

# Climate Solutions and Reconciliation in the Prairies: Exploring Investment Models

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June 2021

Updated 2024

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## Forward

November 2024

While this report was developed in 2021, the findings are even more relevant today. Already, there is significantly more need for adaptation measures compared to just three years ago when the report was initially written. The staggering impacts of a rapidly changing climate is an important indicator that more funding is urgently needed for emissions reduction in Canada and the prairies. 2023 was the hottest year on record and saw unprecedented wildfires globally and across Canada, causing many communities to evacuate. An important emerging strategy is in wildfire prevention, such as Indigenous-led Guardians programs, with wildfires being the largest source of emissions in Canada in 2023, and next is oil and gas. This Foreword provides you with current updates as of November 2024.

### *Need for a low-carbon city hub in the Prairies*

The low carbon city model is an endowment fund which earmarks funds for sustainably meeting community needs in low-carbon ways over the long term. The Atmospheric Fund, from whom the model was inspired, has led the way in investing in urban solutions to reduce greenhouse gas emissions. There remains significant need for the development of a low carbon city hub or similar model in the prairies. When looking at regional emissions, Saskatchewan is the 4<sup>th</sup> largest polluting province, and Manitoba is the 6<sup>th</sup> largest. Manitoba is the only province in addition to Alberta whose emissions increased in 2021 compared to 2005. Meanwhile, the Canada-wide target is a 40% reduction by 2030 and net-zero by 2050. Of the 10 largest cities in Canada, Winnipeg and Québec city are the only places without a low-carbon city hub servicing them, though the province of Québec already has a hub in Montréal. Winnipeg would be a great host for a prairie hub serving Manitoba and Saskatchewan given the strong existing organizations and networks working towards climate resilience. The hub could provide many benefits in helping Manitoba and Saskatchewan to meet their climate goals, reduce emissions, prioritize equity and reconciliation, and realize economic benefits.

### *New Manitoba opportunities*

The change in Manitoba's provincial government in 2023 presents new opportunities for collaboration on climate resilience. The government has showed leadership, including through supporting communities impacted by wildfires, restoring funding for environmental organizations, providing an incentive for purchasing electric vehicles, and investing in electric buses, among other things. Leadership on climate change from Manitoba funders such as the Winnipeg Foundation, Efficiency Manitoba, Climate West, and Éco-Ouest also present new opportunities. The Winnipeg Foundation has supported Manitoba's Climate Action Team in developing the Road to Resilience: a pathway to meeting needs for food, transport, and shelter without the use of fossil fuels. Additional investments including the Centre for Indigenous Environmental Resources, a partnership with The Narwhal on climate reporting, and the Climate Resiliency Project, a partnership between the Manitoba Eco-Network and local community organizations. Efficiency Manitoba has shown leadership on climate through providing grants for energy efficiency retrofits for homes, businesses, and community. The Manitoba government issued a new mandate letter that emphasizes commitments to Truth and Reconciliation, achieving net-zero emissions and energy affordability.

The City of Winnipeg has shown initiative on climate action, including through developing Winnipeg's Climate Action Plan: Planning for Climate Change, Acting for People, moving ahead with household Compost pickup, working towards urban conservation, and the City of Winnipeg Water, Waste and Environment passing a motion to identify municipal buildings for retrofits.

### *Federal policy updates*

The federal government has shown leadership on climate change and the environment, including recently through funding the development of a Canada Water Agency, a hub for the development of watershed management based in Winnipeg. Additionally, momentum is building for Indigenous Protected and Conserved Areas, including an agreement with the government which says nations can move forward with feasibility study to designate a new Indigenous Protected and Conserved Area for the Seal River watershed. There is tremendous opportunity for linkages between low-carbon cities, water management, and Indigenous Protected and Conserved areas.

Another important update is the recently introduced cap on oil and gas emissions and introducing a greenhouse gas offset credit system. The climate movement has been critical in advocating for these policy changes.

#### *Low Carbon Cities updates*

Among other changes, the Ottawa Climate Action Fund is now a stand-alone organization, which was incubated by the Ottawa Community Foundation. Low carbon city hubs are at the forefront of an equitable transition. The City of Calgary, Alberta Ecotrust and the Calgary Construction Association partnered to advance emissions-neutral buildings in Calgary. The Greater Montreal Climate Fund supported Propulsion Quebec's School Bus Electrification project.

#### *Green bond updates*

Green bonds, which are fixed-income securities that raise capital for a project with specific environmental benefits, expanded 10% year on year in 2023. They climbed a total of \$575 billion, largely because of increased issuance from Europe. Green bonds are expected to approach \$1 trillion in 2024. The World Bank issued the first-ever green bond in 2008. In November 2017, the City of Ottawa was the first Canadian municipality to issue a Green Bond, and has since issued four Green Bonds totaling over \$1 billion. Various provinces also issue green bonds, including Ontario and Quebec.

#### *Need for a Low-Carbon Economy*

With the extreme climate impacts that communities across Canada and the globe are experiencing today, more resources are needed to rapidly shift to a low-carbon economy. The more we invest in mitigation, the less suffering and need for adaptation there will be. There is a need for a hub focused on emissions reduction which services Manitoba and Saskatchewan. As Manitoba's emissions have continued to grow, and with Saskatchewan being the fourth largest emitter in Canada, there is an urgent need for further investment in prairies emissions reduction and adaptation, including staffing. There remain many important options for financing critical emissions-reduction projects including wildfire prevention, Indigenous clean energy, Indigenous Protected and Conserved Areas, and urban emissions reductions. Financing models include endowment funds, Indigenous trusts, and green bonds. Manitoba has seen exciting changes that

signal increased leadership on environment and climate change, prioritizing climate solutions that support Indigenous economic development and affordability, and important opportunities for collaboration.

## Executive Summary

Transitioning to a net zero economy will require significant investments in climate solutions.

This study asks: which finance models will help foundations accelerate the transition to an equitable, low-carbon economy? How can we prioritize solutions that advance reconciliation and serve the communities that face the greatest socio-economic barriers?

This paper explores three main finance models:

- Impact investment funds
- Indigenous trusts
- Green bonds

A series of case studies explores each financing model in terms of impact on reducing emissions, social benefits to communities facing socio-economic barriers, financial return, and replicability. The study focuses on the potential for replicability and adaptation across Canada, especially with Manitoba and Saskatchewan in mind.

### ***Climate solutions: Urban, Indigenous, and Natural***

#### *Urban climate solutions*

- Urban emissions reductions focus on reducing emissions in cities by focusing on transport, buildings, energy infrastructure, and waste reduction.
- Cities are the main cause of climate change: cities around the world are responsible for 70% of emissions. City level strategies are becoming more common.

#### *Indigenous climate solutions*

- Indigenous clean energy focuses on renewable energy transition and energy efficiency strategies that are led by and serve Indigenous communities.
- Most of the potential renewable electricity generation across Canada is on land that First Nation, Inuit, and Metis have claims over, or is traditional territory.
- Indigenous energy projects must respect Indigenous rights, such as the right to Free, Prior and Informed Consent.

#### *Natural climate solutions*

- Natural climate solutions focus on conserving and restoring forests and ecosystems to reduce emissions by removing carbon from the atmosphere.

- Natural climate solutions can provide up to 37% of the climate mitigation needed between now and 2030 to below 2 degrees from pre-industrial levels.
- It's important that climate solutions happen alongside aggressive fossil fuel reductions to reduce emissions to the extent that is required.
- The government of Canada has committed to protecting 25% of Canada's land and oceans by 2025 and working toward 30% by 2030. The establishment of Indigenous Protected Areas are a key priority.

### **Investment fund models: Impact investing, conservation finance, green bonds**

#### *Impact investment funds*

- An impact investment fund differs from a traditional investment fund in that its purpose is to not only generate financial returns for shareholders, but also to create social or environmental impact.
- An example is Low Carbon Cities which leverages public and private capital for urban green infrastructure projects.
- Impact investing in green projects can generate competitive financial returns. For example, The Atmospheric Fund's rate of return is 6-7%. The Low Carbon Cities model was based on 20 years of experience from the Atmospheric Fund.
- It's important that non-profits are eligible for funding as many non-profits and businesses do green infrastructure work. For example, in Winnipeg the non-profit Eco-Ouest is working with municipalities to install electric vehicle charging stations.

#### *Conservation finance and Indigenous Trusts*

- Conservation finance funds natural climate solutions.
- Canada's forests are a massive carbon sink akin to the lungs of the world.
- Conservation models include credits, offsets, outcome-based models, green bonds, and other alternative instruments.
- A growing number of Indigenous communities are establishing Indigenous Trusts to hold and manage funds from business activities and claims settlements whereby the funds can help Indigenous communities meet their needs.
- An example is Conservation through Reconciliation whereby The Dene First Nation worked with Parks Canada to establish the territorial Protected Area of Thaidene Nënë. Benefits include forest protection, Indigenous empowerment, and jobs.



### *Green bonds*

- Green bonds are earmarked to raise money for climate projects. A bond is simply a loan taken out by a company, but instead of going to a bank, the money comes from investors who buy its bonds.
- Global issuance of green bonds hit record numbers in 2020 with \$491 billion issued. To date three Canadian cities have green bonds: Vancouver, Toronto, and Ottawa.
- Green bonds are well suited for large scale renewable energy which often require large investments of capital upfront.

### *Opportunities to advance equity and reconciliation*

- Foundations play a unique role in understanding community needs while also having investing capacity, equipping them for investing which advances social and environmental goals simultaneously, such as retrofitting Indigenous and affordable housing.
- There are opportunities to support emissions reductions and reconciliation. Examples are:
  - Aki Energy geothermal projects.
  - Indigenous Clean Energy home retrofits across the country.
  - Reconciliation through Conservation, Indigenous Protected and Conserved Areas.

### *Recommendations for Manitoba*

1. Share this research with possible funders, including provincial and federal governments, as well as foundations and private donors. Follow up with discussions about funding for a low-carbon city hub in Winnipeg.
2. Connect with the staff, board, and investment committees of relevant environmental and Indigenous organizations in Manitoba about potential interest in a hub.
3. Encourage Manitoba-based organizations to take a training or join a program to further align assets with missions.
4. Encourage Manitoba-based entities to consider the development of a green bond.
5. Have a conversation with board and staff of relevant Manitoba -based organizations about how investments can support emissions reductions and reconciliation such as Indigenous clean energy projects and Indigenous Protected and Conserved Areas.

## Introduction

In order to secure a livable future, the world must transition to net zero. Net zero means that we are not adding new emissions to the atmosphere. Limited emissions will continue but will be balanced by absorbing an equivalent amount from the atmosphere (UN News, 2020a). This study will look at innovative financing to help us achieve net zero.

Innovative financing can take various forms including investment funds and green bonds. New business models have enabled energy efficiency investments in the building sector, which represents a significant portion of global energy demand. Other sectors such as heavy industry, heavy transport, and agriculture have not yet seen low-carbon investment at scale. In addition, the development of green bonds has ballooned (Climate Finance Leadership Initiative, 2019, p.7). It has been suggested that these financial models are in fact social innovations.

How does this exploration of social finance models contribute to social innovation? Innovation is the introduction of a new idea, method, or device (Merriam Webster). Social innovation is the process of developing and deploying solutions to

challenging and often systemic social and environmental issues (Soule, Malhotra, Clavier, 2021). The aim is to scale solutions to climate change and social inequities, which are systemic issues.

In some ways, the models being explored are not new. For example, The Atmospheric Fund has been developing low-carbon models and preparing them for scale up since 1991 (Low Carbon Cities Canada, 2021). What is new is the introduction of this and other low-carbon investment models in cities across Canada as well as the potential for further expanding and adopting these models in other cities.

The study will start by reviewing Canada's current greenhouse gas emissions, Canada's plans for reducing emissions, and the country's progress. We will briefly review a few key investment strategies being used in Canada to reduce emissions which fall under three main types: urban-based climate solutions (meaning projects based in cities), Indigenous renewable energy (meaning Indigenous-led clean energy projects), and natural climate solutions (meaning ecosystem conservation and reforestation). It's also important to note that

there can be overlap between the three categories. For example, some of the natural climate solutions that are explored are Indigenous led.

Next, we will dig deeper into the four main finance models in this study. These models include, the investment fund model (where multiple owners can collectively purchase securities to fund a project), carbon credits (whereby companies can account for emissions by buying credits

for certified activities such as reducing emissions in the atmosphere) outcome based models (where governments or foundations buy outcomes such as reduced greenhouse emissions from social enterprises or non-profits), and green bonds (which are bonds whereby the debt is earmarked for green projects). Following that we will explore case studies within each of the models. We analyze the case studies in terms of impact, cost effectiveness and replicability.

#### Models to be explored

##### **Model 1 – Investment funds**

- Low Carbon Cities Canada (an example of funding urban climate solutions)
- Aki Energy (an example of funding Indigenous geothermal energy)
- Indigenous Clean Energy

##### **Model 2 – Conservation finance: Indigenous trusts**

- Reconciliation through Conservation Partnership (An example of funding natural climate solutions)

##### **Model 3 – Green Bonds**

- City of Toronto Green Bonds (An example of funding urban climate solutions)

#### Context - Canada's current greenhouse gas emissions

Greenhouse gases include carbon dioxide (CO<sub>2</sub>), methane, and nitrous oxide. These gases trap heat in our atmosphere and are responsible for a steadily increasing rate of global warming over the last 100 years, and most notably over the last 20 years. From 1990 to 2018, greenhouse gas emissions in

Canada have increased by 20.9% driven largely from increased emissions from mining and upstream oil and gas production, as well as transportation (Environment and Climate Change Canada, 2020).

Understanding where Canada's emissions come from help to contextualize areas in need of emissions reductions. Major sources of emissions in Canada are from oil and gas (26%), transportation (25%), buildings (13%), heavy industry (11%), agriculture (10%), waste and others (6%). In terms of an

#### Overview of current national policies

Canada's current climate plan, A Healthy Environment, and a Healthy Economy, has pledged to meet its 2030 Paris Agreement emissions reductions targets and has committed to becoming net zero by 2050. Recently, the government committed to reducing emissions by at least 40-45% below 2005 levels by 2030. Government policies include investments in public transit and clean energy, and billions of dollars for emission-intensive industries to adopt cleaner technology. Buildings are also an area where further reductions could be made (Tasker and Wherry, 2021). The government introduced the Canadian Net-Zero Emissions Accountability Act in Parliament on November 19, 2020. Once passed, the act will formalize Canada's 2050 target and establish interim emissions reduction targets at 5-year milestones (Government of

industry breakdown, about one quarter of Canada's emissions are from the oil and gas sector, and another quarter is from transportation. The third largest source of emissions is from buildings (Government of Canada, 2020a).

Canada, 2021b). Part of Canada's climate plan includes a nationwide carbon price rising to \$170/tonne by 2030. According to Environment and Climate Change Canada's modelling, the plan adds up to emissions reductions that exceed current targets (Canadian Climate Choices (Beugin, 2020).

However, The Climate Action Network wants the Canadian Government to move faster on its commitments and says that it would be good to see policies that can take Canada further than the insufficient Paris pledge of reducing emissions up to 40% below 2005 levels by 2030.<sup>1</sup> While it's also good to see the investment of \$15 billion in climate action, these numbers are limited when compared to the U.S. and the EU, and more investment is needed (Abreu, 2020). The Climate Action Network also points out

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<sup>1</sup> The Climate Action Network is a network of more than 100 climate organizations across Canada.

that whereas other countries are stopping the expansion of fossil fuels, Canada continues to double down on fossil fuels, keeping

workers and the economy subject to volatile gas markets.

### Emissions Reductions in Manitoba

Given that this study aims to inform decision-makers on potential climate investments from Manitoba actors, we look specifically at Manitoba. Let's dive into greenhouse gas emissions in Manitoba to get a better sense of where emissions are coming from, and where reductions need to occur. Data from Environment Canada shows that Manitoba's largest sources of greenhouse gas emissions are firstly transport (43%), followed by agriculture (31%), then stationary combustion sources which include heating, manufacturing, electricity and mining/oil and gas extraction (17%), industrial processes and product use (5%), waste (3%), and fugitive sources (meaning the release of GHGs from the production, processing, transmission, storage, and use of fossil fuels) (2%). Manitoba's overall emissions in 2018 were 19% higher than in 1990 (Climate Change Connection, 2018).

How can Manitoba achieve a net zero emission target? Community organizations in Manitoba collaborated to outline pathways for Manitoba to transition to a low carbon economy. The report, Manitoba's Road to Resilience, recommends pathways to full decarbonization and zero emissions by 2050. The report includes the goal to move all goods and people without gasoline or diesel, and to heat our buildings (old and new) affordably without natural gas (Climate Action Team, 2021). Manitoba's Road to Resilience was produced by Winnipeg's Climate Action Team, a partnership between CCPA-Manitoba, Climate Change Connection, Green Action Centre, the Manitoba Energy Justice Coalition, and the Wilderness Committee of Manitoba.

### Three key strategies for GHG reduction in Canada

There are various strategies for reducing emissions. Three of these broad strategies include urban climate solutions, which focus on reducing emissions in cities through

policies around reducing transport emissions and buildings; Indigenous renewable energy which focuses on renewable energy transition and emissions reduction strategies

that are led by and serve Indigenous communities; and natural climate solutions, which focus on conserving and restoring forests and ecosystems to reduce emissions by removing carbon from the atmosphere.

### Urban Climate solutions

What are urban climate solutions? Urban refers to a town or city. A climate solution is anything, whether a product, service, or action, that helps to solve climate change. Therefore, urban climate solutions are actions that help to reduce emissions in cities, such as improving sustainable transport or retrofitting buildings. Research shows that experiments in urban sustainability are crucial for sustainability transition in cities. This is especially true when they are multiplied in different contexts and scaled up (Peng et al, 2019).

Cities around the world are the “main cause of climate change” but can also be part of the solution to reducing greenhouse gas emissions. Over half of the world’s population lives in cities, and this is likely to increase to over two thirds by 2030. Cities are responsible for around 70% of global energy-related greenhouse gas emissions (UN News, 2020b). Major contributors include urban sprawl. Workplaces located far from homes result in

burning fossil fuels through cars, as well as limited public access to urban transportation.

Another major factor is an increasing number of buildings using fossil fuels for energy (UN News, 2020b). Cities are also the most affected by climate change, as most cities are situated near water, putting them at risk from rising sea levels and storms (UN News, 2020b). In Canada, cities produce about half of Canada’s carbon emissions, so the goal is to accelerate action in cities if we are to achieve climate targets (Low Carbon Cities Canada, 2021a).

City level climate energy strategies to further climate action are becoming more common in the past ten years. This makes sense given that cities play a dominant role in energy consumption. Many cities are preparing strategies that include a city energy strategy, though it is not always given this name (Asarpota and Nadin, 2020, p.1-2). We can understand energy transition in two main ways. First there are measures to reduce energy needs and demand. In urban design, this means for example the design of buildings in a way that uses less energy or measures that reduce the need to travel. Second, there are measures which enable the provision of energy more efficiently, such as requirements such as solar to be used or retrofitted into urban

development (Asarpota and Nadin, 2020, p.6-7).

There are a few key avenues that cities can pursue in reducing emissions including transport and accessibility (such as promoting active transport and public transit), urban form (such as mandating considerations for urban and building design codes through regulations), energy infrastructure (such as building retrofits to improve energy efficiency), and other measures such as waste reductions (Asarpota and Nadin, 2020, p.13). The Leadership in Energy Efficiency Design (LEED) Reference Guide for neighborhood development addresses sustainable development, and consequently efficient energy use, in three main categories: smart location and linkages, neighbourhood pattern and design, and green building and infrastructure (Asarpota and Nadin, 2020,p.8).

Let's take a deeper look at one city's urban climate plan: Vancouver. In terms of promoting active travel, the 'complete streets 'program which is an urban design focused initiative to deliver safe streets. There are specific targets and locations to improve public transit. The aim is to make the switch to electric cars. In terms of urban form, the'Passive House program is an urban

design initiative to deliver high performing energy efficient buildings. In terms of energy infrastructure, there is a target to produce 100% electricity demand with renewable energy (Asarpota and Nadin, p.15-16, 2020).

While urban strategies can reduce greenhouse gas emissions, including active and public transport and energy efficiency in buildings, Indigenous community-led strategies are also important, including Indigenous clean energy projects.

#### [Indigenous Renewable Energy](#)

In the book *Aboriginal Power*, Chris Henderson describes how Indigenous communities are leading the way on renewable energy in Canada. He also describes how investments in Indigenous Clean Energy can contribute not only to climate action, but also to advancing equity and reconciliation with Indigenous communities (Henderson, 2013).

What is meant by Indigenous Clean Energy? Clean energy refers to projects whereby renewable energy replaces or will replace fossil fuels. Examples are hydro replacing coal in Saskatchewan or wind substituting for nuclear in Ontario (Henderson, 2013, p.65). Indigenous refers to projects which are led by Indigenous peoples. Henderson notes that realizing the

full potential of Indigenous Clean Energy is only possible if embraced by governments, utilities, corporations, and capital markets (Henderson, 2013, p.7). Indigenous communities are powerful actors in the transition to net zero. Most of the potential renewable electricity generation capacity across Canada is on land that First Nation, Inuit, and Metis have claims over, or is classified traditional territory (Henderson, 2013, p.23). Furthermore, the Indigenous population is growing four times faster than the Canadian average. It is critical to support Indigenous employment. It is also Canada's obligation (Henderson, 2013, p.27). There are many Indigenous clean energy projects, and many more to come. Examples include Mother Earth Renewable Energy wind Project with M'Chigeeng First Nation (Henderson, 2013, p.27).

It's important to note that while a project may be considered clean energy, it could still have negative impacts for community members. Renewable energy projects can support rather than hinder Indigenous communities by respecting human rights, respecting Indigenous Rights such as the right to Free Prior and Informed Consent (FPIC), and providing community benefits (Shah & Bloomer, 2018).

### *Indigenous Clean Energy*

Indigenous Clean Energy (ICE) is a social enterprise which advances Indigenous inclusion in Canada's energy futures economy through Indigenous leadership, and broad-based collaboration with energy companies, utilities, governments, development firms, cleantech innovators, the academic sector, and capital markets. Their mission is to stimulate leadership by, and meaningful collaboration with, Indigenous peoples in the transition to a clean energy future. They have four core programs: the catalyst program which builds clean energy capacity for Indigenous individuals, the ICE network which is a collaborative space for people working to advance clean energy, the global hub which promotes cooperation among Indigenous groups globally and Bringing It Home focused on energy efficiency and retrofitted homes (Indigenous Clean Energy, 2020).

Indigenous Clean energy projects continue to grow across Canada. There are a total of 2107-2507 Indigenous clean energy projects in total. These include 197 medium to large projects, 1700-2100 small renewable energy projects, 127 energy efficient homes, 72 bioenergy projects, and 19 transmission projects (Indigenous Clean Energy, 2020).



### Indigenous Clean Energy Impacts

According to Indigenous Clean Energy (2020), Indigenous energy projects have multiple impacts including diesel reduction, job creation, community power, emissions reductions, and energy efficiency and housing. Here are some examples of projects to illustrate some of those impacts:

- **Job Creation:** Henvey Inlet First Nation Wind in Ontario is a collaboration between Nigig Power Corporation, an entity of the Henvey Inlet First Nation, and Pattern Canada. The project is one of Canada's largest wind farms at 300 megawatts. It is creating over 1,000 new jobs in the Georgian Bay area during peak construction; more than 20 permanent jobs during operations; and over 100 indirect jobs through expansion of programs and services of the Henvey Inlet Band.
- **Emissions reductions:** The Wocawson Energy Project in New Brunswick is led by the Tobique First Nation in collaboration with project developer Natural Forces. The dozen or so wind turbines will supply some 5,000 homes with electricity while offsetting 22,000- 44,000 tonnes of carbon dioxide annually.
- **Energy Efficiency and Housing:** Improving housing energy efficiency in Indigenous communities is a significant opportunity to reduce energy use and costs and create local jobs and investments. Through the Bringing it Home initiative, ICE is working with 'Guide Communities' to develop and implement plans for community-wide retrofits, high performance standards for new builds, sourcing financial investment, and implementing technical capacity. Bringing It Home is scalable nationally (Indigenous Clean Energy, 2020).

We've looked at some inspiring ways that Indigenous communities are leading the way on renewable energy projects and energy efficiency. Now we turn to natural climate solutions.

### Natural Climate solutions

What are natural climate solutions? Natural climate solutions draw on the power of nature to reduce emissions, remove carbon dioxide from the atmosphere, and store it in natural ecosystems. The protection and

management of natural ecosystems, which contain vast amounts of carbon, can ensure it's not released into the atmosphere, thereby reducing emissions. Forests can help by storing carbon in soils, trees, and grasslands through photosynthesis. Strategies include reforestation and conservation of forests (The Nature Conservancy, 2021). Various organizations are working on advancing natural climate solutions, including the Nature Conservancy, the David Suzuki Foundation, and Nature United.

Research by the Nature Conservancy of Canada and 15 other institutions shows that globally, natural climate solutions can provide up to 37% of the “cost-effective climate mitigation needed between now and 2030 to stabilize global warming to below a 2 °C” increase from pre-industrial levels. They further explain that “alongside aggressive fossil fuel emissions reductions, natural climate solutions offer a powerful set of options for nations to deliver on the Paris Climate Agreement while improving soil productivity, cleaning our air and water, and maintaining biodiversity” (Bronson et al, 2017). More research is needed on how natural climate solutions can facilitate Canada in reaching its emission reduction targets (Nature United). Here natural climate solutions are defined as “the conservation,

restoration, and improved management of land in order to increase carbon storage or avoid greenhouse gas emissions in landscapes worldwide”. Nature United explains that “If natural climate solutions are mobilized over the next 10 years, they could provide 37 percent of the needed carbon mitigation for global climate targets. But if action is delayed until after 2030, that number drops to 33 percent because the emissions we're trying to curb would increase and many of these natural areas themselves would degrade and become less effective” (The Nature Conservancy, 2021).

The Government of Canada has committed to protecting 25% of Canada's land and oceans by 2025 and working toward 30% by 2030. The establishment of new Indigenous Protected and Conserved Areas (IPCAs) and Indigenous Guardians programs are a key priority. The Canadian government made the largest investment in nature conservation in Canadian history in 2018 with the \$1.3 billion Canada's Nature Legacy which includes the Canada Nature Fund. Canada is on track to conserve nearly 17% of land and freshwater by 2023. The government is investing \$3.16 billion over 10 years to partner with communities to

plant two billion trees (Government of Canada, 2021a).

## Finance models for climate solutions

Now that we have explored current emissions and some key strategies for reducing emissions, what funding models can effectively finance the various types of climate solutions? What are some of the strengths and weaknesses of each model? First, we will explore finance models for sustainability projects broadly, then we will look more deeply at four specific models: the investment fund model, credit markets, pay for outcomes model, and green bonds.

Previous research on finance models for sustainability highlights alternative funding mechanisms for sustainability projects relating to infrastructure, land use, public transit, systems and transportation, renewable energy, and affordable housing (Hebb & Bilton, 2020, p.3). Funding models for that promote environmental sustainability can include local authority finance agencies, green bonds, community benefit P3s, guarantees, credit markets, direct investments, and pay for performance (Hebb & Bilton, 2020, p.4). There are additional innovative financial models and products such as crowdfunding, socially responsible funds, and impact investing.

Impact investing, and social impact bonds are an innovative model for sustainable finance (Torre et al, 2019, p.5). As is defined above, impact investing is an investment strategy that aims to generate specific beneficial social or environmental effects in addition to financial gains. A social or environmental impact bond is a contract with the public sector or governing authority, whereby it pays for better social outcomes in certain areas and passes on the part of the savings achieved to investors.

### Investment Fund Model

An investment fund is a supply of capital that belongs to many investors used to collectively purchase securities while each investor retains ownership and control of their own shares. An investment fund provides a broader range of investment opportunities, greater management expertise, and lower investment fees than investors would be able to obtain on their own. Types of investment funds include general and limited partnerships, exchange-traded funds, mutual funds, money market funds, and hedge funds (Chen, 2020). Within the investment fund model a managing or general partner provides expertise and due diligence in investment selection while the limited partners provide

capital and pay for the management of these funds.

In terms of the structure of an investment fund, it can vary depending on the fund and whether it is formed through company law, legal trust, or by statute. Another factor influencing the structure is the jurisdiction and tax rules. In general, there is a fund manager who manages the fund; a fund administrator who manages the trading, reconciliation, and pricing; a board of directors or trustees who protect the assets and ensure compliance with regulations; the shareholders who have rights to the assets and the associate income; a marketing or distribution company to sell shares/units of the fund.

Looking at the impact investment fund model in the Canadian context, many investors are investing in small scale impact investment funds. These range from foundations to individual investors, many of whom are women and millennials. Their motivation often stems from an interest in aligning their investments with their values. This is a growing trend. Cities, especially small and mid-size cities could benefit from this trend given that the scale of the investments match the scale of city infrastructure needs. The focus of investment funds range from clean tech to

retrofits to affordable housing. The Atmospheric Fund has close ties to Toronto for example, the city where it is based. Other funds, such as New Market Funds, are based more broadly. Cities can look for opportunities to partner with these new emerging funds in Canada. The LC3 model can engage cities across Canada to leverage private capital investment for sustainable infrastructure needs (Hebb and Bilton, 2020, p.25). Some of the barriers to implementation include: city governments being risk averse to forming new partnerships, too many bureaucratic restrictions for the stacked capital model. Examples of impact investing projects in Canada include solar share community bond with TREC renewable energy Co-Op and Renewal3 started by Carol Newell and Joel Soloman supporting industries such as organic foods and environmental products. Impact investors in Canada include high net worth individuals, foundations, community finance organizations including Indigenous finance organizations, financial institutions such as banks and credit unions, governments, and pension funds (Harji et al, 2014, p.6-7). The McConnell Foundation is one of the leading Canadian foundations in impact investing. They anticipate that they will exceed their 2020 goal of having 10%

of assets invested in impact investments. They are focused on sustainable food, health, arts, entrepreneurship, environment, affordable housing, civic assets, multiple assets, water, energy, and Indigenous. Expected financial returns range from inflation adjustment repayment of principal to 20% expected IRR. Their mission related investments (investments with the intention of achieving mission-related objectives and earning market-rate financial returns) include Investico Sustainable Food Trust, Green Soil Building Innovation Fund, and Blackrock Global Renewal Fund. Their program related investments (investments made to further mission which aim to generate financial returns with a tolerance for below market returns) include Aboriginal Savings Corporation of Canada: First Nations Market Housing Precursor, Equiterre for Green Building, CoPower Clean Energy, and Raven Capital Partners for Aki Energy geothermal energy in Fisher River Cree Nation (McConnell Foundation, 2021).

[Conservation finance: Credits,](#)  
[Indigenous Trusts, Pay for Outcomes](#)

Conservation finance is an important tool to protect ecosystems. To be effective, conservation globally requires significantly more funding. It is estimated that the

funding needed is an additional \$15-20 billion US a year (Nature Conservancy of Canada and Rally Assets, 2020, p.4).

Conservation finance offers opportunities for private investors, mainstream investment firms, and corporations interested in the triple bottom line of people, planet, profit (Nature Conservancy of Canada and Rally Assets, 2020, p.4).

Nature is priceless. At the same time, monetizing ecosystem services, such as carbon sequestration or flood risk mitigation has many benefits. Benefits include creating mechanisms to measure, finance, and promote conservation initiatives based on their outcomes (Nature Conservancy of Canada and Rally Assets, 2020, p.4). It also allows people to get paid for their services in protecting nature. Examples of outcome areas are: Indigenous-led or stewarded conservation whereby stewards are compensated for their conservation efforts. Conservation finance models include credits and offsets, outcome-based models, green bonds, and other alternative investments (Nature Conservancy of Canada and Rally Assets, 2020, p.4). One of the models that is used by Reconciliation through Conservation is Indigenous Trusts.

A growing number of Indigenous communities across Canada are establishing

trusts to hold and manage funds obtained from business activities and claims settlements. The income generated from those funds can help Indigenous communities meet their needs (Reconciliation and Responsible Investment Initiative, 2018).

There is a difference between an offset and a credit (Nature Conservancy of Canada and Rally Assets, 2020, p.35). Offsets are a reduction or increase in an environmental impact that occurs in one location with the purpose of offsetting the opposite occurring in another location. Offsets are controversial to some degree because the practice of offsetting can be seen as a way of maintaining the status quo. Rather than minimizing environmental impacts through their own operations, offsets can be viewed as companies and other entities 'buying their way out.' At the same time, offsets can quickly move money and can offer significant economic value (Nature Conservancy of Canada and Rally Assets, 2020, p.35).

In contrast, credits are permits issued within a system that allow all participants to collectively emit or pollute up to a certain amount, such as carbon or wastewater discharge. If less emissions are produced than the allowable amount, a credit is issued.

They are most used in mandatory markets where all participants are subject to regulatory requirements that must be met by the whole market but can be traded among participants (Nature Conservancy of Canada and Rally Assets, 2020, p.35). The trading of credits produces a credit market.

Emissions can be reduced only if there is a reduction of allowable credits within the market.

Outcome-based models cover a broad range of structures whereby payment is made for achieving predetermined social or environmental outcomes (Nature Conservancy of Canada and Rally Assets, 2020, p.40). Outcome-based models are different from more traditional philanthropic or government financing models that pay for upfront actions. In conservation finance, outcome-based models include pay-for-performance, payment-for ecosystem-services, avoided-cost and other models. The commonality between these models is that one or more entities believes there is a tangible, monetary value associated with a service provided by nature and they are willing to pay to ensure nature continues providing this service (Nature Conservancy of Canada and Rally Assets, 2020, p.40).

Below is an example of an outcomes-based model. Verge capital and

Carolinian Canada worked together on a Conservation Impact Bond (CIB) for the restoration of Carolinian Zone in Southern Ontario. In its pilot phase, the CIB has raised \$304,000 to restore 60 hectares of land in the Carolinian Zone. They've worked with the Chippewas of the Thames First Nations. Payment was made from government and community conservation funds for healthy landscape outcomes (Nature Conservancy of Canada and Rally Assets, 2020, p.40).

#### Green bonds

A green bond is a type of fixed-income instrument that is specifically earmarked to raise money for climate and environmental projects. These bonds are typically asset-linked and backed by the issuing entity's balance sheet, so they usually carry the same credit rating as their issuers' other debt obligations. Over the past decade, green bonds are one of the most prominent innovations in the area of sustainability. Green bonds are structured in the same way as conventional bonds, but has a clause on use of proceeds that finance green investments (Maltais & Nykvist, 2020). Globally there is increasing interest in green bonds. In 2020, global issuance of use of sustainable bonds (proceeds green, social and sustainability bonds) hit record

volumes with \$491 billion issued (Environmental Finance, 2021). ESG experts expect issuance to reach another new record of \$650 billion in 2021, representing a 32% increase over last year. This total will be comprised of approximately \$375 billion of green bonds, \$150 billion of social bonds and \$125 billion of sustainability bonds (Environmental Finance, 2021).

Capital is being invested in sustainable infrastructure projects globally through innovative finance mechanisms. Examples include renewable energy projects, transportation, and climate change adaptation. Issuers of green bonds include countries, regions, cities, and financial institutions. Institutional investors are investing in green bonds as a part of their fixed income portfolios because the rates of return are like other bond offerings with the additional benefit of environmental impacts. Given that the increased environmental standards are seen to lower the risk of the bond defaulting, green bonds are sometimes issued for a lower cost of capital (Hebb, 2018, p.8).

The climate bonds initiative works to mobilize the largest capital market of all, the \$100 trillion bond market, for climate change solutions. By developing a large and liquid Green Bond market that will drive

down the cost of capital for climate projects, by growing mechanisms for fragmented sectors, and by supporting governments seeking to tap debt capital markets, climate bonds help to accelerate investments in

projects and assets necessary for a rapid transition to a low carbon economy (Climate bonds initiative (2021b)).

### Canadian Green Bond Market

Let's look at the Canadian green bond market. Canada is among the top 15 countries of green bond issuance. Canada has a notable presence in the green bond market, but is behind China, the United States, and the larger European issuers (Investment Industry Association of Canada, 2020). To date, three Canadian cities have successfully issued Green Bonds: Vancouver, Ottawa, and Toronto. Ottawa was the first to issue a green bond which was a 10-year bond and was used to offset costs associated with light rail transit. There were twenty-five investors in Ottawa's green bond: 59% were Asset Managers, 23% were Insurance Funds, 11% were Government Agencies, and 6% were Pension Funds (Hebb and Bilton, 2019, p.6).

An example of an institutional green bond is the Canada Pension Plan Investment Board Green Bond (CPPIB). Canada was the first pension fund globally to offer a green bond in June 2018. Strategies include renewable energy, water infrastructure, and green buildings. This bond was issued for \$1.5 billion. Recent investments are in renewable power and offshore wind (Hebb & Bilton, 2020, p.8-9). More recently Ontario Teachers Pension Plan also issued a green bond. They issued a \$750 million 10-year Green Bond. The issuance is fully guaranteed by Ontario Teachers' Pension Plan Board (Ontario Teachers'). Proceeds will be allocated to assets that are environmentally and socially responsible, and that tackle climate change. Assets must satisfy one or more of the following: Replace direct fossil-fuel use; Facilitate low-carbon solutions; Significantly reduce emissions; Remove/store carbon; Help adapt to climate change impacts; or Help preserve or conserve scarce natural resources. This builds upon many years of experience in responsible investing for the teachers (Ontario Teacher's Pension Plan, 2020).



## Case Studies

We have looked at financial models to accelerate climate solutions, including investment funds, conservation finance, Indigenous Trusts, and green bonds. Now we will look at case studies within each of those models. Through the case studies we seek to better understand how those models work and why they are important for advancing climate solutions. We conducted

interviews with leaders in the field, reviewed reports and websites, and attended online conferences to inform our analysis. We will now explore which financial models will accelerate the transition to an equitable low carbon economy by detailing what we've learnt about each fund type and its suitability for foundation investments.

### Investment Fund Model (Urban Climate Solutions) - Low Carbon Cities Canada

**Model:** Investment fund and impact investing whereby projects generate revenue through interest on loans from proceeds of business activities. In the future, the model will be self-financed through investment returns on endowments. Budgets can be supplemented through project funding from external sources.

**Foundation suitability:** The Ottawa Foundation was the initial host for the Low Carbon Cities Hub in Ottawa, and the Alberta EcoTrust Foundation is hosting the hub in Calgary and Edmonton. The model was developed with 20 years of experience from the Atmospheric Fund, which serves the Greater Toronto and Hamilton Areas.

**Rate of return/financial benefits:** Around 5-7%. The permanent endowment supports a self-sustaining funding model that allows long-term stability while also leveraging the asset for mandate-related impact.

**Emissions impact:** One of the lenses to determine whether projects are funded is potential to reduce carbon at scale. The model enables emissions to be reduced, and ultimately eliminated once scaled. A GHG quantification protocol estimates the potential impact at scale of the measures supported through grants and loans. This assessment is used to select funding for projects, as well as afterwards to test the validity of assumptions.

**Equity impact:** An equity lens is one of six key performance measures. There is an equity element to many climate actions. For example, pollution from vehicles may disproportionately impact low-income people as they are more likely to live close to major roads and highways. Retrofits focused on social housing can improve air quality, ventilation, and heating and cooling services for tenants. Intentional design of climate action programs with an equity lens could support electric vehicles and charging which not only benefit those who can afford it, but also opportunities for underserved areas through affordable, accessible low-carbon options.

**Co-benefits:** A co-benefits lens identifies and seeks to strengthen the viability of a wide variety of benefits associated with carbon emissions strategies – while also identifying, reducing, or eliminating unintentional negative impacts to stakeholders groups.

**Potential for replicability in Manitoba:**

Strong potential for a hub. There are many groups with expertise in climate and grantmaking. Further engagement with local stakeholders is needed to determine interest from Manitoba stakeholders and possible funding sources.

**Case study:**

Low Carbon Cities Canada aims to accelerate climate solutions across Canada. It utilizes the investment fund model detailed above. The goal is accelerating action in cities to achieve climate targets. Their objective is to bridge the valley of death between great ideas and one-off pilots through the implementation and deployment of low-carbon solutions at scale. Their key areas of focus are building retrofits and net-zero construction, advancement of electric vehicle charging infrastructure, distributed renewable power, and a zero-waste circular economy. The initiative is grounded in over three decades of experience with the Toronto Atmospheric Fund, which is now The Atmospheric Fund (TAF). Endowments of \$23 million from the City of Toronto in 1991 and \$17 million from Province of Ontario in 2016 provided TAF with independence to innovate and utilize sustainable financing models (Low Carbon Cities Canada, 2019). Since 1991, TAF has given over \$60 million in grants and loans to low carbon initiatives.

Between 2018 and 2020, TAF, together with founding partners across the country and in collaboration with the Federation of Municipalities Green Municipal Fund, launched a Pan-Canadian network of seven LC3 centres. The centres are in Vancouver & Lower Mainland, Edmonton, Calgary, Greater Toronto & Hamilton Area, Ottawa, Montreal, and Halifax (The Atmospheric Fund, 2021b). These new centres have been funded by the federal government. The federal government contributed \$183 million. This includes working capital of \$165 million and Operating funds of \$18 million. Federal support will be leveraged with matching funds from provincial, municipal, philanthropic partners, and private investors. The national office is hosted by the Federation of Canadian Municipalities in Ottawa (Low Carbon Cities Canada, 2021a).

### *Tools*

There are four major tools that LC3 (Low Carbon Cities Canada, 2021b) uses to reduce emissions:

- Identifying key sources of GHG emissions and tracking results
- Directing investment in local low-carbon projects and ventures and earning a return to fund programs
- Seed funding for non-profits, charities, and businesses to build community capacity, test new ideas, and prepare proven solutions for full deployment
- Demonstration and de-risking to research opportunities and work with partners to implement and showcase technology, financial, policy, and social solutions.

### *Impacts*

The LC3 (2020b) lists the following estimated impacts:

- GHG impact: At least 9MT/year in LC3 cities; likely double by addressing transportation, waste, etc.
- Cost-effective: Approximately \$20 per tonne, decreasing if funds continue beyond 2030.
- Investment catalyst: LC3 will help commercialize and create investment ready urban low carbon solutions that can be taken to the next level by private and public investors.
- Economic impact: Contributing directly to achieving efficiency goals which would result in 118,000 jobs and 1% GDP boost by 2030.
- Social benefits: LC3 will prioritize opportunities that maximize social benefits such as improved public health and increased mobility.

### *The Potential for Replicability of Low Carbon Cities Models in other Canadian Cities*

A cross-country consultation concluded that there is interest in and need for adopting and adapting The Atmospheric Fund's model in other Canadian cities beyond the current LC3 hubs. LC3 does not duplicate current local, provincial, or national functions and capacities (Low Carbon Cities Canada, 2021b). The Top 10 largest Canadian cities by population are Toronto, Montreal, Vancouver, Calgary, Edmonton, Ottawa, Mississauga, Winnipeg, Quebec City, and Hamilton. The largest cities which are not yet participating are:

- Winnipeg
- Quebec City (though there is one in the Greater Montreal area)

Where are new LC3 projects most needed? Where would they make the largest impact? Where would there be interest and capacity to take this on? A report by Dunsky Energy Consulting identifies innovation opportunities to help Canadian Cities reduce GHGs. It includes a map of groups working on low-carbon innovation (Dunsky Energy Consulting, 2017, p.7). There is an opportunity to consider forming an LC3 or similar initiative in large Canadian cities who are not yet participating, such as Winnipeg and Quebec city, though Quebec already has a hub in Montreal while Saskatchewan and Manitoba have none. Given their size, they may have more capacity to take on this type of project than smaller cities.

There is an opportunity to consider further models in the top emitting provinces. In order of most emitting to least emitting the top emitters are Alberta, Ontario, Quebec, British Columbia, and Saskatchewan. In 2018, the top 5 emitters (Alberta, Ontario, Quebec, Saskatchewan, and British Columbia) together released 91% of Canada's national total of GHG emissions (Environment and Climate Change Canada, 2020). Saskatchewan is one of the largest emitters, and yet does not have an LC3. Alberta has two, in Edmonton and Calgary. Given the extent of emissions in Alberta, does it make sense to consider a third L3C fund in Alberta? The third and fourth largest cities in Alberta are Lethbridge and Red Deer. The second largest emitter is Ontario. There are two LC3s in Ontario, one serving the Greater Toronto and Hamilton Area, and one in Ottawa. Notably, in Alberta, emissions have gone up significantly, meanwhile in Ontario, emissions have been significantly reduced. An important question is: how did Ontario reduce its emissions so significantly? One important way is through phasing out coal in power

generation. How did The Atmospheric Fund's model contribute to reductions in emissions? Quebec has an LC3 in Montreal, and British Columbia has an LC3 in Vancouver.

Based on emissions, would it make sense to start an LC3 in Manitoba? Yes. It is the 6<sup>th</sup> largest emitter after British Columbia. There is an LC3 in Halifax, where emissions are lower than in Manitoba. Furthermore, in Manitoba while the emissions are relatively small compared to the top emitters, their emissions have increased from 1990 to 2018.

### Investment Fund Model (Indigenous Renewable Energy) - Aki Energy

**Model:** Investment fund and impact investing whereby revenue is generated through savings in energy costs.

**Foundation suitability:** There are various investors including Vancity and the McConnell Foundation (contributed \$250,000).

**Rate of return/financial benefits:** The rate of return is competitive.

**Emissions impact:** Emissions reductions through installing geothermal energy. Working with communities to transition away from diesel.

**Equity impact:** Surplus from energy projects is going towards food security work that is led by Indigenous communities. Aki Energy is improving health outcomes through increased access to healthy food and reducing diabetes.

Aki Energy is an Indigenous social enterprise linking First Nations to the green economy through community-centered sustainable energy development. Within their first three years of operations, Aki Energy, Fisher River Cree Nation, and Peguis First Nation installed geothermal energy systems totaling \$6 million in 350 homes on four different First Nations. In 2015, the Nations signed agreements with Aki Energy and Manitoba Hydro to complete additional geothermal systems totaling \$14 million (Aki Energy, 2021). The Executive Director of Aki Energy is Darcy Wood.

Shaun Loney, one of the founders of Aki Energy, alongside Kalen Taylor explains the innovative model whereby impacts are sold by social enterprises to governments: “For Aki Energy, the big shift came in understanding the economic value of the social impact we were producing. In addition to being the right thing to do, many of our social impacts led to direct financial savings across various levels of government (Loney, 2018, p.58). Expert on social impact measurement Jason Saul explains that impact investors are looking for three main things: approaches that change people’s economic status, ventures that deliver a lot of social and economic benefits, and projects that cause systems change. Aki offered investors all three (Loney, 2018, p.60).

In 2018, the McConnell Reconciliation Initiative invested \$250,000 in Aki Energy. This is a recoverable grant, structured through the investment fund Raven Capital Partners as an intermediary, which supports the installation of 26 geothermal units in Fisher River Cree Nation and Peguis First Nation (McConnell Foundation, 2021).

### Investment Fund Model – Indigenous Clean Energy

**Project type:** Funding energy efficiency for Indigenous homes. The scope is not urban broadly speaking, but specifically for Indigenous communities which could include Metis municipalities for example.

**Investment model:** Blended finance model with 60% of financing coming from private investors, 20% comes from reductions in carbon emissions. The government does not have enough financing, and ICE is looking for foundation investors. The model is an investment fund model, and there could be potential to invest through a green bond.

**Foundation suitability:** Director of ICE Chris Henderson explained how funding renewable energy projects is challenging for foundations given that it requires significant capital, is high risk, and can deplete the equity from the First Nation. An important opportunity for foundations is investing in Indigenous energy efficiency programs in homes across Canada. Many foundations are looking for a rate of return for 7-8%, and the rate of return on renewable energy projects are closer to 3-4% over 20 years.

**Rate of return/financial benefits:** ICE needs 5 billion over the next 5 years. Energy efficiency results in reduced energy and health costs. Anticipated returns of 4-5%.

**Emissions impact:** Reduced emissions from energy savings in homes.

**Equity impact:** Significant employment opportunities, homes using less energy results in savings, homes are more resilient (current home lasts average of 6 years, people are healthier).

**Potential for replicability in Manitoba:** Interest would depend on Manitobans

Indigenous Trusts - Conservation through Reconciliation Partnership (Natural and Indigenous Climate Solutions)

**Project type:** Formation of Indigenous and Protected Conserved Area.

**Investment model:** The Dene created an Indigenous trust fund and invited the government of Canada to match what they raised. At the time, they did not qualify for carbon credits, additionality, or other nature-based climate solutions. The trust is owned entirely by the First Nation. They work with Parks Canada in the management of the land.

**Foundation suitability:** Foundations raised half of the capital.

**Rate of return/financial benefits:** The value of the fund is 30 million. Roughly 5% return on investment. For every dollar invested, there are savings of \$2 in decreased violence and other social impacts. 7 new full-time jobs in community of 300. That number will increase to 14 in the summer.

**Emissions impact:** Reduced emissions through the protection of our carbon sink.

**Equity impact:** Indigenous empowerment whereby Indigenous communities determines where the trust is invested.

**Potential for replicability in Manitoba:** Indigenous Protected and Conserved Area is a new concept that is gaining momentum in places like Manitoba. The Seal River Watershed is an emerging Indigenous Protected and Conserved area in Manitoba wherein the Canadian Government invested \$3.2 million.

**Additional insights:** From an Indigenous perspective, we cannot quantify the value of nature. At the same time, some Indigenous communities see investment in our carbon sink as a huge opportunity which could benefit their communities. The Conservation through Reconciliation Partnership supports the Indigenous-led conservation movement to bring about transformative change and heal relations between humans and the planet. The initiative is guided by a Leadership Circle and Elders Lodge. One of the main ways they support this is through IPCAs, also known as Indigenous Protected and Conserved Areas (Conservation through Reconciliation Partnership, 2021). Communities can generate jobs and revenue through protecting forests and carbon offsetting programs. Jobs include tracking and monitoring progress. A major partner is the IISAAK OLAM Foundation which empowers Indigenous Protected and Conserved Areas in Canada (ISAAK OLAM Foundation, 2021).

### Green Bonds – City of Toronto

**Foundation suitability:** Institutional investors, especially ESG-focused investors, invest in the City of Toronto's Green Bonds. There may be large foundations who are investing in the bonds through asset managers, for example through Manulife. Green bonds are well-suited for large scale renewable energy which often require capital investment ahead of revenues.

**Rate of return/financial benefits:** Provide environmental benefits without sacrificing returns you would see with traditional bond. 20-year term rate with an all-in cost of 2.184%.

**Examples of projects:** Union station revitalization, Scarborough subway extension, Leslie Barns streetcar facility.



**Emissions impact:** Total Annual emissions avoided through public transit of streetcar, Scarborough rapid transit, and subway are 739,539 tonnes in 2019, 594,404 tonnes in 2018, and 465,660 tonnes in 2017. This represents a 59% change from the baseline.

**Equity impact:** Green bonds are focused on emissions reductions. There is a separate social bond which focuses on social impact. The reason for the distinction comes from investors seeking green-specific portfolios.

**Potential for replicability in Manitoba:** Sustainable Building Manitoba recently hosted a Building Resilience Conference from March 23-25, 2020 funded in part by The Winnipeg Foundation. Sustainable Building Manitoba invited guests from Toronto to discuss their Green Bonds program, and the idea was floated about Green Bonds with the City of Winnipeg (Sustainable Building Manitoba, 2020).

Betsy Yeung of the City of Toronto presented at the Sustainable Building Manitoba conference in March 2021. Their Green bonds align with their strategic priorities around affordable housing, energy efficiency, and tackling climate change. Examples of eligible projects are renewable energy, terrestrial and aquatic biodiversity, energy efficiency, clean transport, green buildings, sustainable agriculture and forestry, waste recycling and pollution prevention, and climate change adaptation. Benefits of green bonds include meeting robust demand and the increased mandate of ESG funds. Specific examples of eligible projects for green bonds are TCHC multi-year retrofits, port lands flood protection, and a subway track. Considerations for projects are economic useful life (i.e. 20 year), cost (i.e. 30 million), and key performance indicators such as annual GHG reductions, new irrigated land or protected land, new river channel created, and creation of aquatic habitat. One of the challenges with green bonds is there is no global standard. Another example of a green bond is local improvement financing. The city of Toronto provides up to 100% of cost to homeowners for energy efficiency and renewable energy projects. The loan is not a personal debt, attached to property, and transfers at time of sale. The debt is repaid via property tax bill. Homeowners benefit from low-borrowing rates and longer payment terms (Yeung, 2021).

Another example of the Green Bond Model (Urban Climate Solutions) is Co-Power Green Bonds with Vancity. CoPower Green Bonds invest in a diverse portfolio of loans for Canadian energy projects. The projects earn revenues or saving from the sale of energy or efficiency services, which allows investors to earn returns while supporting climate solutions. They are not currently offering new investments. CoPower Bonds were available to individual investors residing in Canada who suit their criteria for accredited investors. The minimum investment is \$10,000. Afterwards, investors can purchase bonds of \$1,000 (Vancity, 2021).

## Key Learnings: Climate solutions and investment fund models

### *Investment fund models*

Impact investment fund models are a good option in that they allow organizations to gain revenue for grantmaking through returns while also advancing environmental or social impact. One of the major barriers in sustainable investing is the fear that impact investing won't make sufficient financial returns. Organizations such as The Atmospheric Fund have proven that it's possible to gain revenue from impact investing while advancing environmental goals. For example, the rate of return for Atmospheric Fund impact investing is 6-7%. The Ottawa Climate Action Fund anticipates a rate of return of 4-5% on their impact investments, and 6% for their endowment.

The Low Carbon Cities Model is exciting on many levels. One major advantage is the potential to scale up low-carbon solutions. The scale of projects to begin with is small. The Ottawa Climate Action Fund is starting out with a \$300,000 granting budget. At the same time, the hope is that the projects that are funded could leverage private and public funding to scale up solutions. One of the key strengths of the model is the strength of the network.

There is enormous potential for foundation investments in investment fund

models, specifically in impact investment funds. Impact investing allows foundations to generate revenue for grantmaking while also advancing an environmental goal. An exciting opportunity for foundation investment is through Indigenous Clean Energy in the financing of retrofitting Indigenous homes across Canada. To learn more about this opportunity, their report [Energy Foundations: The Value Proposition for Financing Energy Efficient Homes in Indigenous Communities Canada-wide](#) offers a helpful overview (Indigenous Clean Energy, 2020a).

### *Conservation finance*

Conservation has an important role to play alongside fossil fuel reductions. Carbon credits on their own do not reduce emissions, because they allow for pollution to occur elsewhere. The only way for carbon credits to reduce emissions is if they are within a regulated system which allows for decreasing amounts of credits over time. Some provinces such as Alberta have regulated markets. Ontario used to have a regulated market, but it was cut under the Ford government. There is currently no system regulating this for Canada, though there are national discussions occurring on

this topic. There are many opportunities to invest in conservation including Reconciliation through Conservation, Indigenous Protected Areas, and Guardians programs.

### *Green bonds*

Green bonds are a rapidly growing source of financing for green projects. This is an area with enormous potential. Many institutional investors are investing in green bonds. Some have even issued their own green bonds, including Ontario Teacher Pension Plan.

Organizations and governments can support green bonds by connecting with their portfolio managers (i.e. Manulife) to learn more about whether they are currently supporting green bonds. If they are not, organizations could work with asset managers to learn more about green bond options and encourage their asset managers to invest in green bonds.

### *Opportunities to advance equity and reconciliation*

There is tremendous potential for low-carbon hubs to take an intersectional lens and to do important work which meets the needs of underserved communities, while also reducing emissions. There are also tremendous opportunities to support both emissions reductions while also supporting reconciliation. A good example of this is supporting Aki Energy geothermal projects and diesel reduction which are Indigenous-led and Indigenous serving projects. Another great example is through supporting Indigenous Clean Energy home retrofits across the country. Another wonderful example is supporting Reconciliation through Conservation and Indigenous Protected and Conserved Areas. Local funders play a unique role in understanding community needs while also having capacity and knowledge of investing – this makes them equipped for investing which advances both social and environmental goals simultaneously, such as retrofitting Indigenous and affordable housing.

## Recommendations for Manitoba

Winnipeg would be an excellent place for a Low Carbon Cities Fund, given the expertise of local community groups and given that Manitoba is Canada's sixth largest polluting province. A good place to start would be connecting with grantmaking organizations in Manitoba to see about potential interest in hosting a hub, given their community knowledge and grantmaking expertise. A challenge would be securing the initial capital to establish the fund. Potential funders could be private donors, the Federal government, and the Provincial government. An important next step would be to connect with funders, Manitobans, local environmental organizations, and Indigenous groups about potential interest. An important comparable group is the Ottawa Climate Action Fund which is

housed through Ottawa Community Foundation. A great way for local groups to stay connected to the cutting edge of impact investing for urban climate solutions is to connect with the people involved with the Low Carbon Cities Network. In terms of further exploring conservation finance, it would be important to connect with local groups to learn more about their existing plans. Important groups to consult with include Canadian Parks and Wilderness Society, the Centre for Indigenous Environmental Resources, Seal River Watershed Alliance, and members of the Manitoba Eco-Network. There is potential for the city of Winnipeg or another Manitoba-based entity to develop a green bond. This is an area for further discussion.

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## Appendix 1 – Current Low Carbon Cities Hubs

<b>Participating Cities</b>	<b>Host organization</b>	<b>Name</b>
Metro Vancouver, BC	Simon Fraser University	Zero Emissions Innovation Centre
Calgary and Edmonton, AB	Alberta Ecotrust Foundation	Climate Innovation Fund
Greater Montreal Area, QC	Trottier Foundation	Greater Montreal Climate Fund
Halifax Regional Municipality, NS	Efficiency One	Halifax Climate Investment Innovation and Impact Fund
Ottawa, ON	Ottawa Community Foundation	Ottawa Climate Action Fund
Greater Toronto and Hamilton Area, ON	The Atmospheric Fund	The Atmospheric Fund
Halifax	Efficiency One	Halifax Climate Investment Centre

## Acknowledgements

Thank you to Dr. Tessa Hebb for editing and guiding this research. Thank you to the leaders that shared their expertise which informed this study.

- Steven Nitah, Reconciliation through Conservation
- Betsy Yeung, City of Toronto
- Darcy Wood, Aki Energy
- Tunde Ogunje, Nature United
- Chris Henderson, Indigenous Clean Energy
- Mary Pickering, The Atmospheric Fund, Low Carbon Cities Canada
- Monika Freyman, Mercer
- Ronnie Denver, Nature United
- Danny Robidoux, Éco Ouest
- Steve Winkelman, Ottawa Climate Action Fund