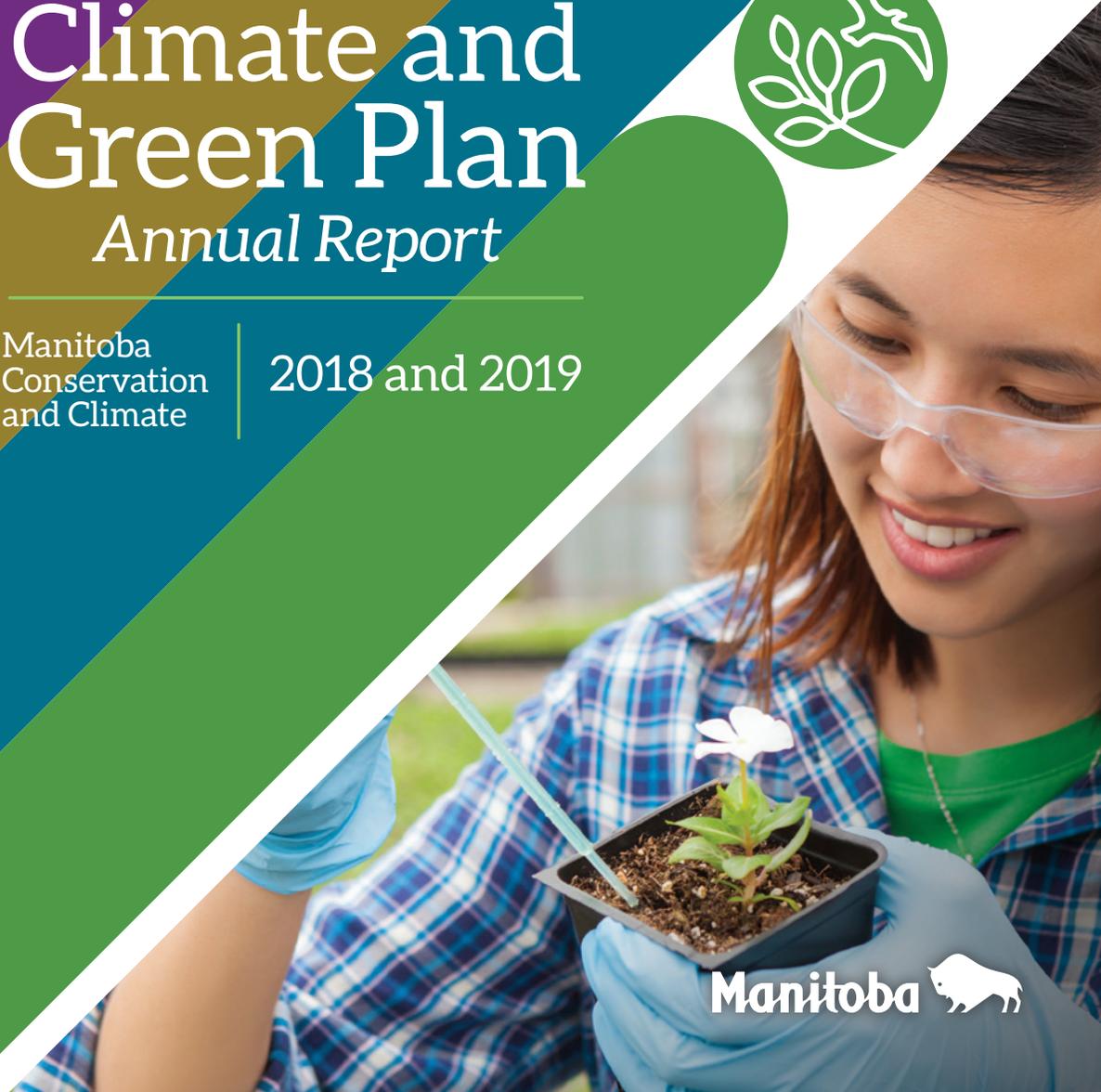


A Made-in-Manitoba Climate and Green Plan *Annual Report*

Manitoba
Conservation
and Climate

2018 and 2019



Manitoba 

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Message from the Minister

As the Minister of Conservation and Climate, it is my privilege to present the first annual report on the [Made-in-Manitoba Climate and Green Plan](#). With this report, our government is meeting a key requirement of the [Climate and Green Plan Act](#) and is providing further evidence of the government's dedication to accountability and transparency in climate change action.

This report represents the hard work and dedication of many Manitobans with the shared goal of making Manitoba the cleanest, greenest and most climate resilient province in Canada. Reporting on the progress the government has made under the plan is not only a legislated requirement, but also a demonstration of the government's progress and achievements under the Climate and Green Plan.

I am pleased to share examples of our hard work, effective cross-departmental collaboration and external partnerships throughout this report. In particular, I am pleased to highlight the following exciting accomplishments:

- establishing Efficiency Manitoba, a new Crown corporation, in January 2018 with the passing of The Efficiency Manitoba Act
- launching North America's First Carbon Savings Account and adopting a realistic, ambitious target
- establishing the \$102 million Conservation Trust, and the \$52 million Growing Outcomes in Watersheds (GROW) Trust, to mobilize action
- the Efficient Trucking Program, which provides rebates for fuel saving devices and technologies for heavy duty trucks
- pursuing the Lake Manitoba and Lake St. Martin Outlet Channels projects to address future flood impact
- the Schools Capital Support Programs, which involve investing in new schools, additions and renovations, to create more energy-efficient learning spaces for our children
- further developing Manitoba's clean, green hydroelectricity: the cleanest electricity grid in all of Canada with 99.7 per cent of renewable electricity generation

The information in this report highlights the government's responsibility and commitment to reducing emissions and adapting to the effects of climate change under the plan's four pillars of Climate, Jobs, Water and Nature.

Thank you,

Honourable Sarah Guillemard



Message from Expert Advisory Council

As Chair of the [Expert Advisory Council](#) on the Climate and Green Plan, I am pleased to provide the council's perspective on this annual report.

In June 2019, we delivered the [Report of the Expert Advisory Council to the Minister of Sustainable Development: A Carbon Savings Account for Manitoba \(June 2019\)](#). This report contained our advice and recommendations on establishing Manitoba's first carbon savings account (CSA) for 2018-2022. The report included the recommended greenhouse gas (GHG) reduction goal and a series of potential measures that would result in tangible, measurable GHG emissions reductions.

Our recommended GHG emissions reduction goal of one megatonne (Mt) for 2018-2022 was accepted by the minister in a [June 2019 response](#).

I commend the government on the numerous actions it has taken to advance the objectives of the Climate and Green Plan and look forward to further advancing implementation of key initiatives, including those recommended by the council in June 2019. The initiatives reported on in this document provide illustrative and important examples of the work of the Manitoba government to achieve the one Mt emissions reductions recommended by the Expert Advisory Council.

We look forward to the coming year and to continuing to work on making Manitoba the cleanest, greenest and most resilient province in Canada.

Sincerely,

Colleen Sklar, Chair
Expert Advisory Council



Introduction

The [Climate and Green Plan Act, 2018](#) (“the act”) came into force on November 8, 2018. It is the legislative foundation and the implementation vehicle of the Climate and Green Plan.

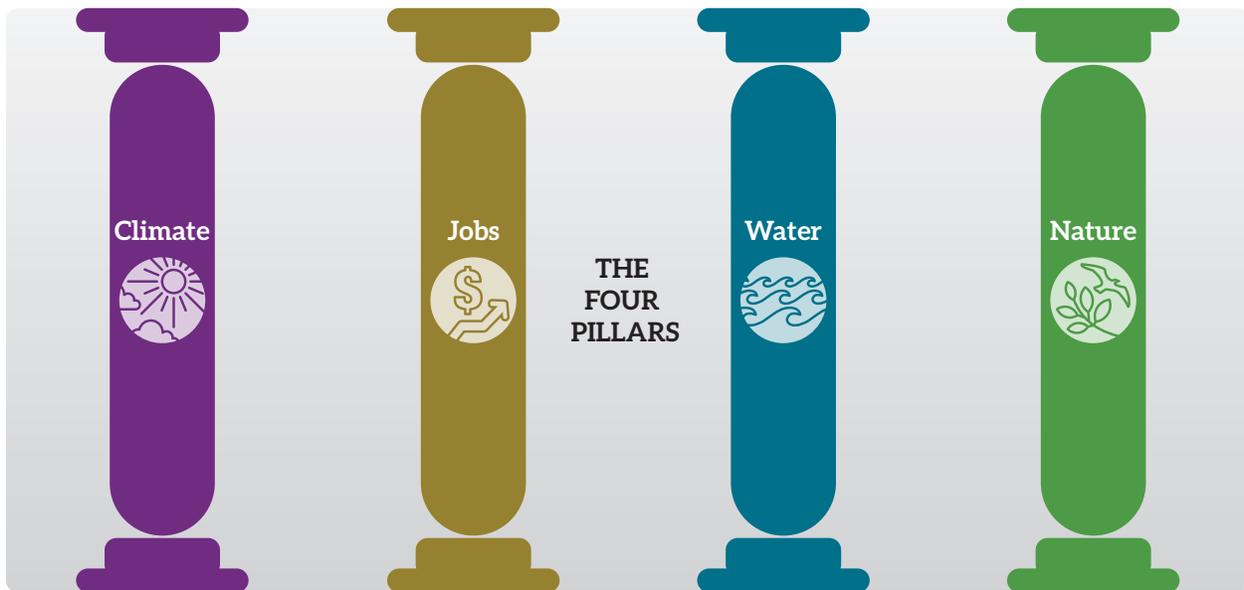
The act requires the preparation of an annual report on the programs, policies and measures employed over the year to implement the [Made-in-Manitoba Climate and Green Plan](#) (“the plan”).

The Annual Report is to include greenhouse gas (GHG) emissions reductions achieved, the activities of the Expert Advisory Council, the activities of the Climate and Green Plan Implementation Office, and the activities of the Made-in-Manitoba Climate and Green Fund.

This document fulfills the annual reporting requirements, as described in the act for the years 2018 and 2019 (January-December). This is the first Report on the Plan following the passage and enactment of The Climate and Green Plan Act in November 2018, and therefore, covers activities in both 2018 and 2019.

About the Made-in-Manitoba Climate and Green Plan

The Made-in-Manitoba Climate and Green Plan was released in October 2017. The plan presents the path for Manitoba to become **Canada's cleanest, greenest and most climate resilient province** and is built on four pillars: Climate, Jobs, Water and Nature.



The plan targets four broad outcomes:

- Reduced Greenhouse Gas Emissions
- Growth in the Economy
- Increased Climate Resiliency
- Protected Water and Natural Habitat

These four outcomes align with the pillars of the Climate and Green Plan, and will be supported by measurable and relevant indicators that are applied across the actions and initiatives presented in this report. These performance indicators will be further developed and refined under the plan and will be consistently and continuously applied to government reporting, henceforth.

This report will apply and measure the initiatives reported on under the following metrics:

Pillar	Climate and Green Plan Outcomes	Examples of Performance Indicators
Climate – Mitigation	Reduced Greenhouse Gas Emissions	Provincial GHG emissions
Climate - Adaptation	Increased Climate Resiliency	Investments in technological and natural infrastructure to enhance resilience
Jobs	Growth in Economy	Total investment in Climate and Green Plan activities
Water and Nature	Protected Water and Natural Habitat	Grow Manitoba's parks usage

The plan outcomes, having been recently developed, are applied as much as possible throughout this report. However, some data is not available at this time. With the outcomes solidified, a focus of the plan implementation will be to ensure that all necessary data is available for subsequent years.

Year in Summary

The following section highlights the actions taken to achieve the objectives of the Climate and Green Plan. This is not an exhaustive compilation, but instead serves to highlight key actions related to the implementation of the plan.

3.1 Cross-cutting Achievements

The plan is cross-cutting, including all economic sectors as well as communities with a whole-of-government and whole-of-economy perspective. The plan is comprehensive, integrated, and broad.

The following section describes six key cross-cutting activities for the 2018-2019 period:

- the development and implementation of North America's first **Carbon Savings Account**
- investments made under the **Manitoba Climate and Green Fund**
- the work of Manitoba's **Expert Advisory Council**
- Manitoba's work under the **Pan Canadian Framework on Clean Growth and Climate Change**
- first successes in drawing from the **Low Carbon Economy Fund**
- how **Indigenous engagement** informs the plan activities

Carbon Savings Account

The Minister of Conservation and Climate is required to establish a five-year emissions reduction goal for the 2018 to 2022 period, and establish and maintain a **Carbon Savings Account** (CSA) that keeps a running balance of the GHG emissions reductions achieved during the period. Any reduction shortfall in a CSA period must be carried over into the next CSA.

In June 2019, based on the recommendations of the Expert Advisory Council, the Manitoba government established a cumulative GHG emissions reduction goal:

The provincial greenhouse gas emissions **reduction goal for the January 1, 2018 to December 31, 2022 period is one megatonne (Mt) of carbon dioxide equivalent relative** to a forecast of the total greenhouse gas emissions that would have occurred in that period.¹

Manitoba's actual emissions, as reported through the annual National Inventory Report throughout the five-year period are measured against business-as-usual (BAU) emissions over the same period. Cumulative greenhouse gas reductions are tracked against the set five-year cumulative emissions reduction goal (i.e. one Mt for the 2018-2022 period).

¹ The forecast is an emissions projection of the total amount of greenhouse gas emissions that would have occurred in Manitoba in that five-year period, if no additional greenhouse gas emissions reduction measures had been implemented in that period. As per the Expert Advisory Council's recommendations, the forecast will be a credible third-party reference case, such as those established by Environment and Climate Change Canada and expert modelling organisations.

Dynamic Reference Baseline – Illustrative CSA Goals

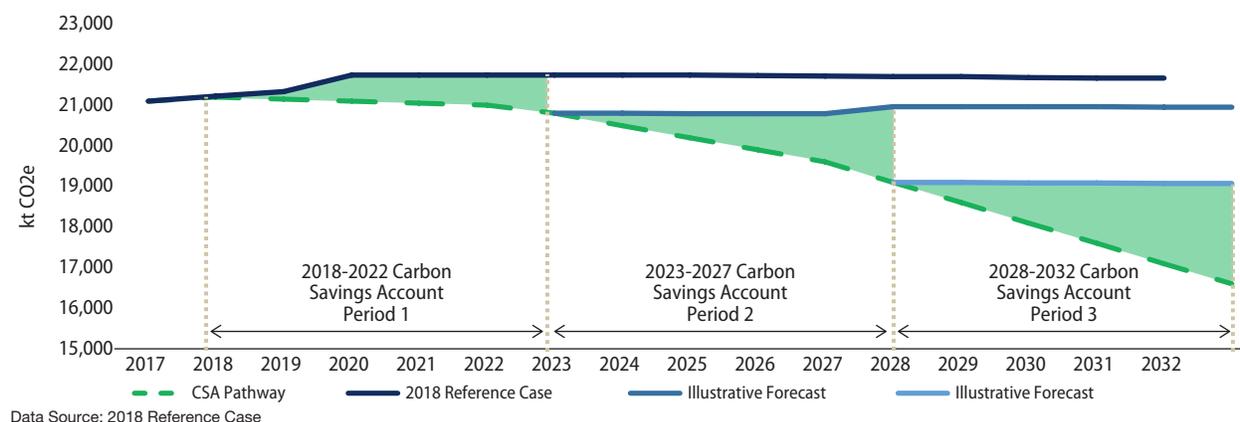
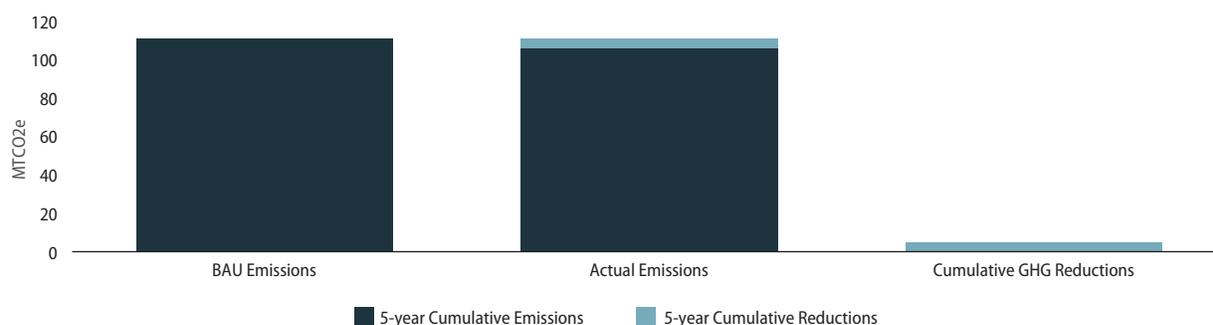


FIGURE 1: Illustrative BAU and Actual Emissions, and Cumulative GHG Reductions in 5-year CSA Period



Manitoba Climate and Green Fund

The Manitoba Climate and Green Fund was established in [Budget 2018](#) with an allocation of \$40 million to support the implementation of the plan. Funding was continued in Budget 2019.

The Climate and Green Fund was used to invest into the following climate change mitigation and adaptation projects in this report period:

Program / Project	Amount	Description
Sustainable Agriculture Incentives Program	\$1,500,000	The program provides funding for clean agriculture practices, including managing livestock access to riparian areas, intercropping, improved pasture and forage quality, water management, increasing frequency of perennials with annual crop rotations, and perennial cover for sensitive lands. These measures contribute to greater carbon sequestration, healthier soils and cleaner water. Funding was used to support over 100 projects in rural municipalities across the province.

Program / Project	Amount	Description
Water Related Assets ²	\$20,585,000	Funding covered the development and maintenance of the existing network of provincial water-related assets, including flood protection structures, dams utilized for water supply and agricultural drains. This led to increased water retention and flow capacity, and hence to greater resilience to flooding and drought conditions.
	\$11,544,000	Funding supported the operation of the provincial flood protection structures and dams to optimize water use and conservation, and provide flood protection. The funding also increased hydrologic data collection, analysis and modelling to support better water management planning and flood risk assessment. This helped provide more accurate and timely flood forecasting for Manitobans.

In 2019/20, the Climate and Green Fund included funding to non-profit organizations:

Organization	Amount	Description
International Institute of Sustainable Development	\$1,122,000	The International Institute of Sustainable Development was provided core funding for its activities in advancing climate mitigation and adaptation worldwide and highlighting Manitoba's position in climate change work. In addition, the organization provided expert advice and support to Climate and Green Plan priorities, including: <ul style="list-style-type: none"> • Developing an Offsets Framework for Conservation Projects • Operationalizing Indicators for the Manitoba Climate and Green Plan • Developing ideas to address microplastics in Manitoba's freshwater • AquaHacking Lake Winnipeg
Prairie Climate Services Network (PCSN)	\$170,000	The PCSN is leading prairie-specific research on climate change to enable prairie provinces to understand climate risks and take steps to adapt to changes in these risks. Manitoba is hosting the secretariat on behalf of Alberta, Saskatchewan, Manitoba and Canada.
Green Action Centre	\$200,000	The Green Action Centre implemented a pilot project in provincial government buildings to acquire knowledge of organic diversion rates in office settings. Work was also undertaken to educate Manitobans on environmental literacy through social media, presentations and newsletters.
Climate Change Connection	\$100,000	The Climate Change Connection supported educators and students in learning about sustainable development and climate change. This was achieved through the development of related educational materials, including a teach the teacher program and educational activities involving approximately 25 schools.
Manitoba Eco-Network	\$30,000*	The Manitoba Eco Network undertook an urban ecology project to identify gaps in the current state of knowledge in local municipal climate action planning and the UN Sustainable Development Goal #11, with a focus on urban ecology. Through the engagement of stakeholders, this work identified gaps and provided corresponding recommendations for new resources, tools and actions.
Red River College (RRC)	\$79,000**	RRC, as the service provider under a Fee for Service agreement, undertook work to develop, establish and launch the Efficient Trucking Program, a Low Carbon Economy Fund (LCEF) project. LCEF funding from Canada is to advance environmental and greenhouse gas emission reduction initiatives identified in the Manitoba Climate and Green Plan.

* Additional funding of \$30,000 was provided for this project through Environmental Stewardship

** Additional funding of \$45,000 was provided for this project through the Climate and Green Plan Implementation Office

² Examples of specific projects are available on the table on page 19 under the Water Pillar

Expert Advisory Council

The [Expert Advisory Council](#) (“the council”) is an independent group of experts with a mandate to provide advice and recommendations to the Minister of Conservation and Climate on the plan, specifically on how to establish a GHG reductions goal and to review progress made under the plan.

The founding members of the Expert Advisory Council were:

- Colleen Sklar, Chair
- Andrew MacSkimming, Vice Chair
- Laurie Streich
- Karla Guyn
- Ian Gillies
- Dennis Anderson
- Dimple Roy
- Jim Irwin
- David McLaughlin (Member and Technical Advisor to the Expert Advisory Council)

The council’s first work provided recommendations to [establish Manitoba’s first Carbon Savings Account](#) (CSA), with its GHG emissions reduction goal for the period of 2018-2022. To do this work, the council established sector working groups (e.g., buildings, agriculture, carbon sequestration, low-carbon government, transportation, and waste), tasked with providing input, advice and guidance.

In June 2019, the council presented its [recommendation for the first CSA](#), which was accepted by the Minister of Conservation and Climate. The reduction goal is discussed further under the Carbon Savings Account section below.

To understand business and investor dynamics in the context of climate change, the council held the *Economic Opportunities in a Low Carbon Economy Forum* in November 2019. The forum focused on Manitoba’s goal to create 40,000 jobs, including green jobs, in four years. With that goal in mind, the council gained insight into perspectives from local, national and international experts on opportunities for Manitoba.

In 2019, the government also created the [Youth Advisory Council](#), to help advise government on youth perspectives around climate change. Of the over 85 applications received, nine members were selected representing the diversity of the province, with a commitment for making a difference. The Youth Advisory Council will take up its work in early 2020.

Pan Canadian Framework on Clean Growth and Climate Change

Manitoba joined the [Pan Canadian Framework on Clean Growth and Climate Change](#) in February 2018. The framework includes a pan-Canadian approach to pricing carbon pollution, as well as other measures to reduce emissions across the economy, address climate change and support clean economic growth, and adapt to the impacts of climate change.

Manitoba’s decision to sign on to Canada’s clean growth and climate action plan means the province is eligible to receive an allocation of up to \$67 million in funding under the Low Carbon Economy Leadership Fund.

Low Carbon Economy Fund

The Government of Canada launched the [Low Carbon Economy Fund \(LCEF\)](#) in 2017. Manitoba’s LCEF funding agreement was signed in 2019 and expires in December 2022. Under the fund, Manitoba can receive support to implement initiatives and projects that lead to verifiable emission reductions. To date, Manitoba and Canada have agreed to four projects, three of which require additional approvals by the Manitoba government. The fourth is the Efficient Trucking Program (see “Sector Emission Reductions” section for further information). Additional projects will be submitted for consideration in the near future.

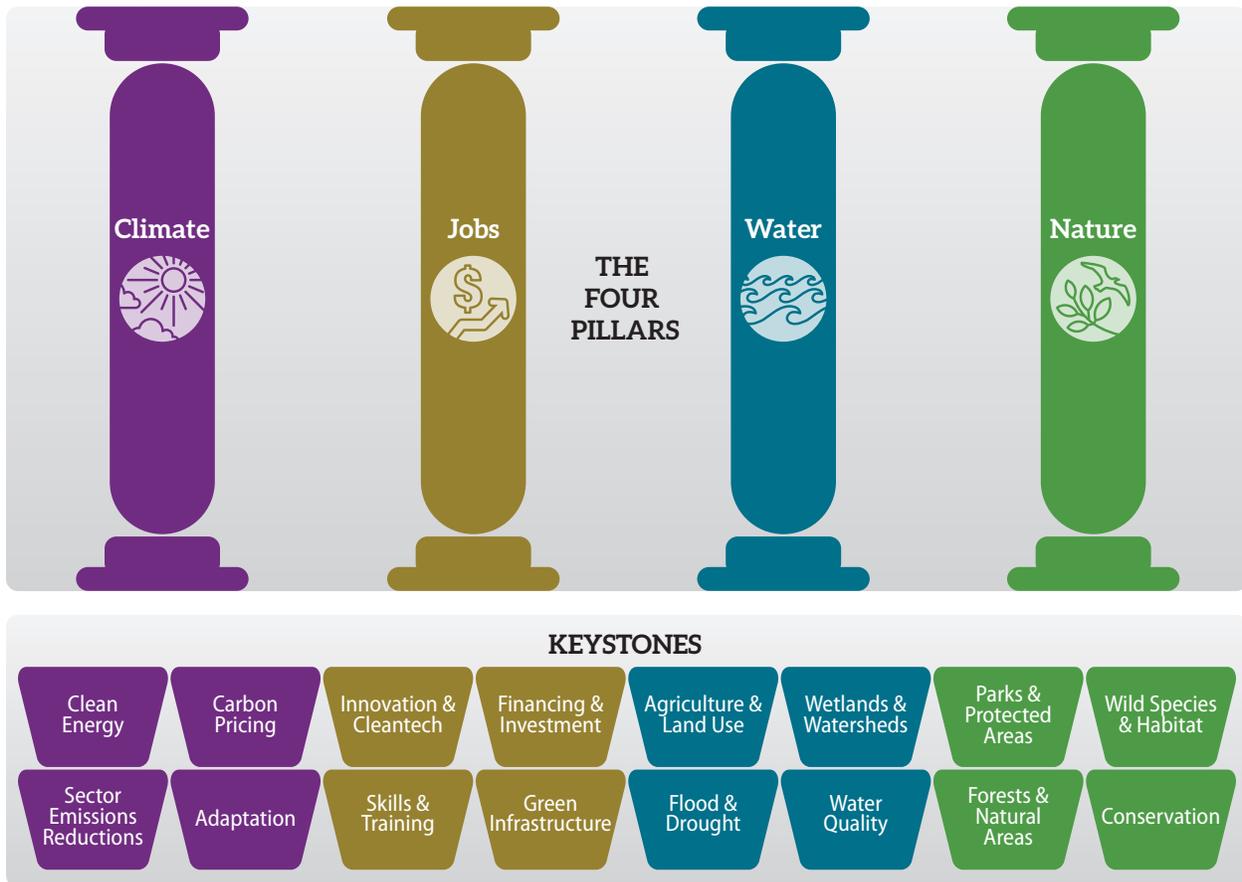
Turtle Lodge Climate Summit Event:

4th Onjisy Aki Gathering of Elders, Youth and Scientists on Climate

Between March 19-21, 2019, nearly 70 Traditional Indigenous Elders and Knowledge Keepers, scientists, government, and Indigenous youth and community mentors from nine First Nation communities representing the Ininiwak (Cree), Anishinabe (Ojibway), Oji-Cree and Dakota Nations, gathered for the 4th Onjisy Aki Gathering of Elders, Youth and Scientists on Climate at the [Turtle Lodge Central House of Knowledge](#) in Sagkeeng First Nation.

3.2 Progress by Pillar

The following section details key actions over the 2018 and 2019 calendar years by pillar.



3.2.1 Climate

Under the Climate Pillar, Manitoba undertook numerous actions on clean energy, carbon pricing, sector emission reductions and adaptation.

Clean Energy Keystone

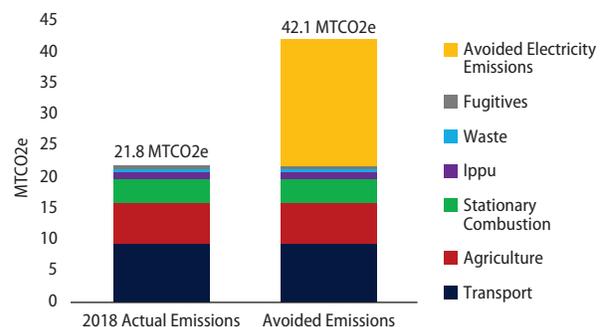
Manitoba's electricity grid is the cleanest in Canada, and is an essential foundation of Manitoba's low carbon emissions profile and transition to a low carbon economy. Manitobans have invested \$20.7 billion into Manitoba's clean hydro-electricity generation in the past 12 years. This amounts to an annual average of \$1,330 per capita, far surpassing British Columbia's and Quebec's investments per capita (\$482 and \$468). Manitoba's emissions would be almost double what they are today (42Mt vs. 22Mt), if Manitoba did not use clean energy.

Manitoba Hydro – Coal Phase-Out

The Manitoba government worked with Manitoba Hydro to accelerate the cessation of coal burning at the Brandon generating station, ahead of schedule. July 31, 2018 was the last day for coal fired operations of unit #5 at Brandon. This further increased the proportion of Manitoba's clean energy generation.

Carbon Pricing Keystone

The Made-in-Manitoba Climate and Green Plan outlined Manitoba's proposed carbon tax, the Made-in-Manitoba Carbon Pricing Plan. The Manitoba plan proposed a flat,



fixed rate and an output-based pricing system for large industrial emitters, which would provide stability and price certainty for households and businesses. The Manitoba plan would cost less and was projected to reduce emissions by 80,000 tonnes more than a federally imposed plan by 2022.

The Manitoba government moved forward with its Made-in-Manitoba Climate and Green Plan without a carbon price, when it became clear that the federal government would not agree to respect Manitoba's approach. Manitoba launched a judicial review of the federal Greenhouse Gas Pollution Pricing Act and the federal government's decision to fail to respect the Made-in-Manitoba carbon pricing approach.

Sector Emission Reductions Keystone

Energy Efficiency – Manitoba Hydro and Efficiency Manitoba

The Climate and Green Plan Implementation Office reviewed Manitoba Hydro's 2019/20 demand side management (DSM) plan, which plans to capture electricity savings of 350 GWh and natural gas savings of 8 million cubic metres.

Going forward Manitoba's energy efficiency efforts will be guided by [Efficiency Manitoba](#), a new Crown corporation established for the delivery of DSM initiatives in Manitoba. This aligns with the province's Climate and Green Plan, which includes "stronger efficiency targets for electricity and natural gas and an expanded range of programs."

In January 2018, The Efficiency Manitoba Act came into force, establishing Efficiency Manitoba as a new Crown corporation. As part of its mandate, Efficiency Manitoba has developed a three-year plan that describes the programs and services used to meet legislated reduction targets of 1.5 per cent annually of domestic electricity consumption, and 0.75 per cent annually of natural gas consumption, over a 15-year period. Efficiency Manitoba filed its first three-year plan with the Public Utilities Board (PUB) in October 2019, in anticipation of launching demand-side management (DSM) initiatives by April 1, 2020.

Efficiency Manitoba will reduce emissions by 135,000 tonnes by 2023, through natural gas demand side management.

Efficient Trucking Program

The [Efficient Trucking Program](#), announced on June 10, 2019, will provide rebates to Manitoba's heavy-duty trucking sector via matched funding obtained from Environment and Climate Change Canada's Low Carbon Economy Fund (LCEF). The program's rebates for eligible retrofits, fuel saving devices and technologies for heavy-duty vehicle operators will provide cost effective solutions for the sector to achieve GHG reductions, while increasing economic competitiveness for the sector and reducing diesel consumption. The estimated cumulative GHG reductions from the program for the period 2020 to 2030 are 84,148 tCO_{2e} in Manitoba and 244,552 tCO_{2e} in Canada.

Adaptation Keystone

Prairies Regional Adaptation Collaborative (PRAC) and Prairie climate hub

The [PRAC](#) initiative is the collaboration of Natural Resources Canada, and the Alberta, Saskatchewan and Manitoba governments. PRAC leads prairie-specific climate research and communication efforts, which have led to increased knowledge about climate risks, vulnerabilities and available actions and decisions to build resiliency in Manitoba.

In August 2019, the three Prairie Provinces and the Canadian Centre for Climate Services (CCCS) of Environment and Climate Change Canada established a climate data and services hub for the Prairie region. The hub will be hosted in Manitoba. The hub will contribute to the advancement of climate science and research in Manitoba and the prairies, and will serve as a regional hub linked to a national system of climate data and services.

Building Regional Adaptation Capacity and Expertise (BRACE): Climate Resiliency Capacity Building in Manitoba

The Manitoba government implemented the first phase of the Climate Resiliency Capacity Building in Manitoba project in 2019, with funding support from the [Natural Resources Canada BRACE Program](#).

The initiative seeks to increase the climate adaptation capacity and expertise of professionals in Manitoba, including engineers, planners, the business community in Northern Manitoba and Indigenous communities and organizations, and its application in planning and decision making.

The following summarizes key activities that have taken place in Manitoba under the Climate Pillar in 2018 and 2019:

Keystone	Activity	Description	Results
Clean Energy	Electricity	<ul style="list-style-type: none"> Manitoba-Minnesota transmission project received environmental approvals in April 2019 and June 2019. Manitoba-Saskatchewan signed a term sheet for a 215 MW long-term power sale in October 2018. Manitoba's last remaining coal-fired generating unit closed in early August 2018. 	<ul style="list-style-type: none"> In 2018-19, a total of 6,297 millions of kWh were sold, totalling \$430 million of additional provincial revenue used to subsidize Manitoba ratepayers. Electricity net exports from MB resulted in reductions in other jurisdictions from displaced fossil fuel-based generation: <ul style="list-style-type: none"> 4.3Mt in 2018 6 Mt in 2019 Phasing-out of coal in Manitoba resulted in GHG emissions reductions of: <ul style="list-style-type: none"> 23,500 tonnes in 2018 30,000 tonnes in 2019
Sector Emission Reductions	Efficiency Manitoba	<ul style="list-style-type: none"> Manitoba's Demand Side Management (DSM) efforts for electricity and natural gas are guided by Manitoba's DSM Plan. Starting April 2020, Efficiency Manitoba, a new Crown corporation established by government and dedicated for energy efficiency, will be delivering DSM programs and services in Manitoba. Demand Side Management will assist Manitobans to use energy more efficiently and reduce their energy bills. Reduced domestic consumption will increase the amount of energy available for export. 	<ul style="list-style-type: none"> The first three-year plan was submitted to Public Utilities Board for review, October 2019. Efficiency programming is provided by Manitoba Hydro until Efficiency Manitoba begins operations. <p>In 2017/18:</p> <ul style="list-style-type: none"> Electricity Savings: 343 GWh Natural Gas Savings*: 2.7 million m3 GHG reductions in Manitoba: 5,145 tonnes Investment: \$78 million <p>For 2018/19 estimates:</p> <ul style="list-style-type: none"> Electricity Savings: 355 GWh Natural Gas Savings*: 8.5 million m3 GHG reductions in Manitoba: 16,000 tonnes Investment: \$76 million <p>2019/20, targets</p> <ul style="list-style-type: none"> Electricity savings: 350 GWh Natural gas savings*: 8 million m3 GHG emissions Manitoba: 15,000 tonnes. Investment: \$74 million
Sector Emission Reductions	Brady Road Resource Management Facility Methane Gas Capture Upgrade	<ul style="list-style-type: none"> In June of 2019, Winnipeg and Canada announced the expansion of the Brady Road Resource Management Facility's active methane capture system. Methane is a greenhouse gas that is 21 times more potent than carbon dioxide. By capturing and burning off methane emissions, over one million tonnes of carbon dioxide equivalent will be avoided over the 30-year lifespan of the landfill. 	<ul style="list-style-type: none"> \$1.3 million contribution from the Low Carbon Economy Challenge Fund The expansion project will install additional infrastructure to increase the facility's capacity to capture approximately 75 per cent of methane emissions from the landfill.
Sector Emission Reductions	Recycling Task Force	<ul style="list-style-type: none"> The Recycling Task Force was established as a subcommittee to the Expert Advisory Council for the implementation of the Made-in-Manitoba Climate and Green Plan. In 2018 and 2019, the Task Force brought together leaders from municipalities, industry and recycling organizations directly involved with waste diversion and recycling services in Manitoba to discuss improving and enhancing program delivery to Manitobans. 	<ul style="list-style-type: none"> The work of the Recycling Task Force provided valuable insight to help inform the development and implementation of future waste diversion and recycling policies and programs in Manitoba. Major issues addressed by the Task Force included Manitoba's approach to managing carryout bags provided at retail and grocery store checkstands, as well as Manitoba's approach to managing organic waste.

Keystone	Activity	Description	Results
Sector Emission Reductions	Stewardship Plans	<ul style="list-style-type: none"> In July 2018, the minister approved new business plans for all of the stewardship programs for the next five years (2018-2023) to advance recycling and/or safe disposal of a wide range of end-of-life products and materials. 	<ul style="list-style-type: none"> Collectively, these programs help to divert more than 128 thousand tonnes of materials from Manitoba landfills each year. Manitoba introduced new performance targets for each program and directed some programs to expand to include new products and sectors. These new targets enhance the performance of stewardship programs by increasing overall recovery rates, program accessibility, public awareness and participation.
Sector Emission Reductions	Schools Capital Support Programs	<ul style="list-style-type: none"> Nineteen new schools or additions have received LEED Silver, Gold, or Platinum designations, with another 18 in progress. Savings of up to 65-70 per cent compared to the model energy code for buildings have been achieved on the highest performing new schools. 	<ul style="list-style-type: none"> In 2019/20 schools will achieve an estimated reduction in greenhouse gas emissions of 930 metric tons of carbon dioxide (CO2) per year, through more than 40 major mechanical, roof, and envelope upgrades. Investment: <ul style="list-style-type: none"> - 2018/19: \$154 million - 2019/20: \$202 million
Sector Emission Reductions	University of Manitoba – Capital Renewal Initiatives	<ul style="list-style-type: none"> Capital Renewal Initiatives seek to integrate innovative technologies into capital renewal projects of campus-wide essential services. Optimizing system performance and efficiency helps the university to reduce its GHG emissions, while enhancing or maintaining levels of service 	<ul style="list-style-type: none"> Projects halve University heating-related emissions from 32,000 tCO2 per year to 16,000 tCO2 per year
Adaptation	Building Regional Adaptation Capacity and Expertise	<ul style="list-style-type: none"> This program agreement was established with Natural Resources Canada in March 2019. The program delivered a series of engagement sessions with provincial associations and organizations to undertake planning regarding training and capacity building needs and options, to enhance climate resilience capacity in various professions. 	<ul style="list-style-type: none"> An estimated 20 infrastructure/engineers, 15 professional planners, 50 Indigenous land managers and other community members, and 10 northern business decision makers or other stakeholders, received additional training and identified priority training needs, gaps and modes of training delivery.
Adaptation	Climate Atlas of Canada	<ul style="list-style-type: none"> The province provided \$200,000 to the Prairie Climate Centre (PCC) to support the continued development of the Climate Atlas of Canada. 	<ul style="list-style-type: none"> PCC made the atlas available, for free, in both French and English, for all Canadians to understand the impacts and opportunities that climate change represents across the entire country.

* Net savings achieved or target, considering interactive effect with electricity.

3.2.2 Jobs

Under the Jobs Pillar, Manitoba undertook numerous actions, including clean, green energy exports, investing in innovation and cleantech, and supporting opportunities for skill-development and training.

Energy Exports

Manitoba's clean electricity contributes not only to reduced GHG emissions in Manitoba, but provides clean energy technology that reduces emissions in Canada and in the United States. In 2019, Manitoba exported 7,670,991 MWh to the United States and 718,430 MWh within Canada, to Ontario, Saskatchewan and Alberta. Manitoba's exports to the United States in 2019 totaled \$309.9 million, making it Manitoba's 11th largest export in that year.

Manitoba-Minnesota Transmission Project Environmental Approval

In April 2019, the Manitoba government approved the environmental licence necessary for the development of the [Manitoba-Minnesota Transmission Project](#) (MMTP), which will supply clean energy, enhance reliability, and generate significant revenue, keeping hydro rates lower for Manitobans. Federal regulator approval was obtained in June 2019.

Construction of the 500-kilovolt power line is already underway in Minnesota and construction of the Manitoba portion is set to begin, with a target of June 2020 for completion. Once operational, the clean energy exported to Minnesota will displace 1.5 megatonnes of emissions per year, equivalent to about seven per cent of Manitoba's total annual emissions.



Quantifying Canada's Clean Energy Economy: A forecast of clean energy investment, value-added and jobs *Navius Research for Clean Energy Canada* *June, 2019*

Clean Energy Canada and Navius Research produced a report on Quantifying Canada's Clean Energy Economy: A forecast of clean energy investment, value-added and jobs. The report analyses Canada's clean energy sector. The report defines the clean energy sector as activities supplying clean energy (e.g., production and transmission), buildings being built or retrofitted to energy efficiency, and low-emission transportation.

According to the report, the Canadian clean energy sector grew at a rate of 4.8 per cent a year between 2010 and 2017 in nominal terms. Compare that to the overall Canadian economy, which grew 3.6 per cent a year in that timeframe.

The clean energy sector is particularly important in Manitoba, where it accounts for 4.8 per cent of GDP, more than in any other Canadian jurisdiction. Jobs related to clean energy total 16,584 and annual investments in clean energy are \$1.2 billion, according to the report. These figures put Manitoba's clean energy sector proportionally at the top of Canadian provinces.

The strength of the clean energy sector in Manitoba is mainly due to two factors: Manitoba Hydro's role as a clean energy producer and provider and New Flyer's leadership in electric and low-emission vehicles.

The report expects the Canadian clean energy sector to continue growing at a greater pace than the overall economy, partly in response to stricter environmental targets, and partly in response to a growing demand for clean energy services and products.

Investing in Canada's Infrastructure Program (ICIP)

The governments of Canada and Manitoba are working together to make long-term infrastructure investments for the betterment of Manitoba and its communities. Through the Investing in Canada Infrastructure Program, Manitobans will see significant infrastructure investment over 10 years in combined federal, provincial and other partnerships. The program includes a Green Infrastructure Stream (GIS) that may include projects that incorporate:

- climate change mitigation
- adaptation
- resilience and disaster mitigation
- environmental quality

Focusing on the objectives of the Climate and Green Plan, these investments will have benefits for people in communities across the province.

An example of a project funded under ICIP is the City of Portage la Prairie Water Pollution Control Facility (WPCF). The city's WPCF Upgrades project will remove nitrogen and phosphorous from the wastewater before it is discharged to the Assiniboine River, helping to improve the health of the watershed and support the province's efforts to protect Lake Winnipeg.

The following summarizes further key activities that have taken place in Manitoba under the Jobs Pillar in 2018 and 2019:

Pillar	Activity	Description	Results
Innovation and Clean Tech	Sector Councils Funded – Manitoba Environmental Industries Association	<ul style="list-style-type: none"> Manitoba Environmental Industries received funding for four years to work with companies, employees, post-secondary institutions and students to: <ul style="list-style-type: none"> Support the growth, competitiveness and environmental sustainability performance of companies in Manitoba's <u>natural resources and energy and cleantech subsector</u> 	<p>In 2018/19:</p> <ul style="list-style-type: none"> Manitoba Environmental Industries Association (MEIA) partnered with North Forge Technology Exchange to engage in a screening process to identify commercialization gaps and needs for success. Ten small- and medium-sized enterprises participated in a Climate Smart workshop to assist in identifying carbon emissions and defining methods of mitigation. In 2019/20, MEIA received funding of \$430,000.
Innovation and Clean Tech	North Forge Technology Exchange	<ul style="list-style-type: none"> Manitoba has partnered with North Forge Technology Exchange, an innovation-based economic development agency that provides mentorship, training and support for entrepreneurs across Manitoba. North Forge's clientele includes Manitoba's clean tech innovators. 	<ul style="list-style-type: none"> North Forge Technology Exchange provided a Clean Tech program that enabled new and existing clean tech small- and medium-sized enterprises to enhance their innovation and commercialization capacity. The project provided companies with the skills, knowledge and tools needed to foster new innovations and successfully bring them to market. Clean technology companies were able to access mentors, subject matter experts, prototyping equipment and training to help lower the costs associated with research and development, and commercialization.
Innovation and Clean Tech	Manitoba Government Strategies	<ul style="list-style-type: none"> The strategies deliver on the Innovation and Clean Tech Pillar by supporting economic development action in the province, and include: <ul style="list-style-type: none"> Economic Growth Action Plan (EGAP) Look North Strategy 	Both strategies support the Climate and Green Plan outcome of "Growth in the Economy."
Financing and Investment	Manitoba Government Strategies	<ul style="list-style-type: none"> The strategies deliver on the Finance and Investment Pillar by attracting investment and promoting the province. This includes the: <ul style="list-style-type: none"> Tourism Strategy Manitoba Works Job Plan 	<p>Both strategies support the Climate and Green Plan outcome of "Growth in the Economy."</p> <p>Manitoba Works was launched in October 2019.</p>
Skills and Training	Forestry Agreement	<ul style="list-style-type: none"> Manitoba signed a forestry option licence with a group of four First Nations to explore Indigenous-led forest development in February 2019. 	<ul style="list-style-type: none"> The licence allows Indigenous-led forest development opportunities on the east side of Lake Winnipeg. This option licence is a first-of-its-kind forestry development agreement in Manitoba between the provincial government and Indigenous governments and represents over 5,000 square kilometres of land on the east side of Lake Winnipeg and northeast of the Winnipeg River.
Skills and Training	Outland Youth Employment Program	<ul style="list-style-type: none"> The project provides 24 Indigenous youth, ages 16 – 19, with culturally-appropriate training, leadership development, education and paid work experience opportunities in natural resources industries and related fields. 	

Pillar	Activity	Description	Results
Skills and Training	Manitoba Green Team	<ul style="list-style-type: none"> Funding is provided to community organizations, municipalities and provincial parks that deliver Green Team projects. From riverbank stabilization efforts to animal care at wildlife havens, the Green Team lives up to its name. 	<ul style="list-style-type: none"> Manitoba's investment in the Green Team is as follows: <ul style="list-style-type: none"> 2018: \$5.4 million 2019: \$5.5 million In both 2018 and 2019 Green Team programs accounted for more than 1,200 young Manitobans getting summer employment. An example of a Green Team program was working with Save Our Seine to keep the Seine River clean and navigable.

3.2.3 Water

The Water Pillar of the Climate and Green Plan brings together challenges of water quality and water quantity. It addresses the twin perennial issues of flood and drought that have plagued Manitoba over the years. These events are hard on Manitobans and on our economy. With a predicted increase in extreme weather events in a changing climate, Manitoba recognizes the need for new infrastructure that helps to increase resiliency to climate impacts from fire, flood and drought.

Lake Manitoba and Lake St. Martin Outlet Channels project

The [Lake Manitoba and Lake St. Martin Outlet Channels project](#) will enhance flood protection to communities around Lake Manitoba and Lake St. Martin, and help to strengthen Manitoba's existing network of flood mitigation infrastructure. In particular, recent flooding in 2011 and 2014 has highlighted the need to better regulate water levels on both lakes.

The Lake Manitoba-Lake St. Martin Outlet Channels project consists of two main components: the Lake Manitoba outlet channel to divert water into Lake St. Martin and a permanent Lake St. Martin outlet channel to divert water into Lake Winnipeg. During times of flooding and high water levels, the channels will carry water from Lake Manitoba into Lake Winnipeg in a controlled manner, mitigating the disastrous effects of flooding experienced by the communities and environment adjacent to the lakes.

Engagement and design for the project advanced significantly in 2018 and 2019, with both project components nearing completion. Construction on the channels themselves started, with the completion of the construction access road in 2019. The project is set to be completed by 2024.

Growing Outcomes in Watersheds (GROW) Program and GROW Trust

[GROW](#) protects and enhances ecological goods and services and water resources in our watersheds. It reduces flooding, mitigates against droughts by improving water storage and improves water quality and nutrient management in Manitoba watersheds. The program, which supports landowners in implementing projects that conserve natural areas such as wetlands, is funded through the [GROW Trust](#). The trust has been established in perpetuity and is expected to yield \$5 million in annual funding. It was fully capitalized in 2019, reaching a fund size of \$102 million.

In October 2019, the first three projects to receive funding under the GROW Trust were announced. The Seine-Rat River Conservation District and the Little Saskatchewan River Conservation District each received \$250,000 to expand the ALUS Canada ecological goods and services programs they offer to conserve wetlands, and build resilience to the impacts of flood and drought. In addition, up to \$1 million will be invested in the TransCanada Shelterbelt Renewal Project, which will lead to emission reductions and carbon capture through tree planting.

Water Asset Management

Funding from the \$40 million Climate and Green Fund improved Manitoba's network of water-related assets, as well as hydrologic forecasting. The program includes projects to:

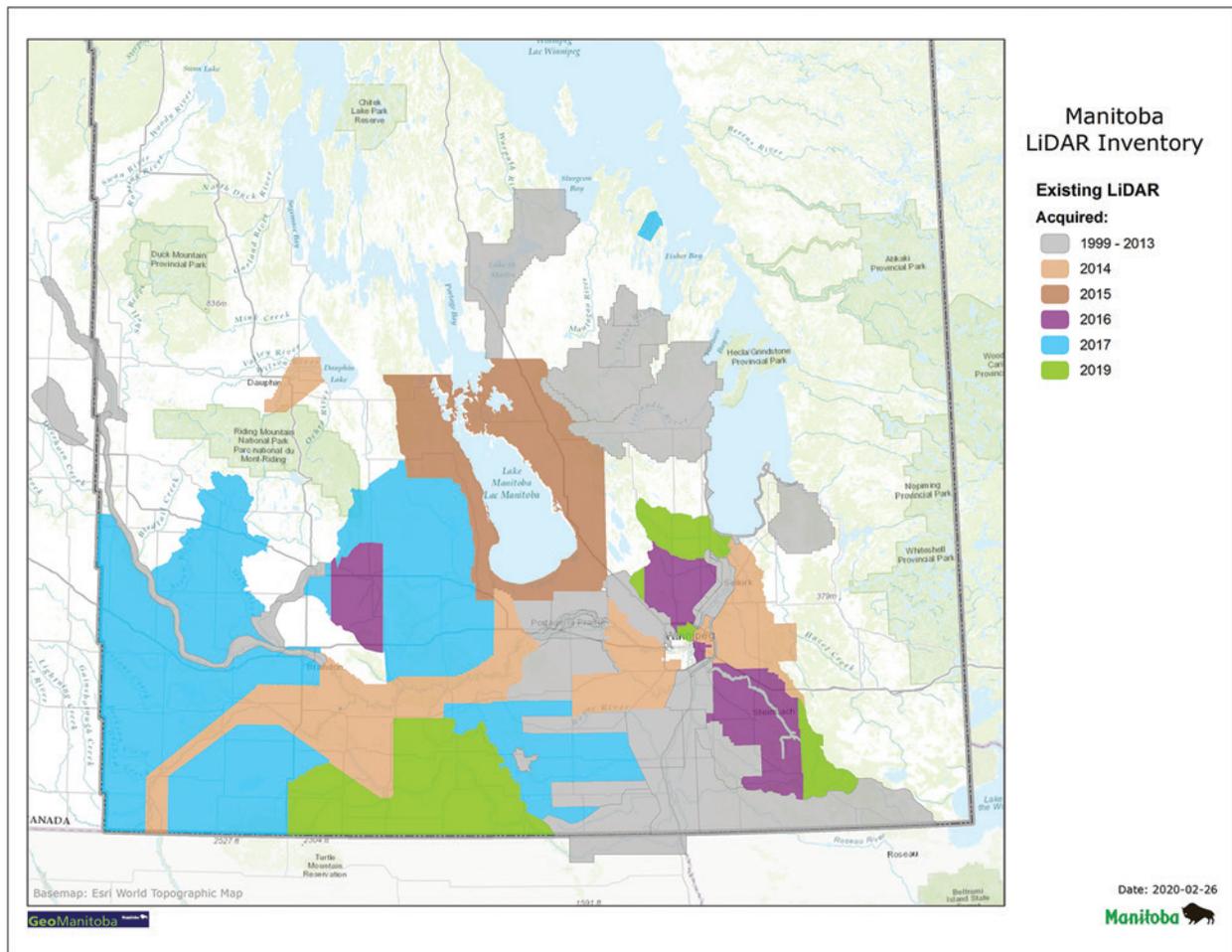
- increase the flood protection levels and resiliency of flood protection structures
- repair dams utilized for water supply (domestic and irrigation) to improve drought resilience
- increase the capacity of the agricultural drains to improve drainage times post- flooding

The fund also supports hydrologic data collection, analysis and modelling, which is used for water management planning and flood risk assessment. In 2018 and 2019, the data and map models provided more accurate and timely flood forecasting for Manitobans.

LiDAR

LiDAR (Light Detection and Ranging) is a remote sensing technology that uses lasers to collect accurate, continuous elevation data, known as topographic data, over relatively large areas.

LiDAR data are used as a critical input to land and water management, including for flood risk mapping, delineation of watersheds, hydrologic modelling and flood mitigation, and flood control infrastructure planning. This keeps Manitoba communities safe in times of changing climates and more frequently occurring extreme weather events. The LiDAR data collected in 2019 is shown in the following map.



The following summarizes further key activities that have taken place in Manitoba under the Water Pillar in 2018 and 2019:

Keystone	Activity	Description	Results
Agriculture and Land Use	Manitoba Protein Advantage (MPA) Strategy	<ul style="list-style-type: none"> The MPA Strategy is the first sector strategy under Manitoba's Economic Growth Strategy. The MPA Strategy has a dual focus on plant and animal protein. The strategy underscores five pillars to accelerate growth in Manitoba's protein sector – 1) research, innovation and commercialization, 2) sustainability, 3) investment attraction and growth, 4) profitability and competitiveness, and 5) industry and market development. 	<ul style="list-style-type: none"> The strategy was launched at the Manitoba Protein Summit on September 19, 2019. The plan includes goals of: <ul style="list-style-type: none"> - 15 per cent reduction in carbon intensity per kilogram of animal protein. - 15 per cent increase in productivity of agricultural Crown lands and privately-owned grassland and forages. An increase in public trust of protein production and processing.
Agriculture and Land Use	Ag Action Manitoba	<ul style="list-style-type: none"> Ag Action Manitoba provides financial assistance for farmers to implement and adopt beneficial management practices (BMPs) on their farm, as identified in their Environmental Farm Plans. The program is providing \$175 million to farm operations over five years (2018-2022). 	<ul style="list-style-type: none"> Applications were launched in May 2018. In 2018, 187 applications were received and 137 projects were approved. In 2019, over 100 applications were received in September, specifically for the Water Source Development Category, which enables sustainable water management in agriculture operations.
Agriculture and Land Use	4R Nutrient Stewardship MOU	<ul style="list-style-type: none"> The Memorandum of Understanding links the Manitoba government's objectives for environmental performance with the 4R Nutrient Stewardship programming developed by Canada's fertilizer industry. It ensures continued commitment to agricultural sustainability in Manitoba. Growers are expected to reduce their GHG emissions by up to 55 per cent by applying the right fertilizer in the right place at the right time (4R). 	<ul style="list-style-type: none"> In November 2018, Fertilizer Canada, the Manitoba government, and Keystone Agricultural Producers renewed their partnership to promote 4R Nutrient Stewardship as the leading approach to sustainable, nutrient BMPs in the province. Customized implementation of the 4R Nutrient Stewardship improves soil health and water quality, thereby reducing nutrient loading to waterways across Manitoba, including Lake Winnipeg.
Wetlands and Watersheds	Watershed Management Planning	<ul style="list-style-type: none"> Under The Water Protection Act, watershed districts have been designated as water planning authorities and lead development and implementation of watershed management plans. The planning process engages watershed residents, stakeholders and government to identify and prioritize watershed issues, gather and analyze local, technical and traditional knowledge, and develop recommendations to address priority issues in targeted areas. Watershed plans are long-range planning documents that help identify actions that can be taken today to improve water quality, foster biodiversity, store carbon in the natural environment, adapt to changes in weather patterns, and build resilience to climate related risks. 	<ul style="list-style-type: none"> Manitoba has proclaimed The Watershed District Act and registered new regulations that formalize a watershed-based approach to watershed management in the province, while supporting the goals of the Made-in-Manitoba Climate and Green Plan. Watershed districts have initiated 27 integrated watershed management plans, of which: <ul style="list-style-type: none"> - 23 plans are complete and being implemented - three are at various stages of development, - one plan has begun its 10-year renewal process Watershed districts employ approximately 40 full-time and 80 part-time or seasonal staff to deliver watershed-based soil and water programming. The Southwest Interlake Integrated Watershed Management Plan was completed in 2018-2019.

Keystone	Activity	Description	Results
Flood and Drought	Support for farmers suffering from unexpected drought conditions in 2019	<ul style="list-style-type: none"> In September 2019, the province advised livestock producers affected by dry conditions on pasture that they could apply for funding to support water access and management under Ag Action Manitoba. Funding is to be provided through the Managing Livestock Access to Riparian Areas beneficial management practice (BMP) under Ag Action Manitoba – Assurance. 	<ul style="list-style-type: none"> Funding was provided through the Managing Livestock Access to Riparian Areas BMP under Ag Action Manitoba – Assurance. Eligible projects and related costs included: <ul style="list-style-type: none"> drilling new or deepening existing wells, test hole drilling, screening, casing, well caps and related activities installing water pumps and required plumbing components and related activities, such as professional and contractor fees constructing new or rehabilitating existing dugouts, including professional and contractor fees establishing alternative watering system equipment and permanent fencing to restrict livestock access to surface water and dugouts
Flood and Drought	Flood Risk Mapping	<ul style="list-style-type: none"> These initiatives produce modern flood risk maps for communities in Manitoba watersheds. Flood risk mapping enables the identification of potential flood risks, which assist Manitobans to make decisions, adapt to a changing climate and minimize damage to life and property from flooding. 	<ul style="list-style-type: none"> Flood Risk mapping completed in 2018 included: <ul style="list-style-type: none"> Souris River – U.S. border to the Assiniboine River Minto Pierson Cromer Assiniboine River – Portage La Prairie to Headingley Flood Risk mapping carried out in 2019 included: <ul style="list-style-type: none"> Whitemud River – Gladstone to Lake Manitoba Seine River – St. Anne to Marchand
Flood and Drought	Flood Related Infrastructure	<ul style="list-style-type: none"> Manitoba has been providing significant investments into flood control and water retention structures across the Red River Valley. The structures store water and slow the flow of water in response to increasing extreme weather events, particularly floods, across the valley, thereby reducing flood damage and helping Manitoba’s adaptation to climate change effects. 	<ul style="list-style-type: none"> The following investments to infrastructure to adapt to flood situations in the Red River Valley include projects totalling \$45.04 million: <ul style="list-style-type: none"> Plum River on PTH 75 (NBL) (Structure Replacement) – project complete. Marsh River on PTH 23 (Structure Replacement) – project complete. Little Morris River on PR 422 (Structure Replacement) – project complete. Aubigny Drain on PR 246 (Culvert Replacement) – project complete. Kronsgart Drain on PTH 75 (NBL & SBL) (Structure Replacement) – Ongoing project with scheduled completion in October 2020. Aux Marais River on PR 201 (Structure Replacement) – Ongoing project with scheduled completion in September 2020.
Water Quality	Manitoba Water Services Board	<ul style="list-style-type: none"> Manitoba has been improving its water and wastewater infrastructure to improve water quality and reduce emissions, particularly as wastewater by-products are being reused and circulated as biomass. 	<p>2019/20 budget increased to \$15.8 million, an increase of \$2 million, as part of a new capital plan that includes a total provincial commitment of \$75.5 million over five years.</p> <ul style="list-style-type: none"> Projects included: <ul style="list-style-type: none"> new water supply wells and distribution pumping upgrades in Virden the second phase of water plant process enhancements in Portage La Prairie water supply upgrades in Swan River investments in the Sinclair regional wastewater system in the R.M. of Pipestone

Keystone	Activity	Description	Results
Water Quality	North End Treatment Plant, Winnipeg	<ul style="list-style-type: none"> In December 2019, Manitoba required the City of Winnipeg to immediately submit an Environment Act licence compliance plan for the North End Water Pollution Control Centre. The licence compliance plan outlines a path to upgrading the treatment facility to improve water quality and reduce nutrient loading. 	<ul style="list-style-type: none"> The project steering committee is overseeing implementation of both an interim phosphorus reduction strategy, as well as implementation of the upgrades to meet the licence requirements.

3.2.4 Nature

The Nature Pillar focuses on upholding and enhancing our beautiful provincial parks system, so Manitoban families can enjoy a greater connection with nature, and ecotourism, protecting wild species and habitat to foster stronger natural growth of our unique Manitoba wildlife, and protecting our boreal forest. This is the same boreal forest that can continue to act as a carbon sink for emissions causing climate change. Key successes in 2018 and 2019 include establishing the Conservation Trust and major investments in provincial park assets.

Conservation Trust

[The Conservation Trust](#) provides funding for nature-based approaches to build resilience to climate change in Manitoba. Revenues from the trust fund an annual grant program managed by the [Manitoba Habitat Heritage Corporation](#). The trust has an endowment of \$102 million and will invest in projects annually and in perpetuity. In 2019, the trust generated \$4.3 million of interest to invest into projects. The trust supports Manitoba not-for-profit groups for actions in five areas:

- watersheds
- habitat and wildlife
- soil health
- innovation and conservation planning
- connecting people to nature

Last year, the program received 54 applications. Thirty-one Manitoba conservation organizations received funding, with 41 projects funded. A total of \$2.2 million in grants were awarded, which was matched by \$5.6 million contributed by grantees. The funding was awarded to projects in the watersheds, habitat and wildlife, connecting people to nature, and innovation and conservation planning categories.

The following are other examples of activities that have taken place in the Nature Pillar:

Keystone	Activity	Description	Results
Parks and Protected Areas	Manitoba Parks	<ul style="list-style-type: none"> Under Budget 2019, funding was made available for capital projects in the parks system for accessibility improvements, upgrades to park offices, shower facilities and other infrastructure and amenities. Well maintained parks, with modern facilities, are key to attracting visitors to the parks to allow for a high quality experience. 	<ul style="list-style-type: none"> 2019 investment totalled nearly \$10 million. Examples include: <ul style="list-style-type: none"> upgrades to the washroom and shower areas in the campground at Grand Beach Provincial Park, including four new accessible, gender-neutral showers and two accessible, gender-neutral washrooms installation of new pedestrian scale lighting along the Winnipeg Beach Seawall Promenade, in the Winnipeg Beach Provincial Park new campground offices in Assiniboine and Spruce Woods provincial parks
Parks and Protected Areas	Trails	<ul style="list-style-type: none"> Manitoba Parks has been working with multiple partners on developing and promoting new recreational trails across Manitoba. The operational funding provided to Trails Manitoba (TM) has been used to staff positions to manage the building of trail connections and promote trail use. A well-maintained and extensive trail system allows for more usage by park visitors and provides park users with more recreational options in provincial parks. 	<ul style="list-style-type: none"> Funding provided to Trails Manitoba in 2018/2019 and 2019/2020 was \$35 thousand per year. Numerous trails were maintained and developed, most notably the new multiuse trail in Grand Beach Provincial Park: Beach Ridge Winter Trails.
Parks and Protected Areas	Protected Areas Network	<ul style="list-style-type: none"> Manitoba's Protected Areas Network is a government program dedicated to working together with others to build a network of protected land, freshwater, and marine areas that contains the tremendous biological diversity and unique features found in Manitoba's varied landscapes. 	<ul style="list-style-type: none"> CFB Shilo was recognized as an "other effective area based conservation measure," adding 23,061 hectares to the network of protected and conserved areas in 2019. 787 hectares of Manitoba Habitat Heritage Corporation fee-simple lands were added in 2019. Skylake Wildlife Management Area was designated, adding 620.0 hectares to the network of protected and conserved areas in 2018.
Wild Species and Habitat	Aquatic Species at Risk	<ul style="list-style-type: none"> Lake Sturgeon and Bigmouth Buffalo are listed on the Status of Endangered Wildlife in Canada. These fish have historically inhabited the Assiniboine and Qu'Appelle river system. Fisheries staff are tracking movement of Lake Sturgeon and Bigmouth Buffalo within the Assiniboine River, to understand how this species uses this river and how it may adjust to altered water regimes under climate change. 	<p>2018/2019 investment: \$3 thousand 2019/2020 investment: \$3.5 thousand</p> <p>Fisheries staff undertook research, such as tracking, counting, etc., on these two fish species in these two rivers, to understand the effects of climate change and help recover these populations. This supports a strong recreational fishery and forms an important part of Manitoba's biodiversity.</p>
Wild Species and Habitat	Lake Winnipeg Quota Buy-Back Program	<ul style="list-style-type: none"> Manitoba implemented a multi-phase sustainability plan for the Lake Winnipeg commercial fishery that includes reducing overall quota to a level consistent with the estimated biological productivity of the lake. Reducing the amount of fish caught improves the sustainability of the commercial, angling and Indigenous fisheries on Lake Winnipeg. 	<p>Phase 1 of the quota buy-back was implemented in 2019 and included a \$5.4 million Lake Winnipeg quota buy-back program that purchased 520,000 kg of Individual Quota Entitlements (IQEs) from 89 commercial fishers for \$5.4 million. Also in 2019, Manitoba transferred \$4.5 million to the International Institute of Sustainable Development (IISD) to implement Phase 2 of the Lake Winnipeg quota buy-back program.</p>

Keystone	Activity	Description	Results
Forest and Natural Areas	Jack Pine Tree Assisted Migration Study	<ul style="list-style-type: none"> The study was initiated to explore the potential of jack pine provenances from warmer places (e.g., Wisconsin, Minnesota, and Ontario) to grow and survive north of their current range in southeastern Manitoba. As climate change warms Manitoba, trees from warmer climates may become more common in Manitoba and may present an additional afforestation opportunity. 	<p>2018/19 and 2019/20 investments totalled \$7 thousand.</p> <p>The vast majority of trees have survived, demonstrating Manitoba's ability to develop climate adaptable forests, in addition to sequestering carbon emissions.</p>

3.3 Government Leadership

Climate and Green Plan Implementation Office

The Climate and Green Plan Implementation Office (“the office”) was announced in January 2019. The office provides a whole of government approach to addressing climate change in Manitoba. The office is comprised of staff from across various government departments. By working within one organization, staff are better positioned to integrate climate policy and planning on a whole-of-government basis.

Low Carbon Government Office

The Low Carbon Government Office is part of the climate office and leads the provincial public sector initiatives to reduce GHG emissions in their daily operations. Low carbon government initiatives involve all aspects of government operations, including procurement of goods and services, and management of buildings, fleet vehicles and equipment, Crown lands, civil infrastructure, information and communication technologies and waste.

The Low Carbon Government Office collects and maintains the government’s energy portfolio, which helps reduce and track government emissions. It also led the paper reduction initiative. With funding from the internal [Transformation Capital Fund](#), core departments adopted printer technology that reduced paper consumption by 15 per cent and reduced annual printing costs by approximately \$320,000 (paper and toner only). From a climate mitigation perspective, the reduction of paper use represents a reduction of 235.4 tonnes of carbon dioxide equivalent.³

Light-duty Fleet Vehicle Rationalization

Manitoba’s [Vehicle and Equipment Management Agency](#) (VEMA) undertook a review of the light duty vehicle fleet and identified 465 underutilized cars and trucks for removal. Fuel consumption of the fleet subsequently dropped by an average of 19 per cent in the nine-month study, when compared to fuel consumption in same period of the previous year. The reduction of fuel consumed represents approximately 2,800 tonnes of avoided carbon dioxide equivalent emissions.⁴

Report on annual greenhouse gas emissions of departments and organizations

In July 2019, the Low Carbon Government Office conducted the first survey of GHG emissions from buildings, equipment and vehicles operated by Manitoba government departments only.

³ Environmental impact estimates were made using the Environmental Paper Network Paper Calculator Version 4.0. For more information visit [Paper Calculator 4.0 | Environmental Paper Network](#).

⁴ Emissions factor 2.3kg / litre of gasoline, source: Natural Resources Canada

**TABLE 1: Government Department Greenhouse Gas Emissions Survey for calendar years 2017 and 2018:
Based on departmental reporting for calendar years 2017 and 2018:**

GHG EMISSIONS REPORTED BY ALL DEPARTMENTS	BUILDING STATIONARY FUEL COMBUSTION EMISSIONS (tCO ₂ e)	VEHICLE/EQUIP TRANSPORTATION EMISSIONS (tCO ₂ e)	ANNUAL TOTAL GHG EMISSIONS (tCO ₂ e)
Calendar year 2017	36,199	35,711	71,910
Calendar year 2018	37,847	42,905	80,752

Green Buildings

New buildings developed by the Manitoba government are required to be energy efficient and green. In 2018 and 2019, nine provincially funded buildings achieved LEED certification at all levels, including the highest level: platinum. These projects represent the equivalent of 1,900 green jobs and a combined contribution of \$248 million to the provincial GDP.

Existing building upgrades under The Schools Capital Support Program 2019/20 undertook over 40 major mechanical, roof and envelope upgrades to existing school buildings across the province. This activity not only addressed critical, life-cycle maintenance needs of school buildings, but also reduced annual emissions from school buildings by an estimated 930 tonnes of carbon dioxide equivalent.

Partnerships

Manitoba recognizes the importance of working with partner organizations to achieve action on climate change. Manitoba has partnered with:

- [International Institute for Sustainable Development](#) is a globally recognized think tank that addresses sustainability challenges and provides in-depth and independent advice on the Climate and Green Plan implementation.
- Non-profit organizations in the province to extend our reach within Manitoba. Working with partners we are able to connect with more Manitobans, access the practical knowledge that resides in other organizations, and identify gaps in the current state of knowledge of climate change.

While working within the province is important to achieving action locally, Manitoba recognizes that working beyond our provincial and national borders is also vital. Within Canada, Manitoba is working with:

- Government of Canada: accessing funding programs to assist Manitoba to transition to a low carbon economy, including, for example, the [Low Carbon Economy Fund](#)
- Natural Resources Canada, Alberta and Saskatchewan: developing the Prairie Regional Adaptation Centre
- Saskatchewan: exporting Manitoba's clean, renewable hydro electricity to offset GHG emissions in that province
- Other jurisdictions and the federal government: developing a market for nature-based solutions and carbon offsets

Manitoba also participates in a number of transboundary boards and committees, intended to support cooperation on transboundary water management. These include:

- The [International Joint Commission](#) (IJC), which was created by Canada and the United States because *they recognized that each country is affected by the other's actions in lake and river systems along the border. The two countries cooperate to manage these waters and to protect them for the benefit of today's citizens and future generations. The IJC has two main responsibilities: approving projects that affect water levels and flows across the boundary and investigating transboundary issues and recommending solutions.*⁵
- Manitoba is also involved in several cross-jurisdictional, non-profit organizations working on water management issues, including:
 - [Red River Basin Commission](#)
 - [Assiniboine River Basin Initiative](#)
 - [Prairie Provinces Water Board](#)

⁵ Role of the IJC, <https://www.ijc.org/en/who/role>

Looking Forward

The Climate and Green Plan will work for Manitoba for many years ahead. Over the next year and beyond, some anticipated areas of focus include:

- **Renewable fuels mandates**
Manitoba has announced that it will increase provincial renewable fuels mandates in 2020. This increases blending requirements for ethanol, increasing from 8.5 per cent to 10 per cent, and renewable diesel, from 2 per cent to 5 per cent. In addition to positioning Manitoba as a leader in the use of renewable fuels in Canada, this move will assist the province to achieve its 1Mt emissions reduction target.
- **Energy strategy**
Manitoba is developing a new long-term energy strategy that responds to emerging trends in the energy sector locally, nationally and internationally. The strategy will consider electrification, decentralization and modernization/digitalization of the province's energy system. This will enable Manitoba to take an integrated and collaborative approach, bringing key departments and agencies together to support objectives outlined in the Climate and Green Plan.
- **New Mandate for Expert Advisory Council**
In January 2020, the Expert Advisory Council received a second mandate letter. The Council will provide advice and recommendations on a provincial strategy for green transportation and infrastructure, as well as a provincial water management strategy by June 2020.
- **Youth Advisory Council**
A subcommittee of the Expert Advisory Council, the inaugural Youth Advisory Council was struck in December 2019. This exciting group of young people will be meeting throughout 2020 and will be supporting the Expert Advisory Council with advice and recommendations from the youth perspective and representing the diversity of Manitoba youth.
- **Integrating Action**
To achieve the target under the first five-year Carbon Savings Account, Manitoba will continue developing its whole-of-government approach to climate change. The details of this integration and whole-of-economy plan will be further developed and modified in the months and years ahead, to meet the constantly changing environment we live in, with input from local and international experts.
- **International Engagement**
Manitoba will engage nationally and internationally to pursue and develop offsets markets and recognition for nature-based solutions. Manitoba, with its significant land mass, has an opportunity to be a significant source of offsets in the future. Manitoba will engage to define these opportunities.
- **Low Carbon Government – Next Steps**
Manitoba will continue to drive greenhouse gas emissions and waste out of government operations with incentive programs and by improving the collection of operational data that will inform the development of new initiatives and enhance management practices. For example, Manitoba is leveraging new technology in fleet vehicles that provide data that informs further reductions in fuel consumption like addressing vehicle speed and excessive idling.

With a goal of making Manitoba Canada's cleanest, greenest and most climate resilient province, the Made-in-Manitoba Climate and Green Plan ensures that climate change is addressed in a manner that considers Manitoba's unique provincial circumstances, and that will deliver real and meaningful results into the future.

