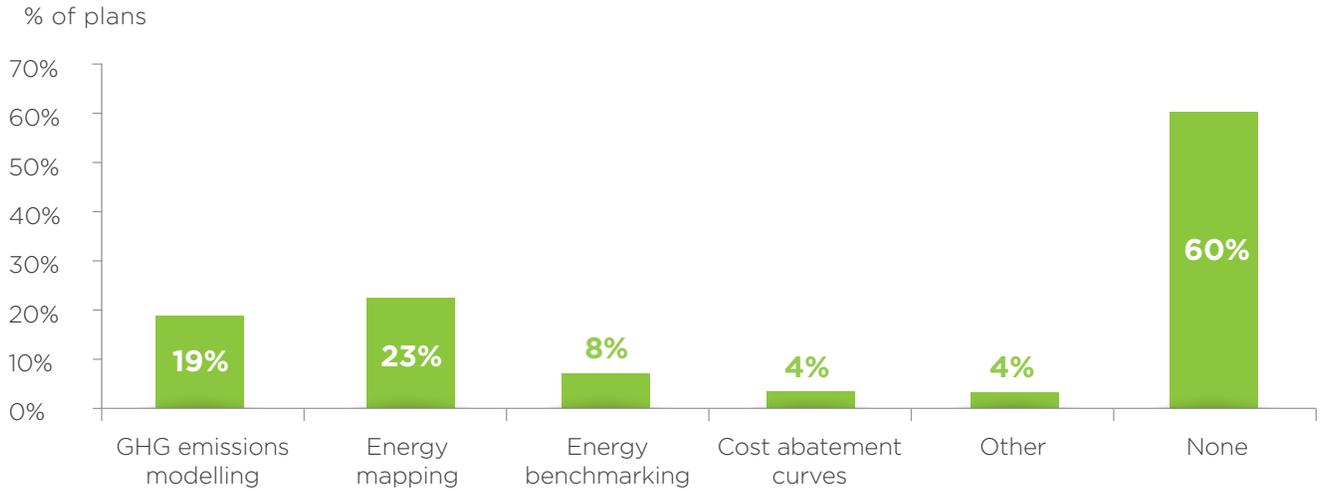


Figure 10: Plans developed using assessment tools

Table 6. Description of assessment tools used in plan development

Technical Tool	Description	Informational Links
GHG emissions modelling	GHG emissions modelling allows municipalities to understand the sectors responsible for emissions in their communities and how future development scenarios will affect emissions.	For a comparison of several current models, go to: www.shared.toolkit.bc.ca/PractitionersCommunityEnergyandEmissionsModellingMatrix_03.15.pdf To learn about a popular GHG emissions modelling tool, CityInSight, go to: www.ssg.coop/tools/

The following tools help municipalities to understand effective strategies for action.

Energy mapping	Energy mapping is an approach to visualizing energy data that produces a geographical representation of energy consumption in a municipality. Energy mapping can be done for individual sectors, such as transportation or residential.	For information about energy mapping, go to: www.questcanada.org/downloads/The%20Primer%20-%20reduced%20size.pdf
Energy benchmarking	Energy benchmarking allows municipalities to identify underperforming buildings and invest strategically in energy-efficient upgrades.	For information about energy benchmarking, go to resources from Natural Resources Canada: www.nrcan.gc.ca/energy/efficiency/buildings/energy-benchmarking/3713
Marginal abatement cost curves	Marginal abatement cost curves graphically represent the net cost of different actions to reduce GHG emissions, as well as the magnitude of reductions that can be achieved within a certain timeframe.	For an example, go to p. 21 of the City of London's addendum to their Community Energy Action Plan: www.london.ca/residents/Environment/Energy/Documents/Understanding_the_Data.pdf

PCP members have access to the PCP Milestone Tool, a user-friendly, web-based resource that helps local governments to prepare GHG emission inventories, and monitor and manage emissions generated at the local level. Over 75 members are currently using this tool. For more information, go to: www.fcm.ca/home/programs/partners-for-climate-protection/program-resources/the-pcp-milestone-tool.htm

An increasing focus on adaptation

Communities across Canada are already dealing with the impacts of climate change, including but not limited to: increased drought, more intense storms, and surges in weather-related emergencies such as heatwaves, smog days, and forest fires. In light of these impacts, municipalities are increasingly engaged in adaptation at both the corporate (77%) and community-wide (68%) levels.

Of those municipalities who are engaged in climate change adaptation, most are in the initial planning stages for their corporate initiatives (Figure 11), and in the development stage for their community-wide initiatives (Figure 12).

***Adaptation:** Assessing municipalities' vulnerability to climate change impacts and developing responses that protect their citizens, the local environment and the local economy.*

Adaptation and mitigation activities have the potential to support each other, but this requires coordinated planning. Several municipalities have adopted an integrated approach to their adaptation and mitigation strategies.

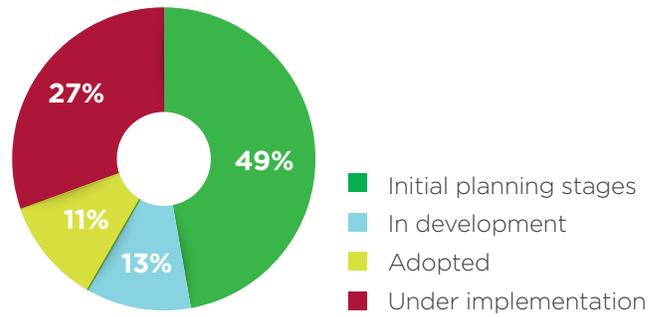


Figure 11: Status of corporate adaptation policies and plans

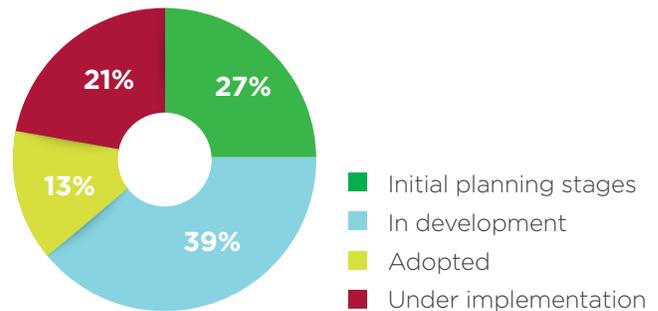


Figure 12: Status of community-wide adaptation policies and plans

Examples of integrated mitigation and adaptation planning

District of Saanich, BC: Saanich's Climate Change Adaptation Plan was developed to complement its Official Community Plan and Climate Action Plan to provide a solid foundation for climate change resiliency in the municipality.

For more information, go to: www.saanich.ca/living/climate/plan/cap.html

Town of Oakville, ON: Oakville's Environmental Strategic Plan serves as an umbrella for its Community Energy Plan and Community Adaptation Plan.

For more information, go to: www.oakville.ca/townhall/environmental-strategic-plan.html

City of Surrey, BC: Surrey's Community Climate Action Strategy integrates its Community Energy and Emissions Plan and its Climate Adaptation Strategy. The city won a 2015 FCM Sustainable Communities Award for the initiative.

For more information, go to: www.surrey.ca/community/8717.aspx

ICLEI's ***Building Adaptive & Resilient Communities*** offers communities an array of tools, resources and services to increase their adaptive capacity. The components of BARC include networking platforms, online tools and a milestone-based program. For more information, go to: www.icleicanada.org/programs/adaptation

Developing targets to inspire progressive climate action

Greenhouse gas reduction targets form the basis of a municipality's action on climate change by setting a strategic direction and providing a starting point from which to track progress. In many cases, municipalities will set multiple targets with increasing ambition over time. Sector-specific targets can be used to emphasize areas where the municipality has greater influence. An energy-oriented target such as the 100% renewable energy commitment can also be used to frame the target as a positive goal.

Over half of the municipalities who responded to the survey have set both corporate and community-wide GHG reduction targets (Figures 13 and 14).

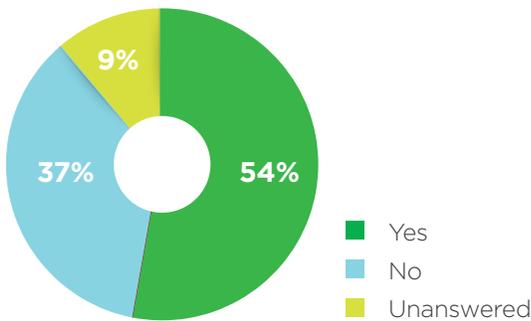


Figure 13: Municipalities who have set corporate GHG reduction targets

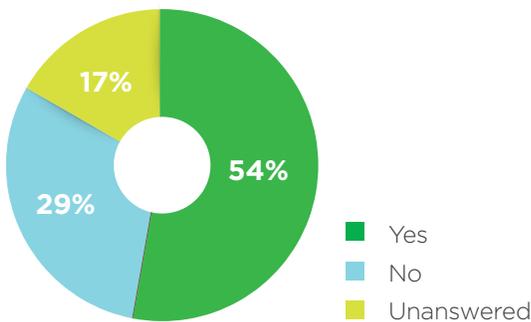


Figure 14: Municipalities who have set community-wide GHG reduction targets

Most of these targets have a 2020 end date, which means that in the next five years many municipalities should be reporting on their progress and thinking about revising or re-establishing targets to ensure they are valid into the future.

The Intergovernmental Panel on Climate Change indicates that to stabilize the climate we must reduce global emissions by approximately 30 per cent from 1990 levels by 2030, and approximately 80 per cent by 2050. Municipalities will play a key role in this transition.

However, almost three-quarters of respondents indicated that they were uncertain about pursuing community-wide reduction targets of 80 per cent by 2050 (Figure 15).

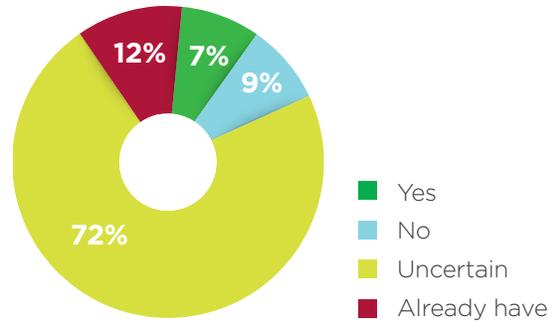


Figure 15: Municipalities interested in setting GHG reduction targets of 80 per cent by 2050

Municipalities cited a number of common barriers to setting long-term, aspirational targets (Figure 16). The lack of financial and human resources is the most frequent barrier to municipalities adopting and pursuing more ambitious targets on climate action.

One third of respondents indicated that they were concerned about provincial and federal government support, which would be essential for ambitious local action on climate change to be successful. In order to achieve deep emissions reductions, municipalities require increased levels of authority and financial support to implement

local actions. They also need other orders of government to take action on emissions over which municipalities do not have direct control. These actions could include reducing emissions from electricity by phasing out coal and working to build a clean energy supply mix, and reducing transportation emissions through electric vehicle charging infrastructure and transit networks.

Nearly half of surveyed municipalities indicated that they do not yet understand the implications of setting an 80 per cent reduction target. Moving forward, the PCP program will be working with municipalities to understand what concrete steps are needed to transition to low-carbon and resilient communities.



Figure 16: Common barriers for municipalities pursuing reduction targets of 80 per cent by 2050

For more information on target-setting, go to PCP’s Milestone 2 Guidebook:
www.fcm.ca/pcpmilestone2guide

Current status of action plan implementation

Many Canadian municipalities are turning their local plans into action by undertaking projects and programs that reduce both corporate and community-wide GHG emissions and have tangible social and economic benefits for local communities.

Corporate actions

City of Laval, QC

The City of Laval is building two municipal waste treatment facilities to generate energy and useful by-products from the municipality's organic waste. A new biomethanation plant will convert up to 65,000 tonnes per year of sewage sludge and other organic waste into biogas, which will replace the natural gas used to dry

the sludge and save approximately 3,500 tonnes of CO₂e per year. A new composting plant will transform up to 50,000 tonnes per year of kitchen and yard waste into useable compost. A pilot project for door-to-door organic waste collection is currently underway in three neighbourhoods in Laval.

Region of Waterloo, ON

The Region of Waterloo has constructed solar generating systems for the new Waterloo Region Police Service North Division (a 30kW system), and for the Grand River Transit Maintenance Facility (a 250kW system). Together the systems deliver \$45,000 in annual savings, and reduce GHG emissions by approximately 26 tonnes of CO₂e each year. The projects are part of the Region's holistic energy vision:

"The Region's of Waterloo will be an energy-conscious organization that continually seeks to conserve energy; and encourages the development and implementation of renewable and other sustainable energy infrastructure."

For more information, go to the Region's Corporate Energy Plan:

www.regionofwaterloo.ca/en/about/TheEnvironment/resources/CorporateEnergyPlanNEWv12.pdf



Image of the Grand River Transit Maintenance Facility's solar generating system.

Source: Region of Waterloo

Community-wide actions

City of Edmonton, AB

Edmonton's Community Energy Transition Strategy focuses on 12 actions that range from creating a community leadership body led by the mayor to using a dynamic and adaptive steering approach for implementation. The plan presents an economic development opportunity of \$3.3 billion over 20 years. Implementation will focus on small-scale programs and

pilots in 2016-17, including a green building campaign targeted at residential and commercial buildings, a solar photovoltaic pilot program and a city-wide district energy study.

For more information, go to:

www.edmonton.ca/city_government/environmental_stewardship/energy-transition.aspx

City of Richmond, BC

In 2013, the City of Richmond incorporated the Lulu Island Energy Company, with the purpose of managing the development, design, construction and operation of district energy utilities in Richmond on the

city's behalf. Richmond currently has two operating district energy systems – the Alexandra District Energy Utility (ADEU), and the Oval Village District Energy Utility (OVDEU) – and is looking to develop a third district energy node – the City Centre North District Energy Utility. The ADEU system uses energy recovered from ground, and the OVDEU system will use sewer heat as the energy source. When combined at the full build out, ADEU and OVDEU will reduce approximately 3,500 tonnes of CO₂e annually.

For more information on Richmond's district energy projects, go to:

www.richmond.ca/sustainability/energysrvs/districtenergy/DistEnatCity.htm?PageMode=HTML



Rendering of the Alexandra District Energy Utility.

Source: City of Richmond

Innovative municipal funding sources

To facilitate the range of actions they are currently implementing, municipalities are seeking innovative funding mechanisms for corporate and community-wide projects.

City of Thunder Bay, ON

Thunder Bay is working to establish a corporate Energy Innovation Reserve fund that will provide incentives for future energy initiatives. The city is currently developing a

framework and application process that will enable staff to access the fund for energy initiatives that align with the city's Corporate Energy Management Plan.

City of Dawson Creek, BC

The City of Dawson Creek's Carbon Fund supports the city's Climate Action Charter commitments. The Carbon Fund allows the City to put a price on its corporate carbon and GHG emissions and to reinvest those funds in corporate and community projects.

The fund is expected to help drive the local green economy and insulate the city from rising energy costs.

For more information, go to: www.toolkit.bc.ca/Success-Story/Dawson-Creek-Carbon-Fund

Next steps in action planning

Taking action on climate change represents a daunting challenge and a tremendous opportunity to transition to more healthy, prosperous and sustainable communities. Findings from the National Measures Report survey and the analysis of local action plans show that municipalities across Canada are stepping up to the plate. By measuring and managing their energy use and GHG emissions, developing climate action plans and implementing policies, programs and projects that reduce both corporate and community-wide emissions, municipalities are demonstrating how they can take a leadership role in moving towards a more sustainable future.

For local action plans to be truly effective, municipalities need to set realistic targets, select cost-effective actions, and work collaboratively with corporate and community partners and other orders of government to implement them. To maximize the impact of their climate change plans, municipalities should consider the following strategies:

- Consider how provincial and territorial policy frameworks and programs can align with municipal objectives on energy efficiency, renewable energy generation, emissions reduction and community resiliency.

- Set local GHG reduction targets that both inspire climate action and are relevant and achievable. This may mean setting multiple targets.
- When developing plans, use assessment tools to enhance the accuracy and relevance of reduction targets and proposed actions.
- Engage corporate and community stakeholders early in the planning process to strengthen the plan and the partnerships needed for successful implementation.
- Identify who is responsible for implementation, and spell out costs and funding sources. Consider how to integrate projects into the municipality's long-term capital and budgetary planning process.
- Schedule regular reports to council and community stakeholders; they will help ensure accountability for implementation.
- Consider who should be responsible for implementing the plan. It may be best if a community plan is led and championed by an organization in the community.
- Partner with area or regional municipalities to maximize impact and save resources.

Data sources and collection

National Measures Report 2015 survey

Survey Response

82
responses

90%
from PCP member
municipalities

10%
from non-members



26%
of PCP membership
(74 of 285 members)

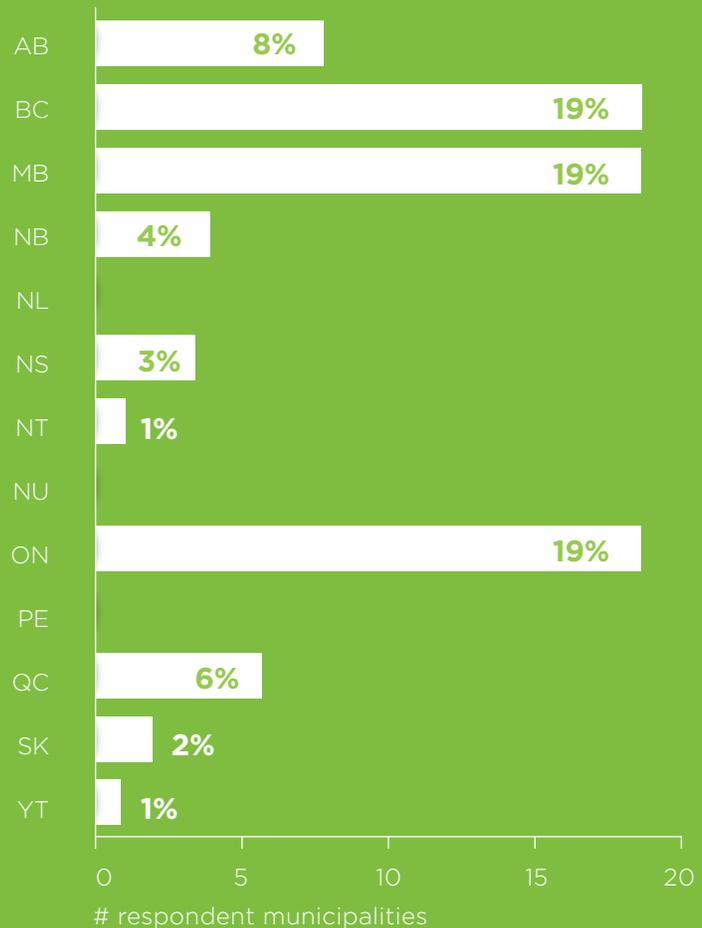


Data Collection Period

June 2015 - August 2015

Geographic Spread

Municipalities in 10 of 13 provinces and territories responded



Compared to the PCP membership (Figure 18), fewer small municipalities responded to the NMR survey (Figure 19). This trend is more marked among municipalities who submitted local action plans (Figure 20). This may be explained by the fact that recent PCP membership growth has been highest among small municipalities, many of whom have not yet had time to complete their LAPs.

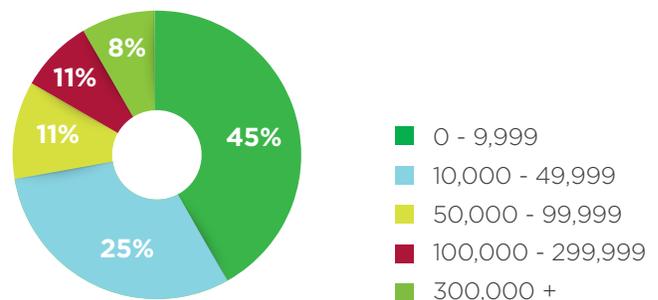


Figure 18: PCP municipalities by population

Local action plan (LAP) analysis

Local Action Plan Composition

Total
53
LAPs

Including
5
LAPs developed jointly

Representing
65
PCP member municipalities in total

LAPs analyzed represent
50%
of PCP members who have achieved Milestone 3 since program inception



Data Collection Period January 2010 - August 2015

LAPs submitted to meet the requirements of PCP Community Milestone 3 during this period

Geographic Spread

Municipalities in 7 of 13 provinces and territories submitted plans

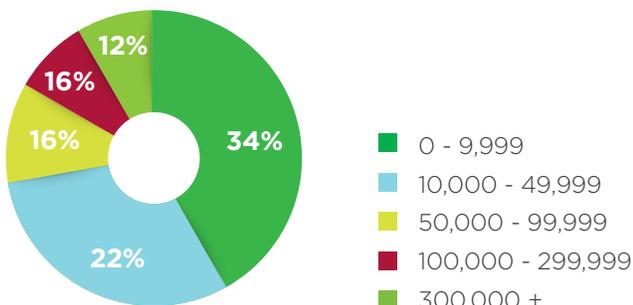
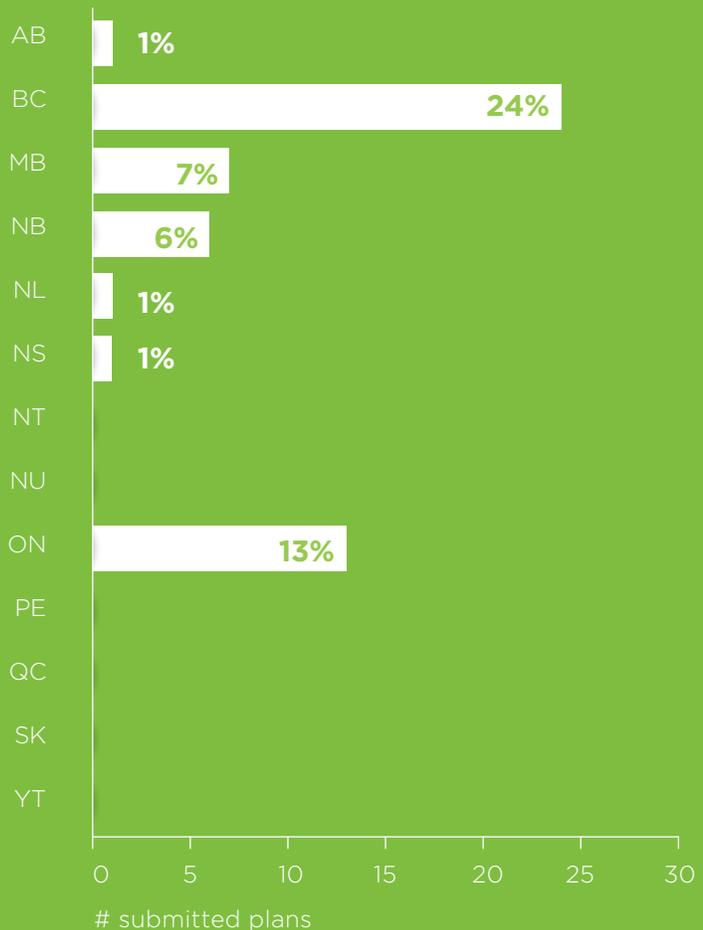


Figure 19: NMR survey respondents by population

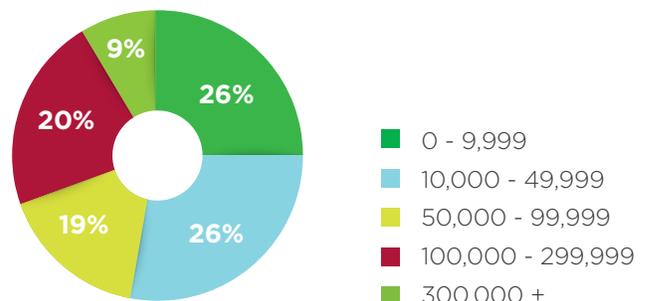


Figure 20: Local action plans by municipal population

Insights from our partners

Organizing climate action from local to global

Source: City of Kitchener



FCM's Green Municipal Fund

Facilitating local climate action in Canada

**Green
Municipal
Fund**

Municipalities across Canada are leading the way in reducing critical greenhouse gas emissions and energy use. Many of these communities are

able to implement climate action projects thanks to programs run by FCM's Green Municipal Fund (GMF), including the Partners for Climate Protection program.

Over the past 15 years, GMF has funded more than a thousand initiatives across the country, including many aimed at GHG emissions and inefficient energy use.

In addition to offering funding, and financing innovative sustainability projects, GMF inspires innovation by sharing best practices and lessons learned. We connect leaders and communities with experts, peers and allies, and build capacity through training, resources and funding.

Inspiration: Overcome 'business as usual'

GMF inspires municipalities by sharing information about climate initiatives and their results, as well as lessons learned by local sustainability leaders, with others who face similar challenges. We collect and share information about every project we fund — what municipalities did, how it worked and what they learned — so others can benefit from their knowledge. We feature these stories in case studies,

Feasibility study leads to long-term gains

A 2008 GMF-funded feasibility study helped the City of Kitchener, ON, build a business case for its new Leadership in Energy and Environmental Design (LEED®) Silver certified maintenance facility. The project includes solar and geothermal systems, and measures to conserve and recycle water. Kitchener reports that the facility uses 37 per cent less energy, cuts GHG emissions by 211 tonnes and saves the city \$350,000 every year.

webinars, conference resources, our Sustainable Communities Awards program, and in other resources and activities.

Connection: Find experts, peers and allies to support your initiatives

We create opportunities for leaders to meet, share information and network in peer-to-peer learning programs, and at formal and informal events. Our staff members also provide personalized support through the funding process, and link leaders with others who have the experience, expertise and contacts they need to meet their goals.

Capacity building: Develop better projects and improve processes

GMF helps municipalities build the capacity to plan, implement and assess sustainability projects. Our training, tools and resources help leaders employ techniques such as triple-bottom-line analysis, which highlights the environmental, economic and social benefits of climate action. We also fund groups of small municipalities that work together to achieve Partners for Climate Protection milestones.

Funding: Bridge the funding gap with innovative financing for sustainability projects

Innovative approaches and initiatives often have higher initial costs than conventional solutions. Leaders can justify higher short-term expenses by using triple-bottom-line analysis to demonstrate long-term benefits. We can also help with innovative capital financing solutions for water, waste, energy and other projects.

Since 2000, GMF projects have contributed approximately \$576 million to Canada's GDP, created over 7,200 jobs, improved public health and revitalized many communities across the country.

Source: City of Yellowknife

Supporting Yellowknife's sustainability journey

A Partners for Climate Protection member for more than 15 years, the City of Yellowknife, NT, has achieved all five PCP milestones and launched a new action plan to explore composting, landfill-gas recovery, renewable energy and energy-efficient building retrofits. GMF has supported Yellowknife's sustainability journey over the years, funding nine plans, studies and tests, including the newest plan.





Making sustainability a reality for a small municipality

A district heating plant partially funded by a GMF loan and grant is helping Saint-Ubalde, QC, cut GHG emissions and save money. The plant uses local forest industry waste to heat municipal and institutional buildings. The project is expected to reduce the use of electricity and fossil fuels for heating by 95 per cent and cut GHG emissions by nearly 220 tonnes per year.

GMF's triple-bottom-line: Environmental, economic and social benefits for Canadians

Since the Green Municipal Fund was established in 2000, GMF projects have delivered a range of environmental, economic and social benefits to Canadians. These initiatives have dramatically cut GHG emissions, air contaminants, and waste entering landfill sites. They have also contributed approximately \$576 million to Canada's GDP, created thousands of jobs, improved public health and revitalized many communities across the country.

These are just some of the ways the Green Municipal Fund helps municipalities lead the charge on climate change protection while developing prosperous and sustainable communities.

Discover how GMF can help your community take action on climate change by visiting fcm.ca/gmf today.

ICLEI-Local Governments for Sustainability

Coordinating local climate action around the globe



ICLEI - Local Governments for Sustainability Local Governments for Sustainability started with the idea that a single municipality

can take meaningful climate action and that municipalities acting together can have a significant impact around the globe. Founded in 1990, ICLEI's mission is to support the worldwide movement of local governments making tangible improvements in sustainability conditions.

By 2030, two thirds of humanity will live in urban centres, where more than three quarters of the world's energy is already consumed. All cities, especially rapidly growing cities in developing countries, are vulnerable to the impacts of climate change. Local and subnational governments must play a critical role in reducing GHG emissions and adapting to climate change globally.

ICLEI's **Local Government Climate Roadmap** works to ensure that local governments are recognized, engaged and empowered in global climate negotiations. It is primarily focused on three pillars:

- **Advance global negotiations** — We lobby national governments to mandate their United Nations Framework Convention on Climate Change (UNFCCC) negotiators to achieve ambitious and inclusive outcomes at Paris 2015 and beyond.
- **Enhance vertical integration** — We encourage national governments to mandate agencies responsible for climate policies and ensure effective multilevel governance.
- **Accelerate local and subnational climate action** — We urge local and regional governments to strengthen their partnerships and networks to speed up effective climate action.

To help achieve its ambitions, the **Local Government Climate Roadmap** supports a range of efforts, including:

- **Compact of Mayors** — A global coalition of mayors and city officials pledged to reduce local greenhouse gas emissions, enhance resilience to climate change and track their progress transparently.
- **Solutions Gateway** — An international online resource platform for local governments to find possible Low Emissions Development solutions for their cities. The platform contains sectoral and cross-sectoral packages of activities designed to work with local governments' responsibilities and spheres of influence. Solutions Gateway supports cities developing low-emission strategies, plans and projects.
- **Transformative Actions Program (TAP)** — A program designed to help overcome obstacles to local and subnational actions, including access to funding and perceived bankability. TAP catalyzes and improves access to capital flows for cities and regions from public and private investors.

These are some of the ways that ICLEI supports and empowers local governments that are working to reach climate change goals around the world.

Visit iclei.org to learn more.

ICLEI's mission is to support the worldwide movement of local governments making tangible improvements in sustainability conditions.

Canadian Institute of Planners

Professional planners support local climate action



Global warming means extreme weather, which is possibly the most complex and

misunderstood force of the 21st century.

The Canadian Institute of Planners, which represents some 7,500 professional planners across Canada, believes that climate change is real, happening today, and should be addressed as part of our members' professional practice.

CIP members have been educated to use their vision and knowledge to create healthy, sustainable communities and they have an obligation to address climate change within their jobs and broader careers. In the face of a changing climate, planners have the tools to take action, including provincial policies, municipal official plans, and special studies, all based on local needs.

CIP members are active locally in taking action on climate change. The organization promotes climate action and provides resources to members in support of it.

Navigating the regulatory environment

Planning is regulated at the provincial level, resulting in different approaches to climate change across the country. Provinces and territories, including but not limited to British Columbia, Alberta, Manitoba, Nova Scotia and Ontario, are actively pursuing their own initiatives.

Ontario regulates development with the Provincial Policy Statement (PPS), which was last updated in 2014 to incorporate a new section on climate change and energy conservation. The recommendations of professional planners in Ontario must be consistent with the PPS, which covers the following areas:

- conserving energy and improving energy efficiency
- reducing greenhouse gas emissions
- promoting improved design to adapt to climate change
- encouraging public transit
- promoting walking, biking and other active transportation
- locating commercial/industrial lands near transit hubs
- blending housing and work to decrease traffic congestion

This policy states what must be done, but not how to do it. That is up to each municipality. Achieving these objectives requires municipal leadership, usually from elected council members or a chief administrative officer.

Ontario has also required municipalities to track annual energy use since 2013. Using this information, municipalities can identify energy use 'hot spots' in their buildings, and municipal staff can develop facility-specific action plans.

Nova Scotia, on the other hand, requires all municipalities to prepare climate change plans and offers an incentive in the form of fuel-tax savings. It is not clear whether the Province will monitor implementation, but communities that receive a small monetary reward for planning for climate change may well decide to explore the ongoing economic benefits of implementing it.

Finding the trigger

For professional planners the first task is to determine the basis for action.

1. What triggers apply?
2. What level of buy-in do we need: executive or council level?
3. Who will be the champion to make this become a reality?

Provincial regulations serve as a trigger for many communities and presenting a clear business case for GHG reductions and energy efficiency often motivates further action.

Defining events — flooding, ice storms, extended heat waves, or damaging winds — often trigger local action on climate change. The cities of Calgary, AB, and Toronto, ON, as well as the Town of Huntsville, ON, have all experienced significant flooding in recent years, and taken action as a result.

Finally, there are municipalities that have moved forward on their own and have far exceeded provincial requirements. In Ontario, the cities of Guelph and Hamilton, and the Town of Whitby, have addressed climate issues through special efforts driven by council.

Not sure where to start? Take the first steps:

1. Talk to your manager and members of council.
2. Find a reason to take action.
3. Find a trigger to propel that action and, ideally, funding to support it.
4. Create a business case for taking action.

CIP members have an obligation to address climate change within their jobs and broader careers.

CIP members have been educated to use their vision and knowledge to create healthier communities.

Go forward from there. For most municipalities, enrolling in the FCM-ICLEI Partners for Climate Protection program is an excellent place to start. CIP is a proud partner of FCM and shares its passion and focus in the fight against climate change.

Visit cip-icu.ca/Topics-in-Planning/Climate-Change for more information.

Sustainability CoLab

Network helps municipalities achieve sustainability



Six years ago, a journey began in Waterloo Region, Ontario.

The aim: to rally

the community around sustainability and shift away from “business as usual”. The benefits for local business would be three-fold: reduced GHG emissions, improved profitability and a more sustainable economy.

The journey started when the Sustainable Waterloo Region was founded in 2009 and

The CoLab Network’s target-based sustainability programs support municipalities’ Partners for Climate Protection corporate and community targets.

launched its target-based sustainability program, the Regional Carbon Initiative (RCI). The RCI soon had local businesses and organizations measuring, tracking and reporting on their carbon footprints. Participants had a support network that opened up best practices for setting and achieving GHG reduction targets, and their environmental and economic progress was being widely celebrated.

By 2013, 65 organizations were actively participating in the RCI, representing over 14 per cent of the Region's workforce and including many of its economic 'heavy hitters'. Together, the organizations had set targets equivalent to taking 12,000 cars off the road each year.

CoLab replicates Waterloo success

Word was spreading, and other communities were reaching out to see how they could replicate the successes of the RCI. Believing it could be done, Sustainability CoLab was launched in 2014 to support organizations across Ontario to develop similar target-based sustainability programs.

Today, the CoLab Network is truly provincial in scope, with members from the cities of Sudbury, Ottawa and Kingston, and the regional municipalities of York, Niagara, Durham and Waterloo. Four member organizations, including Sustainable Waterloo Region, have launched their own target-based sustainability programs:

- Waterloo Region: *Regional Carbon Initiative*
- Ottawa: *Carbon 613*
- Durham Region: *Durham Partners in Project Green*
- Niagara Region: *Carbon Project*

By 2015, 106 businesses and organizations in these communities had collectively committed to reduce over 59,000 tonnes of GHGs.

How CoLab supports municipal climate change action

Municipalities and the CoLab Network support each other's efforts. The CoLab Network's target-based sustainability programs support municipalities' PCP corporate and community targets. PCP municipalities can have a greater impact within the network because of the size and scope of their actions and influence on communities.

Take the Regional Municipality of Waterloo as one example. The municipality is on track to achieve a 24 per cent reduction in corporate emissions from its 2009 baseline year. The Region has identified the RCI as a key project for reaching its community-wide goal of a six per cent absolute GHG reduction by 2020. With the support of the RCI, and other initiatives, the Region expects to reach this ambitious goal, even though it has one of the fastest population growth rates in Ontario.

Moving forward together

Municipalities can be large, complex organizations that have to navigate red tape, frequent leadership changes, and decisions made under public scrutiny. Translating municipal support into concrete action can therefore take time and dedicated effort. Of the 12 municipalities currently participating in CoLab Network programs, two have successfully set targets to reduce their emissions and the others are actively working towards setting a new course.

This is where target-based sustainability programs and programs like PCP come in. They help municipalities identify and overcome barriers to action. They offer collaborative support networks, raise the public profile of successful projects, and recognize municipalities that lead and follow through. In 2015, the CoLab Network brought over 750 people together at events celebrating successes across Ontario.

There is great potential for Canadian municipalities to work collaboratively to effectively reduce their GHG emissions. As more target-based sustainability programs launch, municipalities have increased support on their journey to a more sustainable future. — *Mike Morrice*

Mike Morrice is the Executive Director of Sustainability CoLab.

For more information about the CoLab Network go to sustainabilitycolab.org.

Project Eco-West

Reducing rural GHG emissions across the West



Project Eco-West has a vision — to ensure the growth and prosperity of Western Canada’s municipalities by planning and implementing green economy initiatives.

Created in 2008 by the four western francophone economic development organizations and based in Manitoba, where the early activities were primarily focused, Project Eco-West is now active in all four western provinces.

The organization helps smaller, less populated rural municipalities develop and implement climate change local action plans with a focus on measuring and reducing GHG emissions. It also helps small communities launch sustainability initiatives.

“One of the main challenges is that many smaller municipalities do not have the human resources or the capital to undertake these kinds of initiatives on their own,” says Eco-West director Dany Robidoux. Eco-West helps these municipalities to:

- develop strategies to reduce GHG emissions
- develop business cases for green economy initiatives that are feasible in less densely populated communities
- conduct feasibility studies
- secure funding for studies and financing for initiatives

“Since our primary focus is working with smaller municipalities, another challenge is developing business cases that demonstrate green economy initiatives can indeed be feasible in less densely populated communities,” Robidoux says.

A history of green successes

Since 2008, Eco-West has completed over 30 GHG emissions inventories for municipalities across Manitoba and has helped communities launch successful initiatives, including:

- a regional composting facility in the Rural Municipality of De Salaberry and the Village of St-Pierre-Jolys in southern Manitoba
- a biomass heating installation at Providence College in Otterburne, Manitoba
- a geothermal heating system at the Île-des Chênes Community Centre, Arena and Firehall, also in southern Manitoba

A challenge of working with smaller municipalities is developing business cases that demonstrate green economy initiatives can indeed be feasible in less densely populated communities.

These achievements have brought Eco-West to the attention of other western municipalities interested in greening their communities. These municipalities want to address sustainability-related issues in the areas of energy, water treatment, waste diversion and transportation.

“As a result of our past successes, the federal government has recognized Eco-West’s ability to assist rural municipalities to adopt green technologies and reduce greenhouse gas emissions,” says Robidoux. “We are happy to share our expertise and offer our services to rural municipalities in all four western provinces.”

Visit cdem.com/en/sectors/green-economy-1/eco-west for more information.

Insights from our partners

Challenges and new directions

Quality Urban Energy Systems of Tomorrow

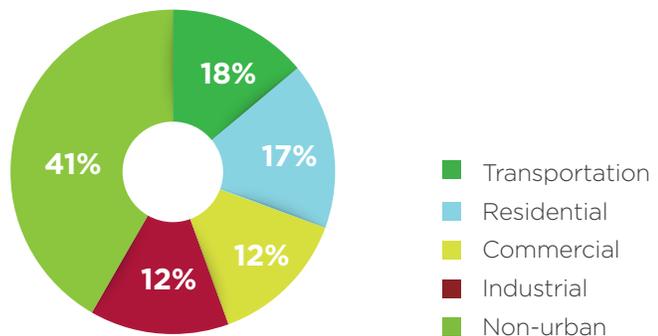
Building smart energy communities



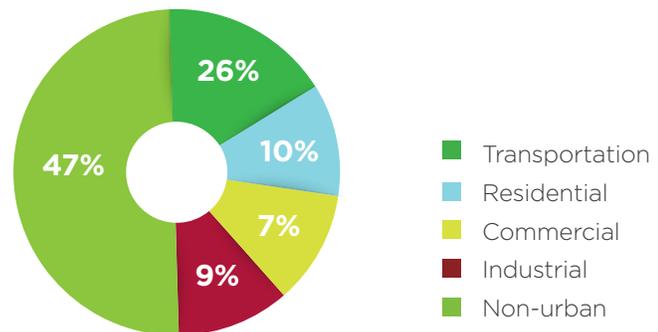
Urban communities – the places where most Canadians

live, work and play – account for 60 per cent of our energy use and over half of our greenhouse gas (GHG) emissions. Energy costs are high – even small cities can spend millions of dollars on energy every year – and, with growing awareness of climate change, many communities are looking for more efficient ways to manage energy.

Energy use in Canadian communities by sector (2012)



Greenhouse gas emissions in Canadian communities



Canadian communities account for almost 60 per cent of energy use and more than half of the country's GHG emissions

Quality Urban Energy Systems of Tomorrow (QUEST) is a non-profit organization that conducts research and engagement, and is promoting a vision of Smart Energy Communities that can improve energy efficiency, cut costs and reduce GHGs in Canada.

Three fundamental features of Smart Energy Communities

1. Integrating conventional energy networks

Better coordinating electricity, natural gas, district energy and transportation fuel networks to match energy needs with the most efficient energy sources.

2. Integrating land use

Improving land use plans to reduce energy waste.

3. Harnessing local energy opportunities

Embracing options such as district heating, biofuels and solar and geothermal power.

Laying the groundwork with Community Energy Plans

More than 180 Canadian communities, representing over 50 per cent of the population, have developed Community Energy Plans (CEPs). A CEP helps define community energy priorities with a view

to improving efficiency, cutting emissions and driving economic development. CEPs are usually developed by municipalities and implemented with community stakeholders, including natural gas and electric utilities, the real estate sector and provincial or territorial governments.

Energy is a significant and growing cost in Canadian communities. Every year millions of dollars are spent to meet energy needs. Community energy planning can help recirculate that money into local economies and drive economic development and diversification.

Community Energy Planning: Getting to Implementation in Canada will help Canadian communities build their capacity to develop and implement CEPs, identifying success factors and barriers along the way.

Energy spending in communities across Canada

Community size	Average spending on energy in the community
Small communities (less than 20,000 people)	Up to \$80 million
Mid-sized communities (20,000 to 100,000 people)	\$60 million to \$400 million
Large communities (100,000 people to 2.5 million people)	\$300 million to \$10 billion

Moving from planning to implementation

Recognizing the significant impact that energy has on local economies, health and community resilience, many cities and towns in Canada have created Community Energy Plans to take ownership of their energy use. These communities are now faced with the challenge of implementing their CEPs.

To help communities meet the challenge, QUEST has partnered with the Community Energy Association and Sustainable Prosperity, Canada's leading community energy experts, to launch *Community Energy Planning: Getting to Implementation in Canada*.

This multiyear initiative will help Canadian communities build their capacity to develop

and implement CEPs by developing an implementation framework and making it widely available. The initiative will help identify the success factors and barriers for CEP implementation and help QUEST define how towns and cities across Canada can become Smart Energy Communities.

— Brent Gilmour

Brent Gilmour is the Executive Director of QUEST, a non-profit organization that conducts research, engagement and advocacy to advance Smart Energy Communities in Canada.

For more information, visit questcanada.org and gettingtoimplementation.ca.

David Suzuki Foundation

Linking transportation and clean energy



David
Suzuki
Foundation

SOLUTIONS ARE IN OUR NATURE

One hundred years ago, most Canadians lived outside of urban areas. Now, more than 80 per cent live in densely populated urban centres and rapidly growing suburbs. Canada may inspire visions of towering mountains, endless forests and flowing water, but the reality for Canadians is more often roads and buildings.

If we add public transportation but continue to power it with fossil fuels we will have missed an opportunity to reduce emissions and improve public health.

That's actually a good thing. As we have urbanized, our quality of life has improved and the economy has expanded. Life expectancy and per capita wealth have increased and access to healthcare and social institutions has improved. However, urbanization also poses new challenges.

Why public transportation matters

The mid-20th century shift toward private vehicle infrastructure, in particular, presents several obstacles to modernizing the towns and cities that so many Canadians call home. Using private vehicles, instead of public transit or active transportation options like walking and cycling, reduces air quality and can negatively affect the health of people living close to busy streets. Emissions from private vehicles also contribute substantially to global climate change. Road transportation accounts for 24 per cent of carbon emissions in British Columbia, 27 per cent in Ontario and 24 per cent for Canada overall.

Fortunately, policy leaders are shifting the way they think about transportation. In the 2015 federal election campaign, every major party made some form of commitment

to funding transportation improvements. The Liberal Party, now elected, committed to quadrupling investment in public transportation, spending an additional \$20 billion over the next decade.

How clean power increases the benefits

The issue isn't just about funding transportation; it is also about how we power it. Investing in more public transportation in Canada's largest cities would ease congestion and improve services, but if we burn fossil fuels to power this new infrastructure we will have missed an opportunity to reduce emissions and improve public health.

Electrifying transit networks and investing in renewable energy — locally, provincially

and nationally — would offer the greatest benefits from the investments we choose to make. The City of Vancouver has committed to making its electricity supply 100 per cent renewable by 2050 and the Quebec government is planning to make 95 per cent of public transportation trips electrically powered by 2030. It's time for the rest of Canada's municipalities and provinces to do the same.

The opportunities and timing have never been better to transform our urban areas to liveable communities with fast, reliable transit networks powered by clean energy. The sooner we get our cities moving the better.

For more information go to davidsuzuki.org.

Renewable Cities

Achieving 100% renewable energy



Cities and towns across Canada are beginning to look seriously at ways to achieve 100 per cent renewable energy (100% RE) use, for both municipal

operations and entire communities.

A Global Learning Forum on the subject attracted over three hundred participants from 34 municipalities and First Nations to Vancouver in May 2015.

The forum was held to launch Renewable Cities, a program of Simon Fraser University's Centre for Dialogue. The program promotes engaged and active dialogue, actionable outcomes, and empowered networks.

The forum brought together municipal officials and staff, utility operators, financiers, civil society members, clean energy experts, and engagement specialists. Participants, many of whom are responsible for climate change programs, were encouraged to explore and network with international peers navigating the same challenges.

Renewable Cities fosters relationships and facilitates engagement between renewable energy practitioners and decision-makers around the world.

Source: Renewable Cities



Vancouver's Mayor, Gregor Robertson, set the tone for the forum with a discussion of the city's newly announced commitment to 100% RE by 2050 — highlighting the fact that cities can set ambitious goals even if they don't yet have exact plans for achieving them.

Other highlights of the forum:

- FCM showcased the innovations of Milestone 5 cities, Yellowknife and Edmonton, and invited input on how FCM can help Canadian municipalities shift to renewable energy.
- NRCan dealt with the practicalities of installing district energy in existing buildings, which is increasingly feasible in Canada, even for low-temperature systems.
- BC Community Energy previewed the proposed changes to BC's Building Code and invited discussion on the potential of stronger energy efficiency requirements.

World communities with 100% RE goals

Achieved

Dobbiaco, Italy

Wildpoldsried, Germany

Hartberg, Austria

Committed

Barcelona, Spain

Malmö, Sweden

Wallonie Picarde, Belgium

Waldviertler Kernland, Austria

East Hampton Town, US

District Rhein-Hunsrück, Germany

Vancouver, BC, Canada

Oxford County, ON, Canada

For more information go to go100re.net

- Lumos Energy and Innergex collaborated on a discussion about engaging with communities on energy projects that improve local quality of life.

The three-day event conveyed a number of important messages to participants:

- The need for energy efficiency is the backbone of any renewable energy plan.
- Transportation is integral to reducing energy use and improving infrastructure efficiency, yet is often missing from the discussion.
- Renewable energy can have a positive impact not only on climate change mitigation and adaptation, but also on mitigating financial risk, ensuring social justice and recovering from disasters.

Renewable energy involves the public in many ways, and community ownership of the decision-making is the gateway to successful shifts in energy planning. One immediate result of the forum was a new Canadian addition to the growing network of communities around the world that have committed to 100% RE. Ontario's Oxford County joined Vancouver in committing to a community-wide goal of 100% RE by 2050.

Renewable Cities continues to foster relationships and facilitate engagement between renewable energy practitioners and decision-makers around the world. In early 2016, the team will facilitate a number of small focused dialogues in Vancouver as well as Kassel, Germany, and Paris, France (at the 2015 Paris Climate Conference). Based on the overwhelming support for the event and its outcomes, a second forum is also likely.

For more information, or to receive Renewable Cities' newsletter, go to renewablecities.ca.

Canadian Climate Forum

Facing the rising seas



Three millimetres per year. For someone standing on the shore

looking out at the sea, a rise in water level on that scale doesn't sound like much, but it's twice what it was just 40 years ago. And rigorous scientific estimates published just this year suggest that we are on the verge of a major acceleration that may produce one-metre higher sea levels globally by the end of this century. What does that mean for coastal cities in Canada?

Clearly, it's not good news.

It's also complicated because factors other than just a rising sea are involved. In parts of eastern Canada, decreases in the area covered by sea ice, combined with more intense storms, make it more likely that storm surges will inundate low-lying sections of the coast. The northern coast of Prince Edward Island, including the Charlottetown region, is particularly vulnerable. Sections of the southeastern and northern coasts of New Brunswick, and the eastern coast of Nova Scotia, including greater Halifax, are also at risk.

Development pressures increase the risks. Fifty municipal areas in New Brunswick are exposed to the effects of rising sea levels, including an area along the Gulf of St. Lawrence considered to have the highest sensitivity to storm impacts and sea level rise. Between 1990 and 1999, New Brunswick created nearly 6,300 new housing lots along its coasts. Many are now exposed to future inundation.

The risk profile is no better on the west coast, where low-lying areas of the lower mainland of British Columbia and parts of southern Vancouver Island are vulnerable to future flooding. The Fraser Delta region, including the heavily populated City of Richmond, is on the front lines and all municipalities in the area, including adjoining Vancouver, are grappling with the growing threat.

Rising sea levels and more intense storms make it more likely that low-lying sections of our coast will be inundated by storm surges.

Provincial policies

Provincial policies offer a range of tools to help municipalities and regional districts adapt. Examples include the following:

British Columbia

- Zoning regulations are being used to reduce risk to buildings by setting minimum foundation elevations above a flood hazard.
- Subdivision activities are regulated to reduce risk exposure from rising sea levels.
- Dike reinforcement and maintenance programs now take into account future sea level projections.
- Wetland protection measures are increasingly seen as an adaptation tool.

New Brunswick

- Coastal Areas Protection Policy has established setbacks from the shoreline for permanent structures.

Nova Scotia

- The Province's Coastal Strategy stipulates that buildings and infrastructure be "located, built and maintained in a manner that minimizes impacts from rising sea levels and storms."

Prince Edward Island

- Shoreline setback regulations for subdivisions and development take into account coastal erosion rates.

Newfoundland and Labrador

- Development in a designated flood risk area must meet a number of risk-assessment criteria and be approved by the provincial Minister of Environment and Conservation.



For existing infrastructure there is only one realistic long-term option: managed retreat from the shoreline. This approach is yet to be fully embraced in Canada and it raises difficult issues. How should jurisdictions deal with the value of coastal properties? What are the potential impacts on local tax bases? How can generational and emotional attachments be accommodated when properties must be abandoned?

While admittedly challenging, these are questions that jurisdictions in every low-lying coastal area of Canada should be addressing.

For more information visit climateforum.ca.



Natural Resources Canada

Tools to improve community energy resilience for the future

Canada  Natural Resources Canada (NRCan) focuses its research on tools and techniques that aid communities' transition to a lower carbon future. These tools centre on the constant need for resilience and energy security in Canadian communities.

The central pillar of a resilient community is the generation and use of energy. District energy manages the heating and cooling needs for multiple buildings using a thermal network to transport energy from one or more suppliers to multiple buildings, supplying heat where it is needed, or collecting it when it is in excess. Thermal networks provide flexibility in choice and remove the risk of long-term commitment to a single technology or fuel. District energy's inclusion in the community improves the environment, supports urban densification and generates a variety of new business.

Historically, district energy networks operated at high temperatures and pressures, and burned fossil fuels. Ongoing research and environmental concerns have lowered the temperature, reduced the pressure and changed the medium from steam to hot water. Future research aims to improve things further. The next generation of district energy is expected to operate at even lower temperatures with increased efficiency, and use waste heat from industrial or commercial processes.

District energy stakeholder engagement

To maximize community benefits, planning is required. NRCan's tools and research into urban archetypes and energy mapping have highlighted the power of the Community Energy Plan. It underlines the need for clear vision and communication between stakeholders. Making decisions that affect the future of the community needs strong public support and NRCan's District Energy Stakeholder Engagement Guide develops the social license for community initiatives.

Insights from our partners

Tools and resources

The District Energy Learning Modules help decision-makers and planners better understand the benefits of a community-based district energy network.

Steam to hot water conversion

Most buildings that will be standing in 2050 have already been built. Retrofitting these buildings to accommodate a sustainable energy network can present a challenge. Many of these challenges are addressed in NRCan's Steam to Hot Water Conversion Guide.

Guideline for energy planning

Canada is not alone in seeking ways to make communities more resilient. As a partner in the International Energy Agency, NRCan has helped develop technical guidelines for urban energy planning. It has also conducted advanced-level research into district energy.

Inventory of district heating and cooling systems

Smart communities in Canada are already using district heating and cooling to advance their environmental and planning goals. Our latest inventory lists over 120 of these systems in Canada.

District energy improves the environment, supports urban densification and generates new business in communities.

Natural gas is seen as an interim step to a low-carbon future and the early adopters of innovative technologies are providing much needed confidence for others. Canada is recognised in Europe and elsewhere as a pioneer in the use of alternative approaches. NRCan's tools and early-stage support have helped bring a range of these projects online, including the following:

- Enwave's Deep Lake-water cooling in Toronto, ON
- Alderney Gate's seasonal cold storage in Halifax, NS
- The Drake Landing solar thermal project in Alberta
- Revelstoke, BC's use of waste sawdust

NRCan is continuing to conduct research and develop tools and information that can drive the development of smart communities across Canada.

For more information go to nrcan-rncan.gc.ca.

Where to find these tools:

- **District Energy Stakeholder Engagement Guide**
nrcan.gc.ca/energy/efficiency/communities-infrastructure
- **District energy advanced research**
iea-dhc.org/home.html

- **Steam to Hot Water Conversion Guide**
To receive a copy of this guide, email DE@nrcan-rncan.gc.ca.
- **Technical guidelines for urban energy planning**
Annex51.org
- **Inventory of district heating and cooling systems in Canada**
https://www.cieedac.sfu.ca/DB_DEnew/

BC Climate Action Secretariat

Support for local climate action in BC



British Columbia's Climate Action Charter was announced in

2007 as part of the Province's Climate Action Plan. Presently signed by more than 180 of the 192 local governments in the province, the Charter is proving to be a successful model for community-based climate action frameworks.

Similar in approach to the Federation of Canadian Municipalities' Partners for Climate Protection program, the BC Charter offers local governments a framework for making progress on their greenhouse gas reduction targets. These targets are required in official community plans, and regional growth strategies, by BC's Local Government (Green Communities) Statutes Amendment Act. Under the Charter, local governments are eligible for grants equal to their carbon tax bills. The grants fund efforts to implement policies and actions to achieve GHG reduction goals.

BC's Climate Action Charter offers local governments a framework and grants to help them make progress on their GHG reduction targets.

The Charter commitments

The Province developed the Charter in partnership with the Union of British Columbia Municipalities, the voice of local governments in BC. The collaborative way the Charter was built, including input from rural and urban communities, is fundamental to its success.

The Climate Action Charter calls for communities to make three basic commitments:

- to be carbon-neutral in their corporate operations
- to measure and report on their greenhouse gas emissions profile
- to create complete, compact, energy-efficient communities

These commitments have led local governments to improve the energy efficiency of their operations. Thirty-nine local governments had implemented community-based GHG reduction projects and achieved carbon neutrality by 2014.

How the Climate Action Secretariat supports communities

The BC government's Climate Action Secretariat supports measuring and reporting GHGs by assembling biennial Community Energy and Emissions Inventory (CEEI) reports. These reports, provided for each community in BC, allow local governments to gain insight into their building, transportation and waste-related GHG emissions.

In addition, CEEI includes several supporting indicators that help to tell the story of energy and emissions in specific communities. Through CEEI, key stakeholders, including utilities such as BC Hydro and Fortis BC, the Insurance Corporation of BC and municipal solid waste landfill operators, provide relevant data that is factored into an energy and emissions profile. This exercise builds capacity for asset management and carbon accounting, and allows local governments to develop the specific types of action necessary to reduce emissions and reach GHG targets.

By adhering to Smart Growth principles, the Charter commitment encourages local governments to think about how land use decisions affect climate action. It also encourages them to employ land use instruments such as regional growth strategies, official community plans and zoning by-laws to help reach their GHG targets.

Why the Charter works

Recently, an academic research project, jointly conducted by three BC universities, identified four critical success factors for reducing community emissions. It cited support for the Charter and provincial target-setting legislation as important elements. This project, called Meeting the Climate Change Challenge — MC³, looked at leading municipalities in BC to identify innovations on climate action. More details about the project appear in the following article.

MC³ research found that:

- Systematic frameworks, such as the Climate Action Charter or PCP, work for policy development.

- Institutionalizing climate change policy, including GHG reduction targets, in municipal sustainability strategies and operations, leads to measurable results and action.
- Partnering and collaborating with other governments, not-for-profit organizations, citizens, business and industry achieves greater success.
- Innovative financing solutions help support energy efficiency initiatives.

The Climate Action Charter and associated commitments have been instrumental in building capacity and tools for local governments to implement meaningful climate action. Through continued collaboration, the Province and local governments can build on this work of transitioning our communities to a low-carbon and resilient economy.

For more information go to cscd.gov.bc.ca/lgd/greencommunities/climate_action_charter.htm.

Meeting the Climate Change Challenge



Research on policy innovation and leadership

Meeting the Climate Change Challenge (MC³) is a research initiative led by Royal Roads University and including the University of British Columbia and Simon Fraser University.

The first research phase of MC³ explored local government responses to provincial climate change policy in British Columbia. Strong provincial leadership has made the province a national and international leader in local climate change action.

Provincial policy framework

In response to the threat of climate change, the Province has introduced innovative legislation, policies and incentives that go far beyond those in other North American jurisdictions:

- A strong legislative framework, including the Carbon Neutral Government Regulation, the Green Communities Act, the Utilities Commission Amendment Act, and the revenue-neutral provincial carbon tax, has stimulated climate change adaptation and mitigation locally and created a level playing field for all local governments in the province.

- A key policy instrument, the BC Climate Action Charter, is a voluntary initiative that commits local governments to lowering their carbon footprints and taking community-wide actions to demonstrate leadership in sustainable development.
- The BC government has implemented accountability in reporting through the Climate Action Revenue Incentive Program (CARIP). CARIP reimburses the carbon tax for local governments that have signed the BC Climate Action Charter.
- The BC government developed tools and offered incentives for local governments to accelerate policy implementation. A full description of this policy framework appears in the March 2015 issue of Alternatives Journal.

Community innovations

A strong legislative and policy framework in British Columbia has led to a host of climate action innovations in local communities across the province.

This legislative and policy framework has led to a host of innovations in communities across British Columbia, including the following:

- The Capital Regional District has initiated Canada's first regional energy and greenhouse gas reduction plan.
- Communities including Fernie, Dawson Creek, and North Cowichan have initiated climate action reserve funds to support municipal and community energy efficiency measures.
- The Saanich Peninsula Thermal Energy Recovery System, a district energy system, uses waste heat from a water treatment facility to heat a nearby recreation complex.
- The T'Sou-ke Nation solar initiative and Kimberley's SunMine are innovative community-based, low-carbon energy generation projects.

Many of these innovations rely on partnerships between local government, the private sector, civil society, local utilities and other organizations. In every case, provincial leadership helped to accelerate the projects.

Research findings and new directions

MC³'s first three years of research shows that strong leadership from senior government can spur climate action at the local level. It also indicates that a national price on carbon would have significant positive impact without affecting gross domestic product, and that a national voluntary climate action charter could have positive results for climate innovation in Canada.

The second phase of MC³ research is now exploring how to describe and measure incremental, transitional and transformative change toward more sustainable paths at the local level.

For more information go to mc-3.ca.

This article includes information published in reports from Canada's Ecofiscal Commission and from "Prioritizing Policy: Protecting nature by ensuring that the law is for the land," an article published online in Alternatives Journal in March 2015.

Canadian Solar Industries Association

Integrating climate action planning and solar solutions



Humankind is by now very aware that GHG emissions from the use of fossil fuels are linked to climate change. The way we use energy plays a key role — Canada is the ninth largest emitter of GHGs globally and the fourth largest

per capita emitter of GHGs, with over 15 tonnes for every Canadian per year.

Recently we've seen municipalities take a leadership role in climate action, making strong commitments to reduce their GHGs. There are several reasons for this. Local government is the most responsive to public opinion, and polls show that the majority of Canadians are concerned about climate change and their environment. Municipalities are responsible for highways and roads, environmental protection, and health and public safety. They are also on the front line when severe weather events occur.

Local governments can influence energy use within communities, and changing how we use energy is essential to combat climate change. Municipalities developing climate action plans should keep in mind that GHG emissions in our communities are higher than they need to be, and that the practices and technologies to combat them are widely available and cost-effective.

How municipalities can lead the fight

Here are some things that all municipalities can do to show leadership in the fight against climate change.

Inventory GHG emissions and prepare a climate change plan to reduce them. A local climate action plan specifies the policies and measures that local government will enact to reduce GHG emissions and build the community's resilience to the effects of climate change. It identifies actions to be implemented, and includes details about funding, responsibilities and scheduling.

Incorporate language about climate change into local laws and codes. From building codes to land use plans, communities can use their laws to promote climate action. Examples of municipal ordinances on issues from green buildings to solar energy are readily available.

Make it a priority to reduce GHG emissions for municipal operations. Cities and towns can become energy self-reliant by using their own buildings and land to generate power. Known as the Public Rooftop Revolution in the US, the practice allows cities to redirect money saved on energy to other public purposes.

Encourage the adoption of electric vehicles (EVs) in the community. Consider EVs for municipal fleets, and solar car ports and charging stations to encourage EV use.

Install or purchase renewable energy for the municipality. Feed-in Tariff (FIT) programs in provinces such as Ontario provide an option to municipalities that want to grow their renewables portfolio.

Plan for climate change resiliency, building the capacity to withstand stress and catastrophe. To prepare for resiliency, communities need to create emergency management plans, inventory vulnerable municipal infrastructure, protect open space, farmland and natural buffers to extreme weather, and incorporate green building and green infrastructure principles into local code.

Educate the public about climate change. Climate action requires the commitment of the entire community, with the municipality leading the way.

Give residents and businesses incentives to transition to a distributed electricity system. A distributed system allows renewable power to be produced and consumed individually and locally.

The Canadian Solar Industries Association (CanSIA) is a national trade association that represents the solar energy industry in Canada. It works to develop a strong, efficient, ethical and professional industry with the capacity to provide innovative solar energy solutions and to play a major role in the global transition to a clean-energy future.

For more information visit cansia.ca.

Emissions in our communities are higher than they need to be, and the practices and technologies to combat them are widely available and cost-effective.

Source: City of Vancouver

Acknowledgements

The National Measures Report 2015 was made possible through the dedication and effort of participating municipal governments, as well as a number of expert organizations in the energy, climate change and planning fields who contributed feature articles. The PCP program team appreciates the considerable time and resources invested by all parties to collect and provide the information presented in this report.

Many thanks to the following municipalities who responded to the 2015 survey:

Alberta

Town of Canmore
City of Edmonton
City of Grande Prairie
County of Grande Prairie No. 1
City of Red Deer
City of St. Albert
Town of Trochu
Town of Valleyview

British Columbia

City of Colwood
City of Coquitlam
Cowichan Valley Regional District
City of Dawson Creek
Corporation of Delta
City of Duncan
City of Kimberley
Regional District of East Kootenay
City of Langley
City of Maple Ridge
City of Nelson
City of New Westminster
City of North Vancouver
City of Revelstoke
City of Richmond
District of Saanich
City of Surrey
City of Vancouver
Greater Vancouver Regional District

Manitoba

City of Brandon
Rural Municipality of De Salaberry
Village of Dunnottar
Rural Municipality of East St. Paul

Rural Municipality of Emerson-Franklin
Rural Municipality of La Broquerie
Rural Municipality of Montcalm
Rural Municipality of Morris
Town of Morris
City of Niverville
Town of Powerview-Pine Falls
Village of St. Claude
Rural Municipality of St. Andrews
Rural Municipality of St. Clements
Village of St-Pierre-Jolys
Rural Municipality of Stanley
Rural Municipality of West St. Paul
City of Winkler

New Brunswick

City of Bathurst
City of Fredericton
Town of Hampton
Village of Rogersville

Northwest Territories

City of Yellowknife

Nova Scotia

Town of Bridgewater
Municipality of the District of Guysborough

Ontario

Town of Ajax
City of Burlington
Region of Durham
City of Guelph
Town of Halton Hills
Rural Municipality of Hanover
City of Mississauga
City of Ottawa
City of Peterborough
City of Pickering
The Municipality of Port Hope
Town of Richmond Hill
Town of Shelburne
City of Temiskaming Shores
City of Thunder Bay
City of Toronto
Municipality of Trent Lakes
City of Vaughan
City of Waterloo
Regional Municipality of Waterloo
City of Windsor

Quebec

Town of Bromont
City of Laval
Regional county municipality of La Mitis
Town of Plessisville
Quebec City
Municipality of Saint-Honoré- de-Témiscouata

Saskatchewan

City of Regina
City of Saskatoon

Yukon

City of Whitehorse

Municipal governments across the country are demonstrating that they are key partners in Canada's transition to a sustainable, low-carbon economy by implementing innovative and cost-effective carbon reduction strategies. The National Measures Report 2015 recognizes and celebrates the leaders in this transition, including local governments, and organizations working to build municipal capacity for climate action. Funding for the report was provided through FCM's Green Municipal Fund.

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For more information on the PCP program and the National Measures Reporting initiative, please visit: www.fcm.ca/pcp

Back cover photo sources:

Top - City of Ottawa

Bottom - Town of Annapolis Royal



Discover how PCP can help
your municipality take action
on climate change by visiting
www.fcm.ca/pcp today.