

On the money:

Financing tools for local climate action

A resource for Milestones 3 and 4 of the Partners for Climate Protection program



This report was prepared by the Partners for Climate Protection (PCP) program, a partnership between the Federation of Canadian Municipalities and ICLEI — Local Governments for Sustainability. The program receives financial support from the Government of Canada and ICLEI Canada.

The PCP program is a network of over 350 Canadian municipalities committed to taking action on climate change. The program helps local governments reduce greenhouse gas emissions and make a difference in protecting our climate.

Research and writing by Sarah Shenstone-Harris, Yushuo (Alicia) Cai and Michael Dean, with input from Megan Meaney and research help from Emily Shaw.

Suggested reference: ICLEI Canada, 2018. On the money: Financing tools for local climate action. Partners for Climate Protection.



Written and prepared by ICLEI — Local Governments for Sustainability and the Federation of Canadian Municipalities.

© 2018 Federation of Canadian Municipalities.

All rights reserved.

24 Clarence Street, Ottawa, Ontario K1N 5P3

fcm.ca/pcp



Contents

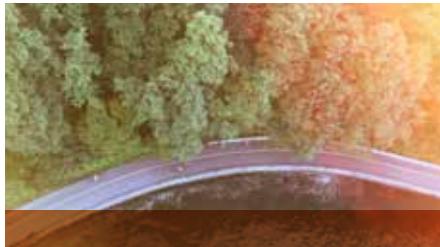
Introduction	4
Overview	5
Harnessing people power: Group purchasing and community-owned renewable power	7
Group purchasing	8
Community-owned renewable power	11
Breaking the capital barrier: Local improvement charges and energy performance contracts	13
Local improvement charges	14
Energy performance contracts	17
Creating a virtuous cycle: Green revolving funds and green bonds	19
Green revolving funds	20
Green bonds	22
Conclusion	25

Introduction

Financing is one of the key challenges for municipalities seeking to meet ambitious climate action commitments. Projects that aim to radically scale up distributed renewable energy systems, transition to low-carbon urban mobility, and dramatically reduce energy consumption and emissions from the building sector, among others, require significant investment. As a result, there is growing interest among municipalities in developing and expanding new types of financing that do not have the limitations of existing funding tools.

Many of these new tools tap into the large potential for community stakeholders and private entities to invest in climate action initiatives. Under the right conditions, many of the most pressing climate actions can generate significant returns for private and community investors. Local governments can benefit by harnessing the potential of private and community investors and directing it to some of the key funding challenges faced by municipalities today.

This report has been prepared for members of the Partners for Climate Protection (PCP) program who are planning and implementing climate mitigation programs. It is intended as a resource to help you better understand available options for financing climate action at scale and to build vital capacity and knowledge. To that end, six financial tools are presented — tools that have the potential to fund the climate actions necessary to meet ambitious national and international emission targets: group purchasing, community-owned renewable power, local improvement charges, energy performance contracts, green revolving funds, and green bonds.

Harnessing people power	Breaking the capital barrier	Creating a virtuous cycle
 <ul style="list-style-type: none">• Group purchasing• Community-owned renewable power	 <ul style="list-style-type: none">• Local improvement charges• Energy performance contracts	 <ul style="list-style-type: none">• Green revolving funds• Green bonds

In the following sections, you will find an overview of how municipalities can establish, administer and/or facilitate these tools. Each section includes key considerations and challenges as well as case studies to inspire action. You will also find suggestions for further reading that you may find helpful to identify the potential to apply each tool in your own local context.



Overview

As local climate action accelerates across Canada, municipalities have increasingly been moving from implementing small projects and pilots to implementing system-wide programs, policies, and initiatives. However, the financing required to implement large-scale, transformative actions is often a barrier for municipalities.¹ For instance, a recent survey by QUEST Canada of the implementation of climate actions in Ontario found that capital-intensive actions such as district energy systems, retrofit incentive programs and renewable energy systems were less likely to be successfully implemented than those that involve planning and policy measures or that impact solid waste management.²

This funding challenge threatens the ability of municipalities to implement actions aimed at meeting ambitious emission reduction targets and avoiding the most severe impacts of climate change. The actions required call for fundamental changes to the whole built environment, transportation infrastructure and energy systems. For example, the Pembina Institute has estimated that in order for British Columbia to meet its emissions reduction targets for its building sector, it will be necessary to retrofit three per cent of the building stock annually — that is 30,000 houses, 17,000 multi-unit residential buildings and three million square feet of commercial floor space per year, and up to \$1 billion per year in private and public investment.³

The primary financing tools that municipalities have traditionally used for climate mitigation are not enough to achieve deep and widespread emission reductions. Grant-based funding programs have been essential in the piloting and early phases of action, but they are inherently selective in the types of projects funded and are limited in the amount of funding available. Other common tools such as user fees, property taxes and development charges are politically sensitive and often needed for other crucial services — which again means funds are limited.⁴ Lastly, incentive programs that are repeatedly introduced and removed can suffer from funding uncertainty and instability.⁵ What is needed, instead, are stable, scalable solutions that help local governments deliver the initiatives required to meet national and international targets.

1 C40 Cities. (n.d.). *Unlocking Climate Action in Megacities*.

2 Laszlo, R., Littlejohn, D. 2015. *National Report on Community Energy Plan Implementation. Community Energy Planning: Getting to Implementation in Canada*.

3 Frappé-Sénéclauze, T.-P., Heerema, D., Tam Wu, K. 2017. Deep emissions reduction in the existing building. Pembina Institute.

4 Perun, M., Hill, S. 2017. *Planning for Climate Change in Mid-Sized Ontario Cities*. Evergreen.

5 Heerema, D., Frappé-Sénéclauze, T.-P., Tam Wu, K. 2017. *Energy Regulations for Existing Buildings*. Pembina Institute.

With that in mind, municipalities can benefit from the potential for private and community investment in climate action initiatives, which is large but often overlooked.⁶ They can help unlock this potential through strategic financing programs and products that will reduce upfront costs, decrease the risk of investments and increase the flow of capital.⁷

The tools highlighted in this report have a demonstrated capacity to generate significant funding for climate action, as these few examples show:

- ▶ Property-assessed clean energy in California is already a multi-billion dollar industry, generating significant momentum for action.⁸
- ▶ In one 14-week period in 2017, the Ottawa Renewable Energy Cooperative raised nearly \$2 million in financing for local solar projects.
- ▶ Green bond issuance in Canada was \$3.8 billion in 2017, and Ottawa's recent issuance of a municipal green bond, the first of its kind in the country, generated \$102 million.^{9,10}

These examples and the ones outlined in the sections below provide only a snapshot of the potential for such mechanisms to drive climate action on a large scale. Working with citizen groups, financing institutions, utilities and other governments and municipalities, local governments can establish or facilitate the development of these tools to help achieve the deep emission reductions necessary to meet national and international targets.

Grant-based funding programs have been essential but are limited in the amount of funding available.



6 The Atmospheric Fund. 2017. Money on the table: Why investors miss out on the energy efficiency market.

7 The Atmospheric Fund. 2017. Energy Efficiency Financing Tools for the Canadian Context.

8 Dunsby Energy Consulting. 2016. Ontario Municipalities Local Improvement Charge Programs for Energy Upgrades.

9 Climate Bonds Initiative. 2017. Bonds and Climate Change: Canada Report 2017.

10 Fergal Smith, "City of Ottawa prices Canada's first municipal green bond – term sheet," Reuters, Nov. 2, 2017.

► Harnessing people power: Group purchasing and community-owned renewable power

The first two tools, **group purchasing** and **community-owned renewable power**, draw on the combined power of individuals to reduce upfront costs and increase market penetration of clean technologies and services. By bringing people together through a shared investment, goals are aligned and the community benefits financially, socially and environmentally.



Group purchasing

Group purchasing is simply a means of taking advantage of the power of collective buying to obtain discounts on goods and services. Group purchasing has long been used by the medical and farming industries, and is increasingly being used by municipalities and not-for-profit organizations to purchase renewable energy and other clean technologies.

Administered by a variety of organizations or agencies, such as municipalities, groups of municipalities, utilities, and local economic development organizations, the benefits of group purchasing include:

- ▶ Reduced upfront costs and transaction costs
- ▶ Reduced complexity and customer inertia concerning new technologies

Through a competitive procurement process, the group purchasing organization (e.g. a municipality) negotiates a discounted price with vendors, such as solar installers, manufacturers and auto companies. The organization then makes the discounted price available to the group members, such as residents of a community or government departments. This is most successfully achieved through community-based outreach and marketing (e.g. with the help of neighbourhood groups or trusted local organizations).

Group purchasing is increasingly used by municipalities and not-for-profit organizations to purchase renewable energy and other clean technologies.

Scalability

Group purchasing has been shown to increase the uptake of new clean energy technologies by potential users, reduce costs for consumers and increase users' knowledge and acceptance of new technologies. The demand for new technologies by potential users is typically limited due to lack of widespread awareness and uncertainty of their effectiveness and benefits.

A group purchasing program can help bridge the knowledge gap for potential consumers and create local demand for a product and, therefore, for investment in the local community.¹¹ The marketing and outreach associated with group purchasing helps raise awareness and demonstrates the value of, for example, new low-carbon technologies.¹²

With its low initial investment cost, group purchasing can be made by both small and large municipalities and applied to numerous types of technologies and services. As well, once purchasing organizations are established for a specific product or service, they can easily be used for other items.¹³

¹¹ Joint Venture Silicon Valley. (n.d.). Regional Renewable Energy Procurement (R-REP) Project.

¹² Salisbury, M., et al. Evaluation of Colorado Electric Vehicle Group Purchase Programs. Southwest Energy Efficiency Project.

¹³ Reynolds, B., Wadsworth, J. 2009. A Guide for the Development of Purchasing Cooperatives. Cooperative Information Report 64. U.S. Department of Agriculture: Rural Development.

Key considerations

Ease of implementation	The two critical components of effective group purchasing are developing partnerships with vendors and local organizations, and communicating the deal to the wider community. Community-based marketing is often cited as the most effective method of communicating group purchasing deals. ¹⁴
Political feasibility and public acceptance	Since group purchasing programs are typically inexpensive to run, ¹⁵ and because there are clear benefits to community members, group purchasing is usually politically feasible. However, communication and outreach are critical components of its success. ¹⁶
Financial risk to municipalities	The financial risk is limited, but some may exist if technology is available from only one or two suppliers. Market competition is necessary to ensure that vendors will be willing to negotiate a discounted price. ¹⁷
Jurisdictional considerations	Provincial and federal policies can reduce costs further (e.g. group purchasing combined with provincial tax incentives can significantly reduce electric vehicle costs). ¹⁸



14 Salisbury, M., Toor, W. 2016. Evaluation of Colorado Electric Vehicle Group Purchase Programs. Southwest Energy Efficiency Project.

15 Ibid.

16 Ibid.

17 Ibid.

18 Ibid.



Colorado Electric Vehicle Group Purchasing Program

In 2015, the municipalities of Boulder County, Adams County, and the City and County of Denver in the U.S. collaborated to offer their community members discounted electric vehicles (EVs) and home solar panels through a group purchasing program.

Over the four-month program, residents purchased 248 Nissan LEAFs and 147 solar photovoltaic panels, with a total capacity of 832 kW. The program featured one local car dealership, Boulder Nissan, which sold four times more LEAFs per month than usual, and made up five per cent of national sales during the program period.

The program offered significant savings; the vehicle was originally priced at over \$31,000 US, but after the group discount of \$8,349 combined with federal and state tax credits, the LEAF cost the same as the cheapest gasoline-powered vehicle on the market.

The main factors that led to the success of the program were:

- An engaged dealership
- Active outreach by local governments, employers and other partners
- Strong local media coverage

In fact, the sales numbers indicate that the program had a broader reach than expected, as only 28 per cent of EV buyers had plans to purchase an electric vehicle before the start of the program.

Boulder County spearheaded the program, with Adams and Denver counties participating mainly as key outreach partners. Vote Solar, a local not-for-profit organization, helped with outreach and education, and aided in the selection of vendors. Boulder County estimates that they spent 165 hours of staff time and US\$650 in out-of-pocket expenses, demonstrating how a low investment can yield substantial environmental returns.¹⁹

Further reading

The Electric Vehicle and Photovoltaic Power Purchase Handbook: A Toolkit for Developing Electric Vehicle and Rooftop Solar Group Purchase Programs. 2016. Southwest Energy Efficiency Project.

Ivine, L., Sawyer, A., Grove, J. 2012. The Solarize Guidebook: A Community Guide to Collective Purchasing of Residential PV Systems. Sunshot: U.S. Department of Energy.

Walsh, A., Nigro, N. 2017. EV-Solar Purchase Program: A Transportation Electrification Concept. Atlas Public Policy.

¹⁹ Salisbury, M., Toor, W. 2016. Evaluation of Colorado Electric Vehicle Group Purchase Programs. Southwest Energy Efficiency Project.

Community-owned renewable power

Community-owned renewable power refers to clean energy projects owned by a group of community members who receive energy and/or financial benefits from the renewable energy systems without the onus of procuring, owning or maintaining those systems over their lifetime.

Developed by residents, farmer groups, co-operatives, First Nations, local institutions and municipalities,²⁰ community-owned renewable power projects are rapidly expanding across Canada. They include wind farms, run-of-river hydroelectric projects, solar installations and biomass facilities. Benefits include:

- ▶ Increased energy independence and price stability²¹
- ▶ Strengthened support for clean energy and increased community vibrancy²²
- ▶ Economic development and diversification²³
- ▶ According to the Toronto Renewable Energy Co-op, every \$1 invested in community power results in an additional \$2 in economic activity, creating twice as many jobs as corporately owned projects²⁴

Many ownership models exist, such as co-operatives, investment funds and solar gardens.²⁵ Municipalities can help establish community projects by providing land, expediting permitting and approval processes, and enabling citizen participation or even having an ownership stake in the system.

Scalability

Community renewable energy plays a critical role in expanding access to clean energy.²⁶ It provides local, affordable, low-carbon energy to those who traditionally cannot invest in renewables, such as renters, businesses and low-income households.²⁷ It also increases support and interest in renewable power, which strengthens adoption. Community energy has been instrumental in expanding renewable energy in Europe; it contributes 34 per cent of renewable power in Germany²⁸ and is successful in Denmark, the UK and elsewhere.²⁹ Community-owned renewable power is poised for growth in Canada and is especially important as energy prices rise, populations grow and our communities and transportation systems become increasingly electrified.

20 Lipp, J., Tarhan, M.D. 2016. Accelerating Renewable Energy Co-Operatives in Canada: A Review of Experiences and Lessons. Toronto Renewable Energy Co-Operative.

21 Ibid.

22 Lovekin, D., Kilpatrick, K. 2010. Community-Owned Renewables. Pembina Institute.

23 Lipp, J., et al. Accelerating Renewable Energy Co-Operatives in Canada: A Review of Experiences and Lessons. Toronto Renewable Energy Co-Operative.

24 Institute for Local Self Reliance. 2014. Advantage Local—Why Local Energy Ownership Matters.

25 People Power Planet. 2018. Community Energy Models: Ownership Models.

26 Solar Energy Industries Association. 2016. Community Solar.

27 Ibid.

28 Community Power: For people's ownership of renewable energy. Germany. N.d.

29 Balch, O. Energy co-ops: why the UK has nothing on Germany and Denmark. The Guardian. Oct. 2, 2015.

Key considerations

Ease of implementation	The initial capital investment and capacity building (technical, accounting, legal resources) are often the most significant barriers for community members. Municipalities can offer support by helping to reduce some of these barriers. ³⁰
Political feasibility and public acceptance	Community-owned energy systems are generally more accepted than privately owned systems because community members have a stake in the project and are involved in the decision-making process, which gives them a clearer understanding of the benefits of renewable power. ³¹
Financial risk to municipalities	Financial risk is limited as the system is owned by many community members or not-for-profit organizations rather than the municipality itself.
Jurisdictional considerations	Co-operative business models are enabled by legislation in all provinces and territories. ³²



Community district energy in Revelstoke, British Columbia

The City of Revelstoke's biomass-fired community energy system uses wood waste from a local timber mill to provide heat to downtown core buildings through a district energy loop. In 2001, community members began volunteering to create a biomass energy project with the timber mill's waste wood, which was originally incinerated. The community group created a wholly owned subsidiary of the municipality — the Revelstoke Community Energy Corporation — which owns and operates the energy system. The initial investment was \$5.6 million, with an estimated payback period of five years. Operating since 2005, the community energy system offsets over 3,700 tonnes of greenhouse gas emissions (GHGs) every year, improves local air quality, increases job security and lowers energy costs.^{33,34}

Further reading

- Council of Energy Ministers. 2009. Integrated Community Energy Solutions: A Roadmap for Action.
- Daley, K. 2016. Alternative and Renewable Energy in the North: Community-Driven Initiatives. Government of Canada: Polar Knowledge Canada.

30 Lafond, L., Mazier, D., Cunningham, C., Hale, E. 2013. Barriers to Community-Owned Renewable Energy. Elton Energy Cooperative and Manitoba Housing and Community Development.

31 Lipp, J., Dolter, B. 2016. The Power of Community: How Community-Owned Renewable Energy Can Help Ontario Create A Powerful Economic Advantage. Toronto Renewable Energy Co-Operative.

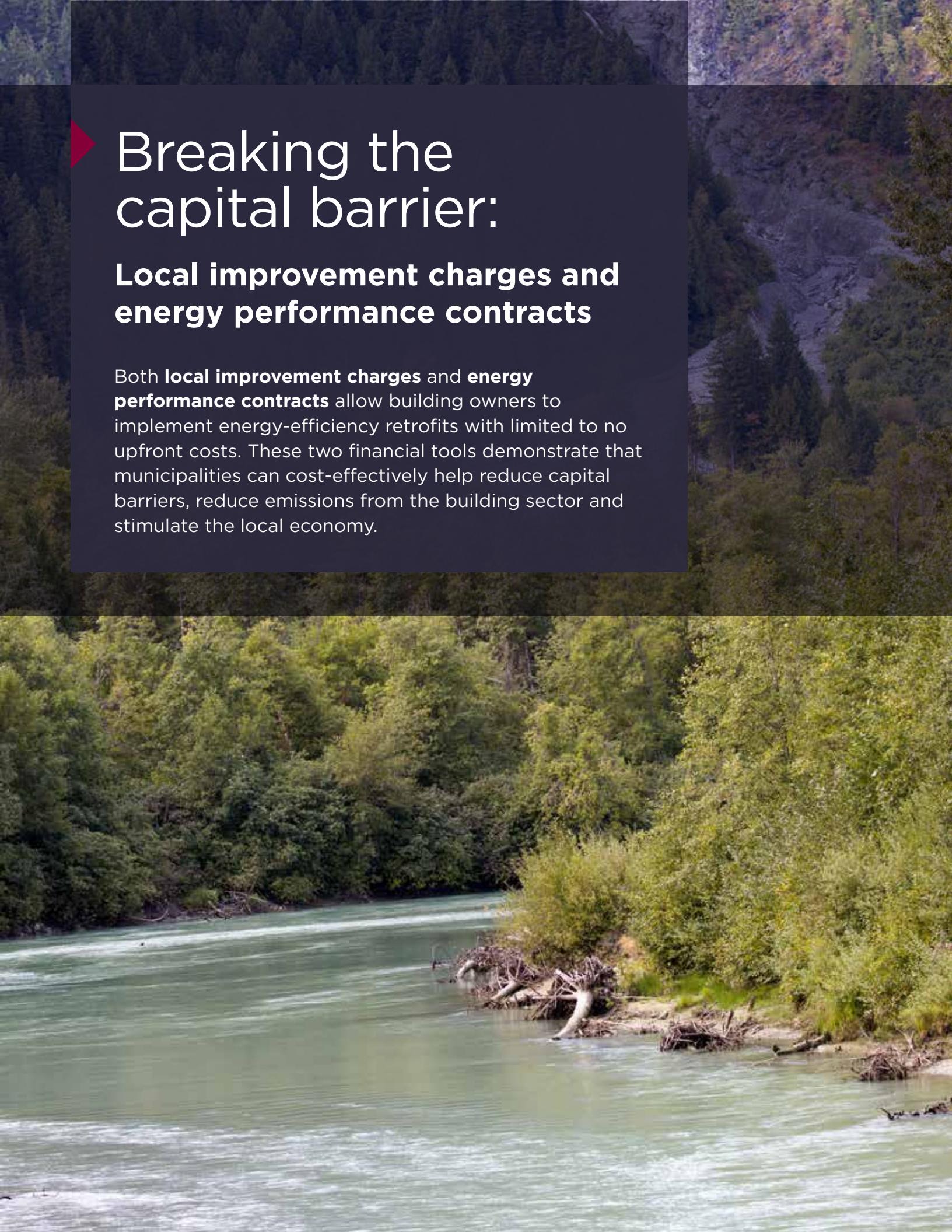
32 Government of Canada. An Information Guide on Co-operatives. 2015. Strategic Policy Sector, Innovation, Science, and Economic Development Canada.

33 B.C. Ministry of Community & Rural Development. N.d. Green Communities: Integrated Resource Recovery Case Study: Revelstoke Community Energy System.

34 Biomass Energy Resource Center. 2009. Community District Energy: City of Revelstoke.

► Breaking the capital barrier: Local improvement charges and energy performance contracts

Both **local improvement charges** and **energy performance contracts** allow building owners to implement energy-efficiency retrofits with limited to no upfront costs. These two financial tools demonstrate that municipalities can cost-effectively help reduce capital barriers, reduce emissions from the building sector and stimulate the local economy.



Local improvement charges

Local improvement charges (LICs), sometimes called property-assessed clean energy (PACE) or property-assessed payments for energy retrofits (PAPER), allow building owners to undertake energy retrofits or install renewable energy and upgrade their properties with little to no upfront cost.

The municipality or a third-party company issues a low-interest loan, which is then paid back on the property tax bill. When the property is sold, the loan payments remain with the property tax bill rather than being transferred with the owner to another property. In many cases, the savings from improved energy efficiency can exceed the initial investment.³⁵ LICs reduce financial barriers to all private property owners and encourage homeowners to undertake energy retrofits in homes where they do not intend to live long-term.

Scalability

LICs are a powerful tool that can generate long-term environmental impacts at a low cost while also creating green job opportunities and stimulating the local economy. If properly administered and funded, the LIC program does not need ongoing external funding to scale up.¹⁹ This factor is especially important given the financial barriers associated with home energy retrofits and the urgent need to reduce emissions from the building sector.

LICs allow building owners to upgrade their properties with little to no upfront cost.



³⁵ PACEAlberta. 2018. PACE: A World Changing Green Financing Tool.

Key considerations

Ease of implementation	The ability to tie loans to the existing property tax structure makes LICs relatively straightforward to implement. The capital required to initiate the program can be a challenge, especially for small municipalities, but third-party companies can be a source of funding. The program must also be well-promoted to residents to ensure uptake and success.
Political feasibility and public acceptance	Both homeowners and the building industry typically support LICs because they offer both cost savings and job opportunities. ³⁶ LIC financing can be especially beneficial to residents who cannot access lines of credit or who do not want to be subject to fluctuating interest rates. ³⁷ A potential barrier to participation in the short term is the possibility of LIC homes being harder to sell, as potential buyers may be put off by having the surcharge attached to the property. This concern can be mitigated through effective outreach and communication on the benefits of LICs. ³⁸
Financial risk to municipalities	The financial risk is low, since few people withhold their property tax payments. In addition, municipal governments can choose to involve other levels of government or third parties to share the risk. ³⁹ Administrative cost overruns and the lack of specific measurements for program impacts can pose financial barriers. Reserving sufficient finances for administrative costs and designing a specific protocol can help mitigate this risk. ³⁸
Jurisdictional considerations	Enabling legislation at the provincial and territorial level is required to apply LICs to energy-efficiency upgrades on private property. ⁴⁰ As of 2018, LIC programs have been used to finance home energy retrofits and clean energy in Alberta, ⁴¹ British Columbia, Nova Scotia, Ontario, ⁴² and Quebec. ⁴³



³⁶ Persram S. 2013. Using Local Improvement Charges to Finance Residential Energy Upgrades. Sustainable Alternatives Consulting Inc.

³⁷ Ibid.

³⁸ Clean Air Partnership. 2018. Low(er) Carbon Building Financing Options and Resources. Webinar, March 7, 2018. <http://www.cleanairpartnership.org/partners-for-climate-protection-ontario-region-resources/>

³⁹ The Atmospheric Fund. 2017. Energy Efficiency Financing Tools for the Canadian Context.

⁴⁰ Duffy, R., Fussell, H. 2011. Building Fast Action for Climate Change and Green Jobs: This Green House. Centre for Civic Governance, Columbia Institute.

⁴¹ Government of Alberta. Property Assessed Clean Energy (PACE) legislation. <https://www.alberta.ca/PAGE.aspx>

⁴² City of Ottawa. Assessment for the Local Improvement Charge (LIC) Mechanism to Foster Building Retrofits. Appendix F.

⁴³ FIME. Financement innovateur pour des municipalités efficace. Un projet de l'AQME.



Toronto's Home Energy Loan Program

The Toronto Home Energy Loan Program (HELP), offered by the City of Toronto, lends money to homeowners to cover the upfront cost of energy efficiency improvements. The loan can be up to \$75,000 or 10 per cent of current assessment value of the home, which is paid back through the property tax bill. The interest rate is fixed at two per cent for a five-year term, 2.75 per cent for a 10-year term, or 3.54 per cent for a 15-year term.

From January 2014 to December 2016, HELP funded 125 projects totalling \$2.1 million, saving homeowners an average of \$560 per year, and reducing 395 tonnes of GHGs annually. An easy application process, good customer support, and

transferability to future owners were identified as keys factors in the program's success. However, the program faced several challenges during implementation. For instance, only half of mortgage lenders gave consent, which is required to ensure that enrollment in the program does not breach the homeowner's mortgage terms.

In addition, the marketing and promotion of the program was labour-intensive and difficult to sustain over time. Nonetheless, the program demonstrates the potential of LICs to reduce barriers and encourage energy-efficiency retrofits in Canada's building stock.⁴⁴

Further reading

The Atmospheric Fund. 2017. Energy Efficiency Financing Tools for the Canadian Context: A TAF Technical Guidance Note.

Brownlee, M. 2013. Financing Residential Energy Savings: Assessing Key Features of Residential Energy Retrofit Financing Programs. Smart Prosperity Institute.

City of Toronto. 2017. Home Energy Loan Program and High-rise Retrofit Improvement Support Program Evaluation. Report for Action: PE18.4

Clean Air Partnership. 2018. CHEERIO: Collaboration on Home Energy Efficiency Retrofits in Ontario.

⁴⁴ City of Toronto. 2017. Home Energy Loan Program and High-rise Retrofit Improvement Support Program Evaluation. Report for Action PE18.4.

Energy performance contracts

Energy performance contracts (EPCs), also known as energy service performance contracts, are contracts between a building owner/operator and an energy service company. They guarantee that the initial capital costs of an energy retrofit project will be covered by cost savings generated over the course of the contract, typically 15 to 20 years.

Many municipalities, as well as other levels of government, universities, hospitals and commercial and industrial buildings, have used EPCs to finance building retrofits.⁴⁵ Benefits include:

- ▶ Reduced upfront costs of energy-efficiency retrofits
- ▶ Transferred financial risks from building owner to energy service companies
- ▶ Financed energy retrofit projects without spending additional taxpayer dollars⁴⁶

Scalability

EPCs have increased in popularity in recent years because they offer financial benefits and reduce capital costs. Since EPCs use private funding sources, they can ease pressure on capital resources. Most importantly, EPCs allow for a comprehensive approach to building retrofits, rather than fragmented, small-scale upgrades.⁴⁷ A comprehensive approach is critical to achieve deep emission reductions in the building sector.

Key considerations

Ease of implementation	EPCs are straightforward to initiate and run, with very low initial costs and guaranteed savings. Public procurement rules can pose some barriers, such as long waiting times.
Political feasibility and public acceptance	Canadian governments and agencies, such as Natural Resources Canada, are in favour of the development of EPCs. ⁴⁸
Financial risk to municipalities	EPCs transfer most technical and financial risk to a third-party energy service company. However, to avoid cost overruns and shortfalls in savings, it is critical to conduct a detailed feasibility study and ensure a monitoring and verification (M&V) plan is in place before the EPC is signed. ⁴⁹ A clear and detailed M&V plan helps to properly define the energy consumption baseline, which is required for energy saving calculations throughout the contract.
Jurisdictional considerations	EPCs are possible in all jurisdictions in Canada.

⁴⁵ Love, P. 2012. Energy Performance Contracts: Taking the Risks Out of Energy Efficiency Building Retrofits. LAS Connections Energy Symposium.

⁴⁶ Energy Service Association of Canada. 2017. Guaranteed Energy Savings: Premier Issue.

⁴⁷ Energy Services Association of Canada. 2016. White Paper on the Use of Guaranteed Energy Service Performance Contracts to Achieve Provincial Carbon Reduction Targets. Submission to the Ontario Government.

⁴⁸ Fraser M. (n.d.) What Makes the Canadian ESCO Industry Unique? SRC Canada Inc.

⁴⁹ Gauthier, G. 2016. Energy Performance Contracting (EPC) — Key Considerations to Maximize the Benefits. Econoler. RPIC – Stream 5: Ask the Experts, Ottawa, November 16, 2016.



The City of Seattle's Metered Energy Efficiency Transaction program

The misalignment between the capital investment borne by the building owner and the energy savings accrued by the tenants is a key barrier to deep efficiency retrofits in commercial buildings. Specifically, tenants are unlikely to invest in retrofits to buildings they do not own, nor are building owners, as it is the tenant who benefits from reduced energy bills, not the owner.

The City of Seattle's Metered Energy Efficiency Transaction (MEET) program is designed to reduce these barriers and improve the energy efficiency of the commercial building sector. The so-called Energy Tenant (either the building owner or a third-party company) oversees the installation and maintains the energy improvements of the building, and signs a long-term power purchase

agreement (usually 20 to 30 years) with the utility to deliver metered energy savings from the retrofits. The Energy Tenant receives monthly payments from the utility for the metered energy efficiency, which are used to cover the costs of the efficiency improvements, while the building tenants pay the same amount they paid previously before the efficiency upgrades. This provides an incentive to the building owners to undertake efficiency improvements and allows the utility to maintain unit sales, while providing a comfortable, well-illuminated space for the tenants. The MEET program reduces barriers to energy-efficiency improvements in the commercial building sector and creates a way to share economic rewards among all stakeholder groups.⁵⁰

Further reading

Energy Performance Contracts for Local Governments: Industry Standards and Best Practices Guide. 2013. Climate Smart Communities.

Energy Services Association of Canada. 2016. White Paper on the Use of Guaranteed Energy Service Performance Contracts to Achieve Provincial Carbon Reduction Targets. Submission to the Ontario Government.

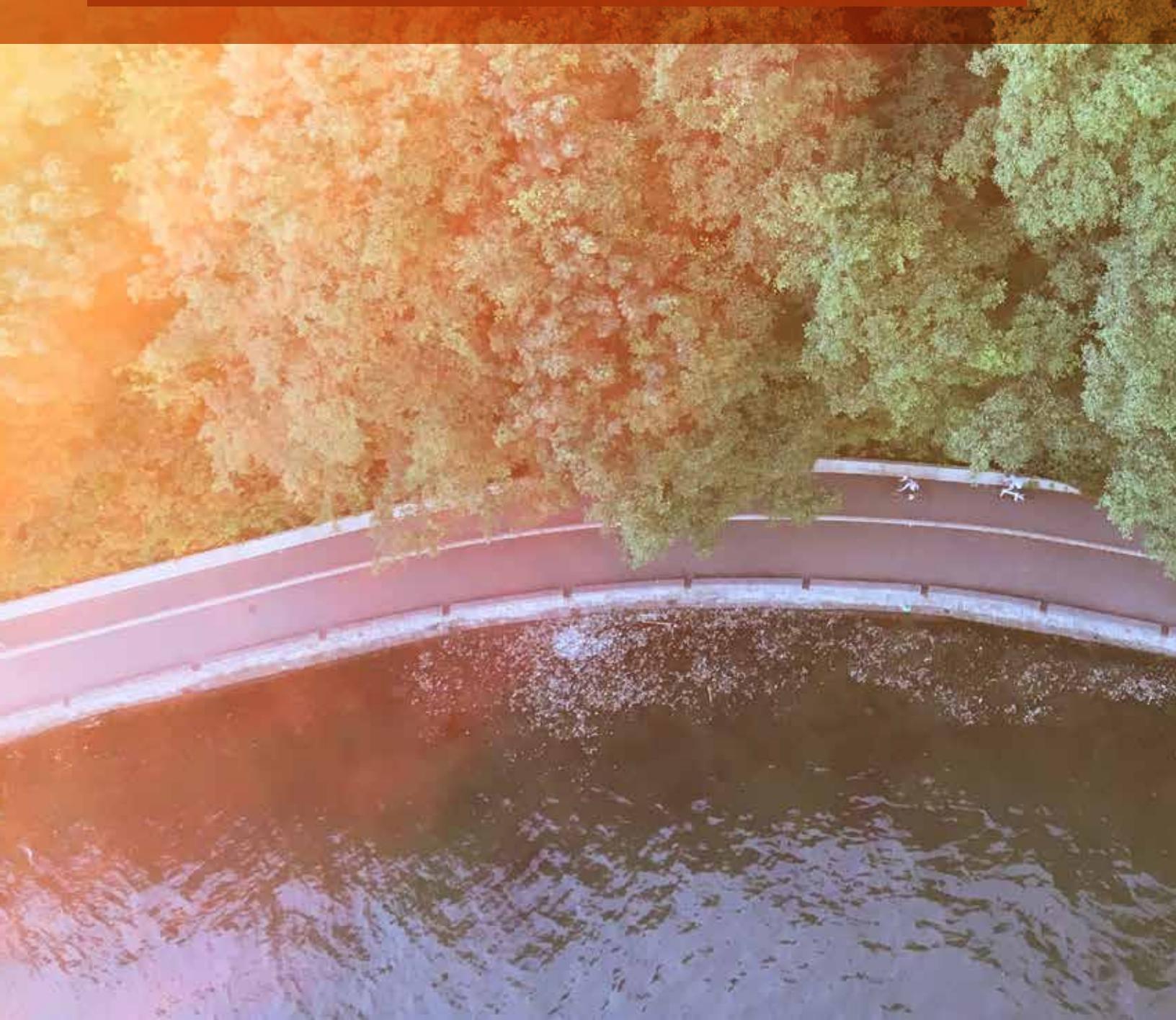
Gauthier, G. 2016. Energy Performance Contracting (EPC) — Key Considerations to Maximize the Benefits. Econoler. RPIC-Stream 5: Ask the Experts, Ottawa, November 16, 2016.

Unlocking Deep Efficiency in Commercial Buildings: The Metered Energy Efficiency Transaction Structure. 2016. Meets Accelerator Coalition and Bullitt Foundation.

⁵⁰ Unlocking Deep Efficiency in Commercial Buildings: The Metered Energy Efficiency Transaction Structure. 2016. Meets Accelerator Coalition and Bullitt Foundation.

▶ Creating a virtuous cycle: Green revolving funds and green bonds

Revolving funds and **bonds** are two financing tools that have existed in the finance world for decades, but recently they have been repurposed for environmental initiatives. Both tools demonstrate that a small investment can produce large financial rewards.



Green revolving funds

Green revolving funds, also known as revolving loan funds, are pools from municipal, provincial or federal funds that finance various emission reduction projects. The savings generated from the initial projects are then re-loaned for other projects, creating an “evergreen” source of capital that can be used again and again well into the future.⁵¹

Green revolving funds can be used for municipal projects, such as infrastructure upgrades and building retrofits, or can be granted to small organizations or businesses in the community doing climate-related work.

Scalability

Since the savings from each project are reinvested into the fund for future projects, green revolving funds have strong potential for growth. They are a relatively inexpensive source of funds that can be available for sustainability projects well into the future and help municipalities achieve their long-term goals.

Key considerations

Ease of implementation	Sufficient capital is required to seed the fund, which may be a challenge for smaller communities. The fund administration requires staff time and expertise, although local governments may already have revolving funds for other purposes and therefore be able to provide in-house experience and support. ⁵²
Political feasibility and public acceptance	Developing the business case for the initial investment may be challenging. However, only one-time funding is required; once initiated, the program will generate its own funds.
Financial risk to municipalities	To mitigate the risk of defaulting loans, rigorous analysis of return on investment is required. Green revolving funds are also slow to revolve, especially with longer loan terms associated with energy-efficiency projects. ⁵³
Jurisdictional considerations	Provincial and federal governments can sometimes provide capital for the fund. ⁵⁴

51 Office of Energy Efficiency & Renewable Energy. (n.d.). Revolving Loan Funds. U.S. Department of Energy.

52 Ibid.

53 Ibid.

54 EPA. 2015. FY16 Guidelines for Brownfields Revolving Loan Fund Grants.



The City of Pittsburgh's Green Initiatives Trust Fund

The City of Pittsburgh's Green Initiatives Trust Fund provides a continuous and secure source of funding from energy-saving measures, which is used to finance future energy-efficiency projects within the city, such as energy audits, aggregated energy purchases, renewable energy generation, efficiency upgrades at city-owned facilities, and other green initiatives in the Pittsburgh Climate Action Plan.

Although there are no formal criteria for funding, the city focuses on projects with a payback period of less than half of the operational life expectancy of the equipment or measure.

The Fund has helped energy projects to be evaluated and approved more quickly through the decision-making bodies of the municipality.

Established in 2008, the Fund was initially seeded with \$100,000 US and topped up with savings from aggregated energy purchases and energy savings each year. From 2008 to 2012, the Fund financed solar thermal installations, a solar photovoltaic installation, installation of 4,000 LED street lights, and retrofits to various city facilities, including the City-County building, totalling \$2.45 million US.⁵⁵

Further reading

- Booth, S. 2009. Revolving Loan Funds (RLF). National Renewable Energy Laboratory (NREL).
- Green Initiatives Trust Fund: City of Pittsburgh. Better Buildings Solution Centre, US Department of Energy.
- Indvik, J., Foley, R., Orlowski, M. 2013. Green Revolving Funds: An Introductory Guide to Implementation & Management. Sustainable Endowments Institute & the Association for the Advancement of Sustainability in Higher Education.
- Office of Energy Efficiency & Renewable Energy. (n.d.) State and Local Solution Center: Revolving Loan Funds. US Department of Energy.

⁵⁵ Green Initiatives Trust Fund: City of Pittsburgh. Better Buildings Solution Centre: US Department of Energy.

Green bonds

Green bonds are debt securities whose proceeds are earmarked for environmental or climate-related projects, such as public transit or low-carbon infrastructure investments.⁵⁶ They offer the same financial terms as other bonds,⁵⁷ which means that investors do not have to choose between financial returns and environmental benefits. There are a few types of green bonds,⁵⁸ but most are treasury-style retail bonds with a fixed interest rate and redeemable in full on maturity, usually within 10 to 30 years.⁵⁹

Bonds are a trusted financing tool and have been used by all levels of government since the 1900s, but the green bond market is relatively new. The first green bond was issued in 2007 by the European Investment Bank, and the first municipal green bonds were issued in 2013 by the Massachusetts Treasury, with the market experiencing strong growth ever since. In 2017, Canadian green bond issuance reached \$3.8 billion, exceeding all other years combined.⁶⁰ The opportunity for green bond growth is large, with demand consistently exceeding supply in Canada and abroad.^{61,62,63}

Scalability

The green bond market is expected to continue to increase in demand, especially as investors become more concerned with managing the risks of climate change and responsible investing.^{64,65} Green bonds are considered key to mobilizing private investment and financing the transition to a low-carbon, resilient economy.⁶⁶ Municipal green bonds are particularly well-suited for public infrastructure projects with long amortization horizons,⁶⁷ and they can help overcome the political and economic tendency to focus on short-term planning.⁶⁸

Bonds are a trusted financing tool and have been used by all levels of government since the 1900s, but the green bond market is relatively new.

56 Green City Bonds. How to Issue A Green Muni Bond: The Green Muni Bonds Playbook.

57 Ontario Financing Authority. (n.d.). Ontario Green Bond Q&A's.

58 Green City Bonds. How to Issue A Green Muni Bond: The Green Muni Bonds Playbook.

59 Adaptation to Climate Change Team (ACT). 2015. Paying for Urban Infrastructure Adaptation in Canada: An Analysis of Existing and Potential Economic Instruments for Local Governments.

60 Bonds and Climate Change: Canada Report. 2017. Climate Bonds Initiative & Smart Prosperity Institute.

61 Ibid.

62 Calder, A., et al. RBC Capital Markets: Green Bonds. Royal Bank of Canada (RBC).

63 UNDP. (n.d.) Green Bonds. Financing Solutions for Sustainable Development.

64 Bonds and Climate Change: Canada Report. 2017. Climate Bonds Initiative & Smart Prosperity Institute.

65 Calder, A., et al. RBC Capital Markets: Green Bonds. Royal Bank of Canada (RBC).

66 Bonds and Climate Change: Canada Report. 2017. Climate Bonds Initiative & Smart Prosperity Institute.

67 UNDP. Green Bonds. Financing Solutions for Sustainable Development.

68 Lanz, D. 2014. Green Bonds for a Green Economy: Considerations for Ontario. Canadian Centre for Policy Alternatives.

Key considerations

Ease of implementation	The price and interest on the bond is directly related to the issuer's financial standing and credit, as well as cash flows. This makes green bonds more challenging for smaller municipalities. However, this challenge can be overcome by issuing a joint bond between a few municipalities. Green bonds must undergo third-party verification and certification to ensure that proceeds are being used for projects that have clear environmental benefits. ^{69,70} This process adds to transaction costs, although benefits typically outweigh these costs. ⁷¹
Political feasibility and public acceptance	Green bonds are already a well-established financing tool that is relatively transparent, especially with third-party verification. Political feasibility and public acceptance can depend on whether the green bond issuance exceeds the municipality's borrowing limit, which requires voter approval. ⁷²
Financial risk to municipalities	The structure, risk and returns of green bonds are identical to those of traditional bonds.
Jurisdictional considerations	There are no specific legal requirements. ⁷³ Canadian municipalities can issue green bonds under current regulations, ⁷⁴ but provincial governments set municipal debt-servicing limits, which may limit the size of bonds. ⁷⁵



69 UNDP. Green Bonds. Financing Solutions for Sustainable Development.

70 Climate Bonds Initiative. (n.d.). Explaining green bonds.

71 Ibid.

72 Adaptation to Climate Change Team (ACT). 2015. Paying for Urban Infrastructure Adaptation in Canada: An Analysis of Existing and Potential Economic Instruments for Local Governments.

73 UNDP. Green Bonds. Financing Solutions for Sustainable Development.

74 Carvalho, G. 2017. Institute on Municipal Finance and Governance.

75 Green City Bonds. How to Issue A Green Muni Bond: The Green Muni Bonds Playbook.



City of Ottawa's 2017 green bond

The City of Ottawa is the first Canadian municipality to issue a green bond, enabled through its Green Debenture Framework. The framework identifies eight types of project for which proceeds can be used:⁷⁶

- Renewable energy
- Energy efficiency
- Pollution prevention and control
- Clean transportation
- Sustainable water management
- Sustainable management of natural resources
- Climate change adaptation and resilience
- Green buildings

The first bond was issued in November 2017, with proceeds used to fund a light-rail transit system. The issuance was highly successful; it cost less than comparable non-green bonds and was oversubscribed, with twice as many bids as expected. The 30-year bond was issued at \$102 million, making Ottawa the fifth-largest bond issuer in Canada in 2017.⁷⁷

Further reading

Calder, A., Kolodzie, M., Selot, V. 2017. RBC Capital Markets: Green Bonds. Royal Bank of Canada (RBC).

Climate Bonds Initiative and Smart Prosperity Institute. 2017. Bonds and Climate Change: Canada Report.

Green City Bonds. How to Issue a Green Muni Bond: The Green Muni Bonds Playbook.

United Nations Development Programme. Financing Solutions for Sustainable Development: Green Bonds.

⁷⁶ City of Ottawa. (n.d.) Investor Relations: Green Bonds.

⁷⁷ Bonds and Climate Change: Canada Report. 2017. Climate Bonds Initiative & Smart Prosperity Institute.



Conclusion

If Canada is to meet ambitious emission reduction targets, there is a pressing need to scale up and expand climate mitigation actions. This requires investing significantly in new infrastructure, transportation and energy systems, and the building sector at the community scale, which cannot be financed through traditional municipal revenue sources alone. Even sustained action on corporate sources of emissions, a small part of the energy and emissions picture, requires municipalities to have access to reliable sources of funding that they often struggle to find.

The tools presented in this guide can help unlock the multi-billion-dollar potential of private and community investment, reduce upfront costs, lower the risk of such investments and increase flows of capital, while also fuelling local economic development and helping to keep energy dollars in local economies. We encourage local governments and their partners to explore which of these tools could be used to finance ambitious climate action in their communities.



Is your municipality a PCP member? Join the conversation on the PCP Hub, the program's online networking platform, to share your experiences about financing local climate action in your community and to learn from other municipalities across Canada.

Not a PCP member? Learn about the benefits of membership and how to join at fcm.ca/pcp